River Crossings

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Chairman's Comments

Although this will be the final printed issue of *River Crossings*, MICRA will continue to publish the newsletter in electronic format. Make sure to request an electronic subscription by sending an e-mail to MICRA@MICRArivers.org.

The January 15, 2012, application deadline for the MICRA Young Professionals Travel Grant 2012 award is rapidly approaching. This annual award is available to staff members of MICRA member state or federal agencies that have recently started their professional career and would not otherwise be able to attend a professional meeting or conference. Congatulations to the 2011 Travel Grant recipient Curtis Wagner, Ohio DNR, Curtis recently gave a presentation on Ohio River black bass population dynamics at the 72nd Midwest Fish and Wildlife Conference. MICRA encourages 'Young Professionals' engaged in river fisheries to apply for this annual award. An application form and guidelines may be downloaded at: www.micrarivers.org.

Noteworthy of the last quarter of 2011, is that the MICRA delegates approved a position statement on Asian carp control in the Mississippi River Basin. The statement supports the development of fish processing facilities and the use of commercial fishing as immediate actions to reduce overabundant populations of Asian carps which have become established throughout much of the Mississippi River Basin.

January 2012 marks the end of my term as MICRA Chairman. The MICRA Chairmanship will then rotate to the Upper Mississippi River sub-basin. Ron Benjamin, Wisconsin DNR, will serve as the new MICRA Chairman for the next two years. Ron has been very active in river fisheries throughout his career and will be an asset to MICRA in this leadership role. Please join me in welcoming Ron as the incoming MICRA Chairman.

Channels connecting Lake Michigan with the Mississippi River Basin in the Chicago area.

Asian Carp Issues

The attorneys general (AGs) of 17 states are demanding quicker federal action to prevent the Asian carp and other invasive species from migrating between the Mississippi River and the Great Lakes. Michigan AG Bill Schuette (R) said officials from West Virginia to Nevada would push to unlink the two drainage basins, turning the clock back a century to a time when engineers had not yet built connecting rivers and canals between the two waterways.

The U.S. Army Corps of Engineers (Corps) is conducting a study of the issue but agency officials maintain that they cannot move any faster because of the study's comprehensiveness, and the fact that any plans coming out of it will be expensive and could take many years to complete. The states, however, demand quicker action. In fact, Michigan, Minnesota, Ohio, New York, Pennsylvania and Wisconsin have a pending federal lawsuit that accuses the Corps of moving too slowly on a

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public nuisance, and they're asking other states across the nation to join them in the suit. But officials of the states of Illinois and Indiana object to the lawsuit saying that blocking waterway connections will impact towns near Chicago.

"We have Asian carp coming into Lake Michigan and zebra mussels moving out of the Great Lakes and into the heart of our country, both of which are like poison to the ecology of our waters," said Schuette, who is worried that the carp may destroy Great Lakes sport and commercial fishing industries. "This is not just a Great Lakes issue", Schuette said, "By working together, we hope to put pressure on the federal government to act before it's too late."

But Illinois AG Lisa Madigan puts the health of Illinois's barge and pleasure boat industry above the environmental health of Lake Michigan. Last year, Madigan filed a brief with the U.S. Supreme Court, arguing that other states had no right to tell Illinois how to manage its waterways, and the Obama Administration agreed.

But an even bigger issue for the City of Chicago is water supply. The other Great Lakes states have long resented the Supreme Court decision that allowed Chicago to withdraw millions of gallons of water a day from Lake Michigan. The water is flushed through the backward-running Chicago River to raise the levels in the city's shipping canals, and is pumped out to the suburbs for drinking. Wastewater is then flushed out of the canals into the Illinois River and down state. The other Great Lakes states have in the past sued to reverse this reversal. So if Madigan were to concede to the shut down of the locks in the canals, she may also be conceding to the power to stop taking water from the lake.

But Illinois' concerns have not stopped the other states. A coalition of Great Lakes states and cities in late October proposed a controversial plan to install metal and concrete barriers in the canals to separate the Mississippi River from Lake Michigan. The plan was included in the preliminary findings of a study being conducted jointly by the Great Lakes Commission (GLC) and the *Great Lakes and St. Lawrence Cities Initiative* (GLSLCI). The proposed plan did not disclose cost estimates, but did broadly outlined three possible permanent barrier alternatives.

In a so called "*Near Lake*" option, five barriers would be established in rivers close to Lake Michigan, stretching from the North Side waste water treatment plant in the north to the Little Calumet River in the south. This possibility would close the downtown navigational lock that has been one of the focal points of the legal dispute between the Great Lakes states.

The "*Mid System*" option would establish four barriers, including one just north of the T.J. O'Brien Lock and Dam near Lake Calumet that officials said could be turned into a transfer port that would allow the exchange of goods, people or boats from the river to trains, trucks and other boats bound for Lake Michigan.

The "*Down River*" option would set up a single barrier at the confluence of the Chicago Sanitary and Ship Canal and the Calumet Sag Channel just north of the electric Aquatic Nuisance Species Dispersal Barrier, cutting off all river and canal connections between the two watersheds in the area.

John Rogner, assistant director of the Illinois Department of Natural Resources (ILDNR), said maintenance of the existing electric barrier and other current efforts are examples of the unsustainability of current government efforts to stop the Asian carp from invading Lake Michigan. It will cost up to $250,000 just for routine procedures, he said. "Clearly that kind of an approach isn't sustainable," he said. "It's going to require a lot of work," said Tim Eder, executive director of the Great Lakes Commission, who declined to discuss specific advantages and challenges associated with each of the three options proposed in the GLC/GLSLCI plan. "What we're trying to do is demonstrate that it can be possible." The study is intended to inform the Corps' on-going study.

But some members of the public, including those representing the boating industry, still had many questions related to costs, consequences and other possible Asian carp entry points. "I'm not convinced Asian carp really want to get into the Great Lakes," said David Solzman, a retired geographer. In answering Solzman's question, Rogner acknowledged that there was a lot that officials still don't know about Asian carp and that it was pos-

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sible the invasive species would do more damage to tributaries than to the lakes. But, Rogner also posed his own question. "What it comes down to, in a way, is a bit about what is your level of risk tolerance," he said. "Or, in the words of the Clint Eastwood character Dirty Harry, 'Do you feel lucky?'"

Meanwhile the ILDNR has launched a campaign called *Target Hunger Now*, which would provide Asian carp as an option for food banks and food kitchens in Illinois. The campaign builds off the state's 30-year-old *Illinois Sportsmen Against Hunger* initiative, which helps hunters donate venison catches to poor families through independent relationships with processors and distributors. Through the *Target Hunger Now* program, the ILDNR takes responsibility for processing and distributing the food. For its Asian carp component, the ILDNR even contracts anglers to catch the fish in particular sections of the state's waterways, in an effort to strategically reduce the species numbers.

But there is a complication. The carp, which can grow up to 100 pounds in size, have a reputation as an unpalatable "trash fish," said ILDNR spokesman Chris McCloud. That public relations hurdle must be overcome before the Asian carp are caught and distributed, he said. "If you don't have a market for them, no one's going to want them, and if no one's going to want them, no one's going to take them," he said. To that end, he said, a recent proliferation of information from news outlets and Illinois officials has taught the public that the Asian carp species actually feed in the upper part of the water column, rather than in the muddy depths of rivers – a difference that affects their flavor.

But the market for the fish will hopefully only last so long, McCloud said, since ILDNR's ultimate goal is to eradicate the fish – if that is even possible – while using the by-product to feed hungry families. It is not intended to be a long-term food supply, he said. Tracy Smith, state director of *Target Hunger Now* partner *Feeding Illinois*, said the public has so far been receptive to the Asian carp proposal. Now that financial woes have left an increasing number of Illinois families unable to put food on the table, using an excess supply of protein-rich Asian carp is looking like an attractive solution, she said, adding that protein is an oft-missed nutrient even in the most stable economic times.

Another challenge is the perception that Asian carp is a difficult food to prepare. But McCloud said *Target Hunger Now* hoped to reverse that view with cooking demonstrations in Chicago. Famed Louisiana chef and Asian carp specialist Chef Philippe Parola who calls the carp "silverfin" was hired to teach the public how to properly de-bone and cook the fish. If the public relations campaign is a success, Asian carp may become popular like Chilean sea bass which was once known as Patagonian toothfish, officials said.

Parola does not support exporting a fish that many people say tastes good, is high in protein and contains little or no mercury to China when consumers can eat it here. "It is not a trash fish....It's been here for 40 years, it is a domestic fish," Parola said. Parola plans to market his fish nationally in a microwavable product with two 5.5-ounce filets packaged together for grocery stores.

A day's catch of Asian carp for one fisherman on the Illinois River.

Some folks have expressed concerns in Illinois that use of Asian carp for fertilizer may be slowing the state's *Target Hunger Now* program. But Mike Schafer, owner of *Schafer Fisheries*, a major Illinois fish processing company in Thomson, IL, said the processes to transform carp into fertilizer and food may be compatible. For the past decade, Schafer's company has made fish into frozen patties and sticks, using any waste – heads, tails and other inedible parts – for fertilizer. Entire fish bodies are "not earmarked for fertilizer," he said.

In years past, some Asian carp caught by Illinois contractors have been fully set aside for fertilizer production, Schafer said. This was because *Schafer Fisheries* could not verify the quality of carp caught in certain areas, so the company used the entire bodies of these fish to make fertilizer, rather than letting parts of the fish go to waste. However, in light of state efforts to promote state-caught Asian carp as a food product, the company is now moving to process the fish as both food and fertilizer. Schafer said he plans to ramp up production of breaded carp patties, which he hopes to eventually sell to *Target Hunger Now.*

"It's been on our hearts" to help alleviate hunger while creating environmentally friendly fertilizers, said Ron Abbott, a sales representative for *Schafer Fisheries*. ILDNR spokesman McCloud said he did not have numbers on the state's distribution of the carp but that the food programs are still in progress. It may be the case, he said, that fertilizer continues to be a more popular use for the fish because nonfood products may be easier to make than food ones due to regulatory restrictions surrounding edible goods. Even if it is the case that more Asian carp are being turned into fertilizer than food, such circumstances would not be a setback for *Target Hunger Now*, McCloud said. Illinois benefits from "whatever products can be developed out of the use of Asian carp," he said.

Meanwhile, in early September the Corps released a report by four independent scientists who analyzed the "environmental DNA" (eDNA) process that government and university scientists have used over the past two years to search for the carp on both sides of the electric barrier. The study concluded that the means of detecting carp genetic material (or eDNA) in water samples is fundamentally sound, but should be refined to answer questions such as whether the DNA came from live carp and, if so, how many. "This should bring to a closure any questions about the technical robustness or the usefulness of eDNA," David Lodge, the University of Notre Dame biologist whose team developed the eDNA process said. "This also should make it possible to move quickly toward refining the tool to provide more of the kinds of information that the independent review team pointed out would be useful," he said. That research is under way, Corps officials said. The advantage of eDNA is that it's easier to collect than live fish, so it provides an early indicator that carp might be present,

Research has suggested that the electric field from the Aquatic Invasive Species Dispersal Barrier may not be strong enough to prevent small fish from getting through. Interestingly, stronger currents are needed to stop smaller fish movements than is required for larger ones. This is because electricity effects the fish through the voltage drop or difference over the length of the fish. The longer the fish, the greater the voltage difference from head to tail and so the greater shock. While still insisting that the electric

barrier is stopping the Asian carp migration, Corps officials said in early October that tests had shown that barrier voltage could be increased by about 15 percent – from 2 volts per inch to 2.3 volts per inch – without endangering people in passing vessels. That adjustment took place in early October said Maj. Gen. John Peabody, commander of the Great Lakes and Ohio River Division. Additionally, the barrier's frequency was doubled and its electric pulses became more rapid. "We think it's prudent to take all precautionary steps possible so long as we can do them safely," Peabody said.

But issues quickly arose with nearby railroad crossings and signals, and the Corps announced in late October that it was throttling back the barrier's power because the higher strength could be posing a hazard for trains moving through a heavily industrialized area near where the barrier is located. "This action was taken in response to concerns that the higher settings may be causing interference with the railroad operating signals and with the railroad crossing gates immediately adjacent to the electric dispersal barriers in the Chicago Sanitary and Ship Canal," the Corps stated in a news release.

So this is just another problem with relying on the electric barrier to stop the movement of carp. And conservation groups were distressed by the Corps' announcement. "The lake is not adequately protected," said Joel Brammeier, president of the *Alliance for the Great Lakes*. Thom Cmar, an attorney with the *Natural Resources Defense Council*, said the barrier appears to be working most of the time but is not foolproof. "When you've got thousands of Asian carp teeming in the rivers of Illinois and moving closer to the barriers all the time, there's every reason to believe some of them are testing the barriers today," Cmar said. Then in late November, saying that investigators had identified the source of the problem, Corp officials once again raised the power of the barrier from 2.0 volts per inch, 15 hertz and 6.5 millisecond pulse to the new settings of 2.3 volts per inch, 30 hertz, and 2.5 millisecond pulse length.

Corps officials say they remain confident that the barrier is doing its job. This confidence is based on movements of 166 fish fitted with transmitter tags. Although devices tracking the tags have recorded 1.9 million hits, none of the fish have been spotted passing through the barrier, Peabody said. One tag was found on the other side but it appears that fish was snagged by an angler, said Kelly Baerwaldt, a Corps fishery biologist. In June, the Corps released six tagged fish – not Asian carps – just above the barrier. Two passed through the force field but apparently were immobilized, while two others entered the field and apparently were killed. The final two swam upstream, Peabody said. "We believe the barrier is effectively preventing the movement of these tagged fish," he said.

Elsewhere in the Mississippi River Basin, biologists are concerned that the 2011 floods likely introduced Asian carp into many previously uninhabited waters. Mississippi Department of Wildlife, Fisheries and Parks (MDWFP) biologists monitoring Mississippi River Delta waters have already found Asian carp residing in many new areas. "They are likely in every lake connected to the Mississippi River plus numerous smaller lakes," Nathan Aycock, MDWFP biologist said. "I know for certain they are in Bee, Whittington, Beulah, Ferguson, De Soto, Washington, Log Loader and Moon lakes. They have also been reported in Tunica Cutoff, Wolf, Broad, Chotard and Albermarle." Biologists also found carp in Eagle Lake at the onset of the flood.

Meanwhile, if Asian carp do reach Lake Michigan in significant numbers, researchers have developed some unique new ideas for controlling their numbers. Peter Sorensen, a fisheries biology professor at the University of Minnesota, is designing a robotic boat that he says could be used to track schools of radio-tagged carp. The boat would follow fish embedded with radio tags, and since fish are social and move in schools, the boat should be able to pinpoint large groups, which, in theory, could be easily netted. The boat would be solar powered, leaving a driverless boat chasing fish on the lakes. This research effort is funded by the *National Science Foundation*. "Ideally, I could send a silver carp out there to find the rest of them for me," Sorensen said "Frankly, these fish are much better at finding each other than we are at finding them."

Bighead carp taken by angler on the Ohio River, OHDNR Photo.

Sources: John Flesher, *AP/San Francisco Chronicle*, 9/25/11; Edward McClelland, *http://www.nbcchicago.com/blogs/ward-room/Great-Lakes-States-Suing-To-Cut-Links-to-Lake-Michigan-128812798.html#ixzz1Xy2jALd3*, 8/31/11, *AP/Wall Street Journal*, 10/26/11; Cynthia Dizikes, *Chicago Tribune*, 10/21/11; Mark Taylor *Chicago Post-Tribune*, 10/20/11; Rachael Purl, *WGN News*, 9/22/11;; *AP/Wall Street Journal*, 9/9/11; Dan Egan, *Milwaukee Journal Sentinel*, 10/20/11; John Flesher, *AP/St. Paul Pioneer Press*, 10/19/11; *Clarion Ledger/AIFRB Briefs*, Vol. 40, No. 4, July/August 2001; Jill Moon, *jmoon@thetelegraph.com*, 9/24/11; *AP/St. Paul Pioneer Press*, 10/19/11; AP/Chicago Tribune, 11/29/11 Pamela King, *Greenwire*, 9/16, 10/21 and 11/3/11; and *Greenwire*, 9/26, 10/20, 10/27 and 11/29/11

Partnership Formed to Promote Carp and Rough Fish Angling

USCARPPRO Magazine (USCPM) and *Wild Carp Companies* (WCC) in mid-September formed a collaboration agreement to highlight the sporting opportunities that carp and rough fish angling offers North America by expanding existing WCC tournament and outreach programs beyond the New England region while offering USCPM a higher tournament profile.

USCPM is North America's only online magazine dedicated to ethical catch and release carp and rough fish angling. WCC, the Baldwinsville, NY-based carp angling promoter and creator of the Wild Carp Club, hosts educational demonstrations, offers angling lessons, and promotes tourism by hosting fishing social events and organizing world-class tournaments.

"We're excited to be working with WCC to promote the sport of catch and release carp and rough fish angling in North America," said David Smith, founder and Editor-in-Chief of USCPM. "It's a natural partnership for us because we share the same goals of raising the visibility of our sport and engaging new anglers. We look forward to

partnering with WCC to expand education and outreach efforts and host world class tournaments on some of the top waters in North America," he said.

WCC and USCPM are currently working on a schedule of carp and rough fishing tournaments, community outreach programs, and education events for 2012. The first outreach and tournament event of the new partnership is scheduled for February 2012 and will be announced shortly. "WCC has many exciting ideas on how to further expand the sport of carp angling. We feel it's only a matter of time before the States embrace carp the way they are revered overseas," said Jason Bernhardt, WCC cofounder. "Thanks to our newly formed partnership with USCPM, our organizations will be exposed to many new opportunities to accomplish our collective goals," he said

Source: *WCC and USCPM News Release*, 9/19/11

Invasive Species Benefits

In an irony of nature, invasive species can become essential to the very ecosystems threatened by their presence, scientists report in the November issue of the journal *Proceedings of the Royal Society B.* Princeton University researchers David Wilcove, professor of ecology and evolutionary biology and public affairs and David Pattemore, who received his PhD from Princeton in 2011, found evidence that destructive, non-native animals that have been deservedly maligned by conservationists the world over can take on important biological roles – such as flower pollination – once held by the species the interlopers helped eliminate.

As a result, campaigns to curb invasive animal populations should include efforts to understand the role of the invasive species in question and, if necessary, reintroduce missing native animals, explained Wilcove. Otherwise, without either native or foreign species to complete crucial tasks such as pollination, plants and animals – particularly already pressured native species – could suffer further, he said.

Wilcove and Pattemore observed the pollination of three indigenous plant species in New Zealand by invasive species. Initially, the researchers sought to document the plants' health on New Zealand's North Island, an environment where native vertebrate pollinator species have largely vanished. They wanted to compare the plants' survival to that of the same species in an island nature reserve off the North Island coast where all the native vertebrates still occur. They instead found that invasive pests such as ship rats, introduced to New Zealand by Europeans, were just as instrumental in pollination on the North Island as endemic birds and bats were in the nature preserve.

Wilcove and Pattemore, who is now a scientist at the *New Zealand Institute for Plant and Food Research*, concluded that animals such as the highly destructive ship rat can become an important part of the ecosystem in the absence of native pollinators, many of which perish precisely because of animals such as the highly destructive ship rat. "Given the rate at which human activities are driving species to extinction, there is a critically important question about what happens to crucial ecosystem functions such as pollination as the creatures that carry them out disappear. Strangely, it is a question that remains largely unanswered," Wilcove said.

"We believe our results apply to other parts of the world and should cause conservationists and governments to rethink current approaches to containing invasive species. Invaders like the ship rat undoubtedly inflict great harm on native species, and there is no question that efforts to control their proliferation must continue. But we found that these campaigns should now consider the roles these alien species may now play in ecosystems," Wilcove said. "We suggest that efforts to control seemingly harmful pests must go hand-in-hand with efforts to restore missing native species so that important ecological functions are maintained. In other words, our findings show that eliminating an invasive species for the benefit of native species could actually harm an ecosystem, a surprising dynamic that could frustrate ecosystem restoration efforts," he said.

Source: *ScienceDaily*, 11/16/11

Changes to Missouri River Management

The U.S. Army Corps of Engineers (Corps) said in early November that it will change its approach to managing the Missouri River following record flooding this summer that damaged or destroyed hundreds of homes, led to millions of dollars in road repairs, and forced communities to scramble to build temporary levees. The Corps said it will make the changes in coming months, including getting as much water out of the river basin's reservoir system as possible before spring and aggressively releasing more water in the spring, if needed. The Corps also is looking at how much more reservoir space might be needed to ease flooding.

The changes come in response to concerns voiced by residents – many of whom lost crops or were forced out of their homes for weeks by the flooding – during eight public meetings recently held in Iowa, Missouri, Nebraska, Kansas, Montana and North Dakota. "The past two weeks have been incredibly beneficial, and we have listened intently to the people we serve," Brig. Gen. John McMahon, commander of the Corps' Northwestern Division, said in a written release. "The top priority of the Northwestern Division Missouri is to responsibly prepare for the 2012 runoff season."

The public meetings often turned contentious, with Corps officials facing angry residents who blamed them for not doing more to allay the flooding. Corps officials said they had the reservoirs at desired levels last spring, but a late buildup of snow in the Rocky Mountains and unexpectedly heavy rains in Montana and other upstream areas in May led to record runoff. That prompted the Corps to release massive amounts of water from dams along the river, resulting in massive flooding downstream. While the Corps made clear that it was making the changes to address Missouri River basin residents' concerns, its leaders did not give any indication they were rethinking the handling of the river's management before the flooding.

The early November announcement was met with relief from people in the states most affected by the flooding. Rhonda Wiley, a county emergency management coordinator based in Rock Port, MO, said the Corps' announcement "made my Monday morning." "It seems to me they have actually listened to what was brought out at their meetings," Wiley said. "It's the first step of many steps yet to come." She said recovery from flooding in her county is moving slowly and she's worried after reading predictions of higher-than-average precipitation in the northern part of the Missouri River Basin in the coming winter and spring. "I just hope now the Corps can find the money to get in here and get these levees built back up," she said. "What we're looking at now, we could be doing this all over again next year."

The Corps has estimated it will cost more than $2 billion to repair damage to the nation's levees, dams and riverbanks caused by this year's flooding. Kelli Shaner of rural

Fort Calhoun, just north of Omaha, said she's glad the Corps is rethinking management of the river. She and her husband lost 80 percent of their corn and soybeans to flooding this summer and were not able to return to their home until mid fall. But she doesn't blame the Corps for the damage, saying she was well aware of the potential for flooding on the land that has been in her husband's family for five generations. "Bottom line is, I'm very glad they're changing and looking at the way they're doing things, because it can only get better," Shaner said. "Hopefully, this devastation won't happen to other people who live along the river bottom."

Governors in flooded states also welcomed the Corps' news. Nebraska Gov. Dave Heineman said the governors told the Corps flood control must be its highest priority and the agency "may be starting to listen to the citizens affected by this year's historic and devastating flooding."

South Dakota Gov. Dennis Daugaard lauded a segment of the Corps' plan calling for better communications with bimonthly conference calls looping in federal, state, county and local officials. Daugaard said the Corps waited too long last year to tell people that conditions in February, March and April indicated there would be a heavy spring runoff. "While it didn't cause the flood, it certainly aggravated it," he said.

Iowa Gov. Terry Branstad said a change in the way the Corps manages the river was needed. The duration of the flood "was certainly determined by the amount of water that was released from the dams upstream on the Missouri River," he said. "We intend to work with the other governors in having a strong voice for our constituents in changing the way the river is managed."

But the Corps' plan is likely to rankle Montana Gov. Brian Schweitzer, who has said lowering reservoir levels now could lead to problems when drought hits. He told downstream Missouri River states that he would support a new management plan only if his state's reservoirs weren't included.

Sources: William Draper, Mike Glover and Chet Brokaw, *AP/Kansas City Star*, 11/7/11; and *Greenwire*, 11/7/11

Lake of the Ozarks Land Ownership Controversy

Over the past 75 years, more than 1,200 homes were built within the project boundary of the utility company that owns Bagnell Dam which impounds Missouri's Lake of the Ozarks. The dam was originally constructed in the 1920's by the *Union Electric Company*, but *Ameren Missouri*, the current licensee, took over in 1997 after a merger of *Union Electric* and *Central Illinois Public Service Co*. *Ameren* now operates the project under the name *Osage Hydroelectric Project*.

Land ownership problems arose this summer when *Ameren* filed a new shoreline management plan as part of its license with the Federal Energy Regulatory Commission (FERC) to operate the dam. The purpose of the plan is to ensure that development does not impede hydroelectric operations, and a buffer zone, required for lakes under federal supervision, is for purposes of safety, flood control and protection of natural resources. Upon reviewing *Ameren's* new plan FERC, the ultimate authority at the lake, says homes built within the buffer zone boundary of the original project have to go.

But residents say, "We bought these houses, got all the permits, did what we were supposed to do, paid the taxes all these years, and now we're the ones being threatened. If they (*Ameren*) own it, why haven't they been paying the taxes all these years?" Some of the houses being targeted have been in families for generations. Residents first to receive letters from *Ameren* were informed that "While at present we do not plan to take any adverse action respecting your residence, we can give you no assurances as to the future."

"In 26 years of practicing law, I've never seen anything like this," said Timothy Sear, an Overland Park, KS attorney and also a lake property owner. He represents no one on this issue, and his property is not in violation. Some think it could lead to one of the biggest squatter rights cases in the history of the country. That's another name for adverse possession, the legal provision that says if you live in a place for 10 years and nobody's objected, it's yours. But these people don't want "squatter" labels. They paid for their houses. Sear said the situation cries for a "political resolution" – one encompassing action instead of thousands of lawsuits that could take years. In the meantime, the affected property owners would be unable to sell their homes or leave them to their children. Should they pay taxes? Should they fix the roof? The lake economy could be greatly harmed, he said. No question, said Chris Black, a lake resident. "This will be a ghost town here," he said.

So how could these homes have been built in the first place? Seemingly, nobody noticed. Or if they did, they didn't care. Too much lake development was taking place – too much building; too much money; too much swimming, boating, fishing and partying in the coves for anybody to get their trunks in a bind over lines on a plat book. And here's another reason, a phrase not often used – too little red tape!

But however it developed, FERC, after receiving *Ameren's* proposed shoreline plan, ordered that all non-conforming structures – 4,000 total, including homes, gazebos and docks – be identified and "removed in a timely manner." *Ameren*, under fire from both sides, quickly filed a motion asking FERC to reconsider the order, saying the commission's action was "arbitrary and capricious" and would cause hardship to hundreds of homeowners. But FERC officials say "FERC's role is to ensure that the licensee is following the terms of the license, and approved shoreline management plans. It is the responsibility of the licensee to carry out the terms and conditions of the license, including the shoreline management plan."

Jeff Green, the company's shoreline management supervisor, blamed the mess on 50 years of development with little oversight. He also tossed the issue back into the lap of FERC, which oversees the project because the dam generates electricity. "Our hope is they strongly consider our request and do the right thing," Green said. But homeowners think the utility is merely trying to deflect blame for the debacle that was likely its doing in the first place. Green told *Kansas City Star* reporters that the utility would be fine with most of the offending properties being grand fathered into compliance. That said, he added: "I think at end of day, there will be some that will still fall onto our property" and have to be removed.

While the possibility of removing lake homes valued at a $1 million or more seems unimaginable, home owner Jim Thompson says it could happen. "Because of bureaucratic ineptitude, this thing can go south in a hurry, and we all lose our homes," he said, or …"They can deed it back to us – they can do that. But will they? Maybe not."

To find the beginning of where this went

wrong, you have to go back to a time when there was no lake. In the 1920s hundreds of engineers and surveyors set off into the rich bottom land of the Osage and the Big and Little Niangua rivers, an area that routinely flooded in springtime. It was an ideal location for a hydroelectric dam. Then when they determined what land would be under water, they set about buying ground from farmers. But farmers didn't want to sell only what the project needed, mainly because that bottom land was the best acreage they had. Farmers insisted that they buy it all, and *Union Electric Land & Development* did just that in most cases to avoid taking hundreds of farmers to court in condemnation proceedings.

"So they ended up with virtually thousands of acres they didn't need for this lake," Sear said. When the dam was completed in 1932, the land company deeded the lands that would be under water – and the buffer zone above – to its sister company, *Union Electric Light & Power*. The top of the buffer was set by elevation above sea level. The lowest elevation where building was allowed was determined to be 670 feet, meaning that everything below that contour belonged to the utility company. But water "stacks" behind a dam, leading to different water levels across the lake and lake people don't like steps. They like to walk out their back door and to the water's edge, so that's where they built and the utility company paid no attention. "(But) The person who got a deed for that property got a piece of land that doesn't exist because it's all below 670 elevation," Sear said.

According to the July order from FERC, the encroachments can be found along much of the shoreline, which, at 1,150 miles, is longer than the California coast. "You would think *Union Electric* or *Ameren* would have been paying attention, but there's probably plenty of blame to go around," Sear said. Donnie Snelling, recorder of deeds for Camden County, said much of the early development occurred with little oversight. "Corners were cut, banks weren't asking for surveys, nobody asked about setbacks," Snelling said. "A lot of stuff got built where it shouldn't have, and nobody noticed. Now we've got a hell of a mess down here. Families – second and third generations – all of a sudden don't have clear title. Yes, they're mad and worried. I don't blame them," he said. In the case of one $1,000,000.00 home the 670 (elevation) would put water up to the windows.

Missouri's U.S. Senators, Claire McCaskill (D) and Roy Blunt (R), wrote a joint letter to FERC asking that a solution be found that doesn't punish homeowners. Bruce Mitchell, executive director of the Camdenton Area Chamber of Commerce, called FERC's action a huge government intrusion. He doubted any of the structures impede *Ameren's* ability to produce power. "Really, what right do they have to do this – after all these years?" he asked.

In mid- November FERC officials clarified the agency position on the issue saying that shoreline homes and structures with valid deeds, permits and easements can stay put. But *Ameren Missouri* must revise its boundaries and remove any lands that are not necessary to its operation. FERC officials believe that step will exempt a majority of the structures in question from the plan, and therefore from the commission's jurisdiction, and will potentially deflate the controversy.
But if a structure interferes with operation of the hydro project, then the utility and owner must find a solution that "satisfies both sides," FERC said. "*Ameren* itself has stated that after the project boundary is revised, it expects the majority of structures will no longer be considered nonconforming," the commission said. *Ameren* must submit a plan to FERC by June 1, 2012, for modifying the project boundary.

FERC said that the shoreline management plan it approved for *Ameren* this summer does not affect property rights, which are a matter that states oversee, and parties that build structures on lands with proper authorizations won't be affected by the order. "*Ameren's* repeated failure to properly implement the terms of its license has allowed matters to get to the point where it does not even know exactly what structures have been built within the project boundary and whether they were authorized," FERC officials said. *Ameren* spokesman Mike Cleary said the company is pleased that FERC has granted the review and that they are still looking over the order.

Source: Donald Bradley, *The Kansas City Star*, 10/8/11; and Hannah Northey, *Greenwire*, 11/10/11

North Platte River (CO/WY) Concerns

Energy development is increasing near the North Platte River from Colorado to Wyoming and sportsmen are worried it will hurt some of the most-pristine fishing areas in the region. Since last year, the *Colorado Oil and Gas Conservation Commission* approved 15 drilling permits for companies seeking to tap the lucrative Niobrara formation in Jackson County. Nearly 50 have been approved for the area since 2007 and five more are pending.

Many of the approved wells are being drilled by *EOG Resources*, the Houston company that hit pay dirt with the "Jake" well near Grover, which quickly drew attention when it produced more than 1,500 barrels of oil in one day. The rush to drill was not far behind. *EOG* spokeswoman K. Leonard declined comment about the company's plans for the region. She pointed to an investor's report that said *EOG* plans to drill 45 new Niobrara-tapping wells in Colorado this year.

North Platte River - National Scenic Byways Program Photo.

Another major energy company targeting the formation is *Bonanza Creek Energy* (BCE). The BCE oil well being drilled along the Michigan River, near Walden, CO was the site of a large drilling fluid spill last August soon after drilling began there, releasing about 20 barrels of drilling fluid and mud onto the ground. Some of the fluid escaped from the drilling site, but inspectors couldn't find any evidence of surface water contamination.

"The North Platte is a really important fishery to us," said Cody Muchow, a fly fishing guide at *St. Peter's Fly Shop* in Fort Collins, CO. According to the *Colorado Fishing Network*, the North Platte River is known for its fishing in Wyoming that starts in northern Colorado. A portion of this river has been designated both a *Wild Trout* and *Gold Medal* river. Major tributaries include Grizzly Creek, the Michigan and Illinois rivers.

Sportsmen's groups are concerned that new oil and gas development will contaminate water, damage wildlife habitat, and hurt tourism in North Park, the northern most of the three Colorado mountain valley open spaces. Barbara Vasquez, a local organizer for the

Colorado Wildlife Federation, said environmentalists are worried about drillers using fracking, a technique using sand, water and chemicals to crack open underground rock formations to release trapped oil and gas.

Kent Crowder, chairman of the *Colorado Water Conservation Board's North Platte Basin Roundtable*, said energy development and hunting and angling have a place in the economy, but concerns about one should not outweigh concerns about the other.

Sources: *AP/Casper Star-Tribune*, 9/27/11; and *Land Letter*, 9/29/11

Forest Management Effects on Altered Streamflows

A new study by Forest Service scientists in North Carolina suggests that managing forests to offset the effects of climate change on streamflow is not a viable solution to protect water supplies from drought or flooding as temperatures rise. While climate models tend to be imprecise in predicting specific precipitation changes, such as whether precipitation will increase or decrease, most agree that extremes such as flooding and drought will become more frequent.

With that in mind, the study examined how forest management would affect flows under both extremely wet and extremely dry conditions. Drawing on precipitation data and streamflow records from the Forest Service's Coweeta Hydrological Laboratory, a 5,600-acre research facility and experimental forest in western North Carolina, researchers used computer models to simulate how different forest management prescriptions – including clearcutting, converting one forest type to another and no management – would affect streamflows as precipitation patterns change due to climate change.

The study, published in the September issue of the journal *Ecological Applications*, concluded that overall, forest management is not likely to have much of an effect on streamflows as precipitation patterns change over the next 25 to 50 years. "In terms of streamflow amounts, managed forests acted pretty similarly to unmanaged forests under climate change scenarios," said Chelcy Ford, the study's lead author.

Initially streamflows did rise significantly after cutting, increasing by 19 to 70 percent depending on the type of treatment. But the models showed that those elevated flows quickly leveled off within a few years with one exception – when a deciduous forest stand was converted to a pine plantation. "Only the species conversion yielded a watershed that responded vastly different to extreme wet and dry years compared to what we would have expected," Ford said.

The study echoes conclusions from a nationwide 2000 Forest Service report called "*Water and the Forest Service*," which warned that "although theory suggests that vegetation management can produce more streamflow, for a variety of reasons, general water-yield increases through forest management are likely to fall in an undetectable range."

"To say it's not something you would ever do is probably going a little too far, but as far as using it for municipal water supplies or something like that, it's probably not a good idea." In fact, intensive logging can degrade water quality, which would force utilities to spend more money to treat the water, Mike Furniss, a researcher with the Forest Service's Pacific Northwest Research Station said.

Forest management should, however, take into account impacts on water quality, the report added. "There is relatively little management can do to increase total water yield, but forest management can have major effects on water quality – affecting temperature, nutrient loadings, sediment yields, and toxic contaminants," the 2000 report said. Forested lands absorb rain, reduce flooding, recharge aquifers, slow stormwater runoff, cool and clean water, provide important habitat for fish and wildlife, and "sustain watershed stability and resilience," the report noted.

Source: April Reese, *Land Letter headlines*, 10/13/11

Buffer strip - USDA NRCS Photo.

Buffer Strips Perform Well in New Study

Researchers working with the *Leopold Center for Sustainable Agriculture* report promising results from a new type of conservation practice that removes nitrate from water flowing in underground field drainage tiles before it reaches streams, rivers and other waterways. An estimated 500 pounds of nitrate-nitrogen coming from crop fields along a 1,000-ft. stretch of Bear Creek in Story County, IA never reached the waterway this past growing season. Instead, the subsurface drainage water was diverted to an existing riparian buffer along Bear Creek before it reached the stream.

The new practice is called a "saturated buffer", in which a shallow lateral line intercepts tile lines before they release water into a stream. The lateral line has control structures that raise the water table and slow outflow, allowing the buffers to naturally remove nutrients such as nitrate and phosphorus.

"One weakness of riparian buffers in protecting water quality is that our extensively tiled farm fields rush the subsurface drainage water right past and through them, " says Jeri Neal, who leads the *Leopold Center's Ecology Initiative* that is funding the study. "As a result, we are not able to take full advantage of the clean water work those buffers are capable of doing."

Dan Jaynes, a soil scientist at the USDA's National Laboratory for Agriculture and the Environment and lead researcher for the project, said the system was able to redistribute about 60 percent of the field tile flow during the first year of data collection at the research site. "The system removed 100 percent of the nitrate from 60 percent of the field tile flow," he said. "We figure that 250 kilograms, or about 500 pounds, of nitrate nitrogen was kept out of the stream."

The saturated buffer was installed in 2010 as part of a multi-year competitive grant project supported by the *Leopold Center's Ecology Initiative*. Initially, Jaynes had hoped the new system would be able to divert 10-15 percent of the field tile flow, so these first-year results show great promise for exploring the new technology. "You would need a lot of these at different points along a stream to make a difference in water quality, but this is a start," he said.

Jaynes is a cooperator on a $200,000 grant to install saturated buffers on nine sites in

Iowa, Illinois and Indiana to see how they work under different conditions and other conservation practices. The grant is from the USDA's Natural Resources Conservation Service and Jaynes will be working with the *Agricultural Drainage Management Coalition*, a partnership of companies and organizations interested in conservation drainage practices. "This is a technology that many people definitely are interested in, and in having more information about how they work," Jaynes added.

Sources: Jeff Caldwell, *Agriculture.com* and *Successful Farming Magazine*, 10/25/2011; and *Leopold Center for Sustainable Agriculture News Release, 10/20/11*

ECO Farming

Jim Hoorman, an educator with the Ohio State University Extension, says tillage and the lack of soil cover for eight months a year are reducing yields and profits for America's farmers. He pushes a concept called *ECO farming* which promotes continuous living cover and other best management practices. Hoorman says *ECO farming* is economical for the farmer, ecologically viable, and environmental sound.

The goal he says is to disturb the soil as little as possible to raise crops and in so doing improve soil structure. He sees tremendous soil compaction going on with existing technology. It is compressing the soil like cement blocks and creating a hard pan that is impossible for corn and soybean roots to penetrate. Crop roots are only able to utilize 10 to 20 percent of soil capacity when soil is compacted, he said. Moisture exists beneath the hardpan but roots can't reach it. This hardpan can also cause flooding and ponding because water can't infiltrate the soil, Hoorman said.

"The soil is a natural biological system that contains a lot of life and when tilled intensively is dramatically changed," said Don Reicosky, a retired soil scientist from the U.S. Department of Agriculture - Agriculture Research Service, North Central Soil Conservation Research Laboratory in Morris, MN. "It can be considered analogous to human reaction to a combination of earthquake, tornado, hurricane, and forest fire all rolled into one perturbation event."

In that scenario, bacteria are the only thing that can survive, Hoorman said. Healthy soil has more fungi than bacteria and more macro-aggregates, which improve soil structure. Hoorman suggests that farmers introduce no till and cover crops. But making no-till work has been a challenge, Hoorman admits, because yields can decrease by 10 to 20 percent while converting from conventional tillage. It takes time for soils to recover from continuous tillage – seven to nine years in fact. But adding cover crops to the rotation will speed the recovery to two to four years. Adding manure will also help the soil recover faster.

Tilled soils have more bacteria than fungi because fungi need more stable conditions to survive, Hoorman said. The presence of both bacteria and fungi impact the soil structure. Active organic matter is another ingredient that is lost through tillage. Tilled soil in the United States has lost as much as 60 to 80 percent of its soil organic matter. Organic matter is a warehouse for soil nutrients and those nutrients are lost when organic matter is lost, he said. Organic matter is lighter than sand, silt and clay and is lost through erosion. Hoorman puts the value of 1 percent of soil organic matter at $660 per acre. Increasing soil organic matter increases its productivity.

He noted one farmer that he's working with who has built up his soil organic matter and now uses only 20 pounds of commercial nitrogen to get his crop started. Most of the nitrogen for his crop comes from legumes planted on the field the previous spring. He said farmers who have tried cover crops and no-till in Ohio are benefiting and making more money per acre. They are using less fuel and spraying for fewer weeds. Change is occurring farmer by farmer. It's like the first crop farmers raise on a field that's been in the Conservation Reserve Program for 10, 15 or 20 years, he said. Mother Nature has resolved the soil compaction issues humans created and restored soil productivity.

Hoorman hopes light bulbs come on for farming in general before the way we farm comes back to haunt us.

Contact: Janet Kubat Willette, *Agrinews*, 10/13/11

MICRA Creates New Fishtag Listserv

MICRA has created the *Fishtag Listserv* as a communication tool for fishery biologists and researchers who are sampling and/or tagging fish in the Mississippi River Basin. The listserv provides a forum where fish tags of unknown ownership can be reported and the owner of the tagging event data identified for the purpose of linking release and recapture data on tagged fish released throughout the basin.

The listserv is intended for all tag types (e.g., internal, external, or telemetry) and any fish species that has been tagged and released in the Mississippi River or its tributaries. Fishery biologists and researchers who have released tagged fish in the Mississippi River or its tributaries are encouraged to subscribe to the *Fishtag Listserv.*

To subscribe send an email to fishtag-request@micrarivers.org with the word 'subscribe' in the subject line. To report a tag of unknown ownership, send an e-mail to fishtag@micrarivers.org with a brief description of the tag type (and frequency for a telemetry tag), tag number, and fish species from which the tag was recovered.

Please forward this announcement to others who may be interested in subscribing or knowing about the *Fishtag Listserv*.

Ozark hellbender - Jill Utrup, USFWS Photo.

Ozark Hellbender Listed as Endangered

The Ozark hellbender, the largest member of the salamander family, was designated as an endangered species in early October under the Endangered Species Act (ESA) by the U.S. Fish and Wildlife Service (FWS). Along with officially designating the Ozark hellbender as endangered, FWS officials also finalized a decision to list a subspecies, the eastern hellbender, in Appendix III of the *Convention on International Trade in Endangered Species of Wild Fauna and Flora* (CITES).

Ozark hellbenders can reach 2 feet in length and inhabit cold water with high oxygen levels, especially spring-fed rivers. Hellbenders are salamanders with large tails and tiny eyes. Their flattened bodies enable them to move in the fast-flowing streams they

inhabit. Hellbenders are habitat specialists that depend on constant levels of dissolved oxygen, temperature, and flow in their aquatic environment. Even minor alterations to stream habitat are likely detrimental to hellbender populations.
In combination, the ESA and CITES listings will provide significant protection to hellbenders, both domestically and internationally, the FWS officials said. Under the ESA, an endangered species is any species which is in danger of extinction throughout all or a significant portion of its range. Ozark hellbender populations have declined an estimated 75 percent since the 1980s, with only about 590 individuals remaining in the wild, according to the FWS finding. "It is believed numbers have dropped because of degraded water quality, habitat loss resulting from impoundments, ore and gravel mining, sedimentation, and collection for the pet trade," the agency said.

Also threatening the Ozark hellbender is a fungal disease, *chytridiomycosis* (chytrid), and severe physical abnormalities (e.g., lesions, digit and appendage loss, epidermal sloughing) which most Ozark hellbenders exhibit. In addition, the average age of Ozark hellbender populations is increasing and few young are being found, indicating problems with reproduction or juvenile survival. This, and the multiple threats from disease and habitat degradation, could lead to extinction of the Ozark hellbender within 20 years.
"The Ozark hellbender faces extinction without the protection afforded by the Endangered Species Act," said Tom Melius, the service's Midwest regional director. "Listing provides tools and an infrastructure within which partners can pool resources and expertise to help save this species." The FWS determined that designating critical habitat under the ESA for the Ozark hellbender is not prudent because the designation would require publication of detailed descriptions of hellbender locations and habitat, making illegal collection for the pet trade more likely.

Collection within the United States and international trade of hellbenders is of growing concern, particularly as they become rarer and, consequently, more valuable, the FWS said. Listing hellbenders in Appendix III of CITES would aid in curbing unauthorized international trade, not only by controlling exports from the United States but by enlisting the assistance of 174 other countries that are CITES Parties in controlling trade in the species, it added.

The Ozark hellbender only occurs in Missouri and Arkansas, whereas the eastern hellbender range includes portions of 16 states: Alabama, Georgia, Illinois, Indiana, Kentucky, Maryland, Mississippi, Missouri, New York, North Carolina, Ohio, Pennsylvania, South Carolina, Tennessee, Virginia, and West Virginia.

Source: Kurt Repanshek, *The National Parks Traveler*, 10/5/11

Ethanol Concerns Regarding Boat Engines

Boat engines cannot handle a 15 percent blend of ethanol and gasoline, according to a study that tested the fuel on boat motors. In fact, the blend caused so much damage to boat engines during a government-funded study that the testing of two of three motor types ended early.

The ethanol made the engines run hotter, and a rod bearing broke, destroying a 200-horsepower engine that was being tested, lawmakers were told in hearings on the issue. Testing of a 300-horsepower version had to be shut down early when its valves cracked or broke. A third, smaller engine finished the test but also had problems. *Mercury Marine*, an engine manufacturer, did the research under contract with the U.S. Department of Energy in coordination with the National Renewable Energy Laboratory.

Most ethanol gasoline now contains 10 percent corn ethanol, but the Environmental Protection Agency (EPA) is moving toward allowing the sale of 15 percent blends (E15) for model year 2001 and newer cars and trucks. The increase is aimed at expanding the market for ethanol to ensure that refiners can meet the government's annual mandates for use of biofuels.

E15 won't be allowed for sale in older vehicles or in boats and power equipment, but car and boat makers worry that consumers may use the new blend in engines for which it isn't intended. But the ethanol industry worries that reports about the risk to engines that won't be allowed to use E15 are giving the fuel a black eye before the product reaches the market. "We're spending money to test a fuel they (boat owners) can't use. It's just maddening," said Ron Lamberty, senior vice president of the *American Coalition for Ethanol*.

The EPA will require E15 pumps to carry labels warning that the fuel can only be used in certain vehicles, but critics say that doesn't go far enough to prevent misfueling. David Hilbert, a *Mercury Marine* engineer who led the study, showed members of the House Science, Space and Technology subcommittee photos of the engine damage and said the study showed E15 "may cause a variety of issues for (boat) owners and lead to premature engine failure."

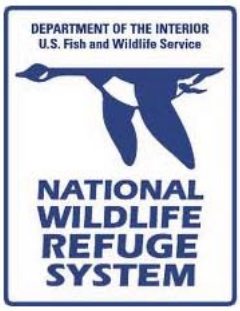
The chairman of the subcommittee, Rep. Andy Harris (R/MD), said the engine damage was "very worrisome." Hilbert acknowledged that the engine study was limited to a small sample of engines and didn't test the effect of the ethanol on acceleration or starting at different temperatures or on the motors during storage. The three engines were run at full throttle and were all supposed to be tested for 300 hours. The lone engine that made it all the way through, a 9.9-horsepower version, ran poorly and misfired at the end of the test, and a fuel pump gasket showed deterioration, Hilbert said.

But ethanol trade groups said the testing wasn't comprehensive enough. "We are listening to the concerns of the marine and small engine community as we always have," the *Renewable Fuels Association* said in a statement. "We appreciate that marine engines may face unique challenges with operating environment and fuel storage concerns." Margo Oge, who oversees the E15 issue for the EPA, told the House subcommittee her agency would take a number of steps besides labeling pumps to prevent misfueling, including tracking distribution of the product and conducting surveys of retailers.

Sources: Philip Brasher, *Des Moines Register*, 11/3/11 and *Greenwire*, 11/8/11

New National Wildlife Refuge Plan Calls for Attracting Visitors

The U.S. Fish and Wildlife Service (FWS) will seek to improve the visitor experience at national wildlife refuges and prioritize emerging threats, like climate change, according to a new 10-year plan for the refuges. The agency released the final version of its 10-year blueprint in late October. The government and the *National Wildlife Refuge Association* (NWRA) have been working for the past



year on the document, which sets a vision statement for the nation's 553 refuges.

The blueprint sets priorities for refuge managers and calls for the government to launch an "urban refuge initiative" to try to attract city dwellers to nearby refuges and encourages refuge managers to work with state agencies to expand hunting and fishing opportunities in the refuge system. The blueprint also calls for refuge managers to create a new inventory of the refuge system's land and water resources and assess the potential effects of climate change.

The refuge system should plan for "strategic growth" by prioritizing certain land acquisition spots and collaborate with private groups to conserve wildlife habitat, according to the document. "The conservation challenges of the 21st century demand that the service renews its commitment to our important relationship with state fish and wildlife agencies and with traditional partners such as anglers and hunters," said Dan Ashe, FWS director. "At the same time, we need to be creative and bold in forging new partnerships."

The blueprint calls for a shift in focus for the refuge system. The message of the last vision document, published in 1998, was to place wildlife first. Wildlife conservation is still a top priority for the system, but the vision for the next decade increases the focus on people. It also takes into account threats that were not considered then, like climate change.

Evan Hirsche, NWRA president, said the new plan would help the government leverage its resources. It calls for refuge managers to work "beyond the boundaries" and seek creative alliances with adjacent landowners, states and other federal agencies in crafting large landscape strategies. "This plan emphasizes the importance of engaging our country's diverse population in accomplishing meaningful conservation, while encouraging folks of all ages to get outdoors and enjoy America's great natural treasures," Hirsche said.

There are already three "implementation teams" working on strategic growth of the refuge system, the urban wildlife refuge initiative and leadership development. The leadership development council will oversee the recruitment of a more diverse workforce and aid employees in developing leadership skills. The administration will form six more teams to work on other aspects of the plan. Conservation advocates applauded the new plan but said its success would be measured in how well it is implemented on the ground in each refuge. The FWS has been working with the NWRA for the past year on the document. The agency unveiled a draft version last summer at a conference on refuges. Since then the agency has sought public comment.

Source: Allison Winter, *Greenwire*, 10/21/11

Fracking Issues

A magnitude 4.8 earthquake shook south Texas in late October near a major shale drilling center. The area has a history of tremors, but some experts say drilling operations in the *Eagle Ford Shale* may have contributed to the most recent quake. A University of Texas seismologist said that while hydraulic fracturing does not cause earthquakes, some tremors have been associated with the disposal of fracturing fluids.

Drilling companies "pump the water back into the ground into a deep aquifer to get rid of it," earthquake researcher Cliff Frohlich at the university's *Institute for Geophysics* said. "The quakes have been associated with the pumping of water back into the ground, not the producing of the gas." Frohlich pointed to earthquakes in north Texas and Arkansas as examples. Frohlich said it is too soon to say whether drilling in south Texas had anything to do with the earthquake.

Meanwhile, a magnitude 5.7 earthquake hit Oklahoma in early November, leaving residents there scrambling to clean up and raising fresh questions about the recent increase in seismic activity in the region. Oklahoma averaged about 50 earthquakes a year until 2009. Then the numbers spiked, and last year 1,047 quakes shook the state. Most of the earthquakes have been small, though the recent quakes were among the strongest yet in the state. Arkansas, too, has seen a big increase in earthquake activity, which residents have blamed on the injection wells that natural gas companies use to dispose of fluid from hydraulic fracturing. Richard Young, a geology professor at the State University of New York, Geneseo said, "If you inject fluids and you have a lot of faults you don't know about, or just joints or fractures ... then you can have the chance of an earthquake."

Fracking work site in PA.

There are 181 injection wells in the Oklahoma county where most of the November earthquakes occurred, according to Matt Skinner, spokesman for the *Oklahoma Corporation Commission*, which oversees oil and gas production in the state. But natural gas companies say there is no proof of a connection between injection wells and earthquakes, and a study by an Oklahoma Geological Survey (OGS) seismologist earlier this year found that most of the state's seismic activity did not appear to be tied to the wells, although it said more investigation was needed. "It's a real mystery," Austin Holland, a seismologist at the OGS, said of the November quakes. "At this point there's no reason to think that the earthquakes would be caused by anything other than natural" shifts in the Earth's crust.

Earthquakes that hit east of the Rocky Mountains are harder to pinpoint because the fault systems are not as well studied as major faults like California's *San Andreas Fault*. John Conrad, a hydrogeologist and member of the *Independent Oil & Gas Association of New York*, a leading industry group, said "There are 170,000 ... brine disposal wells in the United States, and only a couple of cases of seismicity have been linked to them." "It certainly is not out of the question that there could be faults that are not known."

Meanwhile, in Great Britain a report by the British Geological Survey said that natural gas drilling was likely the cause of recent earth tremors in Lancashire, Britain. The *Geo-mechanical Study Of Bowland Shale Seismicity* said that geology at the well site was the probable cause, and the minor quakes are "unlikely to occur again." A 2.3 magnitude earthquake hit Lancashire on April 1, followed by a second one of magnitude 1.4 on May 27. The energy firm *Cuadrilla*, which was testing shale gas drilling, suspended its operations soon after.

The report found that the epicenter of the earthquakes were about 500 meters from the drilling site. The report also found that the quakes were caused by an unusual combination of geological factors and so were unlikely to be repeated. "If these factors were to combine again in the future local geology limits seismic events to around magnitude 3 on the Richter scale as a worst-case scenar-

io," the report stated.

Anti-fracking groups said the report did not make them any more confident about the technique or the industry. *Frack Off*, one such group, said that *Cuadrilla* should have done the assessment before drilling began. "These findings are worrying and are likely to add to the very real concerns that people have about fracking and shale gas," said Nick Molho, head of energy policy at *World Wildlife Fund U.K*. The United Kingdom's Department of Energy and Climate Change also said it will review the report before it allows hydraulic fracturing to resume.

The French government has taken more drastic action by canceling the shale gas exploration permits of *Total SA* and *Schuepbach Energy LLC* after the companies maintained that they would drill potential fields using hydraulic fracturing. The three permits withdrawn cover all of the country's potential shale-gas fields. The announcement was made by France's energy minister, Éric Besson, and environmental minister, Nathalie Kosciusko-Morizet.

France has some of the most promising shale gas fields in Europe, according to a report released in April. "The interest shown ... by major oil and gas operators and North American companies which are specialized in extracting shale hydrocarbons, as well as the investments they plan to make, show the scale of the potential," stated the study. A spokeswoman for *Total*, based in France, said the company was surprised by the decision and said, "We are waiting for the government's notification to understand the legal basis on which this permit was canceled." *Schuepbach*, based in Texas, did not comment. France banned hydraulic fracturing, or "fracking," in May over concerns the technique could be detrimental to the environment and the chemicals used in the process could pollute groundwater.

Meanwhile, the U.S. EPA has found evidence that supports hydraulic fracturing contamination concerns in an area where residents have long complained that the shale gas drilling method has fouled waterways and caused underground pollution. A pair of environmental monitoring wells EPA drilled into a Pavillion, WY, aquifer indicated the presence of at least one commonly used fracking chemical, according to water test results released in mid November by the agency. EPA's latest findings are consistent with data the agency has collected from 42 Pavillion-area homes since 2008.

After finding contamination in the area, EPA drilled the monitoring wells to get a better idea of the pollution's extent. In its newest report, the agency said it found 2-Butoxyethanol – a widely used fracking chemical – in the aquifer but did not detect nitrates or fertilizers that would suggest the contamination is tied to agricultural activities. The wells also contained benzene at 50 times the threshold safety level, as well as methane that did not match the fingerprint of shallower methane that gas companies have said is naturally occurring in water. EPA did not interpret its findings, nor did it attempt to find the pollution's source.

Gas drilling operations have been prevalent in the Pavillion area for the last 20 years. For nearly 10 of those years, residents have complained that drilling – particularly fracking has caused their water to turn black and smell like gasoline. Some residents have reported health effects, such as neurological impairment, loss of smell and nerve pain after being exposed to pollutants. *EnCana Corp*., which owns most of the wells in Pavillion, and others in the natural gas industry have said their activities do not cause contamination, although *EnCana* has supplied drinking water to some homes. *Encana* recently reached a deal to sell its Pavillion wells for $45 million to Texas-based oil and gas company *Legacy Reserves LP*. *Encana* said it would continue to cooperate with EPA's investigation. But *Encana* spokesman Doug Hock said, "The science remains inconclusive, in terms of data, impact and source.

But as his state's scientists considers permitting rules for shale drilling, New York Gov. Andrew Cuomo (D) warned that existing municipal water systems likely cannot stop hydraulic fracturing chemicals from getting into drinking water. Under regulations proposed by the state, hydraulic fracturing would be banned from watersheds that supply New York City and Syracuse with water. But it would be allowed in other watersheds that provide other New York residents with water that is filtered through municipal treatment systems. In a letter to Cuomo, 59 experts from 18 states and seven foreign countries say that "the best available science" suggests that some chemicals used in hydraulic fracturing would pass through filters into drinking water. Those chemicals include benzene, toxic metals, radioactive materials and surfactants and organic biocides. "We urge the state to reconsider its position that existing water filtration systems provide adequate protection against the risk of hydraulic fracturing, should materials from flow-back fluids migrate to lakes, reservoirs, or groundwater used for municipal water supplies," the letter states. Increasing volumes of contaminated wastewater from hydraulic fracturing operations have presented private water treatment companies with a valuable business opportunity. Some companies use ozone to render contaminants harmless, while others use electricity and evaporation to extract pollutants. Although drillers sometimes simply reuse their wastewater without fully treating the fluid, it is not clear how widespread this practice is. Technology companies and researchers say there is a limit to this process because dirty water cannot be used repeatedly to the same level of effectiveness as clean fluid. Contaminants in unfiltered water could damage equipment and block gas releases from the shale.

Meanwhile, mining for the sand required for hydraulic fracturing is also causing air and water quality problems according to environmentalists. Getting the vast amounts of sand needed for the process requires that the top layer of earth be removed to reach a sand deposit. Heavy equipment and a large amount of water is then used to make fine sand grains. "There really is a gold rush right now for this type of material" because of sand shortages, said Thomas Dolley, mineral commodity specialist at the U.S. Geological Survey. The oil and gas producer *EOG Resources Inc.* is currently facing tough opposition for a planned mine in Cooke County, TX. "One of the big concerns is the impact on the air," said Jessie Thomas-Blate of the conservation group *American Rivers*. "Mining kicks up a lot of dust, and the people in the area can breathe in that dust." According to the U.S. Occupational Safety and Health Administration, crystalline silica in fracking sand can potentially cause cancer and lung disease. Erosion from mining can also cause runoff into waterways, Thomas-Blate said.

All of these concerns have led shareholders in firms that use hydraulic fracturing to turn up the heat on those companies over the possible environmental toll of the drilling technique. This year, investor groups filed resolutions with nine companies asking for fracking risk assessments, according to *Institutional Shareholder Services*. Last year, 11 firms faced resolutions. The resolutions came from such groups as the *New York State and Local Retirement System* and portfolio manager *Miller/Howard Investments Inc.* "Obviously, they seek financial returns, but these investors also integrate environmental, social and governance factors into their investment analysis," said Timothy

Smith, a senior vice president at Boston-based *Walden Asset Management*.

In just one instance, 49.5 percent of shareholders in Birmingham, AL-based *Energen Corp*. agreed with such a resolution. The document said that "the potential environmental impacts and increased regulatory scrutiny concerning hydraulic fracturing could 'pose threats to the company's license to operate and enhance vulnerability to litigation.'" On average, about 40 percent of shareholders on company boards have voted in favor of the resolutions, according to Smith. Groups also filed resolutions with *Exxon Mobil Corp.* and *Anadarko Petroleum Corp.*

U.S. EPA hopes to address some fracking concerns through a multi-year study, an endeavor that is drawing intense scrutiny at every increment from environmentalists and the industry. The agency plans to study the full "life cycle" of the fracturing process that occurs as part of drilling and completing an oil or gas well. That means the study will look at the effects from the moment companies pull the water from streams or elsewhere to the point at which it returns to streams or underground storage. EPA will not look at whether fracturing might cause earthquakes, how it affects public safety and workplace safety, and how it affects air quality around well fields. "These topics are currently outside the scope of this study plan, but should be examined in the future," the study says.

EPA has said that its study would focus on the following five key areas and questions:
• Water acquisition. What are the potential impacts of large volume water withdrawals from ground and surface waters on drinking water resources?
• Chemical mixing. What are the possible impacts of surface spills on or near well pads of hydraulic fracturing fluids on drinking water resources?
• Well injection. What are the possible impacts of the injection and fracturing process on drinking water resources?
• Flowback and produced water. What are the possible impacts of surface spills on or near well pads of flowback and produced water on drinking water resources?
• Wastewater treatment and waste disposal. What are the possible impacts of inadequate treatment of hydraulic fracturing wastewaters on drinking water resources?

EPA's wording of the plan and the accompanying news release on the study plan seeks to rebut claims by the industry that the agency and the Obama administration are out to shut down oil and gas production in the United States. "This study is in line with the priorities identified in the president's *Blueprint for a Secure Energy Future*, and is consistent with the S*ecretary of Energy Advisory Board* recommendations on steps to support the safe development of natural gas resources," the EPA release stated.

EPA has already studied fracturing once, concluding in 2004 that it was safe because the toxins in fracturing fluid either are sucked back up or degrade underground. But that study looked only at fracturing in coalbed methane drilling, which occurs at shallower depths closer to groundwater than shale formations.

Sources: Nathan Bernier, *KUT News*, 10/20/11; Justin Juozapavicius, *AP/Houston Chronicle*, 11/6/11; *BBC News*, 11/2/11; Geraldine Amiel, *Wall Street Journal*, 10/4/11; Abrahm Lustgarten, *ProPublica*, 11/10/11; Brian Nearing, *Albany Times Union*, 9/16/11; Yuliya Chernova, *Wall Street Journal*, 9/12/11; Anna Driver, *Reuters/MSNBC*, 9/21/11; John Funk, *Cleveland Plain Dealer*, 11/4/11; Steve Orr, *Binghamton Press & Sun-Bulletin*, 11/15/11; Jeremy Fugleberg, *Casper Star-Tribune*, 11/18/11; Mike Soraghan, *Greenwire*, 11/3/11; and *Greenwire*, 9/12, 9/16, 9/22, 10/4, 10/21, 11/2, 11/7, 11/11, 11/16 and 11/18/11

Appalachian Coal Mining Lawsuits

Environmentalists are increasingly resorting to lawsuits to help control stream pollution in Appalachian streams caused by surface coal mining operations such as mountaintop removal. They have also expressed concerns that state and federal regulators may be back peddling on regulations to control the impacts of surface coal mining operations.

In Kentucky, the groups (*Appalachian Voices*, *Kentuckians for the Commonwealth*, *Kentucky Riverkeeper*, and the *Waterkeeper Alliance*) accuse two coal companies [*International Coal Group Inc.* (ICG) and *Frasure Creek Mining LLC*] of thousands of alleged Clean Water Act violations. The groups filed their lawsuit in Kentucky U.S. District Court, accusing the companies of illegal pollution dumps and negligent record keeping. ICG is now owned by *Arch Coal Inc.*

Enormous valley fill near Coal River Mountain, WV - Coal River Mountain Watch Photo.

Ted Withrow, *Kentuckians for the Commonwealth* steering committee member, called the lawsuits a means of keeping their options open in the federal realm as the groups press state officials for steeper fines. "This was to preserve our rights in federal court," he said in an interview. The *Kentucky Energy and Environment Cabinet* has proposed the companies pay a $660,000 fine which the groups say is far too little with respect to the damages done.

Franklin Circuit Court Judge Phillip Shepherd ordered the sides into mediation to work out an arrangement after a trial in September. Deliberations are expected to resume early next year. "We sent [Shepherd] a letter saying that the purpose of our suit was to preserve the clients interest," Withrow said. "We fully intend to go [through mediation] and hopefully can come to a conclusion. That's our greatest hope."

If environmentalists fail in state court and cannot convince regulators to levy steeper fines on the companies, they can turn to the federal courts, Withrow said. "We have a long way to go before we get to that point," he added. In a separate case, the environmental groups are also fighting for higher fines against *Nally & Hamilton Enterprises Inc.* for similar Clean Water Act violations.

Also in Kentucky, environmental groups are threatening to sue *Laurel Mountain Resources LLC*. The *Sierra Club* and the group *Kentuckians for the Commonwealth* have sent the company a notice of intent to sue for alleged illegal discharges of selenium from the company's *Bear Hollow* mine in Johnson County. "Selenium threatens our fish and other aquatic organisms because it readily bio-accumulates," Rick Clewett, a *Sierra Club* volunteer in Kentucky, said in a statement. "It's a growing problem for this region." Selenium is often found near mountaintop-removal coal mining sites in Appalachia and can be toxic to humans in large quantities.

"Once again we must take legal action to force our state officials to protect the

citizens and waters of Kentucky from toxic pollution in the coal fields," Withrow said in another statement. Earlier this month, environmentalists announced a settlement with *Arch Coal Co.* over selenium pollution in neighboring West Virginia. An agreement with *Alpha Natural Resources Inc.* is also in the works.

Attorneys Joe Lovett and Derek Taney with *Appalachian Mountain Advocates* are representing the groups. They have become a main force in fighting coal mining pollution through legal action.

Meanwhile, in Tennessee three lawsuits were filed against *National Coal LLC* saying the company violated water pollution discharge limits at two mines and one mine waste site. The groups – including the *Sierra Club*, the *Tennessee Clean Water Network* and *Statewide Organizing for Community Empowerment* – filed their complaints in early November in U.S. District Court, Eastern District of Tennessee. Advocates say they reviewed the company's compliance records to find the violations. They say *National Coal* polluted area waterways with selenium, iron and manganese.

"The kinds of pollutants *National Coal* is releasing into Tennessee's waters can cause health problems as well as serious environmental damage," Axel Ringe, a conservation advocate for the Tennessee chapter of the *Sierra Club*, said in a statement. "Repeat violators like *National Coal* need to know that wanton polluting of Tennessee's waterways has serious consequences for local residents and won't be allowed to continue unchecked." Advocates sent the company and Tennessee regulators a notice of intent to sue earlier this year, which they say did not lead to proper enforcement of pollution limits.

Sources: Manuel Quinones, *Greenwire*, 9/21, 10/28, 11/3 and 11/8/11; and *Greenwire*, 9/8 and 9/23/11

Climate Change Update

Greenhouse gas (GHG) concentrations in the atmosphere rose to a record high in 2010, according to the United Nations' *World Meteorological Organization* (WMO). Carbon dioxide (CO_2) rose by 2.3 ppm between 2009 and 2010, which exceeded the average of the past decade set at 2.0 ppm. Methane also rose between 2009 and 2010 after a period of stability between 1999 and 2006. The WMO said this could be due to thawing of the northern permafrost and increasing emission from wetlands. Nitrous oxide was at 323.2 ppb in 2010, about 20 percent higher than in the pre-industrial era. "The atmospheric burden of GHGs due to human activities has yet again reached record levels since pre-industrial time," said WMO Secretary-General Michel Jarraud. More than half the increase came from emissions in China and the United States, said Gregg Marland, a professor of geology at Appalachian State University. Researchers pointed to the burning of coal as a culprit.

Climate change is shifting weather extremes, increasing the frequency of drought and heat waves and the intensity of rainstorms – shifts that will require the world's governments to change how they cope with natural disasters, the *Intergovernmental Panel on Climate Change* (IPCC) reported in mid-November. Scientists have strong evidence that GHGs produced by human activities contributed to some of those changes, the report says, including a shift to longer, hotter heat waves. The 29-page document, written by more than 100 top scientists recommends taking steps now to increase the world's ability to adapt and cope with climate extremes, warning that "a changing climate leads to changes in the frequency, intensity, spatial extent, duration and timing of extreme weather and climate events, and can result in unprecedented extreme weather and climate events."

The analysis describes wide-ranging changes in climate extremes since the middle of the last century, including an overall decrease in the number of cold days and nights and an overall increase in the number of warm days and nights – a shift researchers said was "very likely," which in IPCC terms signifies 99 to 100 percent confidence in that conclusion. The report says it is "likely" – or a 66 to 100 percent chance – that human activities have contributed to that shift. It predicts "substantial warming" through 2100, with longer, stronger and more frequent heat waves over most of the Earth's landmass. "For the high-emissions scenario, the frequency of hottest days will increase by a factor of four within the next 30 to 40 years, and by a factor of 10 by the end of the 21st century," said Thomas Stocker of the University of Bern, co-chairman of the IPCC's physical science working group.

The latest projections put the global temperature forecast using climate models beyond the worst-case scenario predicted in the 2007 IPCC report. That report forecast temperatures rising 4 to 11 °F by 2100, with the best estimate at 7.5 degrees. One silver lining from these latest numbers is that developed nations that ratified the *Kyoto Protocol* reduced emissions overall since 1997, and they had cut their emissions to 8 percent below 1990 levels.

Researchers say they have "medium confidence" that humans have contributed to a shift to heavier rain and snowstorms in some areas. They predict an increase in the number of heavy rainfall events and the proportion of annual rainfall that falls during those events. Very rainy days that now occur once every 20 years will occur once every 5 to 15 years by the end of the century. Even in places that appear likely to become drier as the planet warms, there is "medium confidence" that individual rainstorms will become more intense, the report says.

The report also places "medium confidence" in a trend toward more intense and longer droughts in large swaths of Europe and Africa, and fewer, less intense or shorter droughts in the central United States and northwestern Australia. Researchers say they have "low confidence" of any long-term shifts in hurricane and tornado activity, and there is sparse evidence available to determine whether climate change has altered the magnitude and frequency of flooding. They predict, however, that hurricanes' average maximum winds will grow stronger in many ocean basins, although the number of storms will remain steady or decrease slightly.

The analysis also says there is "high confidence" that changing rainfall and temperature extremes will increase the likelihood of landslides in high mountain regions and flooding caused by the rapid release of glacial meltwater from mountain glaciers. Scientists are less certain about climate change-driven shifts in flooding and natural climate patterns like El Niño, the report says.

"The extremes are a really noticeable aspect of climate change," said Jerry Meehl, senior scientist at the National Center for Atmospheric Research (NCAR). The most important thing to understand about the link between extreme weather events and anthropogenic climate change is that human emissions increase the likelihood of heat waves, droughts and hurricanes – even though they would still take place without those emissions. Meehl, said that while record-breaking weather events have occurred throughout history, higher concentrations of CO_2 in the Earth's atmosphere are making those occurrences more commonplace. This year has been unusually active for extreme weather events in the United States, with

snow storms, tornadoes, floods, heat and drought affecting hundreds of millions of people. "I would say that all of these events have an anthropogenic component to them," said Kevin Trenberth, a senior scientist at the NCAR.

Trenberth estimated that mankind was responsible for contributing about 5 to 10 percent to the overall atmospheric conditions behind today's global weather patterns. He said an NCAR analysis showed that approximately 6 to 8 percent of precipitation during Hurricane Katrina was linked to human emissions, or about 1 inch per foot of water. "This is exactly the sort of thing that breaks records, that breaks levees, and potentially helps Lake Pontchartrain spread out over New Orleans," he said.

Meehl said that one of the surest ways to show that climate change was already influencing weather patterns was to look at the ratio of records set for heat compared with record cold. Until the 1970s, there were roughly as many record-breaking warm days as record-breaking cold days, but the ratio is now more than 2-to-1 and seems poised to climb as high as 50-to-1 by the end of the century. But cold weather records will still be broken from time to time even then, he said, albeit far less frequently. "You still have winter in a warming climate, but you shift the odds toward more heat extremes and away from more cold extremes," he said.

Climate scientist Richard Somerville compared the global climate to a "loaded dice" that still lands on a one from time to time. The bias toward warmer weather is clear if you look at the overall trend, even if there are instances of cold weather. "You have to look at lots of rolls of dice, and then the fact that they're not fair dice will come up," he said. "Climate is inherently statistical, and you really have to get used to talking about it in those terms," he added.

However, a *Rasmussen Reports* poll taken in August showed that 69 percent of respondents thought it likely that climate scientists falsified their data to achieve a desired result. But Trenberth said there was no scientific foundation for this doubt or for the belief that higher temperature averages were being caused by anything else. Far from causing warming, he said, the sun is going through a very quiet cycle. "If anything, the sun is cooler," he said. Cloud formations had been ruled out as a significant cause of the warming as well, Trenberth said.

Meanwhile, two ice shelves in the Canadian Arctic diminished significantly this summer, one nearly disappearing completely, according to newly published research. The loss is an important marker of global warming, scientists say. Five years ago, the *Serson Ice Shelf* shrank from 79.15 square miles to two remnant sections, and this year diminished further, according to a study published by University of Ottawa researcher Luke Copland on Carleton University's website. Copland, who uses satellite imagery and conducts field work in the Arctic, said one shelf went from a 16-square-mile floating glacier tongue to 9.65 miles, and the second went from 13.51 square miles to 2 square miles. Meanwhile, the *Ward Hunt Ice Shelf*, which was thought by scientists to be the most stable, disintegrated into drifting ice masses this summer, measuring 87.65 and 28.75 square miles respectively. "The impact is significant and yet only a piece of the ongoing and accelerating response to warming of the Arctic," said Robert Bindschadler, emeritus scientist at the Hydrospheric and Biospheric Sciences Laboratory at the NASA Goddard Space Flight Center.

The Yukon River is releasing nearly 5 tons of mercury per year, likely as a result of global warming, the U.S. Geological Survey (USGS) said in a study released in late October. Researchers found that thawing permafrost in the Yukon River watershed, the longest free-flowing river in the world, is causing the increased mercury. The amount of mercury coming from the Yukon is 3 to 32 times more than eight other major rivers in the Northern Hemisphere, according to the study, which was published in the *Journal Environmental Science and Technology*. Scientists also detected methylated mercury, which is toxic to humans, in the Yukon but at very low levels.

"It is important to measure the amount of mercury from river watersheds so that a baseline is established to compare against future conditions," lead USGS researcher Paul Schuster said in a statement. Scientists sampled surface water for total mercury concentrations for five years in the study. They also measured water discharge from the Yukon River at Pilot Station, Alaska. The mercury is largely coming from organic matter frozen in permafrost that originated in boreal forest soils. Three-quarters of the Yukon River watershed is covered in the frost, where mercury has been accumulating since the last ice age, 10,000 years ago. Researchers said the thawing is the result of "cyclical warming" and "changing climatic conditions." The thawing is occurring at an increased rate, they said, as is the export of mercury from the river. They also said that an increase in Europe and Asia's industrialization will also contribute to more mercury being released from the permafrost.

Meanwhile, a federal judge in mid-October vacated the George W. Bush administration rule that barred use of the Endangered Species Act (ESA) to regulate GHGs. At issue was the so-called 4(d) rule that accompanied the 2008 decision by the U.S. Fish and Wildlife Service (FWS) to list the polar bear as a "threatened" species. U.S. District Judge Emmet Sullivan of the District of Columbia ordered the FWS to carry out an environmental review to meet the requirements of the National Environmental Policy Act (NEPA). But, importantly, he upheld FWS's decision that the ESA was not the appropriate vehicle to regulate GHGs. In June, Sullivan had upheld the Bush administration's underlying determination that the bear is a threatened species under the ESA. On NEPA, Sullivan wrote that the FWS had failed to take into account the potential environmental impacts of the special rule, which addressed, among other things, the direct impact on polar bear habitat from oil and gas exploration. At the time, the FWS did not carry out any NEPA analysis. Sullivan wrote that his decision does not mean the agency is required to carry out a full environmental impact statement, but it must convince him of the need not to do so. While the NEPA analysis is carried out, a May 2008 interim rule that is essentially the same as the final rule, remains in place. On the question of whether the ESA can be used to regulate GHGs, Sullivan said the government's conclusion that the statute was not the appropriate vehicle to regulate GHGs was not a violation of the Administrative Procedure Act. "Although the court is sensitive to plaintiffs' arguments for a strong mechanism to combat the effects of global climate change, the court finds that the agency's conclusion was not arbitrary, capricious or contrary to law," Sullivan wrote.

Robert Glennon, a professor at Arizona State University and author of "*Unquenchable: America's Water Crisis and What To Do About It*," said at the State of the *Lakes Ecosystem Conference* in Erie, PA that according to climate experts, shorter, warmer winters mean less ice and greater exposure to the air, leading eventually to more water evaporation. As temperatures go up it is very troubling," Glennon said. "In 1985-1986 there were historical (water level) highs and now in less than 25 years we are at historical lows. Those sorts of swings are very scary," he said. "The cycles are going to become

more acute which is very troubling."

But Glennon doesn't believe that water diversion whether by pipeline, desalinization or more drilling are long-term answers. He thinks conservation, water reuse, and better agriculture practices bolstered by higher, seasonally-adjusted water costs will bring things in line. "We pay less for water than we pay for cell phone service or cable television," he said. "All of our incentives are wrong." The problem isn't just getting water to obviously needy areas like the desert city of Las Vegas, Glennon said. Areas with high rainfall and seemingly abundant freshwater sources also are increasingly exceeding capacity. "The population of the U.S. is supposed to be at 420 million by 2050," he said, "Where are we going to get the water to support another 120 million Americans?"

But while there is a growing belief among Americans that the Earth is warming, fewer believe that human activity is primarily responsible for that trend, according to a poll released in mid-September. The poll, conducted by *Ipsos* on behalf of Stanford University and *Reuters*, showed that 83 percent of Americans believe the climate is changing, up from 75 percent of respondents in a similar survey last November. The poll of 1,134 adults was taken Sept. 8-12. It had a 3-point margin of error. Jon Krosnick of Stanford told *Reuters* that this shift may be due to reports that 2010 was one of the warmest years on record, or it may be a reaction to the Republican presidential debates, in which most candidates have expressed very skeptical views about climate change. "That is exactly the kind of situation that will provoke the public to think about the issue in a way that they haven't before," Krosnick said . David Jenkins, vice president for government and political affairs for *Republicans for Environmental Responsibility*, said the long string of weather events this summer probably played a bigger role in boosting belief in climate change than the campaign season. "Whether it's the dust storms in Arizona or the flooding in the Mississippi, or the fire in Texas, or the tornadoes, or the hurricanes – the weather has been anything but what people would consider normal," he said. But this increase in belief in increased temperatures is offset somewhat by a change in respondents' belief in the cause of climate change. Where 31 percent of respondents said last year that human activities are primarily responsible for warming, 27 percent said so this year. Meanwhile, nearly the same number – 44 percent in both polls – told the survey that human activities and natural factors might be jointly responsible for the phenomenon. The number of respondents who said global warming was due to natural causes has grown from 23 percent to 27 percent. Much of the overall drop in belief in anthropogenic climate change appears to have occurred among Democrats and independents.

While Democrats were still the most likely group to subscribe to the belief that human activity is causing climate change, that belief is eroding. Forty-four percent of Democratic respondents told the pollsters that climate change was man-made last year, compared to 38 percent this year. The number who said that human activity and natural factors were jointly responsible has grown by 10 percentage points – from 40 percent to 50 percent. Independents are also questioning whether human activity has a hand in climate change – 30 percent said it was the primary factor last year, compared with 25 percent this year. More poll respondents put it down to natural weather patterns – 29 percent this year compared with 25 percent last year. The survey also found that slightly fewer respondents – 72 percent instead of 75 percent – now believe that the warming trend will continue in the future.

U.S. efforts to ratchet down GHG emissions and adapt to the effects of climate change may be facing mounting opposition on Capitol Hill, but a bipartisan group of scientists, national security experts, and former government officials hopes the federal government will turn its attention soon to another aspect of climate response – geoengineering. The *Bipartisan Policy Center's* task force on geoengineering suggested in a report released in early October that the United States begin research as soon as possible on ways to directly manipulate the Earth's atmospheric temperature to reverse man-made warming.

The 18-member group recommended that the White House Office of Science and Technology Policy have the job of coordinating the geoengineering, or "climate remediation," program, which the panelists said would require both diplomatic and research competencies that are not located in any one agency. The task force emphasized in its statement accompanying the report that geoengineering is no substitute for mitigation and adaptation. "However, the Task Force report finds that it is time for the U.S. to undertake a climate remediation research program to understand the risks, costs, and feasibility of these approaches," the statement said.

At a rollout of the report, panel co-chairwoman Jane Long, associate director of the *Lawrence Livermore National Laboratory* in California acknowledged that environmentalists and others are often wary of geoengineering, both because of the risks involved with tinkering with the Earth's atmosphere and because it is seen to distract from the need for mitigation. But she argued that if the public knows that federal agencies are looking into geoengineering as a way of dealing with the problem of climate change, that might underline how much of a problem man-made global warming is and give new urgency to the need for emissions reduction. Long and co-chairman Stephen Rademaker, a principal at the *Podesta Group* and former assistant secretary of the State Department, said there was little dissent on the panel about the need to begin geoengineering research, though panelists differed on some details, such as whether the research should focus on solar radiation management versus carbon reduction. Rademaker said the panel agreed that the United States should reach out to other countries to try to forge international agreement on norms for geoengineering.

The proposal would eventually require a hefty appropriation by Congress, something that seems unlikely given the current political attitudes toward both government spending and climate change response. But Long said the administration could take some steps that would cost little or no new money, such as integrating research already being conducted within agencies. "To get serious about it, which I believe we should, is going to cost new money," she said. "But we can get started without a lot of money."

Two tools released in early October could revolutionize the way companies count emissions from their supply chains and over the lifetimes of their products – and one day allow consumers to compare the GHG footprints of similar products. *Scope 3* will calculate the amount of GHGs released throughout the supply chain and in the use and disposal of its products. Another tool will calculate the amount of GHGs emitted by a product over the entire process of manufacture and use. For example, the carbon history of a toaster would include emissions released when mining for the elements used in its manufacture, the carbon released while generating electricity to power it and even the fuel consumed while transporting the device. The tools were created by *GHG Protocol*, a collaboration between the *World Resources Institute*, a Washington-based environmental organization, and the *World*

Business Council for Sustainable Development. The two have already released *Scope 1*, which calculates emissions from direct operations such as running a factory. *Scope 2* covers indirect emissions, such as calculating emissions from burning coal to produce electricity to power lights in an office. "Armed with these new standards, companies can see the full picture of their emissions," said Pankaj Bhatia, director of the *GHG Protocol*. Advocates say comparing GHG emissions with competitors can be a powerful motivator for companies to reduce emissions.

Regarding liability for climate change, a state appeals court ruled in mid-September that an insurance company does not have to foot the bill for a company facing damages over climate change. The Virginia Supreme Court ruled in the closely watched case that *Steadfast Insurance* does not have a duty to defend *AES Corp*., a utility which is a defendant in a major climate case, *Kivalina (Alaska) v. Exxon Mobil Corp., et al.*, which is currently before the San Francisco-based 9th U.S. Circuit Court of Appeals. Litigation over insurance coverage relating to climate change is likely to grow in coming years, lawyers predict, so the ruling could help shape the legal landscape. When *AES* faced the Kivalina lawsuit in 2008, it asked its insurer, *Steadfast*, to defend it against the claims that emissions had contributed to rising sea levels that are endangering the village. *Steadfast* refused and instead asked an Arlington County, Va., judge to decide the question of whether it had a duty to defend. The judge ruled in favor of *Steadfast*, in part because there was no "occurrence" or "accident" that triggered a duty to defend. *AES* had argued *Steadfast* did have a duty because the plaintiffs in Kivalina had accused the plaintiffs of negligence. "*Steadfast's* policies broadly obligate it to indemnify *AES* for property damage claims involving 'accidents,'" the AES brief states. The Virginia Supreme Court rejected that argument in its ruling in the case, *AES v. Steadfast*. Justice Bernard Goodwyn wrote that under the terms of the various insurance policies in question, the acts relating to climate change that are the basis of Kivalina are not covered. "The relevant policies only require *Steadfast* to defend *AES* against claims for damages of bodily injury or property damage caused by an occurrence or accident," he wrote. The Kivalina lawsuit does not meet that definition because the plaintiffs allege that the utility was intentionally emitting CO_2 and knew that it contributed to global warming, Goodwyn noted. "Whether or not *AES'* intentional act constitutes negligence, the natural and probable consequence of that intentional act is not an accident under Virginia law," he wrote.

Climate change legal expert J. Wylie Donald, a partner at the *McCarter & English* law firm in Wilmington, DE, warned of the danger of reading too much into one decision because it only applies to Virginia and to one particular policy. Similar cases will be decided on a state-by-state basis. "Insurers will be heartened," he said. "But that should only be for a nanosecond." Attorney Christina Carroll, a partner at *McKenna, Long & Aldridge* in Washington, described the ruling as an "initial victory for insurers in the field of unfolding climate change liability." It remains to be seen, she added whether other courts take a similar approach.

The Virginia ruling comes three months after the U.S. Supreme Court ruling in *American Electric Power v. Connecticut*, in which the court held that states cannot sue utilities over GHG emissions under federal common law. Despite that outcome, lawyers expect cases against utilities over climate change featuring different legal theories to continue. Meanwhile, the 9th Circuit still has to rule on Kivalina, which focuses on a lawsuit filed by the Alaskan village of Kivalina against various major polluters. Its lawyers claim that emissions have contributed to rising sea levels that endanger the village, which sits at the end of an 8-mile barrier island that separates the Chukchi Sea and Kivalina River.

Meanwhile, the *Center for Biological Diversity* (CBD) has been trying to tame the runaway human population and its effect on the environment and climate change by giving out condoms that depict endangered animals on its packaging. Slogans include: "Wrap with care, save the polar bear," and, "Wear a condom now, save the spotted owl." The CBD hopes to bring attention to the human footprint on the environment even as the world welcomed into its fold the 7 billionth person. "Every person you add to the country makes all these tremendous demands on the environment," said Joel Cohen, chief of the *Laboratory of Populations* at Columbia University. But there is no ideal birth rate, he said. The *U.N. Population Fund* has said that it faces reluctance from nations and people to deal with this issue. When researchers published a study two years ago that calculated the extra CO_2 emissions people are responsible for by choosing to have kids, they received hate mail calling them "eugenicists" and "Nazis".

If the world does not change its course, climate change will be "locked in" after five years, the *International Energy Agency* (IEA) said in early November. The world has to take immediate action to prevent a temperature increase of more than 2 ^oC above pre-industrial levels, said the IEA. This does not look like it is happening in the current energy climate, it said. "The door to reach 2 degrees is about to close. In 2017 it will be closed forever," said Fatih Birol, chief economist of the IEA. CO_2 emissions in 2010 grew by 5.3 percent, according to the annual *World Energy Outlook*, primarily due to coal use in China and India. The IEA said that at the current rate, the average global temperature will rise by more than 6 ^oC. To reverse this growth, the world would have to reduce reliance on oil and coal by 2016, said the IEA. But at the current pace, it would be a "very big surprise" if the world managed this transformation, Birol said.

Source: Seth Borenstein, *Associated Press*, 11/3/11; James Herron, *Wall Street Journal*, 11/9/11; Charmaine Noronha, *AP/San Francisco Chronicle*, 9/29/11; Kim Palmer, *Reuters*, 10/26/11; Seth Borenstein, *AP/Yahoo News*, 11/1/11; Leslie Kaufman, *New York Times*, 10/3/11; Mireya Navarro, *New York Times*, 10/31/11; BBC, 11/21/11; Jean Chemnick, *Greenwire*, 9/8, 9/16 and 10/4/11; Jeremy P. Jacobs, *Greenwire*, 10/26/11; Lauren Morello, *Greenwire*, 11/18/11 Lawrence Hurley, *Greenwire*, 9/16, 9/28 and 10/17/11; and *Greenwire*, 9/30, 10/4, 11/1, 11/4/ 11/9 and 21/9/11

Meetings of Interest

Apr. 26-27: 44th annual Mississippi River Research Consortium, Radisson Hotel, La Crosse, WI. Contact: Nathan De Jager, ndejager@usgs.gov

Apr. 30-May 4: 8th National Monitoring Conference – Water: One Resource – Shared Effort – Common Future, Portland, Oregon. See: http://acwi.gov/monitoring/conference/2012/index.html

May 22-24: ECR2012: Working Across Boundaries Seventh National Conference on Environmental Collaboration and Conflict Resolution, Tucson, AZ. Contact: Pam Carlson at carlson@ecr.gov or Tina Gargus at gargus@ecr.gov

Jun. 3-5: Assoc. of Environmental and Resource Economists (AERE) Summer Conference, Grove Park Inn, Ashville, NC. See: http:/www.aere2012.com

Jun. 3-8: Wetlands in a Complex World - 9th INTECOL International Wetlands Conference, Caribe Royal Hotel Orlando, FL, See: www.conference.ifas.ufl.edu/intecol

Jun. 5-7: National Conference on Engineering and Ecohydrology for Fish Passage, Amherst, MA. See: http://www.umass.edu/tei/conferences/FishPassage/

Jun. 27-29: ISEG 2012 – XII International Symposium on Environmental Geotechnology, Energy and Global Sustainable Development. Los Angeles, CA. See: http://www.isegnet.org/2012/

Jul. 22-25: 67th International Annual Conference of the Soil and Water Conservation Society - "Choosing Conservation: Considering Ecology, Economics and Ethics". Ft. Worth, TX. See: www.swcs.org/12AC

Aug. 19-23: 142nd Annual Meeting of the American Fisheries Society, Minneapolis – St. Paul, MN. See: http://www.afs2012.org

Sep. 30-Oct. 5: EcoSummit 2012, Columbus, OH. See: http://www.ecosummit2012.org

Dec. 10-13: ACES 2012 and Ecosystem Markets Joint Conference, Marriott Harbor Beach, Ft. Lauderdale, FL. See: www.conference.ifas.ufl.edu/aces or Contact Jhanna Gilbert, jhanna@ufl.edu, 352-392-5930

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 greenhouse gases (GHGs) under Federal and common law on enactment of a Federal policy to mitigate climate change.

S. 482. Inhofe (R/OK) and 43 Co-sponsors and **H. R. 910.** Upton (R/MI) and 9 Co-sponsors. Amends the Clean Air Act to prohibit the Administrator of the EPA from promulgating any regulation concerning, taking action relating to, or taking into consideration the emission of a GHG to address climate change, and for other purposes.

S. 1393. Barrasso (R/WY) and **H. R. 2603**. Posey (R/FL) and 7 Co-sponsors.. Prohibits the enforcement of a climate change interpretive guidance issued by the Securities and Exchange Commission, and for other purposes.

H.R. 97. Blackburn (R/TN) and 46 Co-sponsors and **H.R. 1292.** Cuellar (D/TX). 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.

H. R. 1149. Bilbray (R/CA) and 7 Co-sponsors. Amends the Clean Air Act to include algae-based biofuel in the renewable fuel program and amends the Internal Revenue Code of 1986 to include algae-based biofuel in the cellulosic biofuel producer credit.

H. R. 3242. Stark (D/CA) and 8 Co-sponsors. Amends the Internal Revenue Code of 1986 to reduce emissions of carbon dioxide by imposing a tax on primary fossil fuels based on their carbon content.

Conservation

S. 339. Baucus (D/MT) and Tester (D/MT) and **H. R. 481.** Connolly (D/VA) and 3 Co-sponsors. Amends the Internal Revenue Code of 1986 to allow a credit against income tax for qualified conservation contributions which include National Scenic Trails.

S. 901. Tester (D/MT) and Risch (R/ID). Amends the Land and Water Conservation Fund Act of 1965 to ensure that amounts are made available for projects to provide recreational public access, and for other purposes.

S. 1105 (Murray (D/WA) and 3 Co-sponsors and **H. R. 1982.** Reichert (R/WA) and Thompson (D/CA). Provides a Federal tax exemption for forest conservation bonds, and for other purposes.

S. 1201. Lieberman (ID/CT) and 8 Co-sponsors. Conserves fish and aquatic communities in the U.S. through partnerships that foster fish habitat conservation, to improve the quality of life for the people of the U.S., and for other purposes.

S. 1265. Bingaman (D/NM) 4 Co-sponsors. Amends the Land and Water Conservation Fund Act of 1965 to provide consistent and reliable authority for, and for the funding of, the land and water conservation fund to maximize the effectiveness of the fund for future generations, and for other purposes.

S. 1774. Baucus (D/MT). Establishes the Rocky Mountain Front Conservation Management Area, to designate certain Federal land as wilderness, and improves the management of noxious weeds in the Lewis and Clark National Forest, and for other purposes.

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.

H. R. 1593. Bishop (D/NY) and Hanna (R/NY). Amends the Internal Revenue Code of 1986 to allow an unlimited exclusion from transfer taxes for certain farmland and land of conservation value, and for other purposes.

H. R. 1917. Kind (D/WI) and Wittman (R/VA). Authorizes U.S. Fish and Wildlife Service, to conduct a Joint Venture Program to protect, restore, enhance, and manage migratory bird populations, their habitats, and the ecosystems they rely on, through voluntary actions on public and private lands, and for other purposes.

Endangered Species Act of 1973 (ESA)

S. 826. Feinstein (D/CA) and **H. R. 1907.** Calvert (R/CA) and Issa (R/CA). Requires the Secretary of the Treasury to establish a program to provide loans and loan guarantees to enable eligible public entities to

acquire interests in real property that are in compliance with habitat conservation plans approved by the Secretary of the Interior under the ESA, and for other purposes.

H. R. 39 Young (R/AK). Delists the polar bear as a threatened species under the ESA.

H. R. 1042. Baca (D/CA) and 9 Co-sponsors. Amends the ESA to require that certain species be treated as extinct for purposes of that Act if there is not a substantial increase in the population of a species during the 15-year period beginning on the date the species is determined to be an endangered species, and for other purposes.

H. R. 1719. McMorris-Rodgers (R/WA) and 9 Co-sponsors. Better informs consumers regarding costs associated with compliance for protecting endangered and threatened species under the ESA.

H. R. 2973. Matheson (D/UT). Directs the Secretary of the Interior to extend an exemption from certain requirements of the ESA of 1973 to protect public health and safety.

Energy

S. 629. Murkowski (R/AK) and 8 Co-sponsors. Improves hydropower, and for other purposes.

S. 892. Burr (R/NC) and 15 Co-sponsors. Establishes the Department of Energy and the Environment, and for other purposes.

S. 1343. Bingaman (D/NM). Provides for the conduct of an analysis of the impact of energy development and production on the water resources of the U.S., and for other purposes.

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.

S. 468. McConnel (R/KY) and 2 Co-sponsors and **H. R. 960.** Rogers (R/KY) and Capito (R/WV). Amend the FWPCA to clarify the authority of the Administrator to disapprove specifications of disposal sites for the discharge of, dredged or fill material, and to clarify the procedure under which a higher review of specifications may be requested.

S. 661. Lautenberg (D/NJ). Amends the FWPCA to ensure the safe and proper use of dispersants in the event of an oil spill or release of hazardous substances, and for other purposes.

S. 711 Lautenberg (D/NJ). Amends the Safe Drinking Water Act and the FWPCA to authorize the Administrator of the EPA to reduce or eliminate the risk of releases of hazardous chemicals from public water systems and wastewater treatment works, and for other purposes.

S. 1582. Lautenberg (D/NJ) and 2 Co-sponsors. Amends the FWPCA to modify provisions relating to beach monitoring, and for other purposes.

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.

H. 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.

H. R. 2018. Mica (R/FL) and 19 Co-sponsors. Amends the FWPCA to preserve the authority of each State to make determinations relating to the State's water quality standards, and for other purposes.

H. R. 2840. LoBiondo (R/NJ) and 2 Co-sponsors. Amends the FWPCA to regulate discharges from commercial vessels, and for other purposes.

H. R. 3145. Bishop (D/NY) and 3 Co-sponsors. Amends the FWPCA to authorize appropriations for State water pollution control revolving funds, and for other purposes.

Invasive Species

S. 471. Stabenow (D/MI) and 6 Co-sponsors and **H. R. 892.** Camp (R/MI) and 21 Co-sponsors. Requires the Secretary of the Army to study the feasibility of the hydrological separation of the Great Lakes and Mississippi River Basins.

S. 1324. Boxer (D/CA) and 2 Co-sponsors. Amends the Lacey Act Amendments of 1981 to prohibit the importation, exportation, transportation, and sale, receipt, acquisition, or purchase in interstate or foreign commerce, of any live animal of any prohibited wildlife species, 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.

H. R. 1026. Waters (D/CA) and 6 Co-sponsors. Extends the authorization for the national flood insurance program, to identify priorities essential to reform and ongoing stable functioning of the program, and for other purposes.

Mining

S. 897. Bingaman (D/NM) and 4 Co-sponsors and **H.R. 1365.** Rahal (D/WV). Amends the Surface Mining Control and Reclamation Act (SMCRA) of 1977 to clarify that uncertified States and Indian tribes have the authority to use certain payments for certain non coal reclamation projects and acid mine remediation programs.

S. 1003. Tester (D/MT). Amends the SMCRA of 1977 to limit the liability of a State performing reclamation work under an approved State abandoned mine reclamation plan.

S. 1455. Tester (D/MT). Amends the SMCRA of 1977 to authorize certified States and tribes to use amounts made available from the Abandoned Mine Reclamation Fund for hard rock and coal mining reclamation projects and to extend liability protection to certified States and Indian tribes carrying out approved abandoned mine reclamation programs.

H. R. 785. Pearce (R/NM) and 2 Co-sponsors. Amends the SMCRA of 1977 to clarify

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that uncertified States and Indian tribes have the authority to use certain payments for certain non coal reclamation projects.

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

S. 896. Bingaman (D/NM) and 2 Co-sponsors and **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.

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.

Water Quality

S. 1669. Cardin (D/MD) and 2 Co-sponsors and **H. R. 2738.** Capps (D/CA) and 9 Co-sponsors. Authorizes the Administrator of the USEPA to establish a program of awarding grants to owners or operators of water systems to increase the resiliency or adaptability of the systems to any ongoing or forecasted changes to the hydrologic conditions of a region of the U.S.

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

H. R. 872. Gibbs (R/OH) and 21 Co-sponsors. Amends the Federal Insecticide, Fungicide, and Rodenticide Act and the Federal Water Pollution Control Act to clarify Congressional intent regarding the regulation of the use of pesticides in or near navigable waters, and for other purposes.

Water Resources

S. 399. Baucus (D/MT) and Tester (D/MT). Modifies the purposes and operation of certain facilities of the Bureau of Reclamation to implement the water rights compact among the State of Montana, the Blackfeet Tribe of the Blackfeet Indian Reservation of Montana, and the U.S., and for other purposes.

S. 573. DeMint (R/SC). Establishes a harbor maintenance block grant program to provide maximum flexibility to each State to carry out harbor maintenance and deepening projects in the State, to require transparency for water resources development projects carried out by the Corps of Engineers, and for other purposes.

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.

H. R. 1421. Boren (D/OK) and Cole (R/OK). Amends the Water Resources Development Act of 1986 to clarify the role of the Cherokee Nation of Oklahoma with regard to the maintenance of the W.D. Mayo Lock and Dam in Oklahoma

H. R. 1865. Gibbs (R/OH) and 21 Co-sponsors. Protects the right of individuals to bear arms at water resources development projects administered by the Secretary of the Army, and for other purposes.

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