River Crossings

Volume 20 **January/February/March 2011** **Number 1**

Chairman's Remarks

MICRA did not receive any applications for the 2011Young Professionals Travel Stipend program. The deadline for 2012 applications will be January 15, 2012. Details about the program and application requirements can be found on the MICRA website (www.MICRArivers.org).

In early March, a small contingent of fish chief's and the MICRA executive staff traveled to Washington, DC, during National Invasive Species Awareness Week. The purpose of the trip was to visit congressional offices and increase awareness as to the plight the Mississippi River Basin states are currently experiencing with aquatic invasive species (AIS), particularly Asian carp. The trip proved to be very worthwhile and will likely become an annual MICRA event. The group was repeatedly made aware of the importance of state delegates and constituents visiting their federal Senators and Representatives home offices in addition to the MICRA delegation visits in DC.

While in DC, the group also met with the USFWS and CEQ's Asian Carp Director, John Goss, to discuss Asian carp issues within the Great Lakes and the Mississippi River basin. MICRA continues to support the permanent separation of the Mississippi River and Great Lakes basins for the purpose of protecting both basins from the transfer of all life stages of AIS in either direction between the two. Separation of the Mississippi River and Great Lakes basins is but one important step in the fight to protect these ecosystems from the ecologic and economic effects of AIS, and by itself does not address the continuing need to control and manage AIS within each of these economically and ecologically significant watersheds.

Change is on the way… Due to increasing printing and postage costs, and tightening budgets, River Crossings will change exclusively to an electronic format by the end of 2011. Subscribers currently receiving printed copies of River Crossings who wish to continue receiving MICRA's quarterly newsletter should send an e-mail to MICRA@MICRArivers.org requesting an electronic subscription.

Great Lakes and Mississippi River Hydrologic Separation Update

In early December U.S. District Court Judge Robert Dow denied a request by five U.S. states (MI, WI, MN, OH, and PA) to close off man-made waterways that connect the Great Lakes to the Mississippi River Basin, ruling there was no imminent threat of Asian carp entering the lakes. The five states had sought a preliminary injunction that would have required the U.S. Army Corps of Engineers (Corps) to immediately close the connecting waterways, arguing action was necessary to head off a disaster for the lakes' $7 billion fishery.

The suing states claimed that measures taken by the federal government and Illinois authorities, including creation of electrical barriers in the waterways, didn't adequately address the threat posed by the fish. They sought the closure of locks at the mouths of the Chicago and Calumet rivers, where they

Inside This Issue

meet Lake Michigan, as well as installation of permanent screens, grates and other measures to stop the alleged carp migration.

Opposition to closing the locks came from the Corps and the Chicago Metropolitan Reclamation District – which is responsible for managing the 76-mile (122-kilometer) waterway network. They were joined by businesses that rely on those connections for commerce. The opponents told Dow there was no conclusive proof that substantial numbers of live carp were encroaching on Lake Michigan. Illinois has also argued that a lock closure would harm recreational boating and commercial navigation, damaging the tour boat and barge industries. There is also concern that closed locks would fuel flooding, although the lawsuit contains a provision allowing an emergency opening during heavy rains.

After hearing five days of evidence and argument between Aug. 23 and Oct. 18, Judge Dow wrote in his 61-page decision that "At the end of the day, plaintiffs have not carried their burden of showing that the balance of the harms weigh in their favor." Dow said further, "Indeed, based on the evidence of record, the harms associated with the potential for increased flooding and sanitary issues and the economic hardships associated with the requested relief (by the states) outweigh the more remote harm associated with the possibility that Asian carp will breach the electronic barriers in significant numbers, swim through the sluice gates and locks, and establish a sustainable population in Lake Michigan." Further he wrote: "The Court stresses its recognition that the potential harm in a worst case scenario is great… However, plaintiffs have not presented sufficient evidence to demonstrate either (1) more than a modest likelihood of success on the merits of their substantive claims or (2) that the potential harm is either likely or imminent." In addition, Dow said the defendants showed that more than $1.2 billion is spent annually on commercial shipping, recreational boating, and commercial cruises reliant on two key locks. The case is State of Michigan v. U.S. Army Corps of Engineers, 10-cv-4457, U.S. District Court, Northern District of Illinois (Chicago).

"It's certainly not good news for the case," said Nick Schroeck, executive director of the *Great Lakes Environmental Law Center*. "It's tough to ask a judge to close down a waterway like that; it would have been an extraordinary step. Of course, this is an extraordinary problem," Schroeck said.

But Michigan's newly elected attorney general said he will carry on the fight led by his predecessor Mike Cox. Attorney General Bill Schuette (R) said he will not abandon the lawsuit. In December almost immediately after the court ruling Cox gave notice that the five states would take their case to the 7th U.S. Circuit Court of Appeals to fight the unfavorable ruling. The states are also calling on the Corps to accelerate their Great Lakes and Mississippi River Interbasin Study (GLMRIS) on keeping invasive species out of the lakes.

Cox had called on President Obama to intervene in the case by ordering that the locks be closed. "Obama's persistent failure to stop Asian carp is a slap in the face to Great Lakes citizens genuinely concerned about preserving their livelihood," Cox said. The state felt compelled to file suit because of the Army Corps' "dismal record of inaction" over Asian carp, he said.

Dick Lanyon, executive director of the Chicago Metropolitan Water District, agreed that the litigation was not over but expressed satisfaction with the current ruling. "The Asian carp are not an imminent threat," Lanyon said. "There's no need to close the locks and disrupt shipping."

Instead of lock closures environmental groups are now urging a permanent, physical separation of the Mississippi River system from Lake Michigan and a corresponding re-engineering of Chicago's sewage, wastewater and shipping systems. "We need to move beyond closing the locks," said Thom Cmar, Great Lakes attorney for the *Natural Resources Defense Council* (NRDC). "Very little progress has been made in what we know is the only 100 percent solution to the problem: permanently separating the Great Lakes from the Mississippi River."

Meanwhile there were questions raised in court hearings about scientific evidence showing that the carp had breached the barriers, including the science behind the Asian carp environmental DNA (eDNA) detected in water samples taken close to the lakes.

River Crossings

Published by

Mississippi Interstate Cooperative Resource Association
(MICRA)
9053 Route 148, Suite A
Marion, IL 62959

MICRA email: MICRA@MICRArivers.org
MICRA Web Site: www.MICRArivers.org

River Crossings is a mechanism for communication, information transfer, and coordination between agencies, groups and persons responsible for and/or interested in preserving and protecting the aquatic resources of the Mississippi River Drainage Basin through improved communication and management. Information provided by the newsletter, or opinions expressed in it by contributing authors are provided in the spirit of "open communication", and do not necessarily reflect the position of MICRA or any of its member States or Entities. Any comments related to "River Crossings" should be directed to the MICRA Chairman.

Critics noted that the eDNA work hadn't been published in a peer-reviewed journal – a criticism echoed by the federal judge in his ruling against the states. In response to this criticism, scientists with the University of Notre Dame and *The Nature Conservancy*, whose genetics-based research developed the eDNA procedures, defended it in a newly published article that says at least some of the dreaded invaders have gotten beyond the electric barrier meant to block their path to Lake Michigan.

The 15 page paper was published in early January in the online edition of *Conservation Letters*, a journal produced by the *Society for Conservation Biology*. The four-member team reported that Asian carp DNA was detected in 58 water samples taken from Chicago-area rivers and canals past the barrier over nearly a year. They caution that while the findings suggest the presence of live bighead and silver carp, it's unclear how many were in the waterways because individual fish could be responsible for multiple positive hits.

The paper says the team analyzed more than 1,000 water samples taken from the Chicago Sanitary and Ship Canal and neighboring waterways. Asian carp DNA was found in 128 of those, including 58 beyond the electric barrier. Just one actual Asian carp has been found past the barrier. Still, Notre Dame scientist Andrew Mahon said the eDNA showed that "the invasion front for bighead and silver carp is much closer to the Great Lakes than people thought." The scientists said the results were made public quickly because of the urgent threat posed by Asian carp, and they said a scientific panel with the U.S. Environmental Protection Agency had endorsed their methodology.

The researchers argue further that eDNA has proven a more effective means of detecting Asian carp than conventional methods such as electroshocking and netting. They predict the technique will become a valuable tool in efforts to prevent exotic species invasions and preserve species that are threatened or endangered. "There can no longer be any question about the validity of the eDNA work and its reliability," David Lodge, a University of Notre Dame biologist and the project leader, said in an interview. "This research has with flying colors passed the most rigorous peer review possible." "I hope this will lead to a shift in the debate from questioning the science to looking for some real solutions," *Nature Conservancy* biologist Lindsay Chadderton said. The group is now seeking funding to study how many carp are beyond the barrier, said biologist Christopher Jerde, also of Notre Dame.

David Rieser, an attorney representing industry groups opposed to shutting the locks, said they were eager to study the team's data but remained unconvinced it would make a solid case for lock closure. "Just because the data is published in a peer-reviewed journal doesn't make it gospel," Rieser said. "And it's far from clear that it will be of any use in the discussions about the best control measures for the Chicago waterway systems."

But invasive species expert James Carlton of Williams College, who wasn't involved with the study but has read the paper, described the methodology as "solid" and said eDNA could help government agencies detect and respond to invasions more quickly instead of just fixing damage to the environment and the economy when it's too late. "It will save a huge amount of taxpayer dollars in the long run," Carlton said.

The *Detroit Free Press* summed up Judge Dow's court ruling as follows: "The judge is right, in a way, that damage to the lakes isn't imminent. Carp escaping into Lake Michigan today may take a decade or longer to find and take over hospitable spots – by all accounts, they will love Lake St. Clair and the western end of Lake Erie, for example. At that point, of course, the Asian carp problem will have become one of control, not prevention. In other words, once the damage can be termed "imminent," it will already be too late.

'That's why the Great Lakes states must continue to press for prevention. But it's increasingly clear that the people of both basins must also lobby for research into control methods for Asian carp. Just as sea lamprey control is an essential year in and year out activity on the Great Lakes, a similar effort someday may be needed against Asian carp. And surely the areas of the Mississippi basin already afflicted with the voracious feeders would welcome control tools as well. 'Countries that set the standard for fending off invasive species do not let local interests, such as shippers in one port, stop them when a threat emerges. They shut down entire lakes or harbors if an aquatic invader shows up; they know how to take a SWAT (special weapons and tactics) team approach and, more important, they have the will – and presumably their residents' blessing – to act swiftly and comprehensively.

'This country may never achieve such strong controls, but waiting for studies and consensus is not too different, in this case, to throwing out the welcome mat for the carp."

Then in late February the U.S. House by a vote of 292-137 rejected a proposal to force closure of the shipping locks. The budget bill amendment offered by Republican Dave Camp of Michigan would have denied funding to the Corps to open the two navigational structures. Opponents argued successfully that the locks were vital to commerce and closing them wouldn't necessarily prevent the unwanted carp from reaching Lake Michigan.

Meanwhile Great Lakes states and cities, frustrated with the pace the Corps' Great Lakes and Mississippi River Interbasin Study (GLMRIS; scheduled to last until 2015), are fast-tracking their own research on how to block Asian carp from entering the lakes. In early January, a Great Lakes mayors' group and the *Great Lakes Commission* (GLC) announced they had raised $2 million for their own research into ways of re-establishing the natural separation between Lake Michigan and the Asian carp-infested basin while keeping commerce and wastewater flowing. They plan to have the study completed by the end of this year. "We are intensively focused on completing the project by the end of 2011 and presenting options for separation in January 2012," said Tim Eder, executive director of the GLC, an interstate compact agency created to promote economic and environmental interests in the region. The new study has been endorsed by local, state and federal politicians throughout the Great Lakes, including Chicago Mayor Richard M. Daley, U.S. Sen. Dick Durbin (D/IL) and Illinois Gov. Patrick Quinn.

The states' proposed solution likely would require some type of dam or dams on the canal system, which in turn would demand upgrades in the way Chicago handles its wastewater so it could be discharged into Lake Michigan instead of down the canals and into the Mississippi River Basin. It might also require construction of intermodal transfer facilities so cargoes could be offloaded from barges where the canals are plugged and then put onto area trains and trucks. "We have a unique opportunity to not only protect the Great Lakes and Mississippi River from serious invaders but improve the quality of life and economic well-being for the residents of greater Chicago and the Great Lakes basin for many generations to come," said David Ullrich, executive director of the *Cities Initiative*. The new study is being paid for by the *Frey Foundation*, the *Great Lakes Fishery Trust*,

the *Great Lakes Protection Fund*, the *Joyce Foundation*, the *C.S. Mott Foundation* and the *Wege Foundation*.

Environmental groups are now worried that the Corps may be preparing to scale back the GLMRIS. Corps officials have said the agency is launching a four-year study to *"prevent or reduce the risk"* of species migration. But some groups are crying foul about the language choice, especially since a congressional order three years ago called for a study into ways to "prevent the spread" of species. "This 'reduce risk' language – which the Army Corps seems to have pulled out of thin air – potentially opens the door to the Army Corps studying all sorts of half-measures that won't actually prevent the spread of invasive species," said NRDC's Thom Cmar. Cmar said the new language and schedule of the Corps study could mean another lawsuit on the Asian carp response.

Great Lakes Fishery Commission spokesman Marc Gaden said the problem with this whole Great Lakes/Asian carp situation is that authority is dispersed across so many government agencies that it can paralyze their ability to respond. "If we see things coming for the better part of a decade, and we're still not able to mount a response in time, there is something seriously wrong with the governance structure we have in place for dealing with invasive species today," Gaden said.

Also, much has been made about the recent appointment of President Barack Obama's Asian carp director, but his job is to basically coordinate federal agency efforts on the matter – he has no legal authority to lead a lamprey-style control project. "No one is in charge, no one is actually obligated to prevent those fish from getting into the Great Lakes, and by that I mean, actually required by law to prevent that from happening," says Joel Brammeier, president of the conservation group *Alliance for the Great Lakes*. "This has been the recurring problem with invasive species management – it only succeeds when somebody is in charge."

Meanwhile, Corps officials who are in charge of the electric fish barrier say the public doesn't need to worry because the barrier, operating only at about half its potential voltage, is doing an excellent job of holding the fish back. And they say they have a study which proves this, but they won't share it – not even with members of a government advisory panel created to "assess and evaluate effective methodologies, engineering, and science-based methods" to keep the carp and other species from migrating up the Chicago canal system. "They just seem to be hiding from public scrutiny," said Phil Moy, a former Corps employee who now works for *University of Wisconsin Sea Grant* and is the co-chair of the "technical and policy workgroup" for the federal government's *Regional Coordinating Committee* in the Asian carp fight. "Good science doesn't work that way," Moy said. "Instead of sharing these research results, they're just sitting on them."

Corps Col. Vincent Quarles, commander of the agency's Chicago District, explained in an e-mail to Moy that it will be months before he decides to release the study. The reason: This study is just part of a batch of related studies that the Corps is conducting. "We have invoked the deliberative process privilege under Exemption 5 of the Freedom of Information Act to withhold the study from immediate release," Quarles wrote. "We have invoked this exemption because we foresee harm to our internal decision-making process if the report were released outside of the context of the larger Efficacy II report – which will include not only operating parameters but also in-water and ground surface safety testing, threat analysis of Asian carp at the barrier system, the leading edge of Asian carp within the (Chicago canal), and other factors."

In a recorded interview Corps officials told reporters at the *Milwaukee Journal Sentinel* that lab testing showed that 2 volts is enough to keep out the carp, provided they aren't less than 6 inches long. "About 6 inches or so were the smallest fish looked at for two volts per inch for those current settings," Corps Lt. Col. David Berczek said. He said further that the Corps didn't conduct tests with smaller fish because officials don't believe there are any fish that size close to the barrier. Smaller fish have less surface area and therefore it takes a bigger jolt to repel them. Berczek said the Corps could turn up the voltage (to a maximum of 4 volts/inch) and adjust other operating parameters such as the pulse rate at which the electricity is fired, but that could pose a danger to barge operators plying the canal, and that would mean a new round of safety tests and possibly more safety measures. And because the Corps doesn't believe there are any fish smaller than 6 inches anywhere near the barrier, it isn't about to do that.

But that 6-inch threshold surprised Duane Chapman, U.S. Geological Survey biologist (Columbia, MO) and Asian carp expert. Chapman agreed there is no evidence that there are fish 6 inches or smaller in the waters just below the barrier, but his research shows that by the time a fish reaches 6 inches in length it can swim at least 60 kilometers from where it hatched. Chapman said he wondered if Berczek might have misspoken, because he thought the Corps was testing the barrier's effectiveness for fish much smaller than 6 inches. "That's a surprise," Chapman said. "That's not good."

Sources: Andrew Stern, *Reuters*, 12/2/1; Steve Kellman, *Circle of Blue*, 12/4/10; Andrew M. Harris, *Bloomberg*, 12/2/10; Dan Egan, *Milwaukee Journal-Sentinel*, 12/4 and 12/10/10, 1/11, 1/18 and 2/17/11; *FREEP.com*, 12/7/10; John Flesher, *AP*, 1/5/11; John Flesher, *Canadian Press*, 2/18/11 Paul Quinlan, *Greenwire*, 12/17/10; Lawrence Hurley, *Greenwire*, 12/3/10; and *Greenwire*, 12/14/10 and 1/12 and 1/19/11

Asian Carp Pheromone Research

In groundbreaking research, scientists based at the U.S. Geological Survey's Columbia (MO) Environmental Research Center (CERC) laboratories are looking at ways to use carp alarm pheromones, attraction pheromones, or commercial bait scents, to control the movement of carp populations. Research now under way by Robin Calfee and Ed Little at the CERC might hold the key to preventing the carp from spreading farther. "The idea would be to keep them away from something like the entrance to the Great Lakes," said Duane Chapman, USGS fishery biologist. "Also, we have very few accessible backwaters in the Missouri River, so we could use it to keep fish out of backwaters where juveniles would grow," he said.

The researchers have evaluated the effectiveness of using alarm pheromones or "schreckstoff" to control Asian carp. In experiments, Calfee has taken a live carp and made incisions with a scalpel to simulate the attack of a predator. Then she lets the fish sit in a tub of water for a short time, extracts the water, and releases it into a carp tank. She said the response is almost immediate: other carp exhibit heightened swimming in a school formation, and attempt to quickly escape. Calfee said once a fish is attacked the cells in the epidermis are broken and release these alarm cues that signal the rest of the school that there is a predator, and they should swim away.

Calfee and Little also are working with sex pheromones and with commercially available baits in flavors such as fruit, Irish

cream, squid, and liver to determine what attracts carp best. The team will also collaborate with Peter Sorensen of the University of Minnesota, who has already identified and documented 260 chemical substances in the pheromones of the common carp, and they will monitor which pheromones produce the greatest response. "Hopefully, we'll come up with a magic cocktail," Little said.

Source: Reach T.J. Greaney, *Columbia (MO) Daily Tribune*, 10/25/10

Otoliths – Key to the Place of Origin in Fishes

A new research paper out of Southern Illinois University (Carbondale) concludes that fish from the Middle Mississippi, its tributaries and floodplain lakes can be traced back to their location of origin through the use of otolith microchemistry. The ability to reconstruct environmental history of individual fish using naturally occurring isotopic markers in otoliths may also facilitate efforts to quantify nutrient and energy subsidies to the Mississippi River provided by fishes that immigrate to the river from floodplain lakes or tributaries.

Otolith microchemistry or stable isotopic compositions have been successfully applied to distinguish fish of floodplain lake and riverine origin in other river systems, researchers John Zeigler and Gregory Whitledge said. So in a recent paper in the journal *Hydrobiologia* they used linear discriminant function analysis to demonstrate the potential applicability of multivariate otolith chemical signatures as indicators of recruitment sources and environmental history of fishes in the Middle Mississippi River, its tributaries, and floodplain lakes.

They found that the distinct multivariate otolith chemical fingerprints of the subject waters were driven primarily by differences in elemental and isotopic compositions among water bodies and were not an artifact of differences in fish species composition among collection sites. Estimating the relative contributions of floodplain lake, tributary, and riverine habitats to fish populations in the Middle Mississippi River thus appears feasible via analysis of naturally occurring chemical signatures in otoliths.

Potential specific applications of otolith chemistry in the Middle Mississippi River may include identification of the principle recruitment sources for fish species of recreational and commercial interest, species of conservation concern and invasive species. However, they said, characterization of relationships between water and otolith chemical signatures for species not sampled in this study will be required.

Source: John M. Zeigler and Gregory W. Whitledge, "Otolith trace element and stable isotopic compositions differentiate fishes from the Middle Mississippi River, its tributaries, and floodplain lakes", *Hydrobiologia* (2011) 661:289–302

Record Alligator Gar Taken in Mississippi

Kenny Williams, a commercial fisherman from Vicksburg, MS, caught a 327 lb., 8 ft, 5 1/8 inch alligator gar from Lake Chotard (a floodplain lake or old Mississippi River oxbow on the Mississippi/Louisiana border) on Valentines Day. The girth of the fish measured 47 inches around. According to all the records Dennis Riecke, Mississippi Department of Wildlife, Fisheries and Parks, could locate it is the largest alligator gar ever recorded. But because it was taken in commercial netting rather than by rod and reel it does not qualify for any kind of sport fishing record.

Still Williams, alone in a 5 foot wide, 16-foot aluminum boat, had quite a struggle with the fish. "Thank goodness I caught it in February when the water temperature was in the low 40s," he said. "This fish was so lethargic. It was not fighting me. It was like dead weight. Had it been, say, 50-degree water or warmer, it would have been a different story." Williams said his net was tied to the bank and anchored about 75 yards into the lake. He said, "I ran into a spot where the net was hung up. I freed it and took out a few more fish and then it was hung up again. I started pulling on it, slow and steady and it started coming up like dead weight. It was like when you're rod and reel fishing and you hook a long limb or something."

Kenny Williams and Dennis Riecke with 327 lb. alligator gar taken in Lake Chatard, MS - Clarion Ledger Photo

Then, "All of a sudden this massive head popped out of the water," he said. "I was in shock. It was so huge. I was looking at this fish tangled in the top string of my net and the adrenaline kicked in. I pushed the thought of danger to the back of my mind and started concentrating on catching this fish. I told myself, 'You are only going to get one chance at a fish like this in your life. You have to catch it. You have to get this fish in this boat.' I tried to pull him in a few times and he kept slipping out of my hands and he almost got away," he said. "Then I put on my glove and ran my hand as far up in his gills as I could and grabbed on to something real hard and hung on. I used all the energy and I guess the adrenaline I had left and started pulling. ... Took about 30 minutes in all, and I was tired. When he finally was in the boat, laying there, and I could see him all, that's when I knew what I had done. He was so big, but he just laid there. He was too cold and probably too tired from being in that net so long. But he was just barely in the net. He wasn't wrapped in the netting itself, just the top cord and it was wrapped around his upper jaw twice. It was so loose that it fell off during the struggle."

Williams tried to keep the fish alive, but failed. "I wanted to donate it to somebody to keep in a live tank on display but that didn't work out, but I did donate it to the *Museum of Natural Science* in Jackson," he said. "They promised me they would get it mounted and keep it on permanent display in Mississippi." Museum director Libby Hartfield said that efforts to locate a taxidermist and an exhibit sponsor (to help pay costs) have begun. It will make such an amazing exhibit," Hartfield said.

Riecke said his research indicates the fish was more than 50 years old. "Fisheries biologists at LSU had developed a length/girth/age table, and based on this fish's measurements it would be at least 50 years old, and was an inch shy of being over 70 years," he said. "I think it's safe to assume it was somewhere between that range, 50 and 70 years," Riecke said. Williams is sad the fish died, but doesn't care so much about his lost net. "That's $300 worth of net, ruined," he said. "But you know what? I don't care. That's a fish of a lifetime."

Source: Bobby Cleveland, *Clarion Ledger*, 2/17/11

Catfish Industry Response to Bighead Carp Listing

In early December the bighead carp was listed as an injurious species under the Federal Lacey Act through passage of **S. 1421**, the Asian Carp Prevention and Control Act. The Act passed by unanimous consent in the Senate and by voice vote in the House. In a statement Assistant Secretary of Fish, Wildlife and Parks Tom Strickland said, "Along with other invasive Asian carp species, the bighead carp poses an immediate and significant threat to the nation's freshwater fisheries, especially the Great Lakes. While normally we would list an injurious species under administrative rulemaking the urgency of the situation called for swift action by Congress so that we can prevent this voracious fish from spreading to new areas and overwhelming recreational and commercial fisheries by effectively starving native fish."

But according to an article by Taylor Webb in the Catfish Journal, "Bighead carp have been a great help and common use for catfish farmers going back to the 1970's. The utility of the fish includes the removal of algae and other suspended matter out of ponds." The article further states that "During the large floods in the early 1990's, many of the catfish farm ponds overflowed their banks and the carp were released into local waterways in the Mississippi River basin."

Webb goes on to say, "Of particular note, is the fact that the U.S. government helped to bring the bighead carp into the U.S. and spent millions of dollars on research for the fish, while encouraging farmers to invest their money into raising them. Many farmers did exactly that and are now stuck with large amounts of bighead carp, with nowhere to go should this policy be seen through."

According to the article, a previous attempt to list the bighead carp as injurious was dropped by the U.S. Fish and Wildlife Service (FWS) because of the findings of significant impact on the industry by a Small Business Administration Study. If this is indeed the reason that bighead carp were not listed as injurious wildlife sooner, one has to wonder how the FWS balanced such a conclusion against the environmental impact of the bighead carp on the nation's fisheries and against the economic impact of the carp on the nation's commercial and recreational fishing industries.

The FWS listed three other Asian carp species (the black, silver, and large-scale silver carp species) as injurious wildlife under the Lacey Act in 2007. With the exception of large-scale silver carp, each of these species was listed only after they had escaped to the Mississippi River Basin.

Source: Taylor Webb, The Catfish Journal, Vol. 25, No. 5, January 2001

Lower Mississippi River Restoration Study

The Lower Mississippi River from Cairo, IL, to its mouth in the Gulf of Mexico once meandered through a 25-million-acre valley of swamps, bayous and bottomland hardwood forests. Over the years, levees were built to gain control of flooding and allow for agriculture in the floodplains. At the same time, structures were built in the main channel of the river to harness its energy for the navigation channel. Today the river valley is a shadow of its former self, covering only 3 million acres and largely disconnected from its backwater sloughs and side channels.

In 2009, the U.S. Army Corps of Engineers (Corps) took the first step to restore some of the Lower Mississippi River by completing a reconnaissance study that defined the federal government's interest in developing a watershed management plan for the lower river. Now *The Nature Conservancy's Great Rivers Partnering* (GRP) is leading an effort to assist the Corps in taking the next step to develop that plan. "The watershed plan, which lays out the current status of the river and what needs to be done to restore it, is a critical first step in eventually getting federal funding allocated for river restoration," said Gretchen Benjamin, GRP large rivers program director. "We have federal funding programs for the Upper Mississippi, the Everglades and the Louisiana Coast, but nothing for the Lower Mississippi River, which is also a significant ecosystem in terms of its biodiversity," she said.

To move forward with the Lower Mississippi River Resource Assessment, *The Nature Conservancy* (TNC) and other potential partners – *National Audubon Society*, *Delta F.A.R.M.*, *American Land Conservancy* and the *Lower Mississippi River Conservation Committee* – have joined the Corps as cost-share partners on the project and need to raise 25 percent of the total cost of the assessment or about $312,000 by March 5, 2011. The assessment will utilize existing data to determine the condition of the river (i.e., physical condition, water quality, biodiversity), develop alternatives for restoration and recommend a plan for moving forward. The GRP will be a strong partner all the way through this process, assisting with public meetings, gathering data on the river's condition, helping to formulate alternatives and putting the plan together. TNC state programs along the Lower Mississippi River, including Arkansas, Tennessee and Mississippi, have also signed on to help. "While the Lower Mississippi River has changed significantly, there are still many places in the basin where we can restore some of the habitat that was once there," Benjamin said. "And we can do it without impacting navigation or flood control. This assessment is a vital first step in the river's restoration, and we are committed to helping the Army Corps get it done," she said.

Source: http://www.nature.org/wherewework/greatrivers/newsletter/art33001.html

USDA Conservation Projects Aim to Shrink Gulf Dead Zone

The U.S. Department of Agriculture (USDA) will fund up to $43 million worth of conservation projects this fiscal year to reduce the nutrient flow into the Mississippi River that causes the dead zone in the Gulf of Mexico, Agriculture Secretary Tom Vilsack announced in late November. "Through this initiative, we are partnering with farmers and landowners to implement voluntary conservation practices that avoid, control and trap potential pollutants to improve water quality throughout the selected watersheds," Vilsack said in a statement.

USDA's Natural Resources Conservation Service (NRCS) will administer the money as part of its *Mississippi River Basin Healthy Watersheds Initiative*, which is running from 2010 to 2013. During that time, USDA has pledged up to $80 million a year for the initiative's voluntary conservation efforts. Additional funding for projects may come from partnerships, according to Troy Daniell, initiatives coordinator at the NRCS. The money will go to 70 existing projects in 12 states: AR, IL, IN, IA, KY, LA, MN, MS, MO, OH, TN and WI. Minnesota will receive the greatest amount at $8.8 million, followed by Iowa at $8.4 million. Those projects span 41 watersheds in the basin along the 2,350-mile river. A portion of South Dakota was added in requests for new projects for the 2011 fiscal year, according to Daniell.

In the basin initiative, the NRCS will use the $43 million to work with farmers and landowners to manage nutrients, rotate crops and

better manage tilled land. One way farmers will manage nutrients will be by planting trees along streams to filter nutrients out of water draining off farms. The initiative will be voluntary, and participants can use financial assistance to install monitoring systems within the watersheds. Part of the initiative will also be improving wildlife habitat and restoring wetlands.

The Mississippi River collects water from 40 percent of the United States, which includes "some of the most fertile and productive agricultural land in America," Vilsack said. But the river has been plagued by nutrient runoff from the region's farms. Nitrogen and phosphorus have been especially detrimental, according to a 2008 report by the *National Research Council* (NRC) funded by the U.S. Environmental Protection Agency (EPA). When the nutrients reach the river, they travel downstream to the Gulf of Mexico, over-enriching coastal waters and causing massive algae blooms to form. When those algae die, their decomposition sucks needed oxygen from the water, creating a hypoxic zone, otherwise known as a dead zone, where few fish can survive.

A 2009 report on the state of the river basin by EPA's *Mississippi River/Gulf of Mexico Watershed Nutrient Task Force* found that while the dead zone was smaller than predicted that year, it was closer to surface waters than it has been in most years since measurements began in 1985. Stream flows carrying nutrients in the spring of 2009 were 17 percent above the average flow from the past 30 years, the task force also found. In 2007, the NRC released a report concluding that government regulators had failed to address pollution runoff into the river. In that report and in a subsequent report released in 2008, the NRC recommended that EPA work with USDA on conservation programs and establish a joint *Mississippi River Basin Water Quality Center*. The council is now in the middle of another follow-up study, also funded by EPA, to recommend more actions to USDA.

David Dzombak, a professor of civil and environmental engineering at Carnegie Mellon University, chaired the 2007 NRC study that said government regulation has been absent in the basin. Since then, he said, "the USDA has been moving on several of the areas we identified, not necessarily because of the NRC report, but they are moving ahead in an aggressive way for nutrient control."

Sources: Amanda Peterka, *Greenwire*, 11/30/10

MR-GO Environmental Restoration Plan

The U.S. Army Corps of Engineers (Corps) has unveiled a $2.9 billion plan to restore environmental damage caused by construction and operation of the now-closed Mississippi River-Gulf Outlet (MR-GO). The plan includes a new freshwater diversion near Violet; restoration of cypress swamps in wetlands adjacent to the Lower 9th Ward, Algiers and Chalmette; protection of shorelines along the eastern New Orleans land bridge; and restoration or nourishment of wetlands along Lake Borgne.

The proposed diversion would first move Mississippi River water and sediment into the Central Wetlands Unit, which is sandwiched between the 40 Arpent Canal and the levee along the Gulf Intracoastal Waterway and the MR-GO. The water would then flow out into the MR-GO and into Lake Borgne. The design is based on historic salinity levels at various locations along the MR-GO, with the goal to restore the water's salt content to levels found before the channel was built. At Bayou Dupre, that was 2 to 3 parts per thousand, which rose to 6 to 10 parts per thousand when the channel was opened, and has dropped to 4 to 7 parts per million with the recent construction of barriers on the canal at Bayou la Loutre and the Golden Triangle wetlands.

If approved, the project would take 10 years to complete, with construction beginning as early as 2012. It would restore, nourish or protect about 92 square miles of wetlands and land. Included are three new recreation areas: a boardwalk and picnic shelters at the northern end of Caffin Avenue that would also be used for wetlands education programs; a walking and bicycle path and picnic area along the new Violet diversion, and a pier, walkway and picnic area incorporating the Hurricane Katrina memorial at Shell Beach in St. Bernard Parish.

Construction would be staged, with those projects providing most protection from storm surge being built first. The plan – which Congress ordered the Corps to develop after deauthorizing the MR-GO as a navigation channel in 2007 – still must clear a variety of major hurdles, including whether Louisiana would be required to pay 35 percent of the cost of most of the projects. But *Coastal Protection and Restoration Authority* Chairman Garret Graves, the state's senior coastal official, in August notified the Corps that the state believes the federal law authorizing the restoration plan requires that the federal government pay 100 percent of all costs. Corps officials threatened to hold off on the restoration plan until the state agreed to the 35 percent split, Graves said. But then they backed off, and included a statement in the written plan explaining the disagreement. Graves said that's an important concession because the state and the federal government can now offer the restoration plan as a project that could be financed with fines and mitigation costs that *BP* and other responsible parties will pay for the Macondo Gulf of Mexico oil spill.

Corps officials also contend that their rules require the state to provide all land used for individual projects, including the more than 150 million cubic yards of mostly underwater sediment needed for restoration. Again, the state disagrees. The plan calls for most sediment to be dredged from the bottom of Lake Borgne in what Corps project manager Greg Miller calls a checkerboard configuration. No area would be dredged deeper than 10 feet below its existing surface below the water, and the pattern should alleviate concerns that the dredging will funnel storm surge or waves towards the shoreline, he said.

The diversion channel will be 12 feet deep and 250 feet wide at its bottom, and would include five culverts for roads, a railroad and utilities. The diversion must deliver 1,000 cubic feet per second (cfs) of water and sediment during most of the year, increasing to about 7,000 cfs from mid-April through May. The diversion plan has been opposed by oyster growers and shrimp fishers, who fear damage to existing oyster leases or to the timing of shrimp fishing. Such disrup-

Aerial view of the MR-GO - Michael DeMocker, The (New Orleans)Times-Picayune photo

tions occurred this year because the state opened as many diversions as possible in an attempt to keep oil from the Macondo spill out of wetland areas. Miller said the Corps is aware there will be some changes in fisheries, but pointed out that some oyster leases in Lake Borgne did not exist prior to the opening of the MR-GO because the area was too fresh for oysters. The changed water conditions are expected to increase oyster production in other areas, he added.

The Violet diversion will be financed with a different federal-state split than the rest of the projects, thanks to a separate line item in a recent federal bill. Local sponsors would be required to pay 25 percent of its cost, and the state of Mississippi may be partly on the hook because of the reduced salinity expected in Mississippi Sound. Federal officials have attempted to pair the individual projects within the plan with other already authorized projects. For instance, plans to restore cypress forest within the Central Wetlands Unit tie in with a project to allow New Orleans and St. Bernard Parish to pour treated wastewater into the wetland area. The freshwater and nutrients promote cypress growth.

Another key goal of the restoration plan is to protect shoreline that buffers populated areas from hurricane storm surge. A lengthy stretch of the northwest Lake Borgne coastline from Alligator Point to the Rigolets in New Orleans would be armored with rock. A mirror area along easternmost Lake Pontchartrain also would be armored, with wetlands reconstruction and nourishment planned just north of Venetian Isles. Wetlands nourishment consists of spraying a layer of sediment above existing, but weak, wetlands. The material gets absorbed into the soils in which wetland grasses are growing, extending their lifetime.

In designing the projects, the Corps used three estimates of the relative rise of sea level – the combination of the effects of subsidence and rising water levels – expected through 2065. The estimates range from a rise of 1.8 feet to a high of 3.7 feet. The project will have the most impact if global warming effects are at the low end of predictions. At the highest level, the value of the projects drops significantly, as rising water would drown more wetlands.

Following public and agency reviews, an updated version of the plan and environmental statement will undergo a 30-day review, and then the report will be submitted to the Corps' chief of engineers. Miller said the Corps is targeting completion of that process by the end of September 2011, when it will be submitted to the White House for a final review before being transmitted to Congress. Unlike other Corps planning documents, which require Congress to vote to authorize the project and then hold a separate vote, often years later, to appropriate money for construction, Congress already has authorized the MR-GO restoration and need only begin appropriating money for its construction.

More information about the plan is available on the web at www.mrgo.gov, or by contacting Lee Muller, (504) 862-1759.

Sources: Mark Schleifstein, *The (New Orleans) Times-Picayune*, 12/17/10 and *Greenwire*, 12/17/10

Cleanup Recommendations for Lake of the Ozarks

Missouri Attorney General Chris Koster said in late January that a number of steps must be taken to protect water at the Lake of the Ozarks. Although the lake is generally safe for recreational use, it is "stressed on occasion," according to a report that Koster released at several appearances across the state. The greatest threat to long-term water quality at the Lake of the Ozarks is on-site sewage systems, the report said. Such systems include thousands of septic tanks, many of which are faulty and overflow, sending waste into the lake. The report makes 12 recommendations, including creating a regional sewer district, increasing the number of water quality inspectors, and monitoring water quality better. "If we are indeed serious about protecting water quality at the Lake of the Ozarks, and as populations and septic usages dramatically increase in the coming years, then addressing the aging septic systems is critical," Koster said.

Missouri Sen. Brad Lager, a Savannah Republican who has been at the forefront of the issue in the Senate said he planned to begin addressing the problems this legislative session. The problem occurred over years, he said, and a fix would not occur overnight. "Our state benefits because of the Lake of the Ozarks," Lager said. "The tourism, the recreation, the enjoyment – it is incumbent upon us that the public's health and safety are never in question when Missourians and others are enjoying the water."

Donna Swall, executive director of the *Lake of the Ozarks Watershed Alliance*, a nonprofit group set up to educate the public about water quality, said she was pleased with Koster's recommendations. Her group has spent several years collecting water samples at the lake to test for bacteria. "I'm just thrilled beyond words," said Swall, who attended a Jefferson City news conference. "This is a great step in the long-term protection of the lake. If we look at the future and at the long term, the lake will win."

Jim Divincen, administrator of the *Tri-County Lodging Association*, which represents lake businesses, was more subdued. Divincen noted that Camden County had taken steps similar to Koster's recommendations, including giving the county stronger enforcement abilities and allowing more inspections of on-site sewer systems. "That's pretty good stuff," Divincen said. "It shows that we are taking a proactive approach to ensure a clean and healthy resource for visitors and residents. Anything that we can do to improve the water quality at the lake to ensure the cleanest body of water, we should. We are the single most-tested body of water in the state of Missouri."

The report comes after almost two years of turmoil over contamination of the lake. In summer 2009, The *Kansas City Star* reported that the state had found high levels of *E. coli* at the lake, but did not tell the public for almost four weeks. Gov. Jay Nixon then ordered an investigation that led to a shakeup at the Department of Natural Resources (DNR). A Senate investigation was launched and DNR officials were publicly questioned.

Business groups and lake leaders maintained that no one got sick from the contamination, which they said was not a consistent problem. But some legislators said new laws were needed. As a result, Koster last August held a two-day symposium focused on protecting water quality at the lake. The report was based on findings at the symposium. The need to protect the lake is reflected in its annual economic benefit of $5 billion, the report noted. Koster said the General Assembly and concerned citizens would have to pull together to ensure that the recommendations were implemented. "As we all remember, this was a big blowup in the summer of 2009," Koster said. "The senators came forward very aggressively. So one would assume that was not just a political exercise, but that it represented a sincere interest in keeping what everybody recognizes as one of our primary natural resource jewels fit for human swimming."

Divincen disagreed that the main source of pollution was from on-site sewer systems, especially at the lake beaches. He said he

thought that much of the pollution came from wildlife, migratory birds, household pets and production animals, and some of it was naturally occurring. "We have a 90 percent confidence level it's the geese," he said. He also said that most of the time, except when it rained, the water quality was very good. "It's a natural occurrence after a rain event," he said.

One of Koster's recommendations asks that the DNR conduct a study to determine the source of the bacteria contamination. Divincen said he supported such a study, but it would be costly. In general, the recommendations cover three areas – regional sewers, water quality monitoring and changes in state laws.

Among the recommendations:
• The county commissions of Camden, Miller, Morgan and Benton counties should form a regional sewer district that would encompass the lake. The largest threat to long-term water quality is from the thousands of aging and poorly maintained residential and small-business sewer systems, the report said. Once a regional sewer district is formed, it would be possible for it to raise money through a sales tax or by selling bonds. The counties have long recognized the problem, the report said, and in 1999 organized the *Lake Group Task Force*. Numerous studies about the problem have been done over the past 25 years. While the number of on-site sewer systems is unknown, one study estimates 15,000 to 20,000.
• The University of Missouri needs to conduct a study to determine how many on-site sewer systems exist and where.
• *Ameren UE*, the utility that owns the lake, should extend funding to sample the lake for contamination for an additional five years. *Ameren* currently provides $15,000 a year to the DNR to fund bacterial sampling of lake water. *Lake of the Ozarks Watershed Alliance* volunteers conduct the sampling with the help of DNR water-quality officers. *Ameren's* commitment to fund that will end early next year.
• The legislature should pass a law requiring owners of property who have on-site sewage systems within 2,500 feet of the lake to have system inspections when property is sold. State and many local officials currently have no way to discover failing sewer systems unless someone complains to the local health department.
• The DNR should hire more water-quality inspectors. The agency has only two inspectors to protect the 1,150 miles of lake shoreline. Those two oversee 419 permitted sewer systems, but also have other duties. At the current rate of inspections, each facility is inspected only once every 3½ years. During a special lake initiative in 2009, the DNR inspected every facility, and had an additional 13 inspectors helping. The 419 facilities received 154 notices of violation and 116 letters of warning. The inspection rates raise concerns about the number and frequency of inspections in the rest of the state, the report said. Because the DNR lacks the funds to hire more inspectors, the legislature should ensure that funding, the report said.
• The legislature should increase charges for violating water-quality laws from misdemeanors to felonies if violations create a "substantial likelihood of endangering human health, the environment or property."
• The legislature should consider implementing a tax credit or tax deduction for residents who have faulty sewer systems and want to replace them.

Source: Karen Dillon, *The Kansas City Star,* 1/25/11; and *Greenwire*, 1/26/11

Reduced Logging Impacts on Western Waterways

Forests across much of the West look very different than they did 20 or 30 years ago – the result of state forestry protocols that have largely put an end to streamside logging, poorly designed roads and other practices that can leave streams and lakes choked with eroded sediment. But just how effective those requirements have been in improving water quality in the region is unclear.

As the West grapples with decreasing water supplies and warming stream temperatures due to climate change, protecting water quality is more important than ever, and some states are undertaking new measures to ensure their forest practice requirements are reaping real benefits for waterways – and the aquatic species that inhabit them. Even though logging operations were exempted from the 1987 Clean Water Act, it spurred many states to take a closer look at the effects of logging on waterways, and almost all Western states now have forest practice requirements in place.

Implementation rates are high – even in states where compliance is voluntary. According to a pair of recent reports by the *National Council for Air and Stream Improvement Inc.*, an independent research institute that studies forestry-related environmental issues, compliance rates average about 94 percent, ranging from a low of 80 percent in Washington to a high of 97 percent in Wyoming. Two states, Arizona and Nevada, have not conducted any formal implementation assessments, according to the council. Seven Western states – AK, CA, ID, NM, NV, OR and WA – have passed forest practice laws, and Montana has mandatory requirements under its streamside management act. The four other Western states – AZ, CO, UT and WY – have voluntary programs; of those, only Wyoming has a significant timber industry.

Keeping track of how well landowners are complying with the protocols and educational efforts to help landowners understand the requirements have been key in ensuring high implementation rates, said George Ice, the principal scientist at the council's *West Coast Center* in Corvallis, OR. "For those states that have multiple years of monitoring, they're seeing improving trends in implementation," he said. In Montana, for example, state audit reports show that implementation increased over a 10-year period, from 78 percent to 96 percent. "These practices have become a source of pride for loggers," said Brian Sugden, a forest hydrologist with *Plum Creek Timber Co. Inc*., during a presentation on Montana's state forestry protocols at the *Society of American Foresters* conference in Albuquerque, NM, in October. The company, the largest private landowner in the United States, has extensive holdings in Montana and throughout the West.

The high compliance rates are due in part to a desire among timber companies to improve their image after decades of bad press and increasing regulation, said Janet Ellis, program director of *Montana Audubon*, who also serves on the governor's riparian task force. "Timber operators want to look good

Tillamook State Forest, Oregon - Oregon Dept. of Forestry Photo

because they don't want more regulation on them," she said. But it is difficult to determine whether those high implementation rates are translating into improved stream conditions, Ellis added. In a 2007 report, Ice noted, "there is unlimited skepticism about the effectiveness of forest nonpoint source control programs." Some of the biggest skeptics are environmental groups, who have occasionally taken legal action to try to further strengthen state forestry rules – with some success.

In 2009, for example, a Portland, OR-based environmental group, *Northwest Environmental Advocates*, successfully sued to compel the state of Oregon to beef up its forest practice rules to better protect salmon and steelhead runs in coastal waterways, which receive an added layer of protection under federal law. In a settlement reached last September, the state agreed to revise the protocols by 2012. But if the rules become too restrictive, the state's logging industry, already diminished after a sharp drop in federal contracts on national forest lands in the Northwest, could fade to oblivion, said Stuart Otto, a state forester in central Oregon's Prineville region. "There are some who say the act isn't strict enough, and there are others who say it is," he said. "If you start regulating an industry to the point where they can no longer produce what they produce, you lose that industry."

Environmental groups are also pushing for stronger rules in Montana. *Montana Audubon* and other groups hope to convince state officials to expand the state's protective streamside buffer from 50 feet to 100 feet. "We've done more research on what kind of vegetative buffers you need to protect water quality, and it's 100 feet that's the minimum," Ellis said.

Despite those battles, Ice is encouraged by the advances states have made in recent years in getting forest landowners on board with forest practice requirements. "Forestry is always going to be challenged to improve its practices, but we've made tremendous progress across the United States," Ice said. At the same time, he acknowledges that measuring the success of those practices has proven a greater challenge than getting landowners to comply with them. But efforts are afoot to fill that data gap, he added. Most Western states have either started or plan to implement programs to assess the effectiveness of their forest practice protocols. "There are tremendous efforts underway to find out how effective they are," he said. "It's an exciting time for forest hydrologists."

Among the first states to launch monitoring programs were CA, CO and OR. Only two states, AZ and NV, do not have effectiveness assessments in the works, but neither has much of a timber industry, Ice said. The monitoring that has been done so far suggests that forest practice rules are achieving the desired improvements in water quality in areas where all requirements are closely followed, Ice said. For instance, an ongoing study in the Alsea watershed along the coast of Oregon conducted by Ice and researchers from Oregon State University has found that the dramatic changes in stream temperatures recorded after logging in the mid-1960s no longer occur. After a 2009 timber harvest in the watershed, "there was no change," Ice said. "The data are showing how much improvement has occurred."

Source: April Reese, *Land Letter*, 1/6/11

Yellowstone River Basin Water Lawsuit

U.S. Supreme Court justices in their initial hearing over a long-running Yellowstone River Basin water dispute appeared to favor Wyoming over Montana. At issue are the waters of the Powder and Tongue rivers, both tributaries of the Yellowstone River, which run into Montana from Wyoming. Rights to the water have long been settled via the *Yellowstone River Compact*, which was finalized in 1951, but in 2007 Montana claimed that Wyoming had violated the agreement on several counts.
The case, Montana v. Wyoming and North Dakota, falls under the court's so-called original jurisdiction because it is a dispute between states – meaning there is no lower court ruling for the justices to review. Water law expert Kate Fox, a partner at the *Davis & Cannon* law firm in Cheyenne, WY, said the case can be viewed as the latest chapter in the ongoing struggle between Wyoming and surrounding states over water. Montana, which is down river from Wyoming, claims that by using sprinkler irrigation, Wyoming farmers are using more water than is allowed from the Powder and Tongue rivers. Under the 1951 compact, which factored in existing water usage in both states, Wyoming was not allowed to withdraw more water from the rivers than it had done before the agreement was signed. But Montana argues that sprinkler irrigation means that less water is returned to the rivers even if the same amount of water is diverted.

The Supreme Court has appointed a special master – Barton Thompson, a Stanford Law School professor – to handle the case. Thompson recommended in a February 2010 report that the justices find that increased consumption of that water in Wyoming as a result of modern irrigation did not violate the agreement. He did, however, conclude that the pumping of groundwater for natural gas extraction could constitute a violation. The Supreme Court only discussed the first finding during the initial hearing.

Tongue River, Wyoming - U.S. Forest Service Photo

Only eight justices were on the bench for the hearing because Justice Elena Kagan recused herself due to her prior role as solicitor general, the Obama administration's top legal advocate. Chief Justice John Roberts Jr. noted at one point that the nature of water law in the Western states is "first come, first served," meaning that Montana has little room for maneuvering if Wyoming is still taking the same amount of water, regardless of how much of it is returned to the river. "They're using it to irrigate, and if they get better at it, so they use more, well, that's just too bad for you," Roberts said in categorizing Montana's position to the state's attorney general, Steve Bullock (D), who was arguing the case himself.

Other justices struggled with the lack of historic data available as to how much water was actually consumed when it was diverted for irrigation. Justice Stephen Breyer said he was "pretty skeptical" that the agreement would contain information about how much water was being put back in the rivers because the states would have been "regulating something they don't even know about." Justice Sonia Sotomayor, meanwhile, asked whether outside factors, such as global warming, that could lead to less water being available to Montana could also lead to allegations that Wyoming had broken the compact. Ultimately, the Supreme Court will likely have to resolve what Justice Anthony Kennedy called a "gray area" in the law over the definition of "beneficial use," a phrase used in the compact in reference to

the purpose for which water is taken from the rivers.

Apparently supporting Montana's position, Justice Antonin Scalia speculated that if, under the compact, "beneficial use" referred only to the net amount of water used for irrigation, then new irrigation techniques could place limits on Wyoming's use of water. He added that he believed it "implausible" that Montana would have signed an agreement that defined only the water that Wyoming could draw without any reference to the water that would be returned to the rivers. But Scalia did not appear to have much support among his colleagues. Breyer seemed to sum up the view on the bench when he asked Obama administration lawyer William Jay, who argued in support of Wyoming, whether the compact was written in such a way that it was impossible to make a ruling that was fair to both states. "Both states have affirmatively rejected the idea of a middle ground like that, Justice Breyer," Jay said.

Whatever final ruling the Supreme Court issues is unlikely to end the dispute, as there remain other issues to be argued before the special master, including how to resolve Montana's complaint about the use of groundwater for coalbed methane production. *Anadarko Petroleum Corp*., one of the main companies involved in methane production in Wyoming, unsuccessfully sought to intervene in the case to defend its interests on that point.

Sources: Lawrence Hurley, *Greenwire*, 1/7 and 1/13/11

New Species of Giant Crayfish Found in Tennessee

A new species of giant crayfish literally crawled out from under a rock in Tennessee, proving that large new species of animals can be found in highly populated and well-explored places, a team of researchers said in late January. The new crayfish should not have been easily overlooked, as it is huge – twice the size of other species, Chris Taylor (University of Illinois at Urbana-Champaign) and Guenter Schuster (Eastern Kentucky University) said. But the crustacean is also quite rare, they report in the *Proceedings of the Biological Society of Washington*.

"This isn't a crayfish that someone would have picked up and just said, 'Oh, it's another crayfish,' and put it back," Taylor said. "You would have recognized it as something really, really different and you would have saved it," Taylor added in a statement. The researchers found their first specimen of the new species under one of the biggest rocks in the deepest part of a commonly explored Tennessee creek. The new species, called *Barbicambarus simmonsi*, is about 5 inches (12 cm) long and has antennae covered with a sensitive fringe of tiny, hair-like bristles, called setae.

Giant Crayfish (Barbicambarus simmonsi) - Reuters Photo

More than half of the 600 known species of crayfish in the world are found in North America, Taylor said. "This thing had not been seen by scientific eyes until last year," he said. "We spend millions of dollars every year on federal grants to send biologists to the Amazon, to Southeast Asia – all over the world looking for and studying the biodiversity of those regions," Schuster said. "But the irony is that there's very little money that is actually spent in our own country to do the same thing. And there are still lots of areas right here in the U.S. that need to be explored."

Sources: Maggie Fox, *Reuters/Yahoo News*, 1/20/11; and *Greenwire*, 1/20/11

Private Landowners Key to Species' Survival

A new U.S. Forest Service report entitled, *"Threats to At-Risk Species in America's Private Forests,"* says that at-risk wildlife species face increasing threats as private forest owners sell their lands to housing developers and invasive species and wildfires disrupt remaining habitats. Increased housing density near and on private forests is threatening habitat for plants and animals already at risk of decline or extinction says the 24-page report by the agency's State and Private Forestry arm. While more than half of all U.S. forest land – 423 million acres – is privately owned, landowners often earn more by selling to housing developers than they earn from preserving open space, the report warns. And the report says with privately owned lands supporting a disproportionate number of critical habitats, nearly 5,000 native animals and plant species that depend on private forests are at risk of decline or extinction.

The report, is designed to aid local and state agencies and conservationists in planning future developments and identifying at-risk species, Forest Service Chief Tom Tidwell said. The new report expands on a 2008 Forest Service report forecasting declines of at-risk species as a result of housing density increases through 2030. Additional threats include wildfire and pests. But while the Forest Service has no jurisdiction over privately owned forests, the report encourages the use of tunnels under highways to allow safe passage for wildlife, increased awareness of the harmful impacts of non-native pets and an emphasis on clustered housing developments that have smaller environmental footprints. Such steps, the report notes, could be taken without abandoning new housing projects.

But the report also notes that private forest owners face economic pressure to sell their land to developers rather than preserve them for wildlife or aesthetic reasons. "The money they can make off their land is much less than they could make if they sell it," said Susan Stein, the Forest Service's open-space coordinator and lead author of the report. "There are various levels of taxes that can make it very difficult for these property owners to hold on to their lands." While local governments can generate more property taxes from housing developments than from large blocks of privately held forests, the cost of providing public services to subdivisions often neutralizes or exceeds the additional revenue agencies could gain from taxes, Stein said. "I don't think all those dots are connected when these development decisions are made," Stein said. Compounding the problem, private forests are owned by roughly 11 million people, making coherent management more difficult, Stein said.

Craig Hanson, director of the *People and Ecosystems Program* at the *World Resources Institute*, said converting forests to housing developments is more permanent than using them for agricultural production. "Forests that are converted to agriculture may one day become forest again," said Hanson, who was not involved in the Forest Service report. "But forests that are converted to urban/suburban uses are impacted for a much longer time period. Unlike corn and cotton, houses and highways are permanent crops." Private

forests are particularly crucial to protecting at-risk species in the eastern United States where, as the report notes, a higher percentage of forests are held by families and companies, Hanson said. "Since 87 percent of forest land in the U.S. South is privately held, the future of Southern forests – and their species – rests in the hands of private landowners," he said.

Sources: Phil Taylor, *Greenwire*, 1/11/11; and April Reese, *Land Letter* 1/13/11

Grazing Fees on Federal Lands to Remain at Legal Minimum

The federal government in late January said it will again charge the legal minimum to graze cattle and other livestock on federal lands, a rate far below what it costs to graze on state and private lands. The Bureau of Land Management (BLM) and the Forest Service for a fifth year in a row will charge $1.35 a month to graze a cow and her calf, one horse or five sheep or goats on public lands. The fee will apply to BLM's nearly 18,000 grazing permits and leases and more than 8,000 permits administered by the Forest Service.

The fee formula – passed by Congress in 1978 and continued indefinitely by the Reagan administration in 1986 – takes into account private grazing fees, beef cattle prices and the cost of livestock production. "The fee rises, falls, or stays the same based on market conditions, with livestock operators paying more when conditions are better and less when conditions have declined," BLM said.

But environmental groups for years have criticized the fee for failing to recover the cost of administering the program and incentivizing the over-grazing of sensitive soils and landscapes. "The problem with the fee formula is it's out of date," said Greta Anderson, Arizona director for the *Western Watersheds Project* (WWP). "It doesn't keep up with inflation or take into account the increasing costs of saving species, restoring soils and repairing vegetation habitats." The WWP – along with the *Center for Biological Diversity*, *WildEarth Guardians*, *Great Old Broads for Wilderness* and *Oregon Natural Desert Association* – last summer filed a lawsuit seeking to raise grazing fees and require agencies to re-evaluate the effects of ranching on public lands. Early this year in separate letters from the Forest Service and BLM, officials said agencies were already too overburdened with other rulemakings and land management efforts to initiate a change to the grazing formula.

Anderson said the current formula factors in the cost of grazing, meaning, for example, that when the price of fuel goes up, the price of grazing goes down. But such factors do not have the same impact on non-federal lands. "Ranchers are paying way more than [$1.35] on state trust and private lands all across the West," Anderson said. "Arguably, they can and do pay more." A Government Accountability Office report found that the federal government's grazing program cost taxpayers $115 million in fiscal 2004 and that BLM's and Forest Service's fees have decreased at the same time that fees have increased on private lands.

But Dustin Van Liew, executive director of the *Public Lands Council* and director of federal lands for the *National Cattlemen's Beef Association* said the fee structure should remain in place because it fairly reflects private grazing fees, beef cattle prices and the cost of livestock production, while also providing stability for public lands ranchers. "When one takes into account the hidden costs of range improvements and maintenance, managing on rocky and less productive terrain, and the cost of complying with various government regulations, the current grazing fee is actually relatively high," Van Liew said in an e-mail.

Source: Phil Taylor, *Greenwire*, 2/1/11

Flood Map Revisions Could Force Insurance on Some Regions

New flood maps being drawn up by the Federal Emergency Management Agency (FEMA) will render some of the nation's largest levees irrelevant by declaring some protected areas in danger of flooding. The remapping will define some regions as special flood hazard areas, while others will be granted more protection because of flood risk. The downgraded embankments will stay standing, but any home or business in their wake with a federally backed mortgage will be required to carry flood insurance after the remapping is done. That can cost as much as $330 for every person in some regions, a cost some residents say will prevent more growth in the flood plains.

Residents of the American Bottom region across the river from St. Louis have filed suit with FEMA, alleging that the agency has not justified its plans to redefine the levee and excluded local governments from its decision making process. "We work closely with the local community, incorporating any verifiable data they provide into our models so that the maps better reflect the risk the community faces," said FEMA spokeswoman Rachel Racusen. Some have alleged that the remapping is a scheme to raise money for the *National Flood Insurance Program*, which is $18.5 billion in debt after the failure of levees in Hurricane Katrina and other storms. But FEMA officials say the process started in 2005, before Katrina hit, and that remapping has added as many people to federal protections as it has removed.

Sources: Joe Barrett, *Wall Street Journal*, 11/29/10 and *Greenwire*, 11/29/10

NEPA Guidance for Mitigation and Monitoring Finalized

The White House on January 14 issued final guidance to federal agencies on how to ensure that commitments to mitigate the environmental impacts of federal projects are carried out effectively and transparently. The guidance, first released in draft form last February, emphasizes that if agencies condition approval of federal projects on environmental mitigation steps, they should adhere to those commitments by monitoring their implementation and effectiveness and making their observations available to the public. "When the federal government commits to actions to protect the environment, it should be able to show it is following through on those commitments for the American people," Nancy Sutley, chairwoman of the *White House Council on Environmental Quality* (CEQ), said in a statement. "This guidance will help agencies ensure their environmental reviews are credible, thorough and open to the public."

The final guidance is part of a four-pronged effort at CEQ to modernize the National Environmental Policy Act (NEPA) on the 40th anniversary of its becoming law. Other recently updated CEQ guidance aims to clarify when and how federal agencies must consider greenhouse gas emissions and climate change in their proposed actions; enhance public tools for reporting on NEPA activities; and clarify the use of categorical exclusions. The new guidance specifically aims to ensure agencies commit to mitigation in decision documents when they have based environmental approval of projects on such mitigation. Agencies must include the conditions when issuing grants, permits or other agency approvals, and must make funding or approvals for implementing pro-

posed actions contingent on environmental mitigation.

Agencies must also make monitoring information available to the public, preferably through agency websites, and find ways to improve ineffective mitigation. The guidance also allows the use of adaptive management, which allows an agency to take alternate steps if initial mitigation plans fail to achieve the planned environmental outcomes. Such adaptive management has been used with mixed results by land management agencies in the West in permitting and monitoring the impacts of oil and gas development on wildlife and their habitats.

Source: Phil Taylor, *Greenwire*, 1/14/11

Mountaintop Removal Mining Update

The U.S. Environmental Protection Agency (EPA) announced in mid-January its veto of a U.S. Army Corps of Engineers (Corps) permit issued in 2007 for one of the largest mountaintop-removal projects ever proposed in Appalachia. The agency's decision to halt development of the 2,278-acre Spruce No. 1 mine in Logan County, WV, drew the threat of a lawsuit from the mine's owner and expressions of outrage from the mining industry, which decried the permit revocation as a job killer that would stifle Appalachia's economic recovery. This was EPA's 13th use of its veto authority provided for under the 1972 Clean Water Act. The agency last used that authority in 2008 when it stopped the Corps' work on a flood control project that regulators say would have destroyed 67,000 acres of Mississippi River wetlands.

Before the permit was revoked its owner *Arch Coal Inc.* was given an alternative mine design that could have cut damage to streams in half for little extra cost. It would have cost the company an extra 1 percent per ton of coal mined from the project cutting stream burial from 8.3 miles to about 3.4 miles, according to one alternative plan proposed in a previously secret engineering report prepared for EPA. The report, prepared by *Morgan Worldwide Inc*., was dated Sept. 23, 2010, and included three mine designs that would have reduced the project's environmental impact.

Morgan Worldwide has helped West Virginia craft stronger state environmental regulations in the past and has designed mining projects around the globe. "This analysis of the Spruce No. 1 Mine permit demonstrates that an alternative mine design can meet the project objective and is practicable, in so much that it is capable of being done using existing mining technology," the report said. *Arch Coal* did not comment on the *Morgan* report and did not adopt any of the report's recommendations. And, one of the reasons cited by EPA for revoking the mine's permit was the company's "failure to adequately evaluate less environmentally damaging alternatives."

"EPA has repeatedly stated its belief that there are alternative mine design and construction practices that would further reduce aquatic resource impacts, while allowing the majority of coal present on site to be mined in a cost effective and technically feasible manner," the agency said in its decision to veto the permit. EPA officials said the permit would have allowed the company to dump 110 million cubic yards of mine waste into waterways, bury 6 miles of streams, pollute waters on the site and downstream that would kill wildlife, and dynamite 2,200 acres of mountains and forestland. "The proposed Spruce No. 1 Mine would use destructive and unsustainable mining practices that jeopardize the health of Appalachian communities and clean water on which they depend," Assistant EPA Administrator for Water Peter Silva said in a statement. "Coal and coal mining are part of our nation's energy future and EPA has worked with companies to design mining operations that adequately protect our nation's waters. We have a responsibility under the law to protect water quality and safeguard the people who rely on clean water," he said.

But *Arch Coal* vowed to go to court to defend the dredge-and-fill permit and "the right to have a predictable regulatory environment." A company spokeswoman said EPA's decision "blocks an additional $250 million investment and 250 well-paying American jobs." "We remain shocked and dismayed at EPA's continued onslaught with respect to this validly issued permit," *Arch Coal* spokeswoman Kim Link said. "We believe this decision will have a chilling effect on future U.S. investment because every business possessing or requiring a permit under Section 404 of the Clean Water Act will fear similar overreaching by the EPA. It's a risk many businesses cannot afford to take."

But environmentalists cheered the move just as forcefully as a triumph of science over industry influence. "It is a relief after all of these years that at least one agency has shown the will to follow the law and the science," said Joe Lovett, lawyer and executive director of the *Appalachian Center for the Economy & the Environment*, a nonprofit that has been fighting the mine for more than 12 years. "Today, the EPA has helped to save these beautiful hollows for future generations."

Joan Mulhern, senior legislative counsel for *Earthjustice*, called the decision "a true victory for the communities nearby, and for all Americans across the country who are fighting to protect our precious natural resources from industrial pollution." "While this is only one mine of many," she said, "we hope this veto will be the beginning of the end of the devastating practice of mountaintop removal mining by bringing the fundamental legal protection of the Clean Water Act to the whole Appalachian region, once and for all."

But Rep. David McKinley, a freshman West Virginia Republican filed a bipartisan House bill in late January that would prevent U.S. EPA from retroactively vetoing water permits. McKinley's legislation (H.R. 457) also aims to reverse EPA's permit veto by setting an effective date of Jan. 1. "For years, the EPA has been bullying coal companies and the workers they employ," McKinley said in a statement. "But this isn't just about the Spruce Mine. If their new policy of retroactive revocation is allowed to stand, dozens of heavily-regulated industries and hundreds of thousands of American jobs hang in the balance," he said. The bill is the first for McKinley, who captured a seat last November that had been held by Democrats for more than 40 years. His bill is co-sponsored by Reps. Shelley Moore Capito (R/WV), Nick Rahall (D/WV), Bill Johnson (R/OH) and Bob Gibbs (R/OH). In his statement, McKinley said that the White House's top regulatory official, Cass Sunstein, has said the Supreme Court has generally frowned upon retroactive regulatory action of the type used in the Spruce mine case.

Meanwhile, West Virginia Senator Joe Manchin (D) introduced his own bill in late January that would prevent EPA from retroactively vetoing a permit. Also Senator John D. Rockefeller IV (D/WV) wrote a letter to President Obama objecting to the retroactive veto of the "dredge and fill" permit. "As a nation we must not fall into the trap of forcing unnecessary choices between protecting the environment and having good paying jobs that support energy independence. We must demand both and find a responsible balance," Rockefeller wrote. The veto, he said, "does not strike that balance – it seeks to tip the scales."

But *Earthjustice's* Mulhern predicts that if the bills pass they will likely fail to reverse EPA's veto decision because courts generally disapprove of retroactive legislation. "The Spruce permit is gone. It has been vetoed. It is a final action," Mulhern said. "That's not to say they couldn't reapply sometime in the future, but the permit that has been issued has been legally revoked by EPA, and it's gone. And I don't believe it's in Congress' power to retroactively revive a permit that no longer exists." She also argues that the Clean Water Act protects EPA's right to revoke permits at any time, including retroactively, and also demands that regulators pay attention to "cumulative" impacts that could reach a level at which further mining would be unacceptable. She also said she believes EPA is on firm legal footing in the Spruce mine case because of the thousands of public comments received in favor of stopping the mine and the agency's detailed written justification for its decision. "Those who claim that EPA's concerns were new or a surprise or that it came out of the blue are simply not familiar with the facts of the case," she said. "I'm not sure where the EPA goes from here," Mulhern said. "But I think if they're going to be consistent and apply the same scientific information and legal rationale to other mines that they applied to Spruce, then we should see a lot fewer mines."

Meanwhile, West Virginia's acting Gov. Earl Ray Tomblin (D) said in his State of the State speech that he would "aggressively pursue" legal action to oppose the federal government's plans to slow mountaintop mining. He mentioned the Upper Big Branch mine disaster of April but did not say he planned to make companies more accountable for safety. Environmentalists said they were concerned about Tomblin's plans for the state, calling him "short-sighted".

Experts from the Obama administration estimate that their proposal to maintain the quality and quantity of streams around mining operations would significantly restrict the coal industry, according to a plan obtained by the *Associated Press*. Expected to affect mines from Louisiana to Alaska, the plan drafted by the Office of Surface Mining Reclamation (OSM) within the Interior Department could trim 7,000 of the 80,600 coal jobs in the United States. Production would decrease or stagnate in 22 states with production increasing by 15 percent in North Dakota, Wyoming and Montana. The *National Mining Association* said OSM is underestimating the effects of the proposed rules. "OSM's preferred alternative will destroy tens of thousands of coal-related jobs across the country from Appalachia to Alaska and Illinois to Texas with no demonstrated benefit to the environment," the trade group wrote in a statement. "OSM's own analysis provides a very conservative estimate of jobs that will be eliminated, incomes that will be lost and state revenues that will be foregone at both surface and underground coal mining operations," they said.

But a peer-reviewed study published last January in the journal *Science* found higher incidents of heart problems, cancer and death among both men and women in the vicinity of mountaintop mining operations. "The science is so overwhelming that the only conclusion that one can reach is that mountaintop mining needs to be stopped," the study's lead author, Margaret Palmer of the University of Maryland *Center for Environmental Sciences*, said when the study was released. But further investigation is under way. EPA and West Virginia's state environmental agency in January awarded $600,000 to West Virginia University to investigate mountaintop mining's effects on local watersheds.

Mining opponents have also urged Congress to pass a law that would negate a 2002 decision by the George W. Bush administration to classify mining leftovers as "fill" that could be legally dumped into a waterway, given the appropriate Clean Water Act permit from the Corps. "We think it's really important that the administration get out of the business of permitting waste dumps in our nation's streams in the first place," said Jon Devine, senior attorney at the *Natural Resources Defense Council*. "The Clean Water Act was passed to stop the use of our waterways as waste receptacles." Rep. Frank Pallone (D/NJ) introduced legislation in the last Congress (H.R. 1310) that would have redefined "fill" under the Clean Water Act to exclude mining waste. That bill attracted 172 co-sponsors but failed to emerge from subcommittee. Those efforts and others like it are even less likely to garner widespread support this Congress, with Republican control of the House and with an anemic national economy.

On another front, a Frankfort, Kentucky, judge has ruled that four environmental advocacy groups will be allowed to intervene in a court settlement between the state's *Energy and Environment Cabinet* (Cabinet) and Kentucky's two largest surface-mine coal producers. The state in December settled a lawsuit with *Frasure Creek Mining* and *ICG* of Hazard and Knott Counties over about 2,700 instances of bad record keeping and reporting of pollutants discharged into Kentucky rivers from mine sites. *Frasure Creek* and *ICG* agreed to pay a total of $660,000 and to fix problems at labs contracted with testing the water for pollution.

The four environmental groups, which triggered the settlement in October by filing notice of intent to sue *ICG* and *Frasure Creek* under the federal Clean Water Act, said the state's investigation was weak and did not protect the citizens of Kentucky. The groups had reviewed two years' worth of pollution monitoring reports and alleged 20,000 instances of fraudulent reporting and over pollution. The environmental groups said fines for the violations the state found could have reached $103 million. "The *Cabinet*, by its own admission, has ignored these now admitted violations for years," Franklin Circuit Judge Phillip Shepherd wrote in his ruling. "The citizens who brought these violations to light through their own efforts have a right to be heard." Shepherd ordered attorneys for the coal companies, the state and the environmentalists to mediation for a three-month period to examine the state's investigation. He set a hearing date for June 14, 2011. The state, in its investigation, found no instances of fraud and characterized most of the violations as paperwork errors.

Gov. Steve Beshear called for a certification process to be put in place for laboratories that test mine discharge. "From what little we know, the C*abinet* didn't go far enough in its investigation," said attorney Mary Cromer of the *Appalachian Citizens Law Center*, representing the four groups: *Appalachian Voices of North Carolina, Waterkeeper Alliance of New York, Kentucky Riverkeeper* and *Kentuckians for the Commonwealth*. The companies have said they are behaving responsibly. A spokesman for *ICG* said allegations of fraud are "patently false and ludicrous." *ICG* and *Frasure Creek*, in the settlement with the state, agreed to bring their contracting water laboratories up to scratch or to switch labs. The state opposed the environmental groups' motion to intervene in the settlement, saying their demands were an "unwarranted burden." Environmental Protection Commissioner Bruce Scott said the *Cabinet* is reviewing Shepherd's order.

Meanwhile, twenty-five states and three American Indian tribes will share in more than $395 million in federal funds to clean up abandoned coal mines. Wyoming, the nation's No. 1 coal producer, will receive roughly one-third of the fiscal year 2011 grant money, or $133 million from the

Interior Department's Abandoned Mine Land Program. Other top-receiving Western states were Montana, with $12.1 million, and Colorado at $7.2 million. The Navajo Nation, whose lands cover portions of Arizona and New Mexico, will receive $6.7 million. Wyoming has proposed to spend $50 million on coal reclamation projects to be undertaken by the Wyoming Department of Environmental Quality, while the remaining funding would go to programs and projects at the University of Wyoming, including the launch of the *High Plains Gasification-Advanced Technology Center*. Part of the money – $150 million – comes from fees based on U.S. coal production. The remaining $245 million comes from the U.S. Treasury. Since its inception in 1977, the Abandoned Mine Land Program has provided more than $7 billion to clean up more than 285,000 acres of polluted mine sites. "These grants have significant economic and environmental impacts in coalfield communities across the country," Interior Secretary Ken Salazar said in a statement announcing the latest awards.

Sources: *E&ENews PM*, 9/2/08; Ken Ward Jr., *Charleston [W.Va.] Gazette*, 1/12 and 1/17/11; *Charleston [W.Va.] Gazette*, 1/26/11; Dori Hjalmarson, *Lexington [KY] Herald-Leader*, 1/12/11; *E&ENews PM*, 1/7/10; Jeremy Pelzer, *Casper [Wy] Star-Tribune*, 12/16/10; Paul Quinlan, *Greenwire*, 1/24 and 1/27/11; *Greenwire*, 12/16/10 and 1/13, 1/18, 1/27 and 2/15/11

Fracking Update

A natural gas drilling operation in West Virginia's Monongahela National Forest killed dozens of trees, damaged roads and eroded land, according to a new scientific report by the U.S. Forest Service. The report is one of the most detailed studies so far of the potential environmental impacts of the booming natural gas industry, and offers lessons for policy makers and regulators with regard to fracking. The site was not drilling into *Marcellus Shale*, which officials say requires more fracking fluid. "It sort of opened our eyes to the issues," said Thomas Schuler, an agency forester and author of the report. "This is an issue that is affecting West Virginia, Pennsylvania, parts of the Northeast and other parts of the country," he said. *Berry Energy* used water and chemicals to fracture rocks deep underground and release natural gas in a portion of the forest. The study found that drilling fluids were sprayed into the air in May 2008 due to "a loss of control of the drill bore." Scientists also found "browning of foliage and a lack of ground vegetation." The company disposed of some of its used drilling fluids by spraying them onto the land in the forest – a practice that is generally allowed for West Virginia wells, but is illegal for *Marcellus* operations.

In New York, hydraulic fracturing will not be allowed to begin until the state environmental department releases a report on its impacts, likely in early June. New Democratic Gov. Andrew Cuomo's nominee to lead the state Department of Environmental Conservation, Joseph Martens, said that the department *will not*, however, wait for U.S. EPA to release its own study on hydrofracking, as the practice is known. In remarks last year under former governor David Paterson (D), Martens said the state *should* wait until EPA released its study. The natural gas drilling method involves pumping chemicals, water and sand underground to break through rocks and extract the gas. "We're looking at all of these issues and taking them as seriously as we can," Martens said in February. "We won't undertake drilling until it can be done safely." Both environmentalists and business groups applauded the cautionary stance Martens is taking on the issue.

In Southlake, TX, the city council in late January imposed a 180-day ban on applications for new natural gas drilling and pipelines. Council members said that the moratorium will give them time to review Southlake's drilling ordinance, which went into effect in 2008. Councilwoman Pamela Muller said the ordinance needs to be stricter to protect air and water quality. The ordinance also may need to take into effect new studies and possible changes at the *Texas Railroad Commission*, which oversees the state's drilling. "We need time before someone else comes in with an application to thoroughly vet those issues," said Mayor John Terrell.

In Findlay, PA, officials have crafted natural gas drilling rules that they say will both encourage business and protect residents from potential environmental impacts. Township supervisors are allowing natural gas drilling of the *Marcellus Shale*, but have passed rules that limit noise, dust, odors, pollution, road damage and safety hazards. They also prohibit using explosives for oil and gas exploration. Officials have also banned gas wells from neighborhoods through a zoning ordinance. "We think it's going to create a tremendous boon in jobs," said Findlay Supervisor Chairman Thomas Gallant. "We want to ensure that if they do drill, we have protections in place. But we don't want to make the regulations so onerous that they pass over the township." County officials said that securing agreements to drill on county-owned land by the local airport is a major priority. Though the township does not have any active wells yet, some Findlay property owners have already signed leases with drilling companies.

Meanwhile, residents in northeastern Pennsylvania's Dimock Township had been expecting the state Department of Environmental Protection to build them a pipeline to bring in fresh water after the state found that *Cabot Oil and Gas Corporation's* drilling operations had caused methane contamination in their wells. But in mid December, the state department announced that it decided to settle instead with *Cabot*, which denies it is the source of the contamination. Nineteen families will now receive payments from *Cabot* worth twice the value of their homes, and state environmental officials will receive $500,000 to cover its investigation of the contamination. Families have 85 days to accept. Julie Sautner, whose well was the first to be contaminated, said, "They destroy your life, your water, and for compensation they wave a little bit of money and expect you to take it and abandon your home," Sautner said. "Just take the money and shut up. This is America, and I never expected this." Michael Smith, a spokesman for DEP, said that the department decided to settle because of "wide opposition" to the pipeline.

In the small town of Guy, Arkansas researchers and residents are wondering if natural gas wells could have something to do with a recent spate of earthquakes. The town has experienced thousands of earthquakes since early fall in a phenomenon termed the Guy earthquake swarm. While only a fraction have been felt and none have been very large or done much damage, the swarm has attracted researchers from the *Arkansas Geological Society*. They are studying a possible link between the earthquakes and natural gas drilling operations that first moved into the region several years ago to drill in the *Fayetteville Shale*, using hydraulic fracturing. Local landowners signed leases to allow drilling companies to build wells. "All this (seismic) activity happened after these wells had gone online," said Scott Ausbrooks, a geologist with the Arkansas Geological Survey. Swarms have happened naturally in the area in the past, before natural gas companies came. But Ausbrooks said that does not discount the notion that drilling has something to do with the recent spate. "What you could be looking at is a case where the

strain was already there," he said. "You'd be fast-forwarding the clock." Researchers are currently studying whether the earthquake activity matches up with activity at the gas wells. The *Arkansas Oil and Gas Commission* has imposed a six-month extension on a ban on wells, citing a need for more research. The gas industry disputed the link. "We've found no causal connection," said Charles Morgan, a lawyer representing an energy company. "The evidence is anecdotal at best."

In Texas, Fort Worth-based *Range Resources Corp*. is appealing a U.S. EPA order that it deal with methane contamination in two residential water wells in Parker County, claiming the order is "both factually and legally unsupportable." In the appeal filed in late January, the natural gas producer says its deep *Barnett Shale* wells did not cause the contamination and that shallower gas wells drilled in the *Strawn* formation in the early 1980s are the culprit. *Range's* experts have said that *Strawn* gas has migrated into the Trinity Aquifer, which supplies the contaminated wells with water. *Range* said in the appeal that EPA filed the order "without notice to *Range*, without offering *Range* an opportunity to be heard and without disclosing the evidence on which it relied." The appeal comes after the U.S. Justice Department filed a complaint against *Range* for failing to comply with the EPA order, which was issued on Dec. 7, 2010.

In mid December, also in Texas, a Dallas attorney filed two lawsuits against *Barnett Shale* natural gas drilling companies for contamination of private water wells. "We believe that hundreds and more likely thousands of property owners have already had the water beneath their surface essentially ruined as a result of nearby drilling and fracking in the *Barnett Shale*," said Dallas attorney Windle Turley. "This is why these damage lawsuits are being filed." In one lawsuit filed against *Chesapeake Energy Corp.* and *Encana Oil & Gas Inc*., a property owner claims that testing results show her water is contaminated with chemicals from drilling and hydraulic fracturing. In the second against *Devon Energy Corp.*, a couple claims that their water became contaminated with a "gray sediment" after *Devon* began drilling. A spokesperson for *Devon* said the company does not comment on pending litigation, but *Chesapeake* spokesman Brian Murnahan denied that it was contaminating groundwater. "With more than 2,000 wells drilled in the *Barnett Shale* formation, *Chesapeake* has established an outstanding record of encasing wells and protecting the region's groundwater," Murnahan said. "The press release that accompanied this lawsuit suggests that there is widespread water contamination in the *Barnett Shale*. That is totally false. It is irresponsible for lawyers to opportunistically prey on people's fears and misconceptions to encourage baseless lawsuits."

Meanwhile, natural gas drillers are looking into reducing their environmental footprint and their costs. *Halliburton Co.* announced in November that it would reduce the footprint of its operations by redesigning its equipment to be more efficient, reducing the amount of water it uses and the number of personnel needed in its operations. "We're ready to change the map," said Ron Hyden, *Halliburton's* technology director for production enhancement. "We were concerned that a 1980s [hydraulic fracturing] operation would not be sustainable in this century." *Halliburton's* efforts make financial sense as well, as the company aims to cut capital costs per well by 20 percent, reduce its work force on sites by 30 percent and cut the time required to get a well ready for production by 25 percent. The company has also designed a fracking-chemical formula called *CleanStim* using the same ingredients used to make ice cream and brew beer, according to Jim Brown, *Halliburton's* Western Hemisphere president.

Baker Hughes Inc. launched its *BJ SmartCare* line in mid December, which would allow drillers to adjust their fluids for toxicity and flammability. It said some of the components included fatty acids, essential oils and guar gum. It will substitute petroleum products with mineral oil. *Flotek Industries Inc*. has also said it is testing biodegradable fracking chemicals. Using the environmentally friendly chemicals will have a "minimal" impact on drilling costs, according to *Baker Hughe*s. Other companies are looking at environmentally sustainable methods such as efforts to recycle wastewater streams and use more pumping equipment to reduce the number of trucks used.

Oil and gas drilling companies have also moved toward voluntary public disclosure of hydraulic-fracturing chemicals by uniting behind state regulators' efforts to create a national registry of the chemicals. The registry is intended as a template for a state-based system of public disclosure. It comes amid increasing calls from lawmakers, environmental groups and other activists for the federal government to require disclosure. "The work that our member companies have put into reaching a consensus to participate in this registry is testament to the commitment they have made to making these disclosures and earning the public trust," said Bruce Thompson, president of the *American Exploration & Production Council* (AXPC). The *Independent Petroleum Association of America* and *America's Natural Gas Alliance* joined AXPC in endorsing the effort of the *Ground Water Protection Council* and the *Interstate Oil and Gas Compact Commission* to develop a disclosure registry.

But environmentalists say the agreement on voluntary disclosure is no substitute for requiring every driller, including those who do not abide by trade association practices, to publicly disclose fracturing chemicals. "We are glad there is finally general consensus in support of disclosing the chemicals, possibly quite toxic, being used near drinking water sources," said Amy Mall of the *Natural Resources Defense Council*. "As we have seen in Wyoming, companies did not protest a regulatory requirement for full and public disclosure. While voluntary disclosure is a nice concept, we think it is now clear that requiring disclosure is what the public wants and is something with which companies can easily comply."

The plan is for companies to disclose the information on a well-by-well basis. It is not clear how detailed it will be beyond that, such as whether volumes or *Chemical Abstract Service* numbers, which identify basic chemicals, will be used. The registry could serve as a guide and example for states that want to require disclosure of fracturing chemicals in their states. The drilling industry has long argued that making public such detail would be giving out trade secrets about a perfectly safe process.

Meanwhile, over in the oil industry a new drilling technique similar to hydraulic fracturing is opening up vast deposits in North Dakota, Colorado, Texas and California. These previously untapped oil fields could bring in as much as 2 million barrels of oil a day and reduce the country's oil imports by more than half within 10 years, according to oil executives and analysts. "That's a significant contribution to energy security," says Ed Morse, head of commodities research at *Credit Suisse Group AG*. The technology, like hydraulic fracturing for natural gas, involves drilling into rock and pumping water, sand and chemicals to release oil. Drillers have found new chemicals to use and ways to increase the amount of cracks in the rock, allowing the oil to be released fast enough to make it economical. The method was first used in 2007 in

the 25,000-square-mile *Bakken* oil shale formation under North Dakota and Montana, but it was unknown then whether it could be applied to other oil fields. In just the past 12 months usage of the technology has been steadily growing. In *Bakken*, production rose 50 percent in the past year and overwhelmed the pipelines used to bring the oil to the market. The increase in production helped the country's oil production grow for the second year in a row, despite the loss of drilling in the Gulf of Mexico following the *Deepwater Horizon* incident. Big-name investors like *Royal Dutch Shell PLC*, *BP PLC* and *Norway's Statoil* are now pouring billions of dollars into the Western oil fields. "We've completely transformed the natural gas industry, and I wouldn't be surprised if we transform the oil business in the next few years too," says Aubrey McClendon, CEO of *Chesapeake Energy Corp*. Environmentalists, who criticize hydraulic fracturing in the natural gas industry, say they are concerned the wastewater produced in the technique could contaminate drinking water.

Sources: Ken Ward Jr., *Charlestown [W.Va.] Gazette*, 2/7/11; Nick Reisman, *Binghamton [N.Y] Press & Sun-Bulletin*, 2/8/11; Andrea Iglar, *Pittsburgh Post-Gazette*, 1/20/11; Nicholas Sakelaris, *Southlake [Texas] Journal*, 1/18/11; Nicholas Kusnetz, *ProPublica/ Pittsburgh Post-Gazette*, 12/22/10; Campbell Robertson, *New York Times*, 2/5/11;Brett Clanton, *Houston Chronicle*, 12/18/10; Ryan Dezember, *Wall Street Journal*, 12/15/10; Jonathan Fahey, *AP*, 2/10/11; Mike Soraghan; *Greenwire*, 12/3/10; *Greenwire*, 12/15, 12/16, 12/20 and 12/22/10; and 1/20, 1/21, 2/7, 2/8 and 2/10/11

Climate Change Update

Scientists at the National Oceanic and Atmospheric Administration (NOAA) announced in mid-January that the year 2010 tied with 2005 as the warmest year on record since global surface temperature readings began in 1880. Last year was also the 34th consecutive year that global temperatures have been above the 20th-century average, NOAA reported. Global land surface temperatures in 2010 were 1.80ºF above that average, and NOAA scientists found that the year was the 23rd-warmest year on record in the contiguous United States. Arctic sea ice also had the longest growing season since records began in 1979. Though it also had a short melting season, Arctic ice extent reached its third-smallest minimum behind 2007 and 2008 And according to the *Global Historical Climatology Network*, 2010 was also globally the wettest year ever recorded.

Despite disappearing sea ice, the Obama administration has ignored legal calls from environmentalists to revisit the status of the polar bear. U.S. District Judge Emmet Sullivan of the District of Columbia responded by ordering the U.S. Fish and Wildlife Service (FWS) to provide a more detailed legal basis for that position. So in late December FWS officials outlined their legal reasoning in a memorandum filed with the court. It focused on the phrase "in danger of extinction," which is used in the Endangered Species Act (ESA) to define what constitutes an endangered species. Judge Sullivan had said the meaning of the phrase was unclear. Under Supreme Court precedent, when the meaning of a statutory phrase is not easily discernible, government agencies have discretion to interpret the law, within certain boundaries. FWS maintains that, under its interpretation of the statute, a species is only endangered when it is "currently on the brink of extinction in the wild." The memorandum stated that the agency found that the species "has not been restricted to a critically small range or critically low numbers, and has yet to suffer any substantial reduction in numbers or range." It stated further that the polar bear does "face a serious threat" and is "likely to become an endangered species in the foreseeable future." The findings therefor justify a listing as threatened, which is defined in the ESA as a species "which is likely to become an endangered species in the foreseeable future," the agency added.

The court case has implications beyond the polar bear because environmentalists would like to see the ESA used as a tool for reducing greenhouse gas (GHG) emissions. If the polar bear were listed as endangered, the government could be required to act to curb emissions to protect its habitat. As long as the bear is listed as threatened, that cannot happen because of a Bush-era regulation, retained by the Obama administration, that states that a finding that polar bears were covered by the ESA could not be used as grounds for reducing GHG emissions nationwide. The regulation only applies to a threatened listing. Andrew Wetzler, an attorney with the *Natural Resources Defense Council*, conceded he hadn't expected the government to change its position, but he said it was a lost opportunity for the administration. "One would hope that the growing scientific consensus about the warming of the Arctic would have spurred them into action," he added.

The FWS announced earlier that it will protect more than 187,000 square miles of onshore barrier islands, denning areas and offshore sea ice as critical habitat for the polar bear – the largest proposal the government has ever put forward in a bid to protect an imperiled species. In total, the protected area is nearly a third the size of Alaska and larger than the states of Washington and Oregon combined. Most of the habitat protections would go to offshore sea ice. The final designation trims the area the administration proposed for protection last year. That proposal would have protected more than 200,000 square miles of habitat. According to the FWS, the reductions are due to corrections designed to more accurately reflect the U.S. boundary for sea ice. FWS also exempted five Air Force radar sites, all existing man-made structures and the native communities of Barrow and Kaktovik, AK. Officials from the Alaska Department of Fish and Game have argued that the proposed habitat protections were too large and would be too costly for the state's petroleum industry. But an economic analysis from the Interior Department determined the protections would have a "relatively small" economic impact, costing about $669,000 over the next 29 years, or almost $54,000 per year. That estimate included forecast impacts to oil and gas exploration, development, production and construction. The U.S. Geological Survey has said shrinking sea ice could eliminate two-thirds of the world's polar bears – and all Alaskan bears – in the next 50 years. Polar bears rely on sea ice to hunt, mate and make dens for their young.

A report introduced at international climate negotiations in Cancun, Mexico, stated that glaciers in the Himalayas are retreating at an average rate of 10 to 15 meters per year, though in some cases the rate can be as high as 70 meters. The melt is having the effect both of flooding communities in the region and of threatening their supply of water, the report says. "The fact is that glaciers are retreating. Some are advancing, but by and large, they are retreating, and we need to study them. And they are an important element in our future adaption," the report said.

A machine invented by Charles David Keeling in the 1950s has become the touchstone of climate science by measuring the levels of carbon dioxide (CO_2) in air samples. The line graph drawn from those measurements has been steadily rising for decades. When the measurement was first made, the amount of CO_2 was 310 parts per million (ppm). In 2005, the machine measured 380 ppm CO_2 , and the number is expected to hit 400 in the next few years. While it is clear that levels

of CO_2 are rising, it is still unclear what this rise will do to the temperature of the Earth. But scientists say CO_2 emissions trap heat close to the surface of the earth, leading to a rise in temperature that can trigger melting of ice sheets, rising sea levels and altering of weather patterns with more extreme events.

For a long time, scientists thought the essential role played by soil bacteria in the northern carbon cycle was purely seasonal. During summer, heat-loving bugs would tear through leaf litter and waste with a frenzy, multiplying rapidly. Then, as winter's cloak descended and dirt froze, the microbes would act as microscopic bears, barely alive, waiting for the thaw. But scientists have discovered in recent years that the carbon cycle never sleeps for soil bacteria. Using trapped pockets of salty water and creating their own antifreeze, bugs are stubborn survivalists. Up to a third of yearly CO_2 emissions from northern soils can occur in winter, driven by microbes.

Cold weather has also long been considered by wildlife managers and biologists to be the best hope for controlling the spread of exotic species. Then in January, Florida experienced its coldest 12-day period since 1940, and the cold spell killed record numbers of fish and manatees. But canals and other warm refuges sheltered enough tropical fish to fuel renewed population booms. In fact, some exotic species weathered the cold better than native creatures. "To paraphrase Mark Twain, those people who think all the pythons have died are greatly exaggerating," said Frank Mazzotti, a wildlife ecologist at the University of Florida.

If second-generation biofuel crops were planted on marginal land around the world, enough could be grown to supply between 10 and 58 percent of current world liquid fuel consumption, a new study has found. The research assesses land area in the continental United States, Africa, China, Europe, India and South America that could support biofuels crops without irrigation. It also looks at various combinations of abandoned and degraded cropland, mixed crop and vegetation land, and grasslands with marginal productivity, to roughly estimate the space available for biofuels without affecting agriculture or pasturing. The research, published in the latest issue of *Environmental Science and Technology*, was led by University of Illinois, Urbana-Champaign, water resources professor Ximing Cai. It was funded in part by the *Environmental Biosciences Institute*, a joint project of energy giant *BP PLC*, Cai's university, the University of California, Berkeley, and the *Lawrence Berkeley National Laboratory*. A major focus of the study was to reframe the land availability question in light of several ongoing debates in the biofuels community: (1) using resources for fuel versus food; (2) the impact of land-use change on small-scale farmers and indigenous people; (3) potential increases in carbon emissions from converting vegetation that currently stores large amounts of CO_2; (4) introducing invasive species; and (5) water stresses. "We hope this will provide a physical basis for future research," lead researcher Cai said. "For example, agricultural economists could use the data set to do some research with the impact of institutions, community acceptance and so on, or some impact on the market." The research team also plans to look at the future effects of a changing climate on the lands assessed in the study.

Meanwhile, the *National Wildlife Federation* (NWF), in conjunction with top federal scientists, has unveiled a new guide designed to help land managers and conservation leaders protect wildlife and habitats from the impacts of a warming climate. The 176-page guide, called "*Scanning the Conservation Horizon: A Guide to Climate Change Vulnerability Assessment*," includes a description of the scientific tools necessary to determine climate vulnerability, as well as provides case studies of vulnerability assessments completed for regions as varied as the Chesapeake Bay and New Mexico's Middle Rio Grande Valley. At the center of the peer-reviewed guide are guidelines for developing climate "vulnerability assessments" to determine which regions and species face the greatest risk of the negative effects of global warming. "The crucial first step in protecting our wildlife and wild places from global warming is to understand which ecological resources are in greatest jeopardy," said Bruce Stein, NWF's director of climate change adaptation and one of the main authors of the guide. "Vulnerability assessment is an essential tool for crafting truly climate-smart conservation strategies," he said. According to the guide, "climate vulnerability" is measured by three primary indices: a species' or ecosystem's sensitivity to climate change, its exposure to changing conditions, and its capacity to adapt to new climate conditions. The authors state, "It is clear from current trends and future projections that the planet's living resources – humans, plants, and animals alike – will exist in an environment in the future that will be vastly different from the one we have experienced over the past century, during which our conservation traditions evolved." Moreover, "These and other changes are bellwethers for what scientists project will be even more dramatic impacts for many species, habitats, and ecosystems in the decades to come."

A new report published by Nick Mabey, CEO of British nonprofit *E3G*, lifts time-tested techniques from the national security community to lay out a risk management approach to setting emissions goals, investing in research and adaptation, planning for disasters and designing international law. It is an approach they hope can change the conversation about climate at a time when Republicans on Capitol Hill are launching attacks on GHG regulations and questioning the fundamentals of climate science. "It allows a debate where all the information can be used and assessed and it's a pragmatic and not a beliefs-based approach," said Mabey, who previously led work on energy, climate and instability for the British prime minister's *Strategy Unit*. "People can have a conversation about 'how much climate risk are you prepared to take?', just like we had conversations about deterrence in the Cold War, just like we have conversations about civil liberties versus terrorist risk." "Risk is not a feeling, it's a number," said Jay Gulledge, a senior scientist at the *Pew Center on Global Climate Change* and a co-author of the report. The authors suggest a three-pronged approach to climate change policy based roughly on degrees of warming they think are most realistic: aim to keep warming below 2° C; build and budget with 3 to 4 degrees of warming in mind; and create contingency plans for the effects of 5 to 7 degrees of warming. It is a framework Mabey and Gulledge say is pegged to policy makers, who often have little use for a number like global average temperature rise and need specific information to deal with questions like whether changing precipitation patterns will make a dam useless.

Meanwhile, Andrew Weaver, a Canadian climate scientist, is suing for libel over a January article written by Tim Ball, a climate skeptic and former professor of climatology at the University of Winnipeg. In the article published in *Canada Free Press*, a conservative website, Ball wrote that Weaver lacked a basic understanding of climate science and incorrectly said he would not be taking part in the next U.N. climate panel because of doubts of his credibility. Weaver, a lead author of the 2007 *U.N. Intergovernmental Panel on Climate Change*, (IPCC) report is seeking to get the "public record corrected" and his name "vindicated from the aspersions cast against his character," according

to his attorney. Weaver is already involved in the next IPCC report. *Canada Free Press* has removed the article from its site, along with many of Ball's other articles, and has erased his biographical information and the archive of his work. Ball, who is hiring his own lawyer to fight the suit, said he had made "one small mistake" in the article when he said Weaver was leaving the IPCC but also added, "I stand by the story." Weaver is still pursuing libel action against a conservative Canadian newspaper, the *National Post*, for articles that he also alleges attempted to question his credibility.

Two former U.S. State Department officials involved in previous U.N. climate talks said in December at the international climate change meeting in Cancun, Mexico that continuing to talk about a "magical treaty" for global warming is "completely unrealistic." The United Nations should instead work on smaller measures to address global warming, said Tim Wirth and Eileen Claussen. They said that without U.S. legislation to address climate change, the rest of the world's countries won't sign on to an over arching treaty. "We have to put aside this idea that we will have this one magical treaty," said Claussen, now president of the *Pew Center on Global Climate Change*. "That's not going to happen for some time and people need to start communicating and understanding that reality." Wirth and Claussen said that countries should focus on giving incentives for clean energy and tightly regulating polluters.

Sources: Justin Gillis, *New York Times*, 12/21/10; Curtis Morgan, *Miami Herald*, 2/9/11; John Collins Rudolf, *New York Times*, 2/8/11; Kim Chipman, *Bloomberg*, 12/9/10; Lawrence Hurley, *Greenwire*, 12/23/10; Allison Winter, *Greenwire Update*, 11/24/10; Amanda Peterka, *Greenwire*, 1/12/11; Paul Voosen, *Greenwire*, 11/29/10; Scott Streater, *Greenwire*, 1/27/11; Annie Snider, *Greenwire*, 2/8/11; Jenny Mandel, *Greenwire*, 1/11/11; and *Greenwire*, 12/7, 12/8 and 12/22/10; and 2/9 and 2/11/11

Underwater *Dreissena* Search Protocols Available

The *Procedures for Conducting Underwater Searches for Invasive Mussels (Dreissena sp.)*, by Noah Adams, is now available from the U.S. Geological Survey. The manual discusses the mussels themselves, dive and search practices, sample collection, decontamination of equipment, and other relevant topics. Thanks to additional funding from the U.S. Fish & Wildlife Service, an associated dive training program is also being planned for 2011. As many as three upcoming dive training events will be held. The publication can be downloaded at: http://pubs.usgs.gov/of/2010/1308/

Meetings of Interest

Apr. 28-29: 43rd Annual Meeting of the Mississippi River Research Consortium, La Crosse, WI. See: http://www.ngrrec.org/mrrc/

May 3-5: Aquatic Weed Control Short Course, Coral Springs Marriott, Coral Springs, FL. See: www.conference.ifas.ufl.edu/aw

May 10-11: Negotiation Skills for Natural Resource Professionals: Building a Foundation, U.S. Geological Survey, Ft. Collins Science Center, Ft. Collins, CO. See: http://www.fort.usgs.gov/NegTraining/announcement.htm

May 22-26: World Environmental and Water Resources Conference, Palm Springs, CA. See: http://content.asce.org/conferences/ewri2011/index.html

May 23-25: Water Resources Management 2011, Riverside, CA, See: http://www.wessex.ac.uk/11-conferences/waterresources-management-2011.html

May 24-27: Climate Information for Managing Risks, Caribe Royale, Orlando, FL, See: www.conference.ifas.ufl.edu/CIMR

May 25-27: River Basin Management 2011, Riverside, CA, See: http://www.wessex.ac.uk/11-conferences/riverbasinmanagement-2011.html

Jul 11-14: 4th Annual Meeting of the North American Chapter of the World Sturgeon Conservation Society, Vancouver Island University campus, Nanaimo, B.C., Canada, See: http://www.viu.ca/wscs-nac/ or http://www.wscs.info

Aug. 1-5: 4th National Conference on Ecosystem Restoration (NCER), Baltimore, MD. See: www.conference.ifas.ufl.edu/NCER2011

Sep. 4-8: 141st Annual Meeting of the American Fisheries Society, Seattle, WA, See: http://www.fisheries.org/afs2011/

Congressional Action Pertinent to the Mississippi River Basin

Climate Change

S. 116. Vitter (R/LA) and Barrasso (R/WY). Provides for the establishment, on-going validation, and utilization of an official set of data on the historical temperature record, and for other purposes.

S 228. Barrasso (R/WY) and 10 Co-sponsors and **H. R. 750.** Walberg (R/MI), Preempts regulation of action relating to, or consideration of GHGs under Federal and common law on enactment of a Federal policy to mitigate climate change.

H.R. 97. Blackburn (R/TN) and 46 Co-sponsors. Amends the Clean Air Act to provide that GHGs are not subject to the Act, and for other purposes.

H. R. 153. Poe (R/TX) and 19 Co-sponsors. Prohibits funding for the U.S. EPA to be used to implement or enforce a cap-and-trade program for GHGs, and for other purposes.

H. R. 680. Luetkemeyer (R/MO) and 23 Co-sponsors. Prohibits U.S. contributions to the Intergovernmental Panel on Climate Change.

Conservation

H. R. 390. Thompson (D/CA). Amends the Internal Revenue Code of 1986 to provide an exclusion from the gross estate for certain farmlands and lands subject to qualified conservation easements, and for other purposes.

Endangered Species Act (ESA)

H. R. 39 Young (R/AK). Delists the polar

River Crossings

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

Please send an e-mail to MICRA@MICRArivers.org to subscribe, unsubscribe, or to change to an electronic subscription.

bear as a threatened species under the Endangered Species Act of 1973

Energy

H. R. 230. Jackson Lee (D/TX). Authorizes the Secretary of Energy to make loan guarantees for cellulosic ethanol production technology development.

Federal Water Pollution Control Act (FWPCA)

S. 272. Manchin (D/WV) and 7 Co-sponsors. Amends the FWPCA to clarify and confirm the authority of the U.S EPA to deny or restrict the use of defined areas as disposal sites for the discharge of dredged or fill material.

H. R. 395. McNerney (D/CA). Amends the FWPCA to extend the pilot program for alternative water source projects.

H. R. 457. McKinley (R/WV) and 4 Co-sponsors. Amends the FWPCA to remove the Administrator of the U.S. EPA's authority to disapprove after a permit has been issued by the Secretary of the Army under section 404 of such Act.

R. 517. Young (R/AK) and 9 Co-sponsors. Amends the FWPCA to eliminate the authority of the Administrator of the U.S. EPA to deny or restrict the use of a defined area as a dredged or fill material disposal site, and for other purposes.

Government Regulations

H.R. 125. Gingrey (R/GA) and 23 Co-sponsors. Requires Congress to specify the source of authority under the U.S Constitution for the enactment of laws, and for other purposes.

H. R. 214. Young (R/AK). Establishes a Congressional Office of Regulatory Analysis, to require the periodic review and automatic termination of Federal regulations, and for other purposes.

National Environmental Policy Act (NEPA)

H. R. 332. Filner (D/CA). Amends title 10, U.S. Code, to require the Department of Defense and all other defense-related agencies of the U.S. to fully comply with Federal and State environmental laws, including certain laws relating to public health and worker safety, etc.

Public Service

H. R. 494. Kaptur (D/OH). Authorizes the President to reestablish the Civilian Conservation Corps as a means of providing gainful employment to unemployed and underemployed citizens of the U.S. through the performance of useful public work, and for other purposes.

H. R. 587. Grijalva (D/AZ) and Markey (D/MA). Amends the Public Lands Corps Act of 1993 to expand the authorization of various departments to provide service opportunities for young Americans; help restore the Nation's natural, cultural, historic, archaeological, recreational and scenic resources; train a new generation of public land managers and enthusiasts; and promote the value of public service.

Water Quality

H. R. 553. Markey (D/MA) and 4 Co-sponsors. Amends the Safe Drinking Water Act regarding an endocrine disruptor screening program

Water Resources

H. R. 700. Walberg (R/MI). Provides a moratorium on the issuance of flood insurance rate maps, to assist property owners in adapting to flood insurance rate map changes, and for other purposes.

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