# River Crossings

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## Note from MICRA Chairman

It has been a time of change for MICRA and its members. In January 2008, Jerry Rasmussen retired from the U.S. Fish and Wildlife Service. Jerry had been the MICRA Coordinator for nearly 20 years and served MICRA and large river ecosystem issues with great energy and commitment. Jerry, thanks from all of us who have worked with you and cherish our large river resources. Enjoy Retirement—Jerry!!

Greg Conover has been assigned as the new MICRA Coordinator. Greg has a background in large river issues, and has worked with both aquatic nuisance species and large river fish species issues. MICRA will be well served by Greg. Welcome to MICRA—Greg!!

Thanks to all who responded to the reader's survey included in the January/February 2008 issue of River Crossings. Your continued support for the newsletter was overwhelming and greatly appreciated by all MICRA members. We are now in the process of determining the best avenue for River Crossings continued publication in a timely and financially-responsible manner. In the future, you will be hearing more about River Crossings and new ideas to meet the communication needs of MICRA and its constituents. If you have suggestions, let me know.

MICRA's home office is now located in Marion, Illinois. Over the last few months Jerry and Greg have spent considerable time "house-cleaning and moving" MICRA, as well as keeping MICRA operational. We are now in a position to continue to tackle the real issues that are affecting large rivers and their ecosystems. Consequently, all of us are looking forward to a very productive future.

Thanks For Your Support. Feel Free To Contact Me If You Have Ideas, Questions, Or Concerns.

Chris O'Bara
MICRA Chairman


***Images of snakehead (top) and bowfin (bottom). USGS and USFWS images, respectively.***

## Northern Snakehead in Arkansas

Arkansas Game and Fish Commission (AGFC) biologists confirmed the presence of a breeding population of northern snakehead fish (Channa argus) in Piney Creek (eastern Arkansas) in late April. Piney Creek drains into Big Creek, which then flows into the White River on the White River National Wildlife Refuge. Resource managers throughout the Mississippi River Basin are concerned that the northern snakehead population in Piney Creek watershed has an unobstructed path to the Mississippi River via the White River. The AGFC is "cautiously optimistic" that the snake heads have not entered Big Creek and is planning a large scale eradication effort this winter.

Snakeheads (family Channidae) are air-breathing freshwater fishes native to Asia, Malaysia, Indonesia and tropical Africa where they are prized as a delicacy. The 29 separate snakehead species are all highly predatory as adults, and

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some species can reach lengths of 6 ft. The northern snakehead is similar in appearance to the bowfin, which is native to most of the Mississippi River Basin (see accompanying photos). The snakehead thrives in slow, murky waters such as those found in Mississippi River backwaters. Although most snakehead species are limited to warmer waters, some can survive in colder climates. Of particular concern in the wild is the snakehead's eventual impact on valuable black bass, crappie, bream and catfish resources

The first snakehead collected in the continental U.S. was found in California in 1997, a second in Florida in 2000 and another in Maryland in 2002. More recently, they have been documented from Wisconsin, Maine, Connecticut, Rhode Island, and North Carolina. Most of these collections, such as the one in Wisconsin, have been limited to a single individual rather than a population.

Most often invasive fish find their way to the wild through release by an aquarist who has a single specimen that has outgrown available aquarium space. But the major concern in this instance is the presence of a breeding population. Establishment of a breeding population requires release of at least one male and one female of a species, but most often occurs when several individuals are released either through a major accident or intentionally by someone who carelessly discards unwanted stock.

In this case, the Arkansas snakeheads were first reported by a Lee County farmer who found an unusual fish wiggling along a gravel farm road near a ditch. He contacted the AGFC regional office in Brinkley and fisheries management biologist Lee Holt identified the fish as the invasive northern snakehead. Farmers reported additional sightings near an irrigation pump and AGFC personnel quickly killed the fish with rotenone (a poison that suffocates the fish). Further observation confirmed the presence of a breeding population, and over the last few months AGFC fisheries biologists have been working to establish how far the population has spread and how it might be controlled.

"This is some of the worst news we could get as fisheries biologists," said Mark Oliver, assistant chief of fisheries for the AGFC. "We can see looking in their stomachs that they'll eat everything that's out there. They're eating crayfish and bream, and they'll kill fish just because of the competition factor." "We found several year classes of fish in the area, meaning they had been there for a while," said Lindsey Lewis, a fisheries biologist with the U.S. Fish and Wildlife Service (FWS) in Conway, AR.

Biologists from numerous organizations, including the AGFC, the FWS, Arkansas State University in Jonesboro, the University of Arkansas at Little Rock and the U.S. Geological Survey conducted a wide search across four counties — Lee, Monroe, St. Francis and Phillips — early this summer. In all, more than 40 people searched both public and private water bodies using electrofishing boats to shock up live fish and rotenone to kill all of the fish in small sections of ponds and ditches. "We got a lot of cooperation from a lot of people," Lewis said. "A lot of folks were willing to search, and a lot of landowners were willing to give us access to their properties.

The adult snakeheads that turned up during the search were found "just north or just south" of the original site, according to Lewis. One of the fish was actually found guarding a school of recently hatched snakehead fry. "Snakeheads guard their fry just like a lot of our native fish," Lewis said. "We saw the big cloud of fry first, and then we saw the adult fish guarding them. We moved in with the electrofishing boat and caught that fish immediately." Outside the Piney Creek watershed, the search teams found no snakeheads, but they did find just about everything else. So far, more than 100 snakeheads have been collected from the Piney Creek drainage. These included at least three individuals measuring 20, 17 and 14 inches in length. All of those fish were killed, and any further snakeheads found in the area will also be destroyed.

Even though no snakeheads were found outside Piney Creek, AGFC officials are asking people to remain on the lookout for the invasive fish across the state. Officials are also reminding people that it's illegal to possess or transport snakeheads. "If somebody finds one, they just need to call us," Holt said. "We need to know when and where these fish are found, so we can look into it."

"Unfortunately, all these creeks (in the Piney Creek drainage) are way out of their normal


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borders," Oliver said. "Once they're (the snakeheads) out in the streams, there's no way to do anything about them. The water's too cool to rotenone them, and there's too many places for us to miss them." "Their abilities to live in extremely poor water conditions and reproduce quickly make them a difficult target to completely eliminate," Oliver said.

Mike Freeze of Keo, AR (a fish farmer who served on the AGFC Commission from 1999-2006), said the northern snakeheads originally came to Arkansas in 2000 by way of *Jack Dunn's Fish Farm* in Monroe. Dunn, who died last February, intended to raise the fish commercially. But Freeze said that Andy Goodwin, professor of aquaculture at the University of Arkansas-Pine Bluff, advised Dunn to exterminate them. "Dr. Goodwin called and said the FWS was probably going to list the northern snakehead as injurious in a couple of years," Freeze said. "He said you really don't want to be raising them." Then on 10/4/02, the FWS did add all snakehead species to the list of injurious fish under the federal Lacey Act. That action made it illegal to import snakeheads into the U.S. or to transport them across state lines. Arkansas then banned possession of snakeheads that same year.

"Jack didn't break the law because there was no law to break at that time," Freeze said. "Jack told me he killed his." But Dunn is reported to have removed the snakeheads from his ponds with seines, and then dumped them on his levees. Unfortunately, snakeheads can live for several hours out of water and even crawl or wiggle their way back to the water. "Some of them must have flopped down the levee and gotten in the drainage ditch," Freeze said.. "The worst case is that they'll continue to spread, and they'll be another fish we're going to have to deal with, and there will be ecological impacts that we can't see." If the snakeheads found their way into the creek in this manner, it seems likely to us that some of them may also have wiggled their way back into Dunn's own fish ponds!

John Odenkirk with the Virginia Department of Game and Inland Fisheries has worked with snakeheads since their discovery in the Potomac River in 2004. "Right now it's just too early to tell what sort of impact snakeheads may have on a fishery," he said. "But invasive species rarely provide many benefits to systems where they are introduced. By the time the damage is seen, it can be too late to control." Oliver said that the sooner the AGFC knows about a population of invasive species, the better the chances for controlling their spread.

AGFC biologists are planning a large-scale fish eradication in the Piney Creek drainage in Monroe and Lee counties, and the AGFC has approved $400,000 for the operation. Biologists are concerned that if left untreated the snakehead infestation could reach the White River National Wildlife Refuge as well as the lower Mississippi River. The eradication attempt will use rotenone which will kill all fish species, not just snakeheads. Unfortunately complete eradication of all fish species is the only method that provides any hope of getting rid of the snakeheads entirely. But even then, because of the snakeheads' ability to survive in stagnant water and the difficulty of delivering the rotenone to all nooks and crannies of the subject aquatic environment, complete eradication is questionable.

AGFC and FWS personnel will use both ground and air crews to treat the area over at least a two week period in March 2009. During this time, only personnel from the AGFC and its partner agencies involved in the effort will be allowed in the treatment area. The attempted eradication will be staged in three phases.

Phase I, originally planned to be conducted between September 29 and October 18, had to be postponed until March due to inclement weather and field conditions. It was decided that water would not be treated when Big Creek flows exceed 50 cfs, as they did this fall. The proposed treatment is to include both aerial and ground application of up to 24,000 pounds of powdered rotenone and 3,000 gallons of liquid rotenone in both Big Creek and Little Piney Creek, as well as in their tributaries and ditches. The estimated treatment coverage is up to 4,000 acres, depending on the amount of water present in Piney Creek. Aerial application will be made by FWS helicopter crews using liquid rotenone in ditches, tributaries ponds, and lakes without tree canopies. The FWS prepared an Environmental Assessment to evaluate the potential impact of their role in the project, and allowed for public comment between August 22 and September 22. The FWS will provide about $150,000 of in-kind assistance to the effort.

Phase II will rapidly assess the success of the treatment, and retreatment will be conducted in areas where incomplete kills are suspected. This phase will begin immediately after the treatment phase and should conclude within 30-45 days of treatment. Assessment crews will determine the success of the kill by sampling for fish and looking for snakeheads. Areas with live fish may then be retreated with liquid or powdered rotenone.

During Phase III Big Creek and Little Piney Creek will be stocked with largemouth bass, bluegill, and channel catfish. Stocking may begin immediately following Phase II and proceed through the summer of 2009. Stocking locations will be determined by availability of access, but attempts will be made to stock fish throughout the treatment area. During the long-term assessment phase, the Big Creek drainage will be monitored for northern snakeheads and colonization of the treatment area by fish and other aquatic life. Long-term monitoring will begin in 2009 and continue until it's no longer necessary.

Beyond the cost of eradication and the potential impacts on native species and ecology, there is a major concern among Arkansas fish farmers about the impact on the marketplace for Arkansas-reared bait and ornamental fish. Dr. Goodwin at the University of Arkansas-Pine Bluff said the snakehead is of great concern to wildlife regulators in the northern U.S., where many of Arkansas' bait and ornamental fish are shipped. "When you associate the word 'snakehead' and Arkansas and then live fish coming out of here — baitfish that are going to go into natural bodies of water as bait — a lot of people start connecting dots, assuming that all three go hand in hand," said Eric Park, president of the *Arkansas Bait and Ornamental Fish Growers Association*. "We don't even want somebody to make those connections by accident... and all of a sudden shut us out of markets," he said. "That was the whole impetus for the (Arkansas) certification program, to allay the fears of other states' regulatory agencies."

Arkansas, the No. 1 baitfish producer, sold more than $20 million worth of baitfish in 2005, according to the 2005 Census of Aquaculture. Wild baitfish producers are the state's major competitors. Twelve of the state's bait and ornamental fish farms, with a total of more than 12,000 water-surface acres, currently are certified through the state's voluntary program, which is administered by the state Plant Board. These farms account for a majority of Arkansas' baitfish acreage, Park said. The voluntary certification program, which was launched in 2007, is designed to give Arkansas bait and ornamental fish farmers a marketing edge and ensure that they can ship their live product across state lines, even during disease outbreaks or quarantines. To qualify, a farm currently must test negative for four serious fish diseases and be found free of 11 aquatic nuisance species: eight animals and three plants. Disease inspections must be conducted each spring and fall, and nuisance species inspections are done every summer.

Beyond those safeguards, anglers and consumers need also to be educated on the risks of spreading invasive species through the use of live bait. They should demand that bait suppliers ensure that fish are not purchased and brought into their state from areas known to be infested with snakeheads or other invasive species such as Asian carp. Through informed and proactive anglers and consumers, the pressures of the marketplace could thus be the best tool we have to control the spread of unwanted invasives! Also, one of the best things anglers can do to prevent snakeheads and other exotic animals from entering public waters is to dispose of live bait properly. Unused bait should be placed in trash bags and deposited in trash receptacles away from water. Never release unused bait — whether fish, worms, crayfish or anything else — into lakes or streams.

But there is one group, called the *Snakehead Angling Society* (SAS), who probably doesn't want to rid the country of snakeheads. The SAS is dedicated to promoting the sport of snakehead angling in a professional way, and is made up of world wide anglers who are joining to share information and experience to promote it. The group, which apparently includes Potomac River bass guide Steve Chaconas of National Bass (http://www.nationalbass.com/), has even developed a Web Site called SnakeheadPro.com. Chaconas, who has hooked into a 14 pounder, recommends big black lures to catch snakehead. He also recommends going into the backwaters of creeks and throwing topwater/shallow diving crank baits, weedless frogs and tubes to catch the snakehead.

Fishermen and citizens are not advised to join SAS or to promote snakeheads. Instead anglers should destroy any catches they might make and report them or sightings to their local conservation or natural resources office for eradication. As noted above, the snakehead is listed on the federal list of injurious species which makes it illegal to import or to transport across state lines.

The bottom line is that unless the AGFC is able to control the snakehead in Arkansas, the species has the potential to spread to other locations and to eventually invade the entire Mississippi River Basin. The latter has been the experience we've had with the bighead and silver carp.

For more information about the northern snakehead, visit invasivespeciesinfo.gov/aquatics/snakehead.shtml. For more about other invasive aquatic species, visit invasivespeciesinfo.gov/aquatics/main.shtml.

Sources: *Congressional Sportsmen's Foundation*, 5/6/08; *ESPN.com*, 5/6/08; *AGFC News Release*, AGFC.com; Bryan Hendricks, *Arkansas Democrat-Gazette*, 4/30/08; *Missouri Department of Conservation*, 8/4/08; Bryan Brasher, *Memphis Commercial Appeal*, 6/15/08; Michelle Hillen, *Arkansas Democrat Gazette*, 6/16/08; Robert Montgomery, *Bass Times*, 6/17/08; Mindy Honey, *Branson (MO) Daily News*, 8/19/08; Peter Applebome, *New York Times*, 8/6/08; Nancy Cole, *Arkansas Democrat Gazette*, 8/22/08; *KARK 4 News*, 8/22/08; *SnakeheadPro.com*, http://www.snakeheadproshop.com/index.asp

## Catfish Farms in Trouble

Catfish farmers across the South, unable to cope with the soaring cost of corn and soybean based feeds, are draining their ponds. "It's a dead business," said John Dillard, who pioneered the commercial farming of catfish in the late 1960s. Last year *Dillard & Company* raised 11 million fish. Next year it will raise none, and its 55 employees will be gone.

Corn and soybeans have nearly tripled in price in the last two years, and feed costs are now more than half the total cost of raising fish. Keith King, president of *Dillard & Company*, calculates that for every dollar the company spends raising its fish, it gets back only 75 cents when they go to market. "What's happening to this industry is sad, but being sentimental won't pay the light bill," King said.

Dillard and other growers take their fish to *Consolidated Catfish Producers* in the hamlet of Isola, where workers run the machinery that slices them into fillets. With fewer fish coming in, *Consolidated Catfish* is also feeling the pinch. One hundred employees were let go in June, and an additional 200 will be cut soon. President Dick Stevens predicts that by the end of the year the company will have jobs for only 450, about half the number at its peak. That might not be enough to keep the plant open. "The industry is going to implode," Mr. Stevens said. He blamed the government's ethanol mandates for making fuel compete with food for the harvest of the nation's farmland. "Politicians were in a rush to do something, and it became a terrible snowball."

Some catfish producers recently switched to a feed based on gluten, a cheaper derivative of corn, to reduce their costs. But corn gluten transportation and prices were particularly hard hit by the Midwest floods this spring. "As sick as we were over what happened to the Iowa farmers, we were also sick over what was going to happen to us," Stevens said.

Dillard, whose operation at its peak was one of the country's five biggest catfish companies, came to the delta 50 years ago to farm cotton. He put in some catfish ponds a decade later almost on a whim. Other farmers had the same idea. At first the ponds were put on soil too dry for cotton. When they proved a better crop, they took over cotton ground, too, and for a long time, everyone made money. In 2005, according to the Agriculture Department, catfish farming was a $462 million industry, far exceeding any other American farm-raised fish. The industry employed more than 10,000 people at its peak, almost all in Mississippi, Alabama, Louisiana and Arkansas.

Times were too good, perhaps. "We didn't focus on the market or on the product," said Stevens. The industry's decline accelerated when producers from Vietnam and China flooded the domestic market, putting a ceiling on prices. And then efforts by American producers to portray the imports as unclean and potentially unsafe failed. This negative campaign did achieve a measure of vindication last summer when the Food and Drug Administration announced broader import controls on Chinese seafood, including catfish, saying tests had shown the fish were contaminated with antimicrobial agents.

But rising feed prices were the final straw for *Dillard & Company*, which decided to close last January. Eighty of its 10- to 20-acre pools are empty already. An additional 170 will follow as soon as their fish are big enough to sell. "It's easy. You just pull the plug," King said, surveying a pool that was nearly dry.

It is unclear what can replace catfish as easily as catfish replaced cotton. "If we don't do something, there will be nothing but tumbleweed here," Jimmy Donahoo, a former catfish farmer, said. He, like others in the industry, thinks the producers should be supported by government subsidies, just like other farmers. But at *Dillard & Company*, they are not waiting for help. "You focus your resources where you can maximize your profits," King said. All the empty ponds will be planted with soybeans and corn, those two commodities for which there seems to be a boundless appetite.

Sources: David Streitfeld, *The New York Times*, 7/18/08 and *Greenwire*, 7/18/08

## Freshwater Species in Steep Decline

Nearly 40% of the fish species in North American freshwater streams, rivers and lakes are at risk, according to a new report by the U.S. Geological Survey (USGS). The report shows a sharp upward trajectory in the risk to freshwater fish from the last survey taken in 1989. The new survey — the third of its kind for the *American Fisheries Society's Endangered Species Committee* — listed 700 species as vulnerable, threatened or endangered — nearly twice as many as were included on the "imperiled" list in 1989.

The team of scientists from the U.S., Canada and Mexico who conducted the study for the USGS says it is the most detailed evaluation of freshwater fish in the last two decades. The new report, published in the journal *Fisheries*, found that 11% of fish have improved since the 1989 listing, and 89% have the same or worse status. Fish species are facing varied threats — including development, pollution and water scarcity — but could face even more challenging conditions in the future.

"Freshwater fish have continued to decline since the late 1970s, with the primary causes being habitat loss, dwindling range and introduction of non-native species," said Mark Myers, director of the USGS. "In addition, climate change may further affect these fish." The authors recommend improved public awareness and proactive management to protect and recover fish species. The federal government and regional fisheries councils manage ocean fish under the confines of the Magnuson-Stevens Fishery Management Act. But many of the freshwater fish listed in the report come under the authority of each state's fish and wildlife commission.

The most at-risk fish include tiny minnows in streams across the country and highly valuable salmon and trout in the Pacific Coast and Western mountains. More than half of salmon and trout species surveyed had at least one population or subspecies in trouble. The at-risk list also includes other popular game fish like the black bass, rock bass and striped bass. Hot spots with larger numbers of troubled fish include the southeastern United States, the mid-Pacific Coast and the lower Rio Grande. Researchers highlighted the Tennessee River system for its great deal of regional biodiversity and high levels of endangerment - 58 fish. River systems in the Mobile Bay feeding into the Gulf of Mexico from Alabama also have high numbers of at-risk fish - 57 species.

Sources: *Fisheries*, Vol. 33, No. 8 and Allison Winter, *Greenwire*, 9/10/08

## Extinction Faster Than Predicted

Species already listed as endangered may be racing toward extinction 100 times faster than originally thought, according to a new study led by the University of Colorado at Boulder. Author Brett Melbourne says today's extinction-risk models have drastically underestimated the speed at which endangered species will perish. "It's a mathematical misdiagnosis," said Melbourne, an assistant professor in ecology and evolutionary biology. "Our study is really a springboard for more detailed work," he said.

According to the study, current extinction models factor in only random, unavoidable acts — for instance, an animal being run over by a car — and external, random events, such as climate change or weather impacts that can affect birth and death rates. Melbourne says those calculations leave out important factors: the number of males versus females, and size and behavioral variations.

The study, published in early July in the journal *Nature*, immediately drew the interest of conservationists nationwide. "I think what they have done is provide a technical, important fix to help us build a better mathematical model for small populations," said Stuart Pimm, a conservation ecologist at Duke University. "It's important that these mathematical models recognize these factors," he added. But the revelation is apt to affect few of the 16,000 species worldwide currently listed by the *International Union for Conservation of Nature* (IUCN) as threatened with extinction. That's because most of the plants and animals on that list already exist in such small numbers that mathematical models predicting their extinction were not necessary.

Pimm said at least 99% of the species on the *2007 Red List of Threatened Species*, compiled by the IUCN, "are not based on mathematical models at all." But if Melbourne's work gains traction in the conservation field, it could lead to a dramatic expansion of the number of species added to that "red list." "There could be thousands of species that aren't on the list simply because their populations were large enough," Melbourne said. "It is quite important to go back to these species."

Sources: Steve Graff, *Denver Post*, 7/3/08 and *Greenwire*, 7/3/08

## Legal Challenges Expected Over Last Minute ESA Overhaul

Lawsuits are expected if the Bush administration proceeds with plans to eliminate some Endangered Species Act (ESA) scientific reviews for federal projects that could threaten imperiled species. Interior Secretary Dirk Kempthorne announced in mid August the planned regulatory overhaul, saying he would use administrative power to scale back some biological consultations that the law has required for more than 30 years. At issue are consultations with U.S. Fish and Wildlife Service (FWS) biologists on federal actions such as water permits or energy development plans. The new regulations would allow agencies to skip that process if they believe there would be little harm to a species.

"I think it is very likely that we would challenge these regulations if they are finalized," Noah Greenwald, science director for the *Center for Biological Diversity*, said. Environmentalists have prevailed in other lawsuits over previous federal attempts to sidestep ESA consultations. A federal judge threw out rules two years ago that sought to bring consultation for pesticide approvals under the umbrella of the U.S. Environmental Protection Agency. And last spring, environmentalists won a 10-year battle to make the Federal Emergency Management Agency consult with biologists on the effects of flood insurance policies on Florida's Key deer. Agencies and private developers have complained that the consultations, which can take months or years to complete, slow them down. And federal agencies want their own employees to be able to make the final call on permits. But environmentalists say the consultations are a safety net for imperiled plants and animals.

"This would allow federal agencies to unilaterally decide whether they need to consult with the FWS, and one of the strengths of the ESA is that it is a caution light for federal agencies to think about their actions," said Bob Irvin, vice president for conservation at *Defenders of Wildlife*. "This allows them to ignore that caution light." But FWS chief Dale Hall said the changes would allow his agency to focus its efforts on the most potentially harmful projects, rather than conducting reviews of projects that pose little threat. For example, FWS personnel have to spend the same amount of time analyzing culverts intended to free up fish passage as they would on roads that would cut off streams, Hall said.

Under the new rules, individual agencies could decide to forgo a consultation with FWS but would still have to take responsibility if their projects do harm a protected species. "We have to have the ability to put our efforts where they're needed," Hall said. "This really says to the agencies, 'This law belongs to all of us. You're responsible to defend it.'" Kempthorne said he had received "encouragement from both sides of the aisle to see if we couldn't bring about steps that would make the ESA more effective."

But the proposal appears likely to become more fuel for the standoff between the Bush administration and Congress on species protection. Congressional Democrats blasted the proposal as a last-minute attempt to drastically change the law. "I am deeply troubled by this proposed rule, which gives federal agencies an unacceptable degree of discretion to decide whether or not to comply with the ESA," said House Natural Resources Chairman Nick Rahall (D/WV). "The administration is also attempting to adopt a new consultation process with very little time for the public to even be consulted. Eleventh-hour rulemakings rarely, if ever, lead to good government — this is not the type of legacy this Interior Department should be leaving for future generations." A Rahall aide said he requested a briefing on the proposal but did not receive one. On the Senate side, Environment and Public Works Chairwoman Barbara Boxer (D/CA) is planning a letter and an oversight hearing on the issue, according to an aide.

The ESA has been mired in controversy for years, and legislative efforts to overhaul the law have been deadlocked. The Bush administration has been considering changes to regulations ever since a Republican effort to rewrite the law failed to gain traction in the Senate three years ago, and some of the currently proposed rule changes mirror parts of that failed legislation. However, the changes are much narrower than those in an internal draft plan that leaked to the press last year. The administration eventually aborted that plan after it drew fire from Democrats and threats to eliminate funding.

Source: Allison Winter, *Greenwire*, 8/12/08

## Public Conservation Swapped for Private

The Bush administration is proceeding with a new program aimed at allowing federal agencies to swap private endangered-species conservation efforts for government ones. The U.S. Fish and Wildlife Service (FWS) published final guidance for the "recovery crediting" program in early August that would allow agencies to create conservation "banks" by paying private landowners to conserve species. In turn, agencies can draw offsets from that bank for activities on public land that could hurt species. Among the activities are military training exercises, oil and gas development and Army Corps of Engineers projects in wetlands.

Some environmentalists are concerned that the new policy could outsource conservation and undermine endangered species protection. They say the directives — first issued as draft guidance last year and finalized with few changes this year — are so vague that they could give agencies leeway to degrade good public habitat with little benefit from private land. "The guidance could lead to federal agencies abdicating their responsibilities on federal lands simply by purchasing credits on private lands," said Bob Irvin, vice president for conservation programs at *Defenders of Wildlife*.

Federal officials modeled the program on a pilot project at Fort Hood, TX, home to the largest known population of endangered golden-cheeked warblers. State and federal agencies funded habitat conservation projects on more than 7,000 acres of private land near the base so the Army could conduct training exercises on federal habitat.

To participate in the proposed program, an agency would enroll private land in a conservation bank and have its projects approved by the FWS. Projects must provide a "net benefit" for species recovery. The "net benefit" requirement could set a potentially higher standard than the ESA's rules not to jeopardize species, the FWS says. "In the conservation sense, this is supposed to move the ball forward," said John Fay, a FWS biologist. "To use a banking analogy, they always have to keep a balance in the bank." But environmentalists are concerned that federal species protections might get lost in the new program. Private conservation efforts may be much harder to define and enforce than species protection on public lands, they say. "Providing for conservation on private lands is not a substitute for carrying out the special obligations federal agencies have for conservation of endangered species on federal lands," Irvin said.

Federal land automatically provides more protections for endangered species. The ESA requires agencies to consult with the FWS to ensure their actions do not jeopardize listed species or harm critical habitat. Private landowners, on the other hand, have a slightly lower standard. They cannot harass or kill protected species, but they do not have to consult with the FWS or address critical habitat. "I think the general premise of lessening conservation standards on federal lands is a problem," said Bill Snape, an attorney with the *Center for Biological Diversity*. "If endangered species are using federal land, it is pretty good habitat, but when you do one of these swaps, you are giving that away ... for a speculative private tradeoff."

But the program does not throw out ESA protections. To participate, a federal agency would have to consult with the FWS to set up its conservation banks. And the agencies would still have to go through ESA consultation for any activity that would degrade species habitat. The guidance sets general parameters for the program, but there is a long way to go before agencies start to implement it, the FWS says. Each agency would have to find its own funding to start a program and would have to work with the FWS to get approval for a project. Most of the interest so far is from the Defense Department, and "It could potentially go almost anywhere," Fay said. "But your guess is as good as mine as to whether it will end up an important tool in the toolbox, or whether Fort Hood is a one-off."

Source: Allison Winter, *Greenwire*, 8/5/08

## Potential Round Goby Control

Scientists at the U.S. Geological Survey (USGS) Upper Midwest Environmental Sciences Center in La Crosse, WI have found that certain chemicals may be useful in slowing the spread of the round goby, an invasive fish species that is threatening parts of the Great Lakes and Mississippi River Basin. When released near the bottom of a river or lake, two fish pesticides are effective in controlling this bottom-dwelling invader, particularly where dissolved oxygen is low, while leaving native species unharmed.

Researchers evaluated four currently registered fish pesticides [antimycin, rotenone, 3-trifluoromethyl-4-nitrophenol (TFM), and Bayluscide] for their toxicity and found round gobies to be sensitive to all four. But their level of sensitivity was similar to that of native fish species tested. However, further testing revealed that formulations of Bayluscide and antimycin released near the bottom of a body of water showed promise because round gobies did not react or appear to detect the presence of these chemicals.

"Selective removal of round gobies may be possible with bottom-release pesticides," said Theresa Schreier, lead author of this research, published in the *Journal of Great Lakes Research*. "This work shows the value of understanding how an invasive species differs from native populations in the way that it lives in an ecosystem and basing control measures on a unique vulnerability of the invader."

USGS scientists also evaluated the effect of dissolved oxygen concentrations on the chemical's toxicity to determine if a modification to the current design of the Illinois Waterway could be an effective tool in the management and control of round gobies. Round goby can withstand low dissolved oxygen concentrations, and during lab tests showed increased sensitivity to bottom-release fish pesticides at lower oxygen levels. Some portions of the Illinois Waterway have low oxygen levels and have to be mechanically aerated. So managers could explore the option of maintaining a low dissolved oxygen zone (anoxic barrier) that could be treated with selective fish pesticides to control congregations of the bottom-dwelling round goby.

Since 1990 the round goby has been following the path of the invasive zebra mussel spreading throughout the Great Lakes basin and into the interior of North America. First found in the St. Clair River near Detroit, the small fish was introduced most likely by the release of unregulated ballast water from transatlantic shipping. It is one of more than 180 non-indigenous organisms that have invaded the Great Lakes from Eurasia via ballast water, many of which cause ecological and economic consequences.

The round goby competes with native fish for spawning and foraging habitats, and if left unchecked the small species might have a big impact on the Great Lakes recreational and commercial fishing industry, which generates approximately $5 billion per year. As round gobies continue to spread down the Illinois Waterway connecting the Great Lakes to the Mississippi River basin, consequences are imminent on a larger scale.

The full article *"Effectiveness of Piscicides for Controlling Round Gobies (Neogobius melanostomus),"* is available from the author via email: tschreier@usgs.gov. The abstract is available online at: http://www.iaglr.org/

Source: *USGS News Release*, 9/2/08

## Call for Closing the St. Lawrence Seaway

Because of its role in spreading invasive species into the Great Lakes, a call has come from a coalition of environmentalists, hunters and anglers to temporarily close the St. Lawrence Seaway. The coalition, *Great Lakes United*, is urging the U.S. and Canadian governments to close the lucrative trade route until there is a law preventing commercial shippers from discharging invasives like zebra mussels and round gobies in their ballast water. The seaway, which opened to navigation in 1959, extends from the Atlantic Ocean to the head of the Great Lakes. But it also opened the door to invasion by hundreds of aquatic species carried in the ballast water of foreign ships.

***Round goby***

"These species are causing catastrophic and permanent damage to the Great Lakes," said Jennifer Nalbone, director of the group's invasives campaign. "Until these ocean vessels can demonstrate they're coming in clean, they don't belong here." The St. Lawrence Seaway is also the pathway through which the Mississippi River Basin was infested with zebra mussels, quagga mussels, round gobies, and water fleas to name a few of the Basin's foreign invaders. Once in the Great Lakes the invaders have access to the Mississippi River Basin via the Cal-Sag and Chicago Sanitary and Ship Canal which connects lake Michigan with the Illinois River.

A preliminary report from the University of Notre Dame's *Center for Aquatic Conservation* says invasive species could cost the Great Lakes region more than $200 million dollars a year in damages to commercial fishing, sports fishing and water supply. David Lodge, director of the Center, said those economic losses might be "the tip of the iceberg." And Nalbone cited a 2005 Grand Valley State University study that says banning ocean shipping on the Great Lakes would cost shippers only $54.9 million per year. Nalbone also said that Congress has dragged its feet on renewing the National Invasive Species Act, which has been up for reauthorization since 2002. "We've been debating new ballast water legislation going on six years now," she said. "Every year that legislation is delayed, new protections are delayed, and this means potentially more invasive species."

But Terry Johnson, who heads the U.S. Transportation Department's *Saint Lawrence Seaway Development Corporation*, said closing the passage would be "legally unfeasible, politically unrealistic and economically disastrous for the U.S. and Canada." A recent *National Academy of Sciences* (NAS) report asserts that, "Such an action clearly would not enhance the Great Lakes region's potential for global trade and appears impractical from a political perspective." The NAS study also notes that invasive species could still be transferred into the lakes through recreational boats, bait fishing and disposal from home aquariums even if the seaway were shut down.

Johnson said closing the seaway would damage trade, increase surface congestion and provoke negative environmental impacts. Routing goods through the seaway and the Great Lakes saves commercial shippers about $2.7 billion dollars per year in transportation and handling costs, according to a 2007 report by the U.S. and Canadian governments. Critics also say closing the seaway would increase greenhouse gas emissions by forcing shippers to use other, less efficient forms of transit.

But the NAS panel did recommend prohibiting ships that do not treat their ballast water from entering the Great Lakes instead of shutting down the seaway. Their report also urges the U.S. and Canada to adopt uniform standards aimed at keeping invasive species out of the lakes. Canada already has agreed to the standards proposed by the *International Maritime Organization*, which the NAS report recommends. The report also suggests the U.S. and Canada act together to implement binational surveillance measures to monitor the presence of aquatic invasive species.

Dennis Grinold, state affairs officer for the *Michigan Charter Boat Association*, said the 49-year-old seaway opened the door for exotics. The Great Lakes, he said, are "nothing like they were prior to the St. Lawrence Seaway." Habitat for lake trout is disappearing because the bottom of the lakes is clogged with quagga mussels, Grinold said. Officials have spent millions trying to restore the lake trout and eradicate sea lampreys and gobies, but to no avail. Grinold also suspects commercial ships may have brought the deadly fish disease viral hemorrhagic septicemia into the Great Lakes. The disease is thought to be

responsible for fish kills in a number of lakes. Symptoms include hemorrhaging, bulging eyes, anemia and bloated abdomens.

Fifty-five to 75% of invasive species entering the Great Lakes are introduced through ballast water. The most recent invader thought to come via ballast water is the New Zealand mud snail, an asexually reproducing invertebrate that measure only a few millimeters in length. The mud snail has been found in Lake Michigan, and has no natural predators because it can pass right through a fish gut undigested. Mudsnails multiply rapidly and could outcompete native invertebrates for food and habitat, said Kevin Cummings, of the Illinois Natural History Survey. "It's hard enough to contain a species once it makes its way into non-native waters," he said. "When each mud snail has the ability to produce large quantities of embryos without a partner, you've really got a problem."

The call for closure of the Seaway is just another symptom of the frustration and boiling point being reached by environmental and sportsmens groups over government inaction on this and other invasive species issues. The shipping industry, including the *U.S. Great Lakes Shipping Association*, has said it supports the idea of treating ballast tanks to kill potentially invasive species, but maintains there is currently no feasible way to do so. But others disagree, saying that something as simple as chlorinating ballast water would significantly reduce the invasive species problem. Cost of such treatment has been estimated to be as low as $400/ship/treatment — virtually nothing when compared to the price being paid for the uncontrolled spread of invasive species.

Sources: Katherine Boyle, *E&ENews PM*, 7/16/08; and Katherine Boyle, *Greenwire*, 8/6/08; David Mercer, *AP/St. Louis Post-Dispatch*, 8/15/08; and *Greenwire*, 8/15/08

## Stream Restoration Requires Research/Monitoring

Hundreds of stream restoration projects, with an estimated collective price tag of well over $1 billion, are being constructed around the country, but hydrologists and geologists say many of them are failing because their engineers lack a sufficient understanding of the watersheds they are hoping to restore and aren't paying enough attention to what happens after a project is finished. Now efforts are under way to bring more academic rigor to the business, and the *National Science Foundation* (NSF) is supporting construction of a large model streambed at St. Anthony Falls, MN on the Mississippi River in Minneapolis. The project is being constructed at the *National Center for Earth Surface Dynamics*, in cooperation with the University of Minnesota where researchers will be able to test their ideas.

Meanwhile, though, "an awful lot of stream restoration, if not the vast majority of it, has no empirical basis," said William E. Dietrich, a geomorphologist at the University of California, Berkeley, who studies rivers and streams. "It is being done intuitively, by looks, without strong evidence. The demand is in front of the knowledge," he said. Property owners and local and state agencies restore streams for many reasons, like repairing damage from bridge and dam construction or runoff from farms, subdivisions and parking lots. The damage is visible in reduced water quality, damage to habitats, declines in fish, reduced recreational and aesthetic value and other problems. And some projects use bulldozers to reshape waterways, while others rely on boulders, rock-filled metal baskets called gabions or concrete and other armor to hold rivers in place.

But unfortunately, "we have not done enough monitoring to know what works and what doesn't," said Chris Conrad, a USGS environmental engineer. "Most agencies want to spend the money making things happen and not spend the money finding out if they work," Dietrich said. David R. Montgomery, a geomorphologist at the University of Washington, agreed. Monitoring "involves a lot of people and thought and expertise," he said. "And you don't have any new projects to show for it."

As a result, the academic and government scientists said in their report, "Many opportunities to learn from successes and failures, and thus to improve future practice, are being lost." Nowadays, Montgomery said, most people agree that the best approach is to create landforms and water flows that streams can maintain naturally. "But how you translate that into action and at this stream rather than that stream really requires a lot of work to figure out," he said. With an ailing waterway, he said, "sometimes there's a clear line between the symptoms and the cause, and sometimes there's not."

***Aerial view of Weaver Bottoms backwater rehabilitation project on the Upper Mississippi River, a well monitored site developed in the 1980s.***

Often, Dietrich said, people design projects in hopes of creating "a meandering channel with relatively low banks that look nice." Then, he said, "a large storm can come through and completely wipe it out," leaving shallow channels travelling around sandbars in multiple threads, what geologists call a braided channel. "In most of those cases," he added, "the restorer has taken a system that is naturally braided and forced it into a form. The channel simply defeated it by being its natural dynamic self."

At other failed sites, restorers install boulders or other stabilizing armor only to see the water shift around it, leaving piles of rubble midstream. In the Pacific Northwest, people tried to improve stream flow by removing bank side logs and branches only to realize that the debris provided important fish habitat. "We are now spending millions of dollars to compensate for all the wood we took out earlier," Dietrich said.

In Pennsylvania, Dorothy Merritts and Robert Walter at Franklin & Marshall College in Lancaster say, efforts to restore stream flow by removing PA dams ignored not just the sediment piled up behind them, but also the original landscape, in many cases not meandering streambeds but swampy valleys over which shallow water flowed in sheets. After dams were built — as many as 8,000 in PA — water accumulated in millponds, and the sediment it carried settled to the bottom. When waterpower fell out of favor in the late 19th and early 20th centuries, the dams deteriorated until they failed or were removed. Freed to flow more swiftly, the streams began incising channels through the beds of silt where fine material eroded rapidly, sending tons of sediment — much of it carrying agricultural chemicals like nitrogen and phosphorous — downstream.

On one stream, a property owner had planted trees to stabilize the stream banks. But the trees had to send roots through almost five feet of accumulated sediment before reaching the water table, a feat most were

unable to accomplish before dying of thirst. So Merritts and Walter recommend simply removing the sediment and exposing the valley floor, as was done in a restoration project near Lititz, PA.

That project, financed by the State, working with *LandStudies Inc.* (LSI), a restoration concern, involved removing up to 25,000 to 30,000 $yds^3$ of silt, enough to fill thousands of dump trucks. Luckily, said Ward Oberholtzer, a partner in LSI, it was easy to dispose of because farmers love to spread it on their fields. And because there are no boulders or other armor involved, he said, "cost-wise we compete pretty well." When the work was done, a result was a shallow sheet of water moving over a graveled bed. The water was lined with native plants like sedges, vervain and verbena, sprouted from seeds buried under the silt for more than 100 years. One spot was deepened to create a cool refuge for fish.

But an approach that works in one place may fail in another. And some critics say restoration to some pristine ideal is simply impractical. Perhaps the most prominent is David L. Rosgen, a hydrologist who runs *Wildland Hydrology*, a consulting firm in Ft. Collins, CO, that designs restoration projects and offers courses on his restoration theories. "It is impossible to try to restore streams to some condition that was totally different, before we showed up, before we caused disequilibrium," he said in an interview.

Rosgen devised a system that classifies rivers and streams, and prescribes restoration remedies according to several qualities, including water flow, channel characteristics and sediment load, and takes into account how human activity affects the landscape. By now, he said, more than 14,000 people from state and federal agencies and conservation groups have taken his courses and many have used his ideas to good effect.

But he, too, has his critics. Montgomery called Rosgen's classification "a very clever system" but said it was wrong to think that "just by knowing what channel type you have you would know what to do." But there is not a great deal of other guidance out there. Some geologists point to a 1992 report by the *National Research Council*, the research arm of the *National Academy of Sciences*, that emphasizes understanding underlying natural conditions and the importance of monitoring. Among other agencies, the U.S. Fish and Wildlife Service cites the Rosgen system, as does the North Carolina State University Stream Restoration Program.

Overall, though, "The strategy is still largely a 'kick it and see' approach," Dietrich said. "We don't know whether any of this stuff that's being done is worth it." He said he hoped that better answers will emerge from the NSF supported research center in St. Anthony Falls. Scientists and engineers at the lab will use computers to model stream and river behavior, including sediment movement, channel and floodplain dynamics and dam removal. The lab is also working on what Dietrich described as "the first major, outdoor, to-scale experimental facility to do experiments on a large enough scale to figure out how to bring a scientific basis to stream restoration." This "outdoor streamlab" relies on bypasses once used to send river water around the falls, and researchers hope that it will let them try to build restoration projects "to the scale of small, real channels" and test the results, Dietrich said . Researchers are lining up to use it, and Dietrich said he hoped work at the lab and elsewhere would help make river and stream restoration "a predictive science — you do the following things, you get the following things." The problem is complex, he said, but the demand for answers is increasing. For scientists who study waterways, he said, "these are exciting times."

Sources: Cornelia Dean, *New York Times*, 6/24/08; and *Greenwire*, 6/21/08

## White Sturgeon Management Agreement

Environmentalists and government agencies have reached an agreement to help the endangered Kootenai River white sturgeon spawn for the first time since the 1970s when the Libby Dam was completed. The approximately 500 fish that live only in Montana, Idaho and British Columbia have been listed as endangered since 1994 because of operations of the Libby Dam, as well as water quality degradation and loss of habitat. The Kootenai sturgeon can grow up to be 19 feet in length and their population has been decreasing at an estimated rate of 9% per year. The fish require large spring river flows, low water temperatures and a gravel riverbed to spawn successfully.

***World record white sturgeon taken in 2005 in the Fraser River, Canada. The fish weighed over 1000 lbs. and measured 133 in. (http://www.fishing-worldrecords.com/ photo)***

The agreement among the *Center for Biological Diversity* (CBD), the Kootenai Tribe of Idaho, the state of Montana, the U.S. Fish and Wildlife Service (FWS), the U.S. Army Corps of Engineers (Corps) and the Bonneville Power Administration ends six years of litigation over efforts to save the largest freshwater fish in North America. The endangered Kootenai sturgeon are believed to have been isolated from other white sturgeon since the last Ice Age. "We hope this leads to recovery," said Noah Greenwald, science director for the CBD. "This historic agreement helps give the sturgeon a shot at survival."

The agreement will allow the Corps to continue operating Libby Dam flows in a way that mimics ideal conditions for sturgeon spawning. If those measures are unsuccessful, the agency will increase flows. In the longer term, the parties agreed to support a project intended to restore habitat so it is conducive to sturgeon recovery. The Kootenai Indian Tribe, with funding from the federal agencies, will carry out that project. "The sturgeon are central to Kootenai culture," said Kym Cooper, the Kootenai Tribe's vice chairwoman.

The most recent lawsuit, filed by the CBD and *Wild West Institute*, challenged the FWS's biological opinion regarding the effects of Libby Dam operations on the sturgeon. The other parties intervened in the lawsuit. "Montana will do all it can to protect our fish and people above and below Libby Dam," said Bruce Measure, who represents Montana on the *Northwest Power and Conservation Council*. In July, the federal government approved a plan to set aside more than 18 miles of the Kootenai River as critical habitat for white sturgeon. There are 24 species of sturgeon worldwide, and most are threatened with extinction.

Sources: *AP/Seattle Post-Intelligencer*, 9/2/08 and *Greenwire*, 9/3/08

## Cahaba River Dam Removal Success

Alabama's first dam removal to save aquatic life has succeeded at restoring native species populations. A concrete dam once used as a bridge by trucks

was removed in October 2004. Upon its removal scientists saw changes immediately, but this year's survey was especially eventful. "Where there were virtually no snails, now there are thousands," said Paul Freeman, a freshwater ecologist for *The Nature Conservancy of Alabama* who is coordinating the survey effort. The Cahaba is one of the richest rivers on the continent for snails, mussels and fish. In fact, scientists say Alabama's rivers are rivalled only by the Amazon basin or Asia's Mekong Delta in the number and diversity of animals living in them. But dams constructed up and down most of the state's large rivers in the last century killed millions of snails and mussels.

In the 1960s, a coal company built a six-foot-high concrete dam across the Cahaba near the Bibb-Shelby county line. Fish could not move upstream and a deep upstream pool made the area unsuitable for mussels and snails. The dam separated the lower 100 miles of the Cahaba from the 40-mile section that flows south from Birmingham. "The dam itself, the bridge itself, was certainly an impediment to fish movement and migration," Freeman said. "It disconnected the river and impeded or prevented the fish from getting to their historic spawning grounds, feeding grounds, upstream." Many of the moving fish carry with them young mussels, which spend the first weeks of their life as parasites on fish, much like ticks on a dog.

The mussels put out lures (flaps of tissue) designed to look like the target fish's favorite food. When the fish bites on the lure, eggs erupt and mussel larvae cling to the fish's gills. They drop off later as the fish swims around, allowing the mussel to distribute itself in the river system. "All the native freshwater mussels in the river are dependent on fish to complete their life cycle," Freeman said. But if the mussels are trapped in a reservoir too deep for the fish to see them or if the fish cannot get to them, the life cycle is broken.

Since the dam was removed, biologists have found seven federally protected snail species as well as more common species. That is important because it means the void isn't simply being filled by opportunistic or invasive species. Instead, animals seem to be filling in at rates that would be normal in other healthy sections of the river.

Scientists in this year's count found as many as 2,000 snails in a square meter, in areas where there had been none at worst or 100 at best. "We restored the river to its natural depth and velocity," Freeman said, "which is prime habitat for many of the rarest animals in the Cahaba." More than 131 species of fish and more than 75 species of freshwater mussels and snails have been observed in the Cahaba, including five fish and 11 mollusk species protected under the federal Endangered Species Act.

Sources: Katherine Bouma, *Birmingham News*, 6/24/08; *Greenwire*, 6/25/08

## Mountaintop Removal Impacts

Mountaintop removal mining is eliminating mayflies in the creeks downstream from large mining operations, according to a new a U.S. Environmental Protection Agency (EPA) study. The findings not only indicate mountaintop removal is harming aquatic life, but also show large-scale mining is damaging overall water quality downstream from valley fills. Two EPA experts drew this conclusion as they continued research started as part of a broad federal study of mountaintop removal prompted by a citizen lawsuit. "We collected more data at more sites and we continued to see this pattern, and at some sites, they are just not there," said Margaret Passmore, an EPA environmental scientist in Wheeling, WV.

Passmore wrote the study with Gregory Pond, an EPA aquatic biologist who also works out of Wheeling. Their work is published in the September issue of the peer-reviewed *Journal of the North American Benthological Society*. "While habitat degradation from mountaintop mining is what one sees on the surface, we found that chemical effects are quite pronounced and limit much of the expected biodiversity from what were once naturally rich, diverse Appalachian stream systems," Pond said in an EPA news release.

Mayflies are short-lived aquatic insects that are considered an important part of the food web. They are especially vital for fish such as trout, bass and catfish. When they mature in the spring, mayflies can make up 30 to 60% of individual insects in streams. Because of their numbers, and because they are very sensitive to pollution, they are good indicators of impacts on aquatic life and overall water quality, Passmore said. Randy Pomponio, director of the EPA's environmental innovations and assessments division, said, "Maggie and Greg assessed 49 streams in West Virginia to determine the effects of upstream mining activities on downstream benthic macroinvertebrate communities. They learned through their study that whole orders of benthic organisms were being eliminated in streams below mines, which indicates that aquatic life is being impaired."

Passmore was part of an EPA team that produced a key stream assessment used in the federal government's broad mountaintop removal study, published in 2005. That landmark 2005 study found a wide variety of environmental problems associated with mountaintop removal, but rather than use those findings to write tougher new rules, the Bush administration has moved to try to loosen regulation of mountaintop removal.
"These are very significant findings," said Joe Lovett, director of the *Appalachian Center for the Economy and the Environment*. "It's unfortunate that while agency scientists were collecting data showing the harm that these mines are causing, agency regulators were arguing that valley fills cause no harm."

Sources: Ken Ward Jr., *Charleston (WV) Gazette*, 6/12/08 and *Greenwire*, 6/13/08

## $400 million PA Mine Drainage Treatment Project

The PA state Department of Environmental Protection (DEP) has committed to spending almost a third of the $1.4 billion in federal mine funding it expects to receive in the next 15 years on abandoned mine drainage treatment projects. The late July announcement and its accompanying 28-page position statement mark a policy change by the DEP, which had previously said the money from the federal *Abandoned Mine Lands Fund* (AMLF), collected from coal sale royalties, would first be used to fix 5,100 of the most dangerous abandoned mine lands.

This means that more than $400 million would likely be available for cleanup of mine drainage that has polluted more than 4,600 miles of the state's streams and rivers. "The front page of the DEP position paper is a commitment to fund mine drainage treatment projects at the full 30% at the earliest possible time," said R. John Dawes, executive director of the *Foundation for Pennsylvania Watersheds*, which represents about 150 watershed organizations. "It reflects a coming together of the DEP and the watershed community in a remarkable partnership."

The AMLF was established in 1977 to fix the scars on the land left by unregulated mining. The fund was reauthorized in December 2006, due in part to the lobbying of watershed groups, and the maximum allocation for mine drainage treatment was increased from 10 to 30%. Pennsylvania received $28 million

from the federal fund this year, and expects that annual allocation to quickly increase to around $35 million in 2009, $60 million in 2010 and $90 million by 2018. DEP Secretary Kathleen McGinty said the state recently used $2 million of its federal funding to establish a new account for the long-term maintenance of more than 250 mine drainage treatment facilities already built in the state.

"The reauthorization of the (AMLF) will allow us to support the outstanding efforts of local watershed groups to build new treatment facilities that will bring dead streams back to life, and it will also ensure that we have sufficient resources to fund the long-term operation, maintenance and replacement of new and existing treatment facilities," said Ms. McGinty. According to the DEP, the systems built by the volunteer watershed groups using a mixture of federal, state and private funding treat an estimated 36 billion gallons of acid mine drainage each year. Operation, maintenance and replacement costs vary depending on the size of the system and the severity of the pollution discharges.

During the last five years, the state has also spent more than $145 million on 242 abandoned mine land reclamation projects covering 5,900 acres. But there remain approximately 180,000 acres of abandoned mines, many with dangerous unmarked mine openings, unstable "highwall" cliffs, water-filled pits, and abandoned equipment and buildings. Together, the mine-wasted land and water affect 44 of the state's 67 counties. Neil Weaver, a DEP spokesman, said the state remains committed to fixing the most dangerous of those abandoned mine sites, and some of the abandoned mine drainage project money could be used in tandem with those land projects.

"The 30% commitment is new but it's a balancing act," Weaver said. "It doesn't mean all that money will go to the watershed groups. We will make those decisions as the funding becomes available." The DEP policy paper said the current set-aside account for watershed projects contains $18 million, but the department has already committed to construction of four treatment facility projects that will restore many miles of rivers and streams in the Susaquehanna, Clearfield Creek and Blacklick Creek watersheds. The state's Bureau of Abandoned Mine Reclamation also has another 20 mine drainage abatement projects in design or development with construction costs estimated at more than $410 million.

Sources: Don Hopey, *Pittsburgh Post-Gazette*, 7/22/08 and *Greenwire*, 7/23/08

## Rivers at Record Lows in the Southern Appalachians

Exceptional drought conditions that threatened water supplies in metro Atlanta last summer are now gripping the southern Appalachians from Greenville, SC, to Asheville, NC. The U.S. Geological Survey said in mid July that the French Broad River at Asheville had reached its lowest level since 1895, when formal measurements began. The French Broad is a major headwater stream, tributary to the Tennessee River in the eastern Mississippi River Basin on the NC/TN border. The agency reported flows of 188 cubic feet per second, a 39% drop from one year ago and 13% below the river's last low-flow record, set in 2002. "It's shallow enough to wade across, probably ankle- to calf-deep in most places," said Jerad Bales, director of the agency's North Carolina *Water Science Center*. "I spoke to a guy up there yesterday. They have an annual raft race scheduled, and he's thinking it's going to be more like a raft-dragging race."

The latest data from the *National Drought Mitigation Center*, issued in early August, shows 16 western North Carolina counties are experiencing exceptional drought, the most severe conditions on the center's scale. In South Carolina, 15 upstate counties are experiencing exceptional drought, while Georgia's worst drought is now concentrated in the state's northeast corner. Record-low streamflows in North Carolina extend to the Yadkin, Catawba, and Broad river basins. Much of the rest of the state flows remain at half or less of normal conditions for this time of year, USGS said. But unlike metro Atlanta's water crisis, which last year threatened to drain the region's primary drinking water reservoir, Bales said Asheville's water supply remains in good shape, at least for now, and the city has not imposed water restrictions. But other, smaller cities in the region may face more difficulty maintaining supplies. "Communities that have intakes in the river or its tributaries are going to be in more trouble than those that have reservoirs," he said.

As conditions have grown worse, elected officials have responded in a variety of ways. North Carolina Gov. Mike Easley (D) in July signed a new state law giving state regulators more authority to allocate water resources and incentivizing local governments to address infrastructure problems such as leaky pipes. Under the measure, the state can exercise its authority to force local water systems to adopt and enforce conservation measures, and in situations of "extreme" or "exceptional" drought, regulators can require local water systems to implement more stringent water conservation measures if current measures are deemed insufficient.

In neighboring South Carolina, Agriculture Commissioner Hugh Weathers told *The Greenville News* that a federal disaster declaration could be forthcoming in the upstate counties, where farmers have been selling livestock because dry conditions have killed off forage crops. The *South Carolina Drought Response Committee* has declared five upstate counties to be under extreme drought conditions, with potential major impacts to agriculture, forestry resources, groundwater, streams and lakes. Two large metro areas, Greenville and Spartanburg, comprising roughly 1 million people, are within the extreme drought region. Gov. Mark Sanford (R) has called on residents "to take individual initiative to conserve water," but so far he has not imposed any mandatory measures.

Drought conditions like these, common in the West, are very uncommon in the Southeast and make one wonder if this is another sign of things to come with climate change.

Source: Daniel Cusick, *Greenwire*, 8/12/08

## VA Trout Streams in Trouble

Of the 500 or so trout streams in Virginia, about one-third have been affected seriously enough by water pollution that aquatic life has been harmed, researchers say. In about 50 of those, water quality is so poor that they support little or no trout or much aquatic life at all. The startling news is that the pollution that causes acid rain has abated significantly. The bad news is that the damage done in Virginia is long-term. "It can be fixed but not in our lifetime," said Rick Webb, a senior scientist at the University of Virginia (UVA). The 1990 Clean Air Act amendments have reduced acid deposits on land and water by half as of now, Webb said, and further tightening of the standards will cut the deposits in half again by 2020. "It's been a remarkable success," said Webb, project coordinator for the *Virginia Trout Stream Sensitivity* study that began in 1987 and the *Shenandoah Watershed* study that began in 1979. "Even with a demand for increase in electricity, sulfur emissions have gone down," he said. Acid rain — atmospheric acid deposition — has been a problem in Virginia since the 1970s, all from wind patterns that bring pollutants from coal-burning power plants in the Mid-

west.

Because of their elevation, Virginia's forested mountains catch most of the acid rain. And many of the state's trout streams have a limited capacity to neutralize the acid formed by nitrogen oxides and sulfur dioxide. While sulfur-dioxide emissions have decreased, Virginia is not seeing the recovery that has occurred in the Northeast, said UVA professor Jim Galloway, co-director of the two landmark studies. "Our soils retain atmospheric sulfur for a longer time. There is no quick fix," he said. The only quick fix is temporary. The St. Mary's River in Augusta County is healthy today but only because about 40 tons of lime are dumped into the river's headwaters about every five years, Webb said. "It will take decades — a century — for the water chemistry to become improved," said Gordon Olson, chief of natural and cultural resources at the Shenandoah National Park, through which about 100 cold-water streams tumble.

Scientists say that as streams, rivers, fish and aquatic life go, so goes the quality of life. "The ecosystem is a fabric, and it's all unraveling," Webb said. "If we lose wild places and what makes wild places wild, I think we'll suffer psychologically. "We have to be careful. We've done the damage. That doesn't mean we can't do more." To fight acid rain, Galloway said, pollutants must continue to be reduced and trout streams must continue to be monitored to document changes. The huge amount of data being collected from the streams is critical for informing policymakers, Webb said. "Keeping track of fundamental eco-conditions is something that an enlightened society should be doing routinely and without question," he said. "These stream systems are good indicators of what's going on in the ecosystem at large," Webb said.

Meanwhile, cold-water streams face other threats: nitrogen-oxide emissions, which come mostly from cars and trucks; runoff from poultry farming, which can pollute water; timber-harvesting practices, which can lead to silt runoff; and such pests as the woolly adelgid, which kill hemlocks that provide a cool canopy for the streams.

Sources: Carlos Santos, *Richmond Times-Dispatch*, 7/5/08, *Greenwire*, 7/10/08

## Trout Anglers Want Pelicans Culled

Tired of watching their favorite fish disappear into the deep beaks of pelicans, Idaho trout anglers are asking the state to take measures to cut pelican populations, including raiding nests to destroy pelican eggs. Islands created by the Blackfoot reservoir in eastern Idaho have created a predator-free space for pelicans to breed. And anglers say this pelican paradise is creating an unnaturally large population that takes too many hatchery-raised rainbow trout and native cutthroat trout, a species in decline. So the anglers are calling on state game managers to reduce the number of pelicans. Some have even threatened to release pigs or badgers on the islands to disrupt nesting.

But the state would need special permission from the U.S. Fish and Wildlife Service to take any action because the pelicans are protected by the Migratory Bird Treaty Act of 1918. And conservation groups say that permission should be denied but fear the Idaho Department of Game and Fish will favor anglers because it is partly funded by fishing licenses. The conservationists add that pelicans keep populations of non-game fish, such as carp and Utah chubs, in check, preserving ecological space for trout.

"I hate to see pelicans treated like vermin," said Chuck Trost, president of an *Idaho Audubon Society* chapter and retired Idaho State University biology professor. "Yes, you may be able to save some trout. But there are subtle things that can go on that I'm not sure that fishermen think about".

Sources: John Miller, *AP/Houston Chronicle*, 8/4/08; and *Greenwire*, 8/5/08

## Lawsuit Over Crop Subsidies on Public Lands

Environmentalists are suing the U.S. Forest Service over the agency's long-standing practice of subsidizing corn and soybean farming on the Land Between the Lakes (LBL) nature preserve in western KY and TN. For abiding by some restrictions and leaving 20% of what's planted in the field to feed wildlife, the farmers rent the land for $10 an acre in an area where other farmland leases for $78 to $99 an acre, according to the U.S. Forest Service and an agricultural economist. As such, two farmers have received at least $200,000 in federal subsidies since 2000 for cultivating more than 2,100 acres of land over a 235 $mi^2$ area between the Cumberland and Tennessee rivers.

The Forest Service has issued dozens of such permits for farming in national forests and national recreation areas. However, it appears only those in the LBL receive federal subsidies, according to multiple Freedom of Information Act requests to the nine U.S. Forest Service districts in a search of farm subsidies from 2000 through 2006 and interviews conducted by *The Associated Press*.

As a result, Oregon-based Forest Service *Employees for Environmental Ethics* (FSEEE) has filed papers in U.S. District Court in Paducah, KY, asking a judge to end the farmers' payments. The group's executive director, Andy Stahl, said it's the only forest system area that's been enrolled in the farm subsidy program — and he further contends it shouldn't be. Former LBL residents have been left feeling betrayed, saying some 5,000 families were forced off homesteads in the 1960s to create the national recreation area. Some of those farms had been passed down for more than 200 years. "If the government wants to pay farmers to plant the fields for the wildlife, so be it, but no one should make a dime off our sacrifice," said Carolyn Sue Bonds, who used to live in the area. "I had rather see the land covered in briars and saplings rather than a single ear of corn harvested and sold from that land."

Allison Stewart, a spokeswoman for the U.S. Forest Service in Washington, D.C., and Kathryn Harper, project director for the LBLNational Recreation Area, both declined to comment on the lawsuit.

When the land was seized, houses were torn down, and the town of Golden Pond was reduced to a rest stop. Fields became overgrown with plants, trees and natural flowers. Other than old family cemeteries, most signs of human habitation were removed. But government officials soon allowed farming to return. About 30 farmers secured permits to grow crops and harvest hay in the new recreation area. First, the Tennessee Valley Authority, which initially oversaw the area, granted the permits. Now farmers go through the Forest Service, which took over management of the LBL in the 1990s.

Kerry Underhill's family is one of five who still farm in the area. Underhill's family was among those run out of the area when

the federal government impounded the Tennessee and Cumberland rivers, creating two lakes that bounded the new LBL area to the east and west. Underhill, of Cadiz, KY, and Bobby Cunningham, of Dexter, KY, have permits to grow corn and soybeans in parts of the recreation area, while three other farmers have permits to mow fields and collect hay. The government pays the farmers for corn and soybeans to supplement their income and help manage commodity supplies. *Underhill Farms* has about 800 acres scattered across 30 miles in the LBL, with another 2,600 acres split among three hay farmers and Cunningham. Underhill said the land isn't terribly profitable — one field was a mix of cut corn stalks, chewed-up corn cobs and rocks — but farming it keeps the fields from being overgrown. "We survive, that's about it," said Underhill, who also receives subsidies for his family farm on private land. "If you're in farming to get rich, you're in the wrong occupation," he said.

Each year, the Forest Service bids five or six farming permits for the acreage, said Harper, the area's project manager. The corn and soybean fields provide food for wild animals, saving the Forest Service the costs of some food and mowing the fields. But Stahl, of FSEEE, said the fields should be allowed to grow naturally, so animals can eat native plants and bugs. "Don't we already have enough corn and soybean farms without one in a national recreation area?" Stahl asked.

David Nickell, a one-time resident of the area whose family cemetery is near the north entrance, said his family was told that farming would be banned among other commercial activities because it wouldn't fit the wilderness feel officials wanted there. Kara Spoon of Anaheim, CA, whose family lived in the LBL area for nearly 200 years, said the farming and subsidies appear to be another way for the government to commercialize the area. "It could be just another way for the government to go in and make money off the land they kicked my ancestors off of," Spoon said.

Sources: Brett Barrouquere, *AP/San Francisco Chronicle*, 7/1/08; and *Greenwire*, 7/1/08

## BOR Dam Security Criticized

A new government report prepared by the *National Research Council* of the *National Academies* for the U.S. Bureau of Reclamation (BOR) and released in mid August describes dam security as often "brittle and lacking in depth." The report says further that a terrorist attack on a major U.S. dam could bring devastation worse than that wreaked by Hurricane Katrina in New Orleans. It also paints a picture of chaos and confusion in the aftermath of a dam failure, with no one quite sure which local, state or federal agency would be in charge of the response. "The security program is not yet mature, well-integrated, or appropriately supported at all levels of the organization," the 110-page report concludes.

Although the report praises the BOR for making great strides in security since 2001, it found little evidence that the separate elements put in place have combined to create robust prevention and response. "The committee observed security gates and fencing that could be driven through by a relatively heavy truck and buildings and facilities that could be entered by scaling down nearby rock faces or by jumping fences to access unmonitored windows."

The BOR has primarily funded security by redirecting money from other programs, including dam safety and maintenance, the report says. "Reclamation is attempting to protect 450 facilities distributed across 17 states with fewer than 50 full-time equivalent positions, supplemented by service contractors who provide intelligence analysis and site security," the report says. It says further that some managers have adopted an "it won't happen here" attitude and do not support security measures. Bureau managers do not fully appreciate that the threat could come from an insider, such as a disgruntled employee, and do not have effective measures in place to prevent that, it adds. "For example, at one NCI (national critical infrastructure) site it was reported that contract workers had cut holes in fences so that they could bypass security checkpoints," the report says. "It was also reported that dynamite had been found on the site, apparently left by a contract worker."

BOR spokesman Dan DuBray said the agency had requested the report because it wanted an independent, scientific analysis to help boost the ongoing effort to improve security. "Clearly, the security and safety of facilities, of the public and of Reclamation employees is our No. 1 priority," DuBray said. The BOR has existing processes to incorporate the recommendations and already has acted on some, DuBray said. He said further that BOR has invested more than $84 million in security fortifications since 2001 and is spending $50 million in fiscal 2008.

BOR cannot directly hire its own law enforcement personnel but can hire security guards. With few exceptions, BOR relies on local law enforcement to provide a response to dam failures. "Currently, it is not within Reclamation's authority or responsibility to warn the public directly or to evacuate them in the event of an impending dam failure," the report notes. That arrangement is based on the premise that if a dam were in danger of failing due to heavy rains or a design flaw, there would be enough time to notify local authorities and evacuate people — which doesn't take into account sudden attacks. In the event of a security-related crisis, confusion would reign over who would be in charge, the report suggests. The coordination and transfer of authority among responders could be "extremely challenging," with "highly variable and convoluted procedures for making decisions."

BOR personnel questioned by the panel said the highest-ranking person on the scene would be in charge but didn't understand "who such people might be, where they might work (e.g., in a local, state, or federal agency), and what sorts of expertise they might possess." And some communications equipment was not inter-operable between federal, state and local law enforcement.

The report recommends that all potential responders to a dam failure train together and establish a clear chain of command. The report sharply criticizes the BOR's Denver-based Security, Safety and Law Enforcement (SSLE) Office, saying it has not been forthcoming with needed information for the regional offices and that it imposed measures with no consultation. "Although the SSLE's Denver-based staff may have the technical skills to carry out their job responsibilities, they have not in general displayed the communication, negotiation, and team-building skills needed for the sound working relationships that are critical to Reclamation," the report says.

Among other recommendations, the report says BOR should develop clear guidance on when lethal force could be used during a security incident, conduct security assessments more often than the three- to six-year time frame now in place and try to streamline the personal identity verification process for contractors and employees, which can take six to eight months for one individual.

Source: Noelle Straub, *Greenwire*, 8/19/08

## Climate Change Update

Fourteen million years ago, Antarctica's climate was mild enough to support moss, in-

sects and other small life forms, according to scientists who have discovered animal remains in areas that are now totally barren. The continent was once similar to the Alaskan tundra, cold but capable of supporting life, according to North Dakota State University geoscientist Adam Lewis, whose findings are published in the journal *Proceedings of the National Academy of Sciences*. Lewis said the research was a warning about the effects of climate change. The Earth has been cooling for 50 million years, he said. "As it cools it crosses thresholds. This is one, when Antarctica became permanently frozen and locked up. "You have to understand where these thresholds are," he added, "because, if human beings are unfortunate enough to push climate over one of these thresholds, it could be a total catastrophe".

Speaking of major changes, scientists at the *National Snow and Ice Data Center* (NSIDC) say strong, southerly winds from the North Slope have devoured a huge swath of Arctic ice larger than the state of Texas in the heart of the Beaufort Sea. In fact, daily satellite images relayed to the NSIDC headquarters in Boulder, CO, indicate the Northwest Passage is ice-free as far east of Alaska as Amundsen Gulf, about 600 miles east of the Alaska-Canada border. All that remains to clear is a plug of ice that blocks the preferred northern sea route between Banks and Cornwallis islands, according to NSIDC senior research scientist Mark Serreze. "But we're seeing signs that the ice concentration is dropping there now," Serreze said in early August. "That plug could very well melt out in the next few weeks."

Ice in the Arctic historically melts each summer until the middle of September. From 1996 to 2005, that summer minimum fell from a total of about 3 million to 2.1 million $mi^2$ of ice — a reduction roughly about a third the size of the continguous U.S.. The old multi-year ice this year is thinner than researchers expected, possibly because its underside is melting faster than it used to, or because south-flowing currents are flushing some of the ice into the Atlantic, according to an analysis posted on the NSIDC Web site. But the first-year ice is slightly thicker than expected, possibly because a lack of insulating snow cover last winter failed to protect it from the effect of deep freezing. In any event, the North Pole is still covered in ice, but the Beaufort Sea's broad expanse of open water far surpasses the ice-free zone that prevailed there last summer when Arctic ice overall plummeted to a record low.

In the Canadian Arctic, the Markham Ice Shelf, a 19 $mi^2$ ice block broke from Ellesmere Island in August, scientists announced. "These substantial [ice loss] events underscore the rapidity of changes taking place in the Arctic," said Derek Mueller, an ice shelf specialist at Trent University in Ontario. "These changes are irreversible under the present climate and indicate that the environmental conditions that have kept these ice shelves in balance for thousands of years are no longer present." Cracks in other shelves mean the breaks are likely to continue, other scientists said. This summer, a total of 83 $mi^2$ of ice has been lost from the shelves along Ellesmere Island, more than three times the area of Manhattan Island and more than 10 times the amount predicted. In fact, the Arctic coastline has been whittled down from 3,475 $mi^2$ to less than 386 $mi^2$ over the past century.

Rising temperatures are melting glaciers at a quickening pace all around the world, including in the Himalayas and the adjacent Tibetan-Qinghai Plateau, which covers far northern India and western China. The United Nations' *Intergovernmental Panel on Climate Change* predicts that many of these glaciers could disappear by 2035, reducing some great rivers to seasonal streams. Lester Brown, founder of the *Earth Policy Institute* and a leading thinker on environmental sustainability says that if this happens water and grain supplies in India and China would shrink dramatically — and social unrest and political instability would follow. But that is not the whole story, Brown warns. Melting glaciers at the roof of the world could ultimately trickle down to rising grain and food prices in the U.S. The interesting thing, Brown says, is that in the early stages of melting glaciers, there is more water flow. The glacier is still fairly large, and the flow rate is accelerating. This creates a false sense of food security, because you have plenty of water. But that doesn't last very long. Once the flow begins to diminish, it can go very fast.

The other important thing to note is that these glaciers are melting at a time when underground water resources are shrinking as a result of aquifer depletion. These two sources of water shortages are beginning to kick in during the same time period. In fact, water tables have started falling everywhere in the world at more or less the same time because they're responding to the same forces — the explosion of population and the rise of incomes during the latter half of the last century. World population has doubled, and water use has tripled. We're now pushing against the limits in much of the world. Given China's vast investments in the U.S. economy, the reality is that they are our banker. And if our banker decides it wants to buy more of our grain, it's going to be difficult for us to say no. We export half of our wheat crop already, so food prices in the U.S. will go up.

On Lake Superior's Isle Royale the predator-prey relationship between moose and wolves has long been stable, but it may not be the case much longer as global warming hurts both populations. The island's single predator-single prey conditions make it an ideal laboratory for studying populations, and the results do not bode well for predator-prey balances in warming climates. Only 650 moose and 23 wolves were found on the 45-mile-long island this spring, among the lowest numbers since Purdue University researchers began tracking the species in 1958. Moose thrive in cold boreal forests, but when temperatures surpass 60 degrees their heart and perspiration rates increase. While the initial glut of weakened moose could be to the wolves' advantage, a long-term decline in the moose population could starve the wolf population into extinction, said the study's co-director John Vucetich. "Moose are creatures of the north country who like it cold. If it gets warmer, they won't fare well," Vucetich said. "Wolves will go extinct before moose do, and their extinction could definitely be caused by climate change".

Government scientists have also detailed a rising human death toll from heat waves, wildfires, disease and smog caused by global warming in an analysis the White House reportedly buried so it could avoid regulating greenhouse gases (GHGs). In a 149-page document released in mid July, the experts laid out for the first time the scientific case for the grave risks that global warming poses to people, and to the food, energy and water on which society depends. "Risk increases with increases in both the rate and magnitude of climate change," scientists at the U.S. Environmental Protection Agency (EPA) said. Global warming, they wrote, is "unequivocal" and humans are to blame for the relatively recent jump in temperatures. The document suggests that extreme weather events, diseases and allergies could kill more people as temperatures rise. "This document inescapably, unmistakably shows that global warming pollution not only threatens human health and welfare, but it is adversely impacting human health and welfare today," said Vickie Patton, deputy general counsel for the *Environmental Defense Fund*. "What this document demonstrates is that the imperative for action is now."

According to a climate model by Andreas

Sterl, a scientist at the *Royal Netherlands Meteorological Institute*, the heat waves of 2100 will dwarf those of today, rising even more quickly than average world temperatures. For example, Los Angeles will face 117 °F. Even by 2050, heat waves are expected to rise by 3 to 5 degrees, he said. But U.S. cities will not see the worst of it. Temperatures in Delhi, India, are expected to peak at 120 °F; Belem, Brazil, at 121 and Baghdad at 122. That is lethal heat, according to University of Wisconsin environmental health professor Jonathan Patz. "Extreme temperature puts a huge demand on the body, especially anyone with heart problems," he said. "The elderly are the most vulnerable because they don't sense temperature as well." Tens of thousands died during a 2003 European heat wave when the temperature in France hit 104 °F, and 600 died in Chicago when the heat there hit 106 °F in 1995.

Some beneficiaries of a warmer, more carbon-rich environment are the adaptable, voracious plants commonly classified as weeds. Researchers with the Department of Agriculture (USDA) have been experimenting in Baltimore with different weed species under increasing levels of carbon dioxide ($CO_2$). The urban environment is 3 to 4 degrees warmer than the surrounding countryside, with about 450 parts per million of $CO_2$, which is something like what climate models predict for average atmosphere in 30 to 50 years. Plots of weeds planted in the middle of the city grew many times faster than those planted on an organic farm, taking only five years to transition from low-lying shrub cover to larger trees. Crops are genetically less diverse, putting them at a comparative disadvantage in such a rapidly changing environment. Weeds like Canada thistle and quack grass are more resistant to herbicides under higher $CO_2$ levels and produce significantly more pollen — bad news for allergy sufferers. According to USDA weed ecologist Lewis Ziska, rising levels of $CO_2$ have already helped the Asian invasive cheatgrass overrun hundreds of acres of Western rangeland, crowding out the more nutritious native plants preferred by livestock and wildlife alike. Cheatgrass-dominated areas also undergo more frequent wildfires, which sweep through every three to five years.

The agricultural map of the U.S. will thus likely change as the globe continues warming. Within a few decades, Kentucky is expected to look like North Carolina, and then Louisiana by the end of the century. Weed management strategies will have to adapt, but Ziska sees it as an opportunity. Ferocious growers further empowered by more carbon in the air, like kudzu, could be used for biofuels. Hybridizing crops with weeds could make them stronger and more resilient. Developing this expertise in the U.S. would both protect domestic agriculture and prove a valuable export for other producers, Ziska said.

But the U.S. has done little to address global climate change, and the least to reduce $CO_2$ emissions among the world's eight biggest economies, according to a study released in early July by *Ecofys*, a Dutch consulting company, and commissioned by the *World Wildlife Fund* and insurer *Allianz SE*. The G-8 Climate Scorecards found that none of the G-8 nations is making big enough improvements to prevent temperature rises that scientists believe would cause catastrophic climate change. Britain ranked at the top of the list, while France and Germany came in close behind. "But all three countries are at best half as far along the road as they should be," a statement announcing the *Ecofys* study said. The study criticized low energy efficiency in the U.S. but said legislation under consideration by Congress and non-governmental initiatives provided hope.

Meanwhile, former World Bank chief economist Lord Nicholas Stern in early June announced that the world needs to spend 2% of its wealth tackling climate change. Stern caused an uproar in 2006 when he said nations needed to devote 1% of their gross domestic product to stop GHGs from rising to dangerous levels. Just two years later he says climate change is happening much faster than anticipated, and governments will need to spend at least twice as much to keep GHG concentrations in the atmosphere at safe levels. Stern warned change must happen quickly to keep the costs of tackling climate change from rising even higher. "All this depends on good policy and well functioning [carbon] markets," Stern said. "There are many ways to mess this up, many ways of acting to make it more costly".

In July the EPA finally revealed in a nearly 500 page document that it could use the Clean Air Act (CAA) to curb GHGs using climate-related permits for new power plants and other industrial facilities; a cap-and-trade program for limiting emissions across many economic sectors; and a nationwide limit on $CO_2$ akin to standards used for lead, carbon monoxide and other pollutants. But the report's prologue was written by eight senior-level Bush administration officials who made clear their distaste for EPA tackling climate regulation. White House *Council on Environmental Quality* chief James Connaughton, for one, blasted EPA's "kitchen sink approach" for not accounting for the benefits of the new energy bill that Bush signed last December. And EPA Administrator Stephen Johnson added that the CAA is "an outdated law ... ill-suited for the task of regulating global GHGs."

Vickie Patton, a senior attorney at *Environmental Defense Fund*, said the administration officials' views contrast sharply with those of EPA professionals who provide a detailed rundown of the science linking man-made emissions to global warming, as well as the regulatory chain reaction that could follow the EPA administrator's decision that GHGs threaten public health or welfare. "The inclusion of those letters had an unintended consequence," Patton said during a recent *American Bar Association* teleconference. "It really separated out EPA staff's dispassionate analysis from a very politically charged view."

Four union officials representing EPA staff said that agency chief Stephen Johnson stunned his staff by publicly opposing their proposals for regulating GHGs. In a letter, the union officials said Johnson undermined the work of EPA staff and damaged the agency's reputation of using "sound science and policy." "Their best efforts to do right by the law and sound science have been subverted by actions taken by or not taken by Johnson, our administrator," said Mark Coryell, president of the *American Federation of Government Employees* Local 3907 and one of the authors of the letter. Several EPA officials, who are not authorized to speak publicly about their work on the climate regulations, said in interviews the administration has unfairly criticized their work.

Roger Martella, who served as acting EPA general counsel from August 2006 until April, predicted the agency's work would be vital for future administrations and Congress to craft a U.S. response to global warming. "What I think you will find at the end of this process will be the climate change bible," Martella said. EPA's work on climate regulation dates to 1998, when the Clinton administration first considered addressing $CO_2$ emissions from power plants as part of a broad electricity restructuring plan.

But anti-regulation forces are shaping a national debate about curbing U.S. emissions of GHGs. For example, Barrett Duke, a well-known evangelical leader and vice president for public policy and research at The *Ethics and Religious Liberty Commission* in Nashville, expressed concern about the long reach of EPA's climate rules. "The devastating impact that would result from regulations touch-

ing everyday household items such as lawn mowers, trimmers, and power generators would hurt Americans in their daily lives," he wrote to EPA. "The impact on businesses would be catastrophic as well, encompassing everything from the buildings themselves down to the everyday equipment used in construction and in warehouses."

House Democratic leaders have also not been shy about their discomfort with EPA acting first on this issue. Rep. John Dingell (D/MI), chairman of the House Energy and Commerce Committee, has warned that EPA regulations could make a "glorious mess." And Dingell's top lieutenant, Rep. Rick Boucher (D/VA), said that EPA's efforts will be one of many make-or-break issues as lawmakers deal with the climate issue. Senate Environment and Public Works Chairwoman Barbara Boxer (D/CA) said she expected either presidential candidate — Democrat Barack Obama or Republican John McCain — to advance EPA climate regulations if elected to the White House. Under a Supreme Court mandate in *Massachusetts v. EPA*, they have to. But Boxer said she would prefer having Congress take on the issue. "It'd be much better if we had a bill," Boxer said. "We could do so much more than what EPA can do. We can do it in a better way."

In another new EPA report, limits on sprawling developments are recommended as critical to reducing heat-trapping GHG emissions as the U.S. population expands. Development in urban and suburban areas is expected to increase by at least 56% by 2100 and could expand as much as 156%, the draft says, leading to more asphalt and concrete and stress on watersheds affected by dirty stormwater runoff from the developed areas. Scientists say some areas will see stronger storms — and thus more runoff — as temperatures warm.

Numerous states in the arid Southwest could preserve vast quantities of water by using water-saving technologies and practices, according to a report released in August by *Environment America*. Arizona, Colorado, Nevada, New Mexico, Texas and Utah alone could conserve up to 1.86 trillion gallons of water per year — equivalent to quantities consumed in Nevada and New Mexico annually, the report says. "With these findings, we know that America can turn to efficiency first, rather than draining more water from our lakes and rivers," said Christy Leavitt, the coalition's clean water advocate. Water-saving technologies examined in the report include micro-irrigation, low-water landscaping and a shift to clean, less water-intensive energy sources. Those technologies could also be useful nationwide, the report notes.

Agriculture is responsible for about 70% of all water consumption in the six Southwestern states examined in the report. Improving efficiency could save up to 2.9 million acre-feet of water for the region each year, the study says. Homes account for about 15% of all water consumption in the Southwest. Using landscaping practices that require less water could cut usage by 2.7 million acre-feet per year, the report notes. Electricity generation answers for about 2% of all water consumption in the states looked at in the report. Energy efficiency measures at coal-fired power plants and a higher reliance on alternative energy could cut water withdrawals by 140,000 acre-feet each year, the study says. *Environment America* also encouraged cities to use financial incentives to spur businesses to save water. They use about 3% of all water consumed in the Southwest each year.

In Kentucky the state Geological Survey (KGS) and three energy companies have formed a partnership to address global warming by testing the storage of $CO_2$ permanently underground. The $7.8 million research project includes drilling a well to test geological formations, officials said. Private partners in the *Western Kentucky Carbon Storage Foundation* are *Peabody Energy*, *ConocoPhillips* and Louisville-based *E.On U.S.* Beth Sutton, *Peabody* spokeswoman said drilling would occur in Hancock County later this year, with the injection to occur early next year. The well will be more than 8,000 feet deep, Sutton said. "Proving the feasibility of carbon storage in deep saline reservoirs is important for Kentucky's future," said Jim Cobb, state geologist and director of the KGS.

A proposal in late August at a U.N. climate change meeting to include forests in the world carbon market may pit developing countries and the G8 nations against a coalition of environmental and human rights groups. The developing countries, which would be financially compensated for protecting forests from logging, and the G8 say the system simultaneously provides poor nations with a much-needed revenue source and prevents deforestation, which is responsible for 20% of global carbon emissions. But environmental and human rights groups say the proposal would trigger a land grab that would push indigenous people out of forests, transfer land to the upper-class in developing nations at the expense of poor land owners, and flood the global carbon market, undermining world prices. "It could crash the price of carbon and would mean the reduction of pollution in rich countries would become quite uneconomic," said Simon Counsell, director of the *Rainforest Foundation* in London.

Evolving policies and practices for addressing global warming will also present the forest products industry with great challenges and opportunities, a *World Resources Institute* report said in late June. While other challenges will be great, forests' potential as carbon offsets could make the industry a supplier of "ecosystem services" such as carbon storage, the report says. An emerging bioenergy market could also benefit the forest-products industry as bioenergy facilities look for biomass. But the report warns that growth in bioenergy could threaten the industry by becoming a competitor for raw materials.

Meanwhile in Alaska, the State as well as an industry group composed of the *American Petroleum Institute*, the *U.S. Chamber of Commerce*, the *National Mining Association*, the *National Association of Manufacturers* and the *American Iron and Steel Institute* have all sued Interior Secretary Dirk Kempthorne over the ESA listing of the polar bear. The polar bear was listed because of loss of habitat due to the diminishing ice floes in the Arctic, which is thought to be caused by global warming. But Alaska Gov. (and U.S. Vice Presidential candidate) Sarah Palin (R) and the others fear the listing would harm offshore oil and gas development in the Chukchi and Beaufort seas off the state's northern coast, the same waters where the only polar bears under U.S. jurisdiction reside. "We believe that the service's (U.S. Fish and Wildlife Service) decision to list the polar bear was not based on the best scientific and commercial data available," Palin said. The decision to list the bear was based on future threats to its habitat from climate change. Polar bears rely on sea ice to hunt, mate and make dens for their young. The U.S. Geological Survey says that shrinking sea ice could eliminate all of Alaska's bears in the next 50 years.

But while Americans continue to think global warming is the biggest environmental problem facing the world today, they don't feel as much so as they did a year ago according to a recent poll released by *ABC News*, *Planet Green* and Stanford University. The survey of 1,000 adults found that 25% placed climate change atop their list when asked an open-ended question about environmental concerns. That is an 8% drop from a similar poll conducted in April 2007, but still much higher than the 16% who responded with global warming when asked the same question in March 2006. *ABC News* pollster Gary Langer explained that the decline in concern over climate change came at the same time

that media attention shifted to the presidential election and the sluggish U.S. economy. He cited a database search of news stories about climate change that found 50% fewer articles on the topic in the month before the poll was taken, as compared with one month before the 2007 survey.

Overall, 80% of the people surveyed said they think global warming is "probably happening." Asked about specific events, 74% linked climate change to melting polar ice. Much smaller numbers associated global warming with Southeast Asian storms (50%), Midwestern floods (45%) and fires in the West (38%). Questioned about the climate policies of other major industrial countries, 68% said they would support the U.S. taking action on global warming even if other powerhouses like China and India did not do "equally effective things." Eighteen percent supported the U.S. taking action "only if other countries do." And 13% said the U.S. "should not take action at all." *ABC News* and its partners conducted the telephone survey between July 23 and 28. It has a sampling error of plus or minus 3 points.

Meanwhile, members of the *American Psychological Association* (APA) want to learn how people experience the environment and what barriers exist to green behavior, hoping to create a more eco-sensitive public. "We know how to change behaviors and attitudes," said APA President Alan Kazdin, a psychologist at Yale University. "We know what messages will work and what will not." Two studies, for example, have found that walking outside for just 15 minutes a day makes people feel more protective of the environment. Negative feedback about peoples' ecological footprints tends to undermine further green behavior. And news stories that include scientists skeptical of climate change reduced peoples' beliefs that humans were causing the problem — or that it was much of a problem at all. APA leaders say they want to launch a national initiative to change ecological behavior, with help from other organizations and congressional support so Eco-terms make it into the lexicon.

Sources: Randolph E. Schmid, *AP/Anchorage Daily News*, 8/5/08; George Bryson, *Anchorage Daily News*, 8/3/08; Jessica Leeder, *Toronto Globe and Mail*, 7/29/08; *AP/Los Angeles Times*, 8/21/08; Chris Merrill, *Casper (WY) Star-Tribune*, 6/5/08; Kari Lydersen, *Washington Post*, 7/21/08; *AP/MSNBC.com*, 7/2, 7/3, and 7/14/08; Tom Christopher, *New York Times Magazine*, 6/29/08; Jowit/Wintour, *London Guardian*, 6/6/08; Renee Schoof, *McClatchy Newspapers*, 8/4/08; *E&ENews PM*, 7/29/08; *AP/Anchorage Daily News*, 8/5/08; James Bruggers, *Louisville Courier-Journal*, 7/1/08; Sharon Jayson, *USA Today*, 8/14/08; Eric Berger, *Houston Chronicle*, 7/28/08; John Vidal, *London Guardian*, 8/21/08; Dina Cappiello, *AP*, 8/28/08; David Ljunggren, *Reuters*, 9/3/08; Michael Burnham, *Greenwire* 7/8/08; Katherine Boyle, *Greenwire*, 7/17, 7/29 and 8/6/08; Darren Samuelsohn, *Greenwire*, 8/7 and 8/12/08; Eric Bontrager, *Greenwire*, 7/1/08 and *Greenwire*, 5/22, 6/6, 6/25, 6/26, 6/30, 7/3, 7/15, 7/21, 7/28, 7/29, 8/4, 8/5, 8/14, 8/22, 9/2, 9/3 and 9/8/08.

## Meetings of Interest

**Oct. 27-29:** Aquatic Nuisance Species Task Force, Arlington, VA, www.ANSTaskForce.gov.

**Nov. 5-6:** Mississippi River Basin Panel on Aquatic Nuisance Species Sponsored Rapid Response Mock Exercise, Sparta, IL.

**Nov. 10-13:** 5th World Recreational Fishing Conference, Dania Beach, FL, www.igfa.org/.

**Nov. 11-14:** North American Lake Management Society Symposium, Lake Louise, Alberta, Canada, www.nalms.org.

**Jan. 20-21:** MICRA Paddlefish/Sturgeon Committee meeting, Memphis, TN.

**Jan 22:** MICRA Executive Board meeting, Memphis, TN.

**Dec. 14-17:** 69th Midwest Fish and Wildlife Conference, Columbus, OH, www.2008mwfwc.com.

**Feb. 15-18, 2009:** Aquaculture America 2009, Seattle, WA, www.was.org.

**Mar. 16-21, 2009:** 74th North American Wildlife and Natural Resources Conference, Refining the Relevance of Resource Management, Arlington, VA, http://www.wildlifemanagementinstitute.org.

**Mar. 24-26, 2009:** Upper Mississippi River Conservation Committee, LaCrosse, WI, http://www.mississippi-river.com/umrcc/

**Mar. 25-27, 2009:** Missouri River Natural Resources Committee, Billings, MT.

**Mar. 30 - Apr. 3, 2009:** Improving the Ecological Status of Fish Communities in Inland Waters: International Symposium and EFI + Workshop, Hull, United Kingdom, www.hull.ac.uk/hifi/events/index.html.

**Aug. 3 - Sept. 3, 2009:** 139th Annual Meeting of the American Fisheries Society, Nashville, TN, www.fisheries.org.

## Congressional Action Pertinent to the Mississippi River Basin

**Climate Change**

**S. 280.** Lieberman (I/CT) and 6 Co-Sponsors and **H. R. 620** Olver (D/MA) and 17 Co-Sponsors.. Establishes a market-driven system of GHG tradeable allowances to support the deployment of new climate change-related technologies to ensure benefits to consumers from the trading in such allowances, and for other purposes.

**S. 309.** Sanders (I/VT) and 10 Co-Sponsors. Reduces emissions of carbon dioxide ($CO_2$), and for other purposes.

**S. 317.** Feinstein (D/CA) and Carper (D/DE). Establishes a program to regulate the emission of GHGs from electric utilities.

**S. 485.** Kerry (D/MA) and Snowe (R/ME). Establishes an economy-wide global warming pollution emission cap-and-trade program to assist in transitioning to new clean energy technologies.

**S. 1018.** Durbin (D/IL) and 2 Co-Sponsors and **H.R. 1961** Markey (D/MA) and 7 Co-Sponsors. Addresses security risks posed by global climate change and for other purposes.

**S. 1168.** Alexander (R/TN) and Lieberman (I/CT). Establishes a regulatory program for sulfur dioxide, nitrogen oxides, mercury, and $CO_2$ emissions from the electric generating sector.

**S. 1177.** Carper (D/DE) and 7 Co-Sponsors. Establishes a national uniform multiple air

pollutant regulatory program for the electric generating sector.

**S. 1201.** Sanders (I/VT) and 3 Co-Sponsors. Reduces emissions from electric power plants, and for other purposes.

**S. 1321.** Bingaman (D/NM) and **H. R. 2556**. Wilson (R/NM). Enhances the energy security of the U.S. by promoting biofuels, energy efficiency, and carbon capture and storage, and for other purposes.

**S. 1389.** Obama (D/IL) and 2 Co-Sponsors. Authorizes the *National Science Foundation* to establish a Climate Change Education Program.

**S. 1554.** Collins (R/ME) and Lieberman (I/CT). Addresses challenges relating to energy independence, air pollution, and climate change.

**S. 1766.** Bingaman (D/NM) and 5 Co-Sponsors. Reduces GHG emissions from the production and use of energy, and for other purposes.

**S. 2191.** Lieberman (I/CT) and 11 Co-Sponsors; **S. 3036.** Boxer (D/CA) and **H. R. 6186.** Markey (D/MA) Directs the Administrator of the USEPA to establish a program to decrease emissions of GHGs, and for other purposes.

**S. 2204.** Whitehouse (D/RI) and Boxer (D/CA) and **H. R. 2338.** Dicks (D/WA) and 2 Co-Sponsors. Assists wildlife populations and wildlife habitats in adapting to and surviving the effects of global warming, and for other purposes.

**S. 2307.** Kerry (D/MA) and Snowe (R/ME). Amends the Global Change Research Act of 1990, and for other purposes.

**S. 2355.** Cantwell (D/WA). Amends the National Climate Program Act to enhance the ability of the U.S. to develop and implement climate change adaptation programs and policies, and for other purposes.

**H. R. 906.** Udall (D/CO) and Inglis (R/SC). Promotes and coordinates global climate change research, and for other purposes.

**H. R. 1590.** Waxman (D/CA) and 126 Co-Sponsors. Reduces GHG emissions and protects the climate.

**H. R. 2337.** Rahall (D/WV). Promotes energy policy reforms and public accountability, alternative energy and efficiency, and carbon capture and climate change mitigation, and for other purposes.

**H. R. 2420.** Lantos (D/CA) and 25 Co-Sponsors. Declares the U.S. policy on international climate cooperation, to promote clean and efficient energy technologies in foreign countries, and to establish the International Clean Energy Foundation.

**H. R. 2556.** Wilson (/NM). Enhances the energy security of the U.S. by promoting biofuels, energy efficiency, and carbon capture and storage, and for other purposes.

**H. R. 2701.** Oberstar (D/MN) and 14 Co-Sponsors. Strengthens the Nation's energy security and mitigates the effects of climate and ensures sound water resource and natural disaster preparedness planning, and for other purposes.

**H. R. 2809.** Inslee (D/WA) and 17 Co-Sponsors. Ensures that the U.S. leads the world baseline in developing and manufacturing next generation energy technologies.

**H. R. 2950.** Wilson (R/NM). Reduces our Nation's dependency on foreign oil by investing in clean, renewable, and alternative energy resources, promoting new emerging energy technologies, developing greater efficiency, and creating a Strategic Energy Efficiency and Renewables Reserve to invest in alternative energy, and for other purposes.

**H. R. 3220** and **H.R. 3221** Pelosi (D/CA) and 18 Co-Sponsors. Moves the U.S. toward greater energy independence and security, developing innovative new technologies, reducing carbon emissions, creating green jobs, protecting consumers, increasing clean renewable energy production, and modernizing our energy infrastructure.

**H. R. 4226.** Gilchrest (R/MD) and Olver (D/MA). Accelerates the reduction of GHG emissions in the U.S. by establishing a market-driven system of GHG tradeable allowances that will limit GHG emissions in the U.S., reduce dependence upon foreign oil, and ensure benefits to consumers from the trading in such allowances, and for other purposes.

**H. R. 5402.** Welch (D/VT). Amends the Small Business Act to establish the Office of Environment, Energy, and Climate Change and to establish the Climate Change Center and Clearinghouse to provide support and information on climate change to small business concerns.

**H. R. 6316.** Doggett (/) and 77 Co-Sponsors. Reduces GHG emissions through the creation of a domestic carbon market and international trade measures, and to direct the revenue therefrom to public interests.

**Conservation**

**S. 50.** Isakson (R/GA). Amends the Internal Revenue Code of 1986 to provide economic incentives for the preservation of open space and conservation of natural resources, and for other purposes.

**S. 241.** Wyden (D/OR) and Akaka (D/HI). Authorizes the Interior Secretary to enter into coop agreements to protect natural resources of units of the National Park System through collaborative efforts on land inside and outside of units of the Park System.

**S. 919.** Menendez (D/NJ) and 4 Co-Sponsors. Reauthorizes USDA conservation and energy programs and certain other programs to modify the operation and administration of these programs, and for other purposes.

**S. 1424.** Schumer (D/NY) and 3 Co-Sponsors, and **H. R. 2419** Peterson (D/MN). Provides for the continuation of agricultural programs through fiscal year 2013, and for other purposes.

**S. 2223.** Baucus (D/MT). Amends the Internal Revenue Code of 1986 to provide additional tax incentives to promote habitat conservation and restoration, and for other purposes.

**S. 2228.** Lugar (R/IN) and 7 Co-Sponsors. Extends and improves agricultural programs, and for other purposes.

**S. 2302.** Harkin (D/IA) and **H.R. 2419** Peterson (D/MN). Provides for the continuation of agricultural programs through fiscal year 2012, and for other purposes.

**S. 3213.** Bingaman (D/NM). Designates certain lands of the Monongahela National Forest, West Virginia as components of the National Wilderness Preservation System and for other purposes.

**H. R. 2735.** Young (R/AK) and Thompson (D/CA). Provides additional funding for operation of national wildlife refuges through an increased Duck Stamp price.

**H. R. 3036.** Sarbanes (D/MD). Amends the Elementary and Secondary Education Act of 1965 providing grants that would allow states to develop environmental education in schools and help train environmental teachers who would also serve as mentors to students.

**Endangered Species Act (ESA)**

**S. 658.** Thomas (R/WY) and 4 Co-Sponsors. Improves the processes for ESA listing, recovery planning, and delisting, and for other purposes.

**S. 700.** Crapo (R/ID) and 16 Co-Sponsors and **H. R. 1422** Thompson (D/CA) and 3 Co-Sponsors. Amends the Internal Revenue Code to provide a tax credit to individuals who enter into agreements to protect the habitats of endangered and threatened species, and for other purposes.

**S. 3071.** Barrasso (R/WY). Amends the ESA to temporarily prohibit the Interior Secretary from considering global climate change as a natural or manmade factor in determining whether a species is a threatened or endangered species, and for other purposes.

**H. R. 110.** J. Davis (R/VA). Imposes limitations on wetlands mitigation activities carried out through the condemnation of private property.

**H. R. 1917.** Herger (R/CA). Enables Federal agencies to rescue and relocate members of any threatened species that would be taken in the course of certain reconstruction, maintenance, or repair of Federal or non-Federal man-made flood control levees.

**H. R. 2530.** McMorriss-Rogers (R/WA) and 12 Co-Sponsors. Better informs consumers regarding costs associated with compliance for protecting endangered and threatened species.

**H. R. 3459.** Markey (D/MA). Amends the ESA to require the Director of the USFWS to publish a summary statement of the scientific basis for a decision concerning the listing or de-listing of an endangered species or the designation of critical habitat, and for other purposes.

**Federal Water Pollution Control Act (FWPCA) Amendments:**

**S. 134.** Allard (R/CO) and Salazar (D/CO), **H. R. 186** Musgrave (R/CO) and **H.R. 317** Salazar (D/CO). Authorizes construction of the Arkansas Valley Conduit in the State of Colorado, and for other purposes.

**H. R. 720.** Oberstar (D/MN) and 3 Co-Sponsors. Authorizes appropriations for State water pollution control revolving funds, and for other purposes.

**Invasive Species**

**S. 336.** Durbin (D/IL) and 7 Co-Sponsors and **H. R. 553** Biggert (R/IL) and 24 Co-Sponsors. Requires the Secretary of the Army to operate and maintain as a system the Chicago Sanitary and Ship Canal dispersal barriers.

**S. 725.** Levin (D/MI) and Collins (R/ME). Amends, improves and reauthorizes the Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990 (NANPCA).

**S. 726.** Levin (D/MI) and 7 Co-Sponsors. Amends the Lacey Act to prohibit the importation and shipment of certain species of carp.

**S. 791.** Levin (D/MI) and 6 Co-Sponsors and **H.R. 1350** Ehlers (R/MI) and 12 Co-Sponsors. Establishes a collaborative program to protect the Great Lakes, and for other purposes.

**S. 1578.** Inouye (D/HI) and Stevens (R/AK) and **H.R. 889.** Miller (R/MI). Amends the NANPCA to establish vessel ballast water management requirements, and for other purposes.

**S. 1949.** Reid (D/NV) and 3 Co-Sponsors. Directs the Interior Secretary to provide loans to certain organizations in certain States to address habitats and ecosystems and to address and prevent invasive species.

**S. 3366.** Nelson (D/FL) and 4 Co-Sponsors and **H. R. 767.** Kind (D/WI) and 12 Co-Sponsors. Protects, conserves, and restores native fish, wildlife, and their natural habitats at national wildlife refuges through cooperative, incentive-based grants to control, mitigate, and eradicate harmful nonnative plant species, and for other purposes.

**H. R. 83.** Biggert (R/IL). Amends the Lacey Act, to add certain species of carp (black, bighead, silver and largescale silver) to the list of injurious species that are prohibited from being imported or shipped.

**H. R. 260.** Ehlers (R/MI). 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.

**H. R. 801.** Kirk (R/IL) and 20 Co-Sponsors. Amends NANPCA to require application to all vessels equipped with ballast water tanks the requirement to carry out exchange of ballast water or alternative ballast water management methods prior to entry into any port within the Great Lakes, and for other purposes.

**H. R. 2423.** LaTourette (R/OH) and 4 Co-Sponsors. Provides for the management and treatment of ballast water to prevent the introduction of nonindigenous aquatic species into coastal and inland waters of the U.S., and for other purposes.

**H. R. 6311.** Bordallo (D/GU) and 6 Co-Sponsors. Prevents the introduction and establishment of nonnative wildlife species that negatively impact the economy, environment, or human or animal species' health, and for other purposes.

**Public Lands**

**H. R. 1463.** Udall (D/CO) and Trancredo (R/CO). Provides for restoration activities on Federal lands under the jurisdiction of the Interior or Agriculture Depts, and for other purposes.

**H. R. 1484.** Tancredo (R/CO) and Udall (D/CO). Provides consistent enforcement authority to federal agencies (BLM, NPS, FWS and FS) to respond to violations of regulations regarding the management, use, and protection of public lands under their jurisdiction, and for other purposes.

**Water Resources**

**S. 564.** Feingold (D/WI) and McCain (R/AZ). Modernizes water resources planning, and for other purposes.

**S. 752.** Nelson (D/NE) and 3 Co-Sponsors and **H. R. 1462** Udall (D/CO) and 4 Co-Sponsors. Authorizes the Secretary of the Interior to participate in the implementation of the Platte River recovery Implementa-

tion Program for Endangered Species in the Central and Lower Platte River Basin and to modify the Pathfinder Dam and Reservoir.

**S. 1116.** Salazar (D/CO) and 3 Co-Sponsors. Facilitates the use for irrigation and other purposes water produced in connection with development of energy resources.

**S. 2156.** Bingaman (D/NM) and 3 Co-Sponsors. Authorizes and facilitates the improvement of water management by the Bureau of Reclamation, to require the Secretary of the Interior and the Secretary of Energy to increase the acquisition and analysis of water-related data to assess the long-term availability of water resources for irrigation, hydroelectric power, municipal, and environmental uses, and for other purposes.

**H. R. 135.** Linder (R/GA) and 5 Co-Sponsors. Establishes the 21st Century Water Commission to study and develop recommendations for a comprehensive water strategy to address future water needs.

**H. R. 307.** Pearce (R/NM). Imposes limitations on the authority of the Interior Secretary 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. 574.** Whitfield (R/KY). Ensures the safety of residents and visitors to Lake Barkley, KY; improves recreation, navigation, and the economic vitality of the lake's region; and establishes a pilot program to maintain its pool elevation at 359 feet until after the first Monday in September.

**H. R. 591.** Musgrave (R/CO). Amends the Cache La Poudre River Corridor Act to designate a new management entity, make certain technical and conforming amendments, enhance private property protections, and for other purposes.

**H. R. 1180.** 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.

**H.R. 1833.** Salazar (D/CO) and **H. R. 2277** Lamborn (R/CO) and Tancredo (R/CO). Authorizes the Interior Secretary to conduct a feasibility study relating to long-term water needs for the area served by the Fryingpan-Arkansas Project, CO, and for other purposes.

Sources: http://www.gpoaccess.gov/bills/index.html; and http://thomas.loc.gov/cgi-bin/thomas

River Crossings

*Mississippi Interstate Cooperative Resource Association*
*9053 Route 148*
*Marion, IL 62959*