River Crossings

Volume 21 **January/February/March 2012** **Number 1**

Chairman's Comments

I am Ron Benjamin and I am proud to start my 2 year term as the new chair of MICRA. The new chair-elect is Bobby Wilson from the great state of Tennessee. For those who do not know me, I have been deeply involved with large river fishery management for about 27 years. In many of those years I was in leadership roles in the Upper Mississippi River Conservation Committee (UMRCC). I believe in a sound program of cooperative management of large multijurisdictional rivers. In river fishery management the large issues must be dealt with as a partnership. What MICRA is to me is the definition of a partnership. We cooperate together on issues that are larger than a single state and yet we are the states, so we have empathy to how those issues affect our neighbor state or states.

A perfect example of this partnership is the recent trip by several MICRA delegates to Washington DC during National Invasive Species Awareness Week to educate members of Congress about the issue of aquatic invasive species (AIS) generally and Asian Carp specifically. I would like to personally thank the people that participated in these visits on MICRA's behalf. We held a congressional breakfast briefing, met with CEQ and USFWS, and visited 28 congressional members. Our messages were simple - AIS are a leading threat to the conservation, management, and utilization of aquatic resources; AIS are interjurisdictional issues affecting the entire US; and AIS prevention and control should be a high priority for federal agencies with resource conservation responsibilities. With regards to Asian carp, we are interested in the full nationwide implementation of the Management and Control Plan for Bighead, Black, Grass, and Silver Carps in the United States. Asian carp, and the associated issues they bring, are present in at least half of the states in the Mississippi River Basin and continue to expand into new waters and new states –action is needed now!

I encourage you to continue raising awareness by meeting with your state and federal congressional members at their local offices.

Rep. Kind (D/WI) co-sponsored a briefing by MICRA on aquatic invasive species.

Asian Carp Issues

Silver carp DNA was found late this fall in the Mississippi River above the Coon Rapids Dam near Minneapolis, raising the prospect that the dreaded fish may be on its way to Minnesota's inland lakes and the very headwaters of the Mississippi River Basin. Minnesota Natural of Natural Resources (MNDNR) Commissioner Tom Landwehr said that these test results will force the state to accelerate plans to stop the spread of Asian carp from states farther downstream. But he also acknowledged that the findings raise more questions than they answer. No species of fish native to the lower stretch of the Mississippi River has been known to make it beyond the Coon Rapids Dam. So how could Asian carp have gotten past?

The environmental DNA (eDNA) testing, which presumably detects Asian carp through presence of their mucus and excrement, has yet to lead officials to an actual live fish. So state officials admit that this is a head-scratcher. But because millions of dollars are riding on the outcome, MNDNR

Inside This Issue

officials said that they are acting on the assumption that the carp are there, at least in small numbers. "The risk is too high to assume that there are not live fish north of the dam," Landwehr said. If some have spread up the Mississippi, it's not too late to prevent them from becoming established, he added. But conservation groups said the test results are bad news for Minnesota. "All of the strategies ... relied on the presumption that they were not yet above the Coon Rapids Dam," said Don Arnosti, policy director for the *Audubon Society of Minnesota*. "I think it's a big shock to everybody."

Minnesota's legislature this year committed $16 million to re-build the Coon Rapids Dam as a carp barrier. The state is also investigating whether two bubble barriers along the Mississippi – one at the mouth of the St. Croix River and one in front of the lock at the Ford Dam in Minneapolis – would deter the fish. But just one of these would cost an estimated $9 million and would likely be only partially effective. Gov. Mark Dayton has also been pressuring members of Congress for legislation that would give the U.S. Army Corps of Engineers (Corps) authority to close one of the locks and dams in Minneapolis – widely considered the only sure-fire way of stopping the carp.

Some conservation groups are also calling for Dayton to pressure the federal government and neighboring states to join forces to stop the spread at points south of Minnesota. That could include a noise-and-bubble barrier at Lock and Dam 19 in southern Iowa to deter the fish from coming past that busy commercial lock. "We have to find a way to kick up the national and regional response," Arnosti said.

The MNDNR, conservation groups, and National Park Service officials pooled their resources in 2011 to conduct the recent eDNA tests. Since September, they have found traces of carp eDNA in the St. Croix River below St. Croix Falls, in the Mississippi below Hastings and the Ford Dam and, now, above and below the Coon Rapids Dam. The officials are awaiting the results of samples taken above St. Croix Falls and other locations.

The state hired commercial fishing operators to comb the waters, but no Asian carp have been found. That's also happened in other places where the fish are suspected due to positive eDNA samples. That may be because the carp are elusive and difficult to catch if there are only a few present. Or it may mean that the DNA is getting into the river by some other means. Kelly Baerwaldt, a Corps carp expert said that the federal agency is now trying to figure out if carp DNA could appear without fish. For instance, it could come from fertilizer made from carp caught in the Illinois and Missouri rivers. It's also possible that it could come from the droppings of birds that have eaten the fish or an angler that used fingerling carp as bait. But government officials and conservation groups said that they thought those possibilities were far-fetched. "My favorite," said Irene Jones of the *Friends of the Mississippi River*, "is that someone who ate carp at a Chinese restaurant throws the carcass in the river. That's what I always do when I eat at a Chinese restaurant," she said. The most likely source of carp eDNA, government and conservation officials say, is live carp.

Silver carp jumping frenzy.

Meanwhile in late November, attorneys for the *Great Lakes Environmental Law Center* and *Ecojustice Canada, Friends of the Earth* filed an amicus brief urging the U.S. Supreme Court to hear the appeal by the States of Michigan, Minnesota, Ohio, Pennsylvania, and Wisconsin to close the canals in Chicago to prevent a Great Lakes Asian carp invasion. The amicus brief presents two unique issues for the Supreme Court's consideration – one, that an earlier decision overlooked the important investments made to-date by the two countries for restoration of the Great Lakes and two, that international treaty obligations require the Corps to act in a manner that would prevent Asian carp from invading the Great Lakes.

In executing the 1909 Boundary Waters Treaty, Canada and the U.S. agreed that the "boundary waters and waters flowing across the boundary shall not be polluted on either side to the injury of health or property on the other." Subsequently, in 1972 and under authority of the Boundary Waters Treaty, Canada and the U.S. entered into the Great Lakes Water Quality Agreement, aiming to "restore and maintain the chemical, physical, and biological integrity of the waters of the Great Lakes Basin Ecosystem." The ultimate goal is to force the Corps to place block nets in the Little Calumet and Grand Calumet Rivers to prevent passage of Asian carp across these channels into the Great Lakes while also forcing the Corps to expedite completion of the Great Lakes Mississippi River Interbasin Study (GLMRIS) which is assessing options to restore the historic natural separation of the Great Lakes and Mississippi River basins.

Ohio Attorney General Mike DeWine says he's impatient with the slow pace of the Obama administration in dealing with the Great Lakes Asian carp problem. DeWine says the fish could wreck Lake Erie's fishing industry. "This is a multi-billion-dollar business," DeWine said, referring to fishing and the businesses that support fishermen. "This has a tremendous economic impact on the state of Ohio and the quality of life of people who fish in Lake Erie." DeWine said he blames the Obama administration, not the Corps, for the lack of action. "As you know, these are political decisions," DeWine said. "This problem could be fixed by the Obama administration."

According to a study by the U.S. Geological Survey (USGS), Lake Erie has the ideal conditions needed for Asian carp to thrive. The study, which looked at characteristics such as water temperature, describes Lake Erie and some of its tributaries, including the Maumee River, as highly or moderately suitable for the invasive carp to lay eggs. "The potential certainly exists for Asian carp to spawn in tributaries of Lake Erie," said Patrick Kocovsky, a USGS fisheries biologist based in Sandusky, OH. "We are getting a clearer picture of the threat Asian carp pose to western Lake Erie, and that picture suggests there is cause for concern."

Canada's Department of Fisheries and Oceans completed an *Asian Carp Risk Assessment* in 2004 and found that both silver and bighead carp will likely invade nearly all of the Canadian Great Lakes shorelines and then travel up tributary rivers to get into interior lakes. The Great Lakes are bi-national waters and we do not want these invasive carp in our waters, said Mary Muter, Chair of the Great Lakes Section of the *Sierra Club-Ontario*.

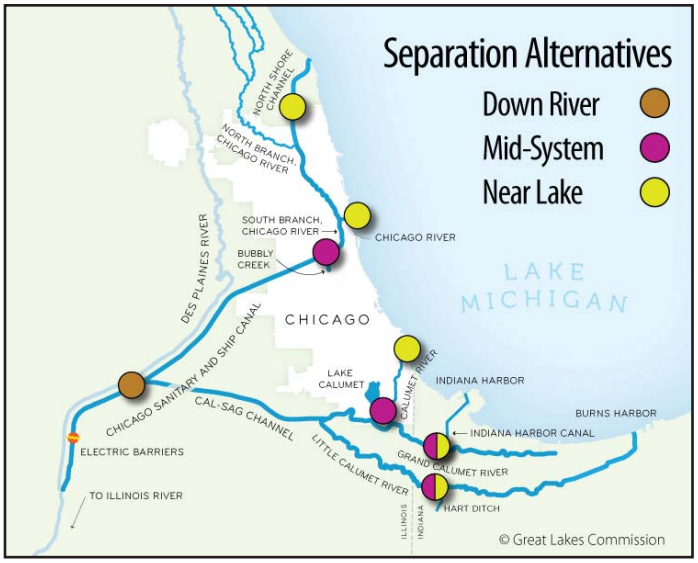
Meanwhile, the *Great Lakes Commission* (GLC), representing the eight Great Lakes states plus the Canadian provinces of Ontario and Québec, and the *Great Lakes Cities Initiative* (GLCI), a coalition of U.S. and

Canadian mayors, in 2010 embarked on an accelerated study of the Great Lakes Asian carp invasion issue. The GLC and GLCI believed that separating the Great Lakes from the Mississippi River Basin via closure of connecting channels in the Chicago area (i.e. Chicago Area Waterways or CAWS) is the best strategy for preventing the movement of Asian carp and other aquatic invasive species between the two watersheds. The $2 million GLC-GLCI study was privately funded by a collaboration of six regional funders: the *Joyce Foundation, C.S. Mott Foundation, Great Lakes Fishery Trust, Wege Foundation, Great Lakes Protection Fund* and *Frey Foundation*.

Released in late January, the GLC-GLCI study details three alternatives and pegs the costs to separate the watersheds at between $3.3 and $9.5 billion. The three alternatives, developed by the engineering firm *HDR, Inc*, include (1) a down-river single barrier between the confluence of the Chicago Sanitary and Ship Canal and the Cal-Sag Channel and the Lockport Lock; (2) a mid-system alternative of four barriers on CAWS branches between Lockport and Lake Michigan; and (3) a near-lake alternative of up to five barriers closest to the lakeshore. All three include measures to improve the CAWS's role in flood management, wastewater treatment and maritime transportation, as well as stopping the interbasin movement of aquatic invasive species. Barge traffic would be rerouted and boat lifts would be required for tour and pleasure boats. Flooding around Chicago is controlled now by sending storm-water overflows into Lake Michigan. This practice would end and new tunnels to carry the storm water elsewhere would have to be built as part of the project.

Some 20 possible barrier locations were considered, but no recommended alternative was identified. However, one alternative, the mid-system solution, is the least costly and offers other advantages. The analysis concludes that preventing just a single invasive species from entering the Great Lakes can save as much as $5 billion over 30 years. And a recently completed Corps study identified 39 species of concern that could pass through the CAWS and populate either the Mississippi River Basin or the Great Lakes Basin. Of these, ten (10) are currently located in the Mississippi River Basin and are of concern for invading and impacting the Great Lakes Basin, while 29 species are currently located in the Great Lakes Basin and of concern for invading and impacting the Mississippi River Basin. Thus, from the invasive species issue alone (by a margin of 2.9:1) it is clearly in the greater interest of the Mississippi River Basin states to close the canals than it is for the Great Lakes states.

Separating the lakes from other watersheds would create jobs and could end up being cheaper than spending money to fight the invasive species the GLC-GLCI study said. More than $80 million was spent fighting Asian carp in the past two years from federal Great Lakes funds. "Physically separating the Great Lakes and Mississippi River watersheds is the best long-term solution for preventing the movement of Asian carp and other aquatic invasive species, and our report demonstrates that it can be done," said Tim Eder, executive director of the GLC.



Alternatives for separating the Great Lakes and Mississipi River basins by closing navigation canals in Chicago. (Great Lakes Commission drawing)

According to the GLC-GLCI report's economic analysis, the cost of constructing the barriers themselves is as low as $109 million. The addition of all improvements to address water quality, flood prevention, and transportation brings the cost to between $3.2 billion and $9.5 billion, depending on the location and the degree to which the wastewater treatment plants on the system are improved to meet future Clean Water Act requirements. The analysis also finds that households in the Great Lakes Basin would have to be willing to pay, on average, about $1 a month from now through 2059 to cover the cost of the mid-system alternative, based on a projected cost of $4.27 billion. The GLC-GLCI report points out that the construction costs to build the current CAWS in today's dollars would be $11 billion.

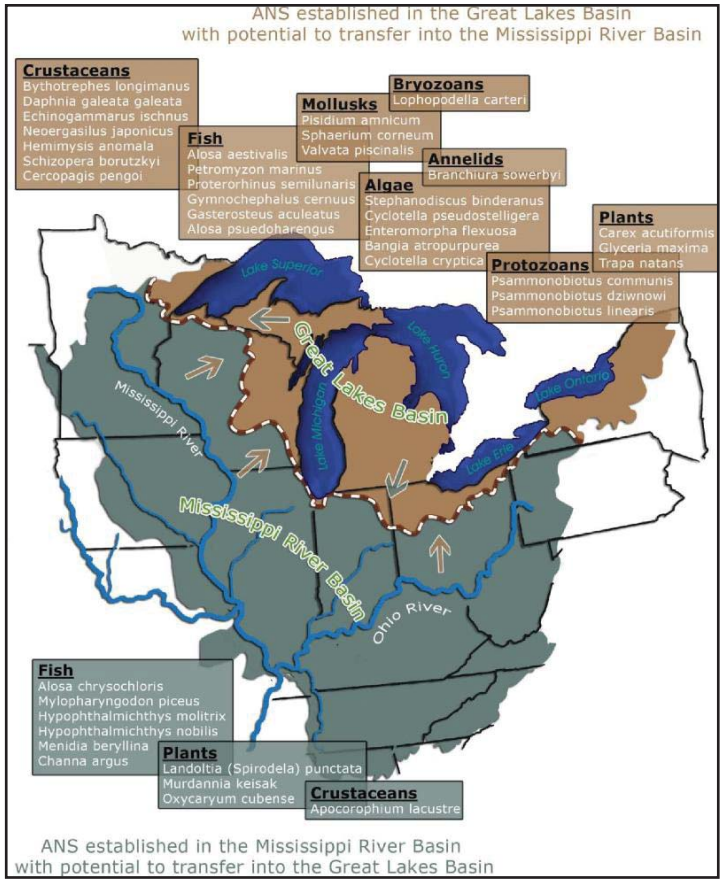
With regard to current commercial usage of the CAWS, another Corps sponsored study stated that "…vessel fleet and lock utilization on the CAWS is heavily influenced by the physical and regulatory constraints on the waterways and the fact that the Lockport, O'Brien, and Chicago locks are three different sizes. Upbound tows typically re-fleet above Lockport and exchange towboats for other boats with retractable pilot houses. The retractable pilot houses are necessary to clear low-hanging bridges throughout the Chicago Area. Refleeting is necessary because of limited channel width, channel circuity and other restrictions such as the limitation of two barges on the Chicago River and the north and south branches. Shippers are sometimes forced to light load because of shoaling in certain areas of the CAWS.

As would be expected, the highest tonnages, largest tows, and greatest numbers of tows and barges on the CAWS typically pass through the Lockport Lock. The smallest tows, least tonnage and the smallest numbers of tows and barges pass through Chicago Harbor Lock. In 2010, Lockport processed a total of 2,460 commercial tows and 9,644 barges, or an average of about 6.7 tows and 26.4 barges per day. The comparable daily values were 4.2 tows and 13.9 barges for O'Brien and 0.5 tows and 0.5 barges for Chicago. The average tow through Lockport in 2010 consisted of 3.9 barges carrying 4,006 tons, compared to 3.3 barges loaded with 3,309 tons at O'Brien and 1.1 barges loaded with 614 tons at Chicago." The commercial navigability of the CAWS is thus clearly not without limitations.

Thirty-one members of Congress prodded the Corps in late January to consider the proposed multi-billion-dollar GLC-GLCI closure plan. "We ask how the Corps will use the thorough analysis provided in this new report and how the Corps will be able to shorten its time frame for completing (its GLMRIS not due until 2015) by incorporating the new information contained in the report," the lawmakers said in a letter to Jo-Ellen Darcy, assistant secretary of the Army for Civil Works. The letter was signed

by seven senators and 24 House members. The group included members of both parties and at least one lawmaker from seven of the eight states within the Great Lakes region — Minnesota, Michigan, Wisconsin, Illinois, Ohio, Pennsylvania and New York. Despite widespread opposition to watershed separation in Illinois, two members of its congressional delegation – Sen. Richard Durbin and Rep. Mike Quigley, both Democrats – signed the letter to Darcy. Only Indiana had no signers. The letter does not specifically endorse any of the report's alternatives or the idea of separation. But it notes that the report has information on engineering design, economic impacts, water quality, and flood management that should help the Corps move faster.

Rep. Dave Camp (R/MI) said in a statement that he and Sen. Debbie Stabenow (D/MI) will press the Corps to build on the work in the new GLC-GLCI study to speed up its actions. U.S. Rep. Candice Miller, (R/MI), said she thinks the new study brings fresh ammunition to the debate. "This report will buttress our argument that it must be done," she said. Miller said she hopes the study will help persuade supporters of Chicago interests, including the barge and tour boat industries, that closing off the waterways is necessary. "I think of myself as fiscally conservative, but the expense argument is a wash because of the millions of dollars in negative economic impact that would happen to the Great Lakes if the Asian carp get in," Miller said.



Invasive species with potential to transfer between the Great Lakes and Mississippi River basins via the CAWS. (GLMRIS figure)

The advocacy group *Great Lakes United* agrees, saying that the new study clearly demonstrates that separation is possible, and that the plodding Corps' GLMRIS study could be expedited by incorporating findings of the new study and beginning separation planning now. "This report shows that we should get construction started soon rather than wait another 5 years for the USACE to study the problem. The time to act is now!", said *Sierra Club-Ontario*'s Muter.

But barge operators, tour boat captains whose boats ply the Chicago River and the Lake Michigan coastline, and owners of small boats in the area are still likely to oppose any changes. The biggest problem with the study is that it blocks only one pathway that Asian carp and other species can move between the watersheds, said Mark Biel, executive director of *Unlock Our Jobs*, a coalition of barge operators and others fighting the changes. "Shutting down this one multibillion-dollar transportation route does not even address the 18 other waterways in and out of the Great Lakes that could serve as entry points for invasive species," he said. "Calling this a solution is ludicrous," he said.

But David Ullrich, executive director of the GLCI said, "This is a unique opportunity for both protection of the Great Lakes and Mississippi River and for a Chicago waterway system for the 21st century and beyond." "No single use of the CAWS, including transportation, flood control and wastewater treatment, can be considered individually. The system requires an integrated approach and that is what we have taken," he said.

John Goss, director of the White House Council on Environmental Quality's Asian carp program, said basin separation was one potential solution to the region's invasive species problem. The Obama administration has spent more than $100 million over the past two years on efforts to stem the carp's advance toward the lakes that include operating an electric barrier near Chicago, monitoring the waterways and researching new technologies.

GLC's Eder said, "The current efforts by the state of Illinois, the Corps, and others to monitor and slow the carp migration are critical and are buying us time to implement a long-term solution." "While we recognize and support the work being done by others to find solutions to the Asian carp threat, we need to appreciate fully the urgency of this matter," Ullrich emphasized. "The Great Lakes have suffered immensely because of invasive species. We have to put a stop to this," Eder said.

The GLC-GLCI report and all supporting materials are available online at www.glc.org/caws.

Sources: Josephine Marcotty, *Minneapolis Star Tribune*, 12/8/11; *Friends of the Earth Canada News Release*, 11/28/11; Tom Jackson, *Sandusky Register*, 11/28/11; John Flesher, *AP*, 1/16, 1/31 and 2/3/12; *Great Lakes Commission and Great Lakes St. Lawrence Cities Initiative News Release*, 1/31/12; Tina Lam, *Detroit Free Press*, 1/31/12; *GLMRIS, Inventory of Available Controls for Aquatic Nuisance Species of Concern Chicago Area Waterway System*, December 2011; *Baseline Assessment of Cargo Traffic on the Chicago Area Waterway System, The Great Lakes and Mississippi River Interbasin Study (GLMRIS) Team*, December 2011; *Great Lakes United Press Release*, 1/31/12; and *Greenwire*, 12/9/11, 1/16 and 1/31/12

Politics, Floodways, and Wetland Restoration

Citing higher priorities on its $2 billion list of flood control repairs needed as a result of the 2011 floods, the U.S. Army Corps of Engineers (Corps) has not committed to rebuilding levees at the Birds Point-New Madrid Floodway (BP-NMF) to their original 62.5-foot height before next flood season. But under pressure from Missouri lawmakers, the Corps has agreed to rebuild the levees to 55 ft. (4 ft. taller than originally announced).

Washed away in the political deluge of this decision is a plan promoted by ecologists to not rebuild the levees at all. That option, Corps officials say, would be initially more expensive because it would require buying out landowners. But it would save taxpayers' money in the long run by avoiding payments for future flood-related property damage ecologists say. Readers will remember that the BP-NMF levees were blasted open by the Corps last spring to flood the area (designated as an official Mississippi River floodway) in order to protect the city of Cairo, IL and other small towns from impending disaster.

The BP-NMF is just one piece of the world's largest flood-control system – levees, floodways, pumps and reservoirs known as the Mississippi River & Tributaries (MR&T) project. The Corps built the project at the direction of Congress in the wake of 1927 floods that killed at least 256 people and caused $400 million in damage (the equivalent of $5 billion today). Prior to 1927, consensus was that levees alone could contain the Mississippi River's floods, as they had for decades. But the 1927 flood changed that, leading to the incorporation of four floodways and the purchase of "flowage easements" from landowners that allowed for the intentional inundation of land during emergencies to relieve the swollen river.

BP-NMF is the northernmost of the four floodways. At 130,000 acres, its footprint is about three times larger than that of Washington, D.C. The floodway abuts the west bank of the Mississippi, just below its confluence with the Ohio River and is 35 miles long and between 3 and 10 miles wide. The floodway is designed to draw about 550,000 cubic feet of water from the Mississippi or about 5.5 times the flow of Niagara Falls. The goal is to lower pressure on the system, particularly on levees protecting Cairo, and other cities and towns.

Over the past century, levee construction and other flood-control and navigation projects along the Mississippi River have opened vast tracts of land (formerly wetlands) for farming and development and created a superhighway for shipping. But lost in the bargain, environmentalists say, are natural flood basins that safely absorbed periodic floods and the associated wetlands that provided for pollution control and wildlife habitat. Without the floodplains, ecologists say, the river is prone to more frequent and intense flooding. It is time, they say, to let the river flow, and there is no better place to try that than by not rebuilding the BP-NMF.

"To not really take a hard look at keeping it open permanently would be a huge mistake," said Shana Udvardy, director of flood management policy for the advocacy group *American Rivers*. Calls such as these for changing management of the Mississippi have not only been ignored but met with hostility – especially from key members of Congress, who would have to pass legislation authorizing opening the floodway. Missouri's congressional delegation – notably, Sens. Roy Blunt (R) and Claire McCaskill (D) and Rep. Jo Ann Emerson (R) – have been pressuring the Corps to rebuild the levee. "If you take down the levee," Blunt said, "you put it back up."

The Corps ranks the MR&T project among its greatest achievements. Even before it contained this year's epic flood, according to Corps' data, the MR&T provided a 27-to-1 return on the U.S. taxpayers investment, including $350 billion in prevented flood damages. But critics say the Corps' cost-benefit analysis disguises a hidden cost of levee-building and channelizing. Robert Criss, a professor of earth and planetary sciences at Washington University in St. Louis, said the system is making flooding worse. With less room to spread out, floodwater can only rise, he said. "Flooding is getting more frequent and more severe," Criss said.

But the Corps, he said, pretends water has not risen by relying on outdated statistical data. In 2008, Criss modeled Corps' flood projections along the Mississippi against actual flood gauge readings and found a 99.9 percent chance the projections were incorrect. Criss maintains the agency's flood projections are off by a factor of 10, meaning that a 1-in-100-year flood actually occurs about once a decade. So, he said, the Corps should stay away from analyses of flood risks and flood-zone boundaries – key for assessing insurance premiums. Corps officials "are the last people in the world at this point who ought to be doing it," Criss said. "Somebody independent needs to be doing it now...They have no credibility," he said.

The Corps contends that Criss and other critics misrepresent statistics just as a gambler assumes that because a number just hit on a roulette wheel, it won't hit again anytime soon. A 1-in-100-year flood could occur in any given year, or several years in a row, the Corps said. Corps' leaders also reject environmentalists calling the river "straitjacketed." "I say to those folks who say there's not enough room for the river that I think perhaps some of their data may be off," said Maj. Gen. Michael Walsh, commander of the Corps' Mississippi Valley Division. "...there's lots of areas where we move water laterally off of the river at high flood stages," Walsh said. "I know there's a lot of folks talking about 'straitjacketing' the river, and I would tell them they probably need to go back and check their history."

George Sorvalis, manager of the nonprofit *National Wildlife Federation's* water resources campaigns and coordinator of the *Water Protection Network*, formerly known as the *Corps Reform Network*, concedes that Walsh knows his history but that doesn't mean he's correct in the Corps' approach to river management. "I would argue that it's still a predominantly levee-centric approach," Sorvalis said. "The system did a pretty impressive job of conveying the spring flood of 2011. However, it's clear that we need to move beyond the current configuration to even less reliance on levees and more reliance on the natural benefits and functions that floodplains provide. I would say keep moving in that direction."

During last Spring's flood three professors at Southern Illinois University, Carbondale (SIU), sent a letter to President Obama urging him to study the possibility of leaving the levees down. James Garvey, a zoologist and director of SIU's Fisheries and Illinois Aquaculture Center, Matt Whiles, director of the Middle Mississippi River Wetland Field Station, and Silvia Secchi, an agribusiness economist, told Obama that restoring the floodplain would yield economic returns that far exceed the cost of buying out landowners. "The breach will open the Mississippi River to 205 square miles of floodplain ... that has been denied direct access to the river for decades," they wrote. "When not inundated, this area provides farmland to Missouri residents, with high realized economic value to the state of Missouri. What is ignored is the much higher potential value of this floodplain to U.S. society if it is left open to the river and allowed to be inundated regularly."

Their letter drew a swift, furious response along the Mississippi. SIU alumni threatened to stop giving to the university. Blake Hurst, the *Missouri Farm Bureau* president, wrote an op-ed dubbing the three professors the "I miss malaria caucus" and warning of "a land grab of massive proportions." Trent Hurley, CEO of a farm commodities brokerage, sent the three an email saying their proposal was "nothing short of economic terrorism." "Sir to say that we find it disgusting would be an understatement," he wrote. "I will be forwarding your letter to various

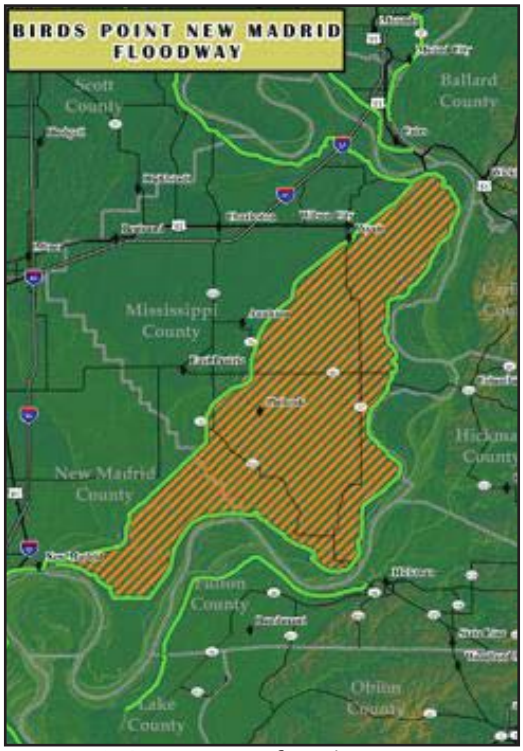
businesses, SIU alumni, and high school counselors so that they can see firsthand the type of rhetoric that now comes out of your school and its anti-agriculture stance."

Garvey said the anger that greeted the proposal shocked him. "This is an opportunity for us to determine the relative value of that farmland," he said in an interview. "We were just asking to do research, and people were treating it as if we're telling the president to leave it open." But the three academics probably could have anticipated a harsh response to their proposal, given that a campaign to rebuild the levees began even before the Corps blew them up. And in the immediate aftermath of the explosion, news coverage focused on the plight of farmers and flooding.

Some speculated that the demolition was a federal conspiracy to reclaim farmland. And a few suggested the levee demolition was meant to trigger an earthquake. *Osborne & Barr*, a St. Louis public relations firm that specializes in the agriculture industry, created a website, disasteratbirdspoint.com, to encourage people to write the Corps and Congress to demand that the levees be rebuilt. "We just want to make sure that the people who have farmed there for generations will have the ability to do so into the future," said Neil Caskey, the firm's director of government and public affairs.

Some people say that if anything the Corps may have waited too long to blow the levee. Under the Corps' 1928 operations plan, the agency was to "activate" the floodway when water levels reached 55 ft. at Cairo. In 1937 – the only time before this year that the floodway was used – the Corps waited until the river was a few feet higher than that. Over the years, the operations plan was rewritten to set the "trigger" at 61.5 ft. But this year the Corps waited until just beyond that – 61.72 ft. – to blow the levee. As the Corps delayed, water was pouring into Olive Branch, IL. About 175 homes were flooded there and in surrounding Alexander County, many in the final day or two before the levee was blown. "Approximately half of that could have been avoided," Alexander County engineer Jeff Denny said. As soon as the levees were demolished, floodwater receded rapidly, reinforcing the conclusion that much of the flooding was avoidable.

Alexander County Commissioner Harold McNelly maintains that the Corps hesitated because Illinois' politicians failed to apply as much pressure on the agency as their Missouri counterparts. "All we see on television was Missouri politicians," he said. "Nobody from Illinois. I believe if they had put up equal pressure, it might have gotten blown when it was supposed to get blown." Nicholas Pinter, an SIU geology professor, said the Corps' delay in demolishing the levees points to a major flaw in relying on the floodway: Powerful political forces oppose its operation. "The trend is political pressure from Missouri beating the political resistance in Illinois and Kentucky and Tennessee steadily over the 80-year history of this system," Pinter said. "Illinois, Kentucky and Tennessee residents have fought this back through time, and each and every time in each and every case, they're losing."



U.S. Army, Corps of Engineers map.

Another problem is that levee operation isn't foolproof. Some of the charges set by the Corps in May failed to detonate, and in some places there were not enough explosives. The plan was to blow three sections of levee – 11,000 feet near the top, 5,000 in the middle and another 5,000 at the bottom – but only 9,000 feet blew at the top and 800 feet in the middle. The loser in the botched operation was a farmer whose property was adjacent to the middle breach. With the levee gap restricted, the river rushed into his property as though it were shooting out of a fire hose. The force dug a "scour hole" the size of a sports stadium and covered hundreds of acres in sand. While his neighbors in other sections of the levee had their farms soaked with nutrient-laden floodwaters, he got the brunt of the impacts.

The Corps predicted that blowing open the levee would cost $314 million in damages and prevent another $1.47 billion in destruction to levees, towns and cities elsewhere along the Mississippi River. The Corps has also attached price tags for a series of options it studied for what comes next for the levee system. On the low end is $4.8 million a year for rebuilding 51-foot-tall levees – an option deemed unacceptable because of elevated flood risks – and toward the high end was $449 million to build floodgates to replace the breakaway levees. The floodgate option was deemed too expensive. Most expensive in the package is the option favored by environmentalists, buyouts that would cost $582 million.

The Corps' choice was rebuilding levees to their pre-demolition height at an estimated cost of $29.9 million. That alternative offers "the best compromise of environmental impacts and project costs," the agency's draft environmental assessment says. But SIU professor Garvey questions the Corps' choice. "What happens if we have another flood in 10 years? Is the Corps going to blow this thing again?" he asked. "The societal concern is the cost to the taxpayers. As a person who's paying into the federal tax system, the fact that it's going toward a system that might have to fail again and once again cost exorbitant amounts of money to support a handful of folks and their private land is a little bit curious." While the Corps' analysis assigns a hefty cost to the buyouts, he said, it neglects to assign a dollar value to avoided flood costs and enhanced ecological values of a restored floodplain. For example, scientists say, the floodplain would soak up pollution and keep nutrients from washing to the Gulf of Mexico. Excessive nitrogen and phosphorus from Midwest farms fuel a summer Gulf "dead zone" – an area devoid of marine life because of such low levels of dissolved oxygen.

The Corps did conduct a study in 1990 to consider alternative uses of the floodway, including a total buyout of landowners. But such an approach was found unfeasible under the standards the federal government used to evaluate water resources projects which were written in 1983. But then in 2007, Congress ordered the Corps to update those rules to give greater weight to the now better-understood environmental implications – for example, the value of wetlands and floodplains in flood-prevention and pollution reduction – when making decisions about federal water projects. The first draft of that policy was expected in June, but significant progress will now likely be delayed

at least a year, because of a policy rider attached to the 2012 spending deal struck in December that prevents the Corps from using any money to implement the new rules.

So while the Corps reworks its policy, Missouri lawmakers are racing to close the floodway. Missouri Rep. Emerson blasted environmental groups and the SIU professors for complicating the push to rebuild the levees. "The only resistance that I really see is the elite environmental folks who don't live anywhere close to where we are with the exception of those three biologists at Southern Illinois, one of whom is an Italian," Emerson said. "I don't know where the other two are from, but they don't live in Mississippi County, for sure." While environmental groups "can raise a lot of money and file lawsuits," Emerson said, she has power as an appropriator to control funding for the Corps "if they call for that baloney." "I'm ready to duke it out, so we'll see," she said. "But people's lives and livelihoods for generations and generations are at stake here."

But Missouri Sen. Blunt does not think it will be necessary to start swinging. "I think the Corps," he said, "is fully committed to return the Birds Point floodway to the position it was from 1937 until May." In fact, the Corps seems committed to go beyond that. The agency has, for the seventh time, embarked on a multimillion-dollar study of a pump project at the southern end of the floodway that would close a 1,500-foot gap in levees and sever another piece of floodplain from the river. The $107 million pump project – the St. John's Bayou-New Madrid Floodway – was shut down in 2007 by Judge James Robertson of the U.S. District Court for the District of Columbia. Invalidating the environmental analysis the Corps had used to justify the project, Robertson wrote that many parts of the analysis "lack factual support or substantial evidence."

On May 12, Cairo Mayor Tyrone Coleman wrote Sen. Dick Durbin (D/IL), urging him to oppose the St. John's Bayou project. The project, Coleman wrote, would endanger Cairo by encouraging more development in the floodway "and therefore put more political pressure on the Corps not to use the floodway." "We don't do projects like that anymore," *National Wildlife Federation's* Sorvalis said. "We're talking economically wasteful and environmentally devastating, not to mention putting people and property at risk." Ninety percent of the project's projected benefits would accrue to agriculture interests in the floodway at the expense of taxpayers and communities up and down the river, he said. Before any work is done on the levees, Sorvalis said there needs to be "a concerted effort ... that takes the watershed into account and brings all stakeholders to the table." "We need to have these discussions before these projects are drawn up or reinvestment in the system happens," he said.

Sources: Paul Quinlan, *Greenwire*, 12/20/11; and *E&ENews PM*, 12/16/11

LA Coastal Restoration to Rely Heavily on Wetlands

More than six years after Hurricane Katrina devastated the Louisiana coast, the state has proposed a plan to use wetlands to protect against future high storm surges. The state's new flood plan is a sharp turn from past plans, which relied heavily on levees and seawalls to hold back rising waters. The state's *Coastal Protection and Restoration Authority* (CPRA) in late January; after prolonged deliberations over competing plans between state and federal agencies, the U.S. Army Corps of Engineers and cities and parishes (counties); released the *Louisiana Comprehensive Master Plan for a Sustainable Coast*. If all the plan's provisions are carried out, it would cost $50 billion over 50 years.

Southern Louisiana has lost 1,883 square miles of wetlands during the past 80 years, an area three-quarters the size of Delaware, largely because of erosion that has been catalyzed by hundreds of miles of manmade navigation channels and oil and gas pipeline canals. Most of that land will not be regained. But if the plan's projects succeed, by 2042 the state would begin to gain more land annually than it loses, and by 2061 it would gain an average of about 2.5 square miles a year.

Several major strategies make up the bulk of the plan. Along the outer edge of the torn-up coast, furthest from New Orleans, former barrier islands that have been worn to thin wisps of land would be broadened with sandy sediment, mostly dredged from the ocean bottom and conveyed through pipelines. Natural ridges of land along the coast would be strengthened in similar fashion. Together, the islands and ridges would form a barrier around southeastern Louisiana that could cut down storm surges. They would not all connect, so wind-driven water could still find its way through, but the many segments would break up the incoming wavefront into chaotic eddies flowing in conflicting directions that would at least partially cancel out one another.

Closer inland, large areas of wetlands that are severely tattered or nearly gone would be reconstituted. Large openings, called diversions, would be cut in the levees that line the Mississippi River, as well as along the Atchafalaya River. Gates would be inserted, which would allow freshwater and sediment – the lifeblood of marshy terrain – to wash down into the wetlands when the river is running high. Decades ago the delta had thick, robust marshes and swamps that began behind the barrier islands and ran back for miles and miles to where towns and cities had sprouted. The vast marshes could absorb large storm surges, turning them into the equivalent of mild high tides by the time they reach metropolitan areas. Healthy wetlands also gradually dilute the salt from seawater, so it doesn't kill plants that grow in fresher water closer to firm land, a mechanism that has further eroded today's struggling regions.

Close to New Orleans levees would continue to be raised and connected, and breakwaters would also be erected along certain shorelines that are close to populated areas. Numerous homes and businesses would be raised or floodproofed. And some houses in areas that were destroyed by Katrina and are at the greatest risk for future flooding would simply be bought and removed, and the land left vacant.

These strategies strongly echo three different protection plans that experts had recommended back in early 2006, which *Scientific American* detailed in an article before the infighting between stakeholders widened. As it was then, restoring wetlands remains a controversial strategy, yet the CPRA is clearly relying on it; the biggest chunk of money designated in the plan is $17.9 billion to improve thousands of acres in numerous locations.

Sediment and freshwater are needed to build and maintain wetlands and spring flooding by the Mississippi River is largely what built the vast stretches to begin with, until levees raised along the river prevented the annual overflows. Much of the initial rebuilding under the new plan will be done by dredging sediment from nearby channels and pumping it into needed spots, but the diversions are important for supplying new sediment, freshwater and nutrients to the areas year after year.

But some interest groups, notably fishers,

have expressed opposition to the diversions, claiming that the inflows of freshwater will chase shrimp, crabs and certain fish that prefer brackish water further out to sea, harm spawning grounds or oyster beds, or impede the fishers' ability to harvest the seafood. They also claim that two small, experimental diversions that have been running for at least a decade have failed to actually rebuild land. Studies by scientists have shown improvements in those places, but land has not always been regained at the rates initially predicted. Even if the planned diversions do work, it will be many years before large, healthy marshes return – years during which, proponents hope, no Katrinas come blowing in.

In the meantime, lessons learned while rebuilding the Mississippi delta could prove valuable across the U.S. The country has more than 30,000 miles of levees, and as much as 70 percent of them can no longer be trusted because of long-term erosion or poor construction, according to a 2010 report by the Federal Emergency Management Agency.

Sources: Mark Fischetti, *Scientific American*, 1/26/12; and *Greenwire*, 1/26/12

Wetland Restoration Efforts Often Fall Short

Since the early 20th century, development has claimed over half the wetlands in North America, Europe, Australia and China. To repair the damage from construction projects and regain the benefits of wetlands, restoration has become a booming business. In addition to nurturing biodiversity, wetlands purify water, produce fish, store carbon dioxide that would otherwise contribute to global warming, and protect shorelines from floods, storm surges and erosion. Yet new research calls into question whether manmade restoration can ever compensate for natural wetlands.

In an article published in late January in *PLoS Biology*, scientists write that restoration efforts often fall short of returning wetlands to their former biological complexity and functioning. "In traditional restoration, people repair hydrology, put in some plants, and after a few years say the wetlands are good," said David Moreno-Mateos, a wetland ecologist at the *Jasper Ridge Biological Preserve* at Stanford University and the lead author of the paper. "But if you look at what's really going on down there, you see the processes are not recovering." "One of the results from this study is that we need to undertake more specific restoration measures focused on recovering processes, not just nice, beautiful wetlands with ducks," he said.

Before the 1960s, many people perceived wetlands as dank places to be drained or avoided, Moreno-Mateos said. But in the last 20 years, the governments of the U.S., Canada, and Mexico have poured over $70 billion into restoring more than seven million acres of wetlands. Some developers deploy the strategy of promising to create or restore wetlands in one location in exchange for getting permission to bulldoze wetlands in another location. In theory, this sounds fair, but the results fall short, Moreno-Mateos said.

To quantify the success of restoration projects, the researchers performed a meta-analysis of 621 restored and created wetland sites around the world. Most of the sites were in the U.S., and some restoration plots dated back around 100 years. They compared the sites with 556 natural wetlands that served as reference points. The researchers found that hydrology seemed to recover immediately after restoration, but results varied in other areas like the recovery of animals, plants and nutrients. Even after 100 years of restoration, the wetlands recovered only 77 percent of their original flora and fauna, on average.

Within five years animals like birds and bats returned, as did flying insects like midges. Other macroinvertebrates like water fleas took a bit longer, around 5 to 10 years, and these communities usually did not reach their original levels of richness or abundance. Plants were even slower to recover. On average, they took 30 years to return but still remained less biodiverse and abundant up to 100 years after restoration. The plant lag may be related to recovering carbon, nitrogen and phosphorus storage. After 50 years, carbon levels were still below reference levels, and it took at least 30 years for nitrogen to return to normal. All in all, restored wetlands regained an average of 74 percent of their biogeochemical components by comparison with the reference sites. "When we lose wetlands we're losing something we won't recover for years," Moreno-Mateos said. "When people develop that huge shopping mall, it will take centuries to restore the functions we had before."

Some wetlands did recover faster than others, depending on hydrology, size and climate. The more water flowing through a site, the more quickly it bounces back to reference values. Larger sites also fared better than smaller plots, and the warmer the temperature, the more rapid the recovery. "In some warm climates, things go fast, but cold climates take forever," Moreno-Mateos said. On average, however, the researchers describe current restoration practices as "slow and incomplete." Moreno-Mateos plans to investigate the connection between the slow recovery of carbon storage and plants, and to seek a specific method that will expedite their restoration. Although the results are not surprising for scientists, he said, this is the first time a study has placed the problem into a global context.

Sources: Rachel Nuwer, *New York Times*, 1/24/12; and *Greenwire*, 1/25/12

Coal Companies Sued Over Flooding and Pollution Damages

Residents in Middlesboro, KY, are suing a surface-mining operation for practices that they say worsened flooding and caused widespread damage last June. The lawsuit claims that mining near the city by several companies disrupted the natural drainage system, increasing the amount and speed of water that ran off mined areas during heavy rainfall. Ned Pillersdorf, one of the attorneys filing the lawsuit said, "To me, it was a ticking time bomb." The lawsuit says the companies had been cited numerous times before the flood for alleged violations such as failing to keep vegetation on mined areas and failing to keep runoff-control ponds cleaned out, which would have reduced their holding capacity during a storm.

The lawsuit lists nine companies as defendants. The companies had mining operations in the Yellow Creek, Stony Fork Creek and Stevenson Creek watersheds, the lawsuit said. The companies being sued are: *Apollo Fuels*, *Bell County Coal*, *Strata Mining*, *Twin Star Coal*, *C&L Highwall Mining Partnership*, *LC&C Energy*, *T&T Energy*, *Stony Fork Mining* and *Tackett Creek Mining*. The owner of one of the companies said the flooding happened because of torrential rainfall and the topography of Middlesboro, not because of improper mining or reclamation. The city lies in a crater surrounded by hills. "When it rains 10 inches in a place like this, you're going to have flooding, whether you have mining or not," said Ray Collett, a partner in *C&L Highwall Mining*. Collett said state authorities regularly inspect coal mines, and companies have to fix problems that the inspectors cite.

The lawsuit said companies listed in the lawsuit had fixed some of the violations cited before the June 20 flooding, but some remained unabated. The complaint is the latest of several large lawsuits in recent years claiming that surface-mining practices have caused or contributed to flooding and resulting damage in Eastern Kentucky. Flooding hit several areas in Eastern Kentucky after storms on June 20 reportedly dumped 6 inches or more of rain within a few hours in some spots. The floods caused one death and millions of dollars in damage to homes, vehicles and public infrastructure. The lawsuit seeks an unspecified amount of money to compensate people for property, inventory and income losses; the costs of replacement housing and vehicles; and the suffering caused by the "massive interference" in their lives. It also seeks damages to punish the coal companies.

Environmental groups filed a different federal lawsuit in late December against *Laurel Mountain Resources LLC* for alleged violations of the Clean Water Act at another Kentucky mine. The *Sierra Club* and *Kentuckians for the Commonwealth* (KFTC) are accusing *Laurel Mountain Resources* of illegal selenium dumps from the Bear Hollow mine in Johnson County. Their complaint alleges eight illegal selenium dumps between January and March and says the company has not done enough to prevent further discharges. "Until state officials step up and enforce the law, citizens will continue to have to bring actions like these to protect our streams," said Mary Love, a KFTC activist, in a statement. "Selenium is a toxic pollutant, and mines should not be allowed to dump it in our streams."

While selenium is an important nutrient, it is toxic in large quantities, and can cause fish deformities such as two-headed fish or fish without fins. Attorneys with *Appalachian Mountain Advocates* based in West Virginia are representing the groups. In recent months, they have secured million-dollar settlements with *Arch Coal Inc.* and *Alpha Natural Resources Inc.* for alleged selenium discharges from company mines.

Two-headed fish collected in an Idaho stream contaminated with selenium pollution. (Greater Yellowstone Coalition photo)

In a separate case, the *Sierra Club* and KFTC are appealing a Kentucky water discharge permit for *Beech Fork Processing Inc.'s* coal mine and processing facility also in Johnson County. Attorneys say the permit, which became effective on Jan. 1, is not tough enough to prevent stream pollution. Among numerous complaints, they argue that the permit should include limits on conductivity, a barometer of water health. In written comments to EPA and environmentalists, Kentucky regulators defended the permit and say it includes monitoring requirements for conductivity.

Sources: Bill Estep, *Lexington [Ky.] Herald-Leader*, 11/29/11; Manuel Quinones, *Greenwire*, 1/3 and 2/7/12; and *Greenwire*, 10/28, 11/29 and 12/12/11

Study Links Mountaintop Mining to Degraded Waterways

Mountaintop-removal coal mining operations likely contribute to water pollution in southern West Virginia, Duke University researchers said in a study published in mid-December in the *Proceedings of the National Academy of Sciences*. Duke's Department of Biology and the *Nicholas School of Environment* found problems downstream from mining sites compared to water quality above the mines. "As eight separate mining-impacted tributaries contributed their flow," the study says, "conductivity and concentrations of selenium, sulfate, magnesium, and other inorganic solutes increased at a rate directly proportional to the upstream aerial extent of mining."

Researchers sampled water from the Upper Mud River and its tributaries, which run through coal fields in Boone and Lincoln counties where there are numerous permitted discharges from current and former mining operations. Tests show elevated levels of selenium and conductivity in waterways in mining areas. While not a pollutant, conductivity – the measure of water's ability to carry an electric current – is being used by regulators as a barometer of water quality in Appalachia. The Duke team said conductivity in areas sampled was above levels that U.S. EPA considers safe for aquatic life.

"Those tributaries are all elevated as far as conductivity themselves," Ty Lindberg, a research analyst at the *Nicholas School*, said in an interview. "It seems that the science behind why conductivity is important is getting stronger and stronger." EPA's use of conductivity as a measure of water quality is controversial. Industry groups and some state regulators say the agency should not be enforcing numeric standards that are not part of current water-pollution regulations.

A study backed by the *National Mining Association* and released last April questions EPA's assumptions about conductivity and its impact on aquatic life. But Lindberg, blames Appalachian strip mines for water degradation and says reclaimed sites are also a problem. Even though selenium levels were lower in water affected by former mines, the study found "conductivity and [sulfate ion] levels were similar in all affected tributaries regardless of reclamation status in their contributing watersheds." The study says tests "provide evidence that mines reclaimed nearly two decades ago continued to contribute significantly to water quality degradation within this watershed."

Environmentalists are calling for a ban on mountaintop mining, which involves dynamiting soil and rock to reach coal seams. But industry advocates say it is an efficient way of reaching an important resource. "I think you've got to be pragmatic about these questions," Lindberg said, adding that policy makers should rely on "solid studies" when debating the issue.

Sources: Manuel Quinones, *Greenwire*, 12/13/11; and Manuel Quinones, *E&E News PM*, 4/1/11

Large Reservoir to Divert Water into the Mississippi River Basin

A hotly contested Colorado water project is one step closer to construction after the Bureau of Reclamation (BOR) released its final environmental impact statement (EIS) on the project late last fall. But proposed environmental remediation measures "fall short," and would put a significant dent in native wildlife populations and the local communities that rely on them according to environmentalists who have reviewed the proposal.

The $270 million *Windy Gap Firming Project*, which calls for the development of a 90,000 acre-foot reservoir (enough water to cover about 90,000 football fields with a foot of water), is one of a handful of proposals that would help bring more water from the Colorado River, which runs along

the western side of the Rocky Mountains, to growing Colorado cities on the much drier eastern slope.

The population served by Windy Gap's water and other local sources is expected to double by 2050 from the nearly 400,000 people who lived in these eastern slope communities in 2005. The existing Windy Gap reservoir, built in 1985, can capture just 445 acre-feet. That water is then diverted east under the Continental Divide to meet local needs. But project managers and stakeholders say they do not have a way to store all the water they have a right to – 30,000 acre feet a year.

"The reliable water yield is now zero," said Dana Strongin, a spokeswoman for *Northern Water*, the public agency that represents the interests of 10 eastern slope cities, including Greeley and Longmont; two water districts; and the *Platte River Power Authority*, which provides coal-fired power primarily to the city of Fort Collins. Because these water users have what are known as "junior rights," they cannot utilize other existing larger reservoirs for storage in wet years. And in drought conditions, they lose the right to divert anything, Strongin explained.

In its EIS, the BOR points to unavoidable adverse water quality and stream flow effects that could harm fish and insect populations as a result of the new Windy Gap Reservoir. Declines in stream flows of up to 10 percent, and changes in high- and low-flow timing, combined with increased temperatures and changes in nutrient and sediment loading, will reduce trout habitat and affect a host of species, according to the federal agency. In terms of remediation, BOR in many cases defers to a state plan that was approved in June and calls for enhanced peak flows below the existing Windy Gap Reservoir, in addition to nutrient management plans and ongoing water quality monitoring. When stream temperatures exceed state standards, *Northern Water* will reduce or stop pumping water from the river, according to the state mitigation plan.

But staff members with *Colorado Trout Unlimited* warn that the Upper Colorado River basin is on the "brink of collapse" because of diversions. The organization is requesting the creation of a $10 million remediation fund that would be used to maintain traditional fluctuating river flows below the reservoir and fund a bypass around Windy Gap dams to reconnect upper and lower sections of the river. "We believe if the project goes forward the river will decline, as will its ability to support recreation and fisheries," said Drew Peternell, executive director of *Trout Unlimited's Colorado Water Project*. "The communities that depend on recreation and outdoor tourism will decline, and that's not an acceptable result for us," he said.

Existing Windy Gap Reservoir, CO. (Northern Water Photo)

But $10 million seems like a lot for the small towns that would receive water, said *Northern Water's* Strongin. "I respect their research, but we're doing more than we need to. We're happy we're improving the river," she said. A study cited by *Trout Unlimited* indicates that the establishment of a $10 million fund would cost each participating household $1 a year. The state also developed a voluntary enhancement plan that could help create stream channel alterations to keep water levels higher and temperatures lower. In addition, *Northern Water* is negotiating with Western Slope communities about how to compensate them for lost water and diminished habitat, according to Strongin.

In a state with a long history of building large water infrastructure projects, Windy Gap may be the first project where state regulators have taken a close look at the potential cumulative environmental impacts of multiple projects, according to state officials. Rebecca Mitchell, water policy and issues coordinator at the Colorado Department of Natural Resources, explained that the Windy Gap analysis was slowed in an effort to pool resources and time its development with an analysis of another major project along the Upper Colorado River – *Denver Water's Moffat Collection System Project*. The latter project is a $140 million, 72,000 acre-foot reservoir expansion and one of the cornerstones of the Denver metro area's water development strategy.

The environmental enhancement plans for both projects essentially look at restoring the same 11-mile stretch of river, Mitchell said. *Trout Unlimited* maintains that the combined Windy Gap and Moffat projects, along with existing diversions, would remove up to 80 percent of the Upper Colorado River's natural flows. "There is particular energy around these projects right now," said *Trout Unlimited's* Peternell, referencing Windy Gap, Moffat and the Flaming Gorge pipeline proposal that would send Colorado River water from southern Wyoming to the Denver area. "The state has shown a gap between water supply and demand by 2050. In the wake of this study, a lot of water managers are looking for ways to get water from the Colorado."

After BOR releases its final decision, expected early next year, *Northern Water* plans on filing additional permit applications followed by two years of design and three years of construction. The firm hopes to have the new reservoir operating by 2017. Meanwhile, *Trout Unlimited* has launched a campaign to protect the Upper Colorado River, its Fraser River tributary, and the human and wildlife communities that rely on them.

Source: Tasha Eichenseher, *Land Letter,* 12/8/11; and *Land Letter*, 2/18/10

Lakes Near Cities Bearing Brunt of Mercury Emissions

Mercury loads in lakes near U.S. cities are four times greater than in rural waterways, the U.S. Geological Survey (USGS) said in a study released in late December. This study is the first to examine the difference in mercury levels between lakes close to urban centers – where emissions from coal-fired power plants would be expected to be higher – and those in rural areas. The study was published in the journal *Environmental Pollution*. Researchers examined atmospheric deposition of mercury – the transfer of the toxin from air to water or earth – by comparing lake sediment within 30 miles of cities to sediment from lakes more than 90 miles away from urban areas.

"With all of the environmental issues requiring attention, this study is an excellent example of how science can help target our attention and actions to geographic areas where mercury's toxic impacts are likely to be the greatest in the near term on both ecosystems and humans," USGS Director Marcia McNutt said in a statement. The study comes as U.S. EPA is expected to release the nation's first standards for mercury and other air toxic emissions from power plants.

Coal-fired power plants and industries are among the primary sources of mercury emissions in the country. Once the mercury leaves the plants, it can end up in lakes

through wind patterns or falling in precipitation. Mercury can also contaminate lakes through runoff. Atmospheric deposition is the predominant way mercury emissions reach ecosystems, where it can accumulate in fish, other wildlife, and humans.

"This finding could have important implications for management of mercury emissions to reduce the risks mercury poses to humans and wildlife," USGS scientist Peter Van Metre, the author of the study, said in a statement. "The results illustrate the importance of reducing mercury emissions in the U.S. and not focusing only on emissions globally." Researchers found, for example, that mercury deposition to South Reservoir, a lake 6 miles north of Boston, was five times higher than what was found in Crocker Pond, which is 130 miles north in western Maine. USGS said such a pattern repeated itself elsewhere.

The research comes after a comprehensive study in October on mercury in the Great Lakes, which are close to several cities with large coal-fired power plants. Researchers for that study found that mercury contamination in the Great Lakes region is on the decline but that on average mercury concentrations in game fish exceed levels that pose a risk to human health.

Sources: Jeremy P. Jacobs, *Greenwire*, 12/20/11; *Greenwire*, 10/11/11

USDA Revises Nutrient Management Guidelines for Farms

The U.S. Department of Agriculture (USDA) released a revised standard for managing farm nutrients in December with a goal toward employing new technologies to reduce runoff and improve water quality. The new five-year standard guides nutrient use on nearly 370 million acres of U.S. farmland and feature remote-sensing technologies and enhanced fertilizers. "You will find that we have a very much increased emphasis on the four R's," said Dave White, chief of USDA's Natural Resources Conservation Service (NRCS). Nutrients, he explained, should be applied in "the right amount, using the right source, putting it in the right place, and at the right time." The NRCS will use the new standard in crafting nutrient management plans for farms and ranches. Those plans are typically written with the help of federal conservation dollars.

One of the largest changes from the 2006 standard requires NRCS to work with state water quality agencies to define the circumstances under which manure can be applied to frozen soil. Some states have restrictions for winter application of manure. Although manure is a necessary and cheap fertilizer on many farms, conservation experts say applying it to frozen ground means a higher probability it will be washed into waterways. Excessive nutrients upset waterways, spurring algae blooms that can deplete supplies of dissolved oxygen that aquatic life needs to survive.

The standard includes nutrient-application techniques that help farmers apply fertilizers where they are needed and control their release. It also changes the criteria for applying phosphorus to adjust application rates according to an area's pollution risks. In some places, the new standard could also increase nutrient use. "I think that this really helps the efficiency issue for our producers so that we can maximize our production by using just the right amount of fertilizer," White said.

Sources: Amanda Peterka, *Greenwire*, 12/14/11; *E&E Daily*, 12/7/11

New Runoff Reduction Strategy to be Tested in Minnesota

Minnesota will be the nation's first test site for a novel federal program designed to stem the flow of agricultural pollution into the Mississippi River and ultimately the Gulf of Mexico. Minnesota Gov. Mark Dayton, Tom Vilsack, the U.S. Secretary of Agriculture and Lisa Jackson, Administrator of the U.S. EPA are promoting the pilot project as the start of an ambitious federal strategy that in essence would give farmers a green seal of approval if they voluntarily choose to put land conservation and water quality ahead of crop yields.

Behind the new strategy is a combination of political and fiscal realities, officials said: The public is increasingly concerned about clean water for drinking, swimming and wildlife. But imposing environmental rules on farmers – the primary source of unregulated water pollution in Minnesota – faces insurmountable political hurdles. At the same time, funding for long-standing farm conservation programs is facing major cutbacks in the upcoming farm bill, victim of the federal budget and the anti-regulatory fervor in Washington. "We do not want to take a step back" in conservation, Vilsack said in an interview. "We are seeing progress," he said.

Farmers who participate would agree to follow land management practices that slow soil erosion and runoff of fertilizers, pesticides and manure into streams and groundwater. In exchange, they would get financial and technical support and be protected against any new environmental requirements during the life of their agreement, perhaps as long as 10 years. Participating farmers would also be certified through the new *Agricultural Water Quality Certification Program*, a seal of approval that could be used as a marketing tool for buyers and, eventually, on consumer products. "The hope is that it would steer producers to meet consumer demand to be more responsible about water quality," said Deborah Swackhamer, an expert on water pollution at the University of Minnesota, and a member of the EPA's scientific advisory panel.

Already, however, the plan is generating sharp criticism from some conservation and water quality advocates. They say that 40 years of voluntary efforts have been insufficient to reduce the farm runoff that dumps sediment, bacteria and other pollutants into Minnesota's rivers and streams. The state is only now starting to fulfill the requirements of the 1970s-era federal Clean Water Act in clearly identifying specific sources of water pollution across Minnesota's 81 watersheds. Skeptics say the new plan would exempt farmers from specific requirements to reduce their contribution to overall runoff, creating an unfair burden for cities, sewage treatment plants, and other landowners who will be asked to bear significant costs to achieve water quality standards. "It enshrines the old ways, defying all rationality," said Whitney Clark, executive director of *Friends of the Mississippi*, an environmental advocacy group.

Vilsack said Minnesota was chosen as the test site for a number of reasons. It's a big agricultural state – half the state's land mass is controlled by farmers, who make up about 2 percent of the population. It's also home of the headwaters of the Mississippi, a river with so much agricultural pollution that it's created a massive "dead zone" at its mouth in the Gulf of Mexico. The Dayton administration was eager to embrace the program, Vilsack said, and it fits in with the state's strong conservation ethic. Even more importantly for proving its effectiveness, Minnesota controls its own water quality destiny. All the water that winds up in its thousands of lakes and rivers comes from the sky in the form of rain. Virtually all its water pollution comes from its farmers, businesses, and residents. "It's a great opportunity for

Minnesota to help lead the way, and for us to use our financial and technical assistance to expand conservation," Vilsack said.

Funding would most likely be determined by the next federal farm bill, which Congress is expected to take up this year, Vilsack said. Already, Congressional leaders have made it clear that the popular *Conservation Reserve Program*, in which farmers are paid to set aside environmentally sensitive land, will be cut, perhaps drastically. Other rules and funding for farm conservation may also be cut. "We are obviously going to be challenged to have the resources to meet the needs in rural America, including investment in conservation," Vilsack said.

Environmental groups and other experts say the critical issue will be whether the program is incorporated with specific clean-up plans. For example, the state is just completing a massive analysis of pollution in the lower Mississippi River and Lake Pepin. Researchers have found that the sediment from the Minnesota River valley that is clouding the Mississippi and filling up Lake Pepin has increased tenfold in the last century – largely as a result of heavily cultivated corn and soybeans replacing native prairie.

If the new program integrates farmers into a targeted clean-up plan for the Minnesota and Mississippi rivers, it might work, Clark said. But if it simply protects farmers from having to make real changes to slow the loss of water and soil from their land, then it won't. Others, however, say the certification program will be a significant improvement. Now, farmers are exempt from the Clean Water Act and most other environmental regulations. This program, which would combine support, subsidies, and some certainty about the future, will encourage them to do more, Swackhamer said. "It's a huge step in the right direction to get farmers engaged in the best management practices and to see how effective they are," she said. "There is a lot riding on this."

Source: Josephine Marcotty, *Minneapolis Star Tribune*, 1/16/12

Huge Tree Loss to Texas Drought

Texas' current drought may have led the state to lose as many as 500 million trees, or about 10 percent of its forest cover, according to the Texas Forest Service (TFS). In its preliminary tree mortality report, the agency says the central part of the state sustained most of the damage. The numbers do not include trees lost to drying in urban areas or to drought-induced wildfires. The agency's initial tree death estimate ranges from 100 million to 500 million trees, a loss that is "very shocking," said Tom Boggus, director of the TFS. "It's a significant change in the landscape." Come springtime, the agency will use satellite images to get a better grasp on the number of trees lost. The pictures will show which arbors went into an early winter dormancy to avoid environmental stresses and which ones have simply died.

Even if the drought does not last another six months, as experts have predicted, Texas will continue to lose trees, the agency said. "We recognize that the mortality will increase even if it started raining," said Burl Carraway, head of sustainable forestry for the TFS. Carraway said about two-thirds of the seedlings that timber companies planted in East Texas this season died. About half of the seedlings the companies planted two years ago were also lost. "They'll plant again next year," Carraway said. "Forests are very resilient".

Sources: Brenda Bell, *Austin American-Statesman*, 12/19/11; and *Greenwire*, 12/20/11

Lax State Oversight has Led to "Weak and Inconsistent" USEPA Enforcement -- IG

U.S. EPA has failed to provide adequate oversight of state regulatory programs, leading to inconsistent environmental protections, the agency's inspector general (IG) said in an unusually pointed audit. "State enforcement programs frequently do not meet national goals and states do not always take necessary enforcement actions," the IG said in the report released in mid December. "State enforcement programs are under performing: EPA data indicate that noncompliance is high and the level of enforcement is low."

The report examined enforcement of the Clean Air Act, Clean Water Act, and Resource Conservation and Recovery Act (RCRA). While EPA sets the standards for these programs, it relies on states to enforce them. "EPA does not consistently hold states accountable for meeting enforcement standards, has not set clear and consistent national benchmarks, and does not act effectively to curtail weak and inconsistent enforcement by states," the report says.

The report acknowledges that the Office of Enforcement and Compliance Assurance (OECA) has taken steps to improve its efforts. In 2004, for example, EPA established the *State Review Framework* to evaluate state regulatory performance. And in 2009, OECA began a new Clean Water Act reporting procedure and developed the *Clean Water Act Action Plan*. But the inspector general said "...EPA does not manage or allocate enforcement resources nationally to allow it to intervene in states where practices result in significantly unequal enforcement. As a result, state performance remains inconsistent across the country, providing unequal environmental benefits to the public and an un-level playing field for regulated industries."

For example, the report says that EPA set a national goal that all Clean Air Act emitters be inspected by states every two years. But, it says, states inspected – on average – 89 percent of these facilities in the two-year period; only eight states met the 100 percent goal. Further, the report says, all "high-priority" Clean Air Act violations are supposed to be reported to EPA within 60 days, but states report 35 percent of those violations within that time. Two states met the 100 percent goal.

Enforcement is also inconsistent at the state level. After compiling an average score based on their calculations of enforcement actions, the IG found that states' performance varies by as much as 50 percent. "This range in state enforcement activity," the report says, "illustrates that some states inspected facilities, identified violations, and/or assessed penalties for violations at a much higher rate than other states."

The report urges EPA to establish clear lines of authority for enforcement and develop "centralized authority over resources." It also suggests canceling outdated guidance and clarifying the remaining policies. It also recommends that EPA set clear benchmarks for state performance and a policy describing how to intervene in states. "EPA could make more effective use of its $372 million in regional enforcement," the report says. The watchdog also suggested developing a state scorecard to publicly track state action from year to year.

EPA agreed with the IG's conclusions about how state enforcement varies significantly. But the agency pushed back on the metrics used to evaluate its performance. "The agency was concerned that our evaluation relied too heavily on the state enforcement activity metrics we collected from EPA to

compare state performance," the report says of EPA's response. "The agency argued that enforcement is a complicated process that ideally relies on analysis of multiple factors related to state goals and performance."

By choosing the metrics, EPA argued, a state may choose to only focus on those factors – inspection coverage, identification of high-priority violations and assessing penalties – to boost its performance score in the eyes of the IG. Notably, the day before the IG released the report, EPA announced that its enforcement actions in fiscal 2011 had led to more than 1.8 billion pounds of pollution prevented, an estimated $19 billion in required pollution controls and approximately $168 million in civil penalties. "Our annual results reflect the fact that a strong and effective enforcement program is good for responsible businesses, public health, and communities across the country," said Cynthia Giles, assistant administrator for OECA, in a statement.

Source: Jeremy P. Jacobs, *Greenwire*, 12/13/11

Congress Should Reap Economic Benefits from Conservation

More than 100 academics have urged President Obama and Congress to help stimulate the nation's sagging economy by expanding the number of national parks, monuments and wilderness areas, and by better protecting existing public lands that draw tourists who pump millions of dollars into rural economies across the West. The experts, including three Nobel laureates, signed the letter and submitted it to the White House and to House Speaker John Boehner (R/OH) and Senate Majority Leader Harry Reid (D/NV) in early December. It called on the president to recognize "that federal protected public lands are essential to the West's economic future."

"The rivers, lakes, canyons and mountains found on public lands serve as a unique and compelling backdrop that has helped to transform the western economy from a dependence on resource extractive industries to growth from in-migration, tourism, and modern economy sectors such as finance, engineering, software development, insurance, and health care," they wrote. "Increasingly, entrepreneurs are basing their business location decisions on the quality of life in an area. Businesses are recruiting talented employees by promoting access to beautiful, nearby public lands. This is happening in Western cities and rural areas alike." Ray Rasker, executive director of *Headwaters Economics*, a Bozeman, MT-based group that circulated the letter, said the document proves there is "broad agreement" that public lands are important economic drivers and not job killers, as some Republican congressional leaders have alleged.

The letter comes at a time when some lawmakers have sharply criticized the Obama administration's land-use policies, complaining that too much emphasis is being given to conservation over other uses, particularly energy development. The experts are careful to note in the letter that energy development and recreation on public lands are activities that "can and must coexist with expanding protections for America's world-class natural amenities."

But Rasker said he hopes the letter – signed by Nobel laureates Kenneth Arrow of Stanford University, Robert Solow of the Massachusetts Institute of Technology and Joseph Stiglitz of Columbia University – will embolden the president and Congress to "act to preserve one of the West's economic engines: its world-class natural amenities." Most republican leaders on Capitol Hill have been reluctant to consider any new public lands legislation, and have even used the appropriations process to block the Obama administration from protecting areas identified as having wilderness characteristics. The Omnibus Public Land Management Act of 2009 was the last successful wilderness legislation, setting aside 2.1 million acres in nine states as wilderness.

"The frenzy of national elections is not the time for hasty changes to public lands and their management," said Walt Hecox, an economics professor at Colorado College who signed the letter. Gundars Rudzitis, a University of Idaho environmental and resource policy expert who also signed the letter, added that public lands are what make the American West so special. "Americans have made areas surrounding wilderness and national parks the fastest growing areas in the nation for the last 40 years," Rudzitis said. "The current Great Recession, like the Great Depression of our parents and grandparents generation, could become remembered as a time when people were put to work building trails, roads, infrastructure, and extending the national heritage of our parks, wilderness regions, and other public lands that make the American West unique."

Source: Scott Streater, *Land Letter*, 12/8/11

Fracking Issues

A report prepared by the *Bipartisan Policy Center's Energy Project Blue Ribbon Panel* says that the oil and gas industry needs to do more to protect the environment and win the support of the communities where it operates. The report is significant not so much for what it says – most of the points have been made before – but for who is saying it. The consensus findings were joined in by executives of an industry that has often portrayed calls for regulation as attempts to halt domestic petroleum production. Among the industry leaders signing onto the report were *Exxon Mobil Corp*. Vice President William Colton; *Marathon Oil Corp*. Chairman, President, and CEO Clarence Cazalot; and *Anadarko Petroleum Corp*. Chairman and CEO James Hackett.

The panel, chaired by former Sen. Trent Lott (R/MS) and former Sen. Byron Dorgan (D/ND), also included Edwin Hill, international president of the *International Brotherhood of Electrical Workers*; Susan Tierney, a former Clinton administration energy official and a member of the administration panel on shale gas safety; *DuPont* Chairwoman and CEO Ellen Kullman; and *Southern Co*. President and CEO Susan Story.

The Panel's report repeatedly notes that the debate on the practice often referred to by drilling critics as "fracking" centers around complaints common to any community where drilling has taken place for decades – air quality, wastewater disposal, destruction of wildlife habitat, noise and traffic. Concerns about the safety of chemicals used in hydraulic fracturing have dominated the national debate over the natural gas extraction technique, but oil industry officials say the biggest challenge for future development is not water contamination but access to enough water in the first place.

In Texas' Eagle Ford shale formation, each oil well requires about 6 million gallons of water to break open rocks far below the surface and release its mineral trove. The water requirements are adding a new figure to the fracking equation as communities grapple with how to balance the economic benefits with the potential costs of drilling – and not just in parched regions like Texas. North Dakota is also concerned about fracking depleting its aquifers and has threatened to sue the federal government to free up water held by a U.S. Army Corps of Engineers dam. Also, Louisiana last year passed a law to manage what it called the industry's "unprecedented use of enormous amounts of

water" that, if unregulated, has the "potential for chaos and conflicts." In British Columbia, which has no shortage of water, officials have required natural gas extraction companies to install expensive equipment to recycle water used in fracking. It was not concern about pollution that prompted the move but a response to local communities that did not want their water tapped.

The fracking process is also known to cause earth tremors when fracking fluids are injected into the ground under high pressure. Such tremors can result in actual earth quakes. For instance, an independent report commissioned by the drilling company *Cuadrilla Resources* concluded that two quakes of magnitude 1.5 and 2.3 near the city of Blackpool, England, last spring were related to a fracking well. The quakes were thought to be caused by fluid migrating into rock formations below the shale. These deeper, older rocks, which are collectively referred to as the "basement," are littered with faults that have reached equilibrium over hundreds of millions of years, siesmologists say. "There are plenty of faults," said Leonardo Seeber, a *Columbia University - Lamont-Doherty Earth Observatory* (CU-LDEO) seismologist. "Conservatively, one should assume that no matter where you drill, the basement is going to have faults that could rupture." But scientists say it can be difficult to prove a connection for larger quakes because of lack of data. So specific cases often become the subject of debate.

Disposal of fracking waste water in injection wells can also cause earth tremors. For example, until this year, Youngstown, OH, and the surrounding county were seismically dead, but since last March at least eleven minor earthquakes have shaken the city. When seismologists plotted the quakes' epicenters, they found that most coincided with the location of a 9,000-foot well where a local company has been disposing of millions of gallons of liquid waste from fracking. The owner of the injection well closed it while authorities assessed potential links to the rumblings. John Armbruster of CU-LDEO said it might take a year for the quakes to dissipate. Injection wells have also been suspected in quakes elsewhere in northeastern Ohio, as well as in Arkansas, Colorado and Oklahoma, Armbruster said. Nationally, EPA records show there are 150,851 "Class II" injection wells associated with oil and gas, and 177 of them are in Ohio. Underground injection is also used to dispose of radioactive waste, hazardous waste, mining fluids, and carbon dioxide. There are about 500,000 other types of injection wells that dispose of non-hazardous waste.

Scientists say that thousands of fracking and disposal wells operate around the country without triggering quakes, "but still, you don't want it to happen," said Mark Zoback, a geophysicist at Stanford University. Ohio officials and those at *D&L Energy*, the Youngstown company disposing of the waste, say there is no proof of a link, but the state has asked the company to plug the bottom 250 feet of the well with cement, just in case. State officials are also working with researchers from CU-LDEO who have installed four temporary seismometers near the well, so that if another earthquake occurs, they will be able to determine location and depth more precisely.

Meanwhile, a *National Academy of Sciences* (NAS) panel is studying how oil and gas production and other types of energy production can lead to man-made earthquakes. The NAS study committee has met seven times since the study began in September 2010. It is expected to issue a report in early summer. The International Energy Agency (IEA) is also putting together recommendations for nations to regulate their burgeoning shale natural gas industries. The Paris-based energy watchdog will publish the suggestions in its global energy outlook this year. The IEA will study procedures that will minimize environmental damage and then make recommendations to member countries.

Regarding health issues, a top scientist with the *Centers for Disease Control and Prevention* said, "We do not have enough information to say with certainty whether shale gas drilling poses a threat to public health." Christopher Portier, director of the *National Center for Environmental Health*, said scientists should study exposure through air, water, soil, plants and animals. Such studies needs to include "livestock on farmed lands consuming potentially impacted surface waters; and recreational fish from potentially impacted surface waters," he said.

It is likely that getting answers on some of this will take another three to five years, said Duke University researcher Rob Jackson. "I suspect what you'll see over the next year or two are new papers that won't find significant evidence of contamination and new papers that will. The best response would be to try and understand what causes the difference," he said. "Many people outside of the scientific community won't want to accept a mixed message. They'll dismiss one set of papers outright as biased and latch on to the other set that upholds their belief system – on both sides of the issue," Jackson said.

Sources: Russell Gold and Ana Campoy, *Wall Street Journal*, 12/6/11; Thomas Sheeran, *AP/Columbus Dispatch*, 1/3/12; Henry Fountain, *New York Times*, 12/12/11; *AP/FuelFix*, 1/5/12; Tom Miles, *Reuters*, 1/24/12; Julie Carr Smyth, *AP/Columbus Dispatch*, 1/12/12; Mike Soraghan, *Greenwire*, 1/5 and 1/19/12; and *Greenwire*; 12/6 and 12/13/11 and 1/4, 1/5, 1/13 and 1/25/11

Chytrid Fungus: Created by the Amphibian Trade?

The global amphibian trade spread the lethal chytrid fungus, which is decimating frogs around the planet, and it now looks like it may have created the disease in the first place. The team behind this finding is calling for an amphibian quarantine to help slow the disease's spread.

Rhys Farrer of *Imperial College London* and colleagues sequenced the genomes of 20 samples of the fungus, *Batrachochytrium dendrobatidis* (Bd), collected in Europe, Africa, North and South America, and Australia. They found that 16 of the 20 samples were genetically identical, belonging to a single strain called BdGPL, which has spread to all five continents. Tests on tadpoles also revealed that the strain was extremely virulent. BdGPL's genome showed that it had formed when two strains mated, sometime in the past 100 years.

The best and simplest explanation is that 20th-century trade, which shipped amphibians all over the world, enabled the mating, says Farrer's supervisor Matthew Fisher. "We've got to restrict trade, or at least make sure that amphibians are not contaminated." One approach would be for countries to quarantine all imported amphibians and only allow them to stay if they are uninfected.

When it emerged that trade was spreading chytrid, the *World Organization for Animal Health* made the disease notifiable, meaning that countries must report whether they have it or not. But that doesn't stop it spreading. The two places in most urgent need of protection are Madagascar and southeast Asia, says Fisher: "They're the last redoubts of uninfected amphibian species." Both are hotspots of amphibian diversity, and are clear of BdGPL.

Madagascar remains uninfected despite rampant BdGPL in Africa, and a recent survey shows that Asian chytrid strains are

not very virulent. If BdGPL reaches these places, it could quickly devastate their frogs. Countries that already have BdGPL should also institute quarantine, says Peter Daszak, president of *EcoHealth Alliance* in New York. "This research shows that recombination can occur and give rise to new virulent strains," he says. "Blocking introduction of new strains will cut down on this." Daszak adds: "It will be hard to stop the spread of new lineages of Bd, but if we look at the devastation that this pathogen has already caused, we desperately need to try."

Sources: *Proceedings of the National Academy of Sciences*, DOI: 10.1073/pnas.1111915108; and *Frog-killer disease was born in trade*, Michael Marshall, *New Scientist*, 11/7/11

Climate Change Update

Antarctica's fastest-melting glacier is about to lose a chunk of ice that is larger than New York City. A crevasse that stretches 19 miles long and up to 260 feet wide is behind an iceberg coming from the Pine Island Glacier. The iceberg is expected to cover about 350 square miles, larger than the 303 square miles that encompasses Manhattan, Brooklyn, Queens, Staten Island, and the Bronx. Scientists don't know when the separation will occur. "That is very difficult to predict, but in the coming months for sure," NASA oceanographer Eric Rignot said. The iceberg will contribute to rising sea levels, oceanographers said.

In the face of melting ice packs, polar bears are increasingly preying on their own kind as the numbers of their main food source – seals – decline, said environmental photojournalist Jenny Ross at the *2011 American Geophysical Union* (AGU) Fall Meeting. Ross who witnessed one such kill event said, "This type of intraspecific predation has always occurred to some extent." "However, there are increasing numbers of observations of it occurring, particularly on land where polar bears are trapped ashore, completely food-deprived for extended periods of time due to the loss of sea ice as a result of climate change." She said that as Arctic sea ice melts and reduces the number of ice floes that allow bears to hunt, they have turned to other food sources including garbage and human food, sea birds and eggs.

Meanwhile in Idaho's Owyhee Mountains and elsewhere the transition zone where rain turns to snow has shifted more than 1,300 feet upward in elevation since the 1960s, dramatically reducing the area covered by snow and thus the amount of water stored in the snowpack, according to new research from the U.S. Department of Agriculture (USDA). Researchers have studied the Reynolds Creek watershed in southern Idaho since the 1960s, allowing them to closely track the shift in elevations at which precipitation falls as rain or snow, and the transition zone where there is a mix of both forms. In 1968, snow dominated elevations above 5,260 feet, covering about 40 percent of the watershed's land area, according to findings presented at the AGU annual conference. By 2006, the snow threshold had moved up to 6,604 feet, dramatically shrinking the snow-covered area to 5 percent of the watershed area. "As the transition zone moves higher and higher, there is less and less water stored in snow cover, which is critical in the West," hydrologist Danny Marks said. The shift is likely due to warming air temperatures.

Marks said he is "pretty confident" the same pattern is occurring across the U.S., but the impacts will be more severe in some places than others. "In places like the Sierra Nevadas or Rocky Mountains, with elevations that go very high, they are not running out of land area," Marks said. "But in the Great Basin, where most of the mountains are not very high, or the Cascades, that's where the transition is going to be really stark." In other words, if the point at which it's cold enough for rain to turn to snow moves to the high peaks or even above a lower-elevation mountain, there could be little if any snow deposited in those high areas.

In desert areas, biological diversity may be the answer to countering dry conditions brought on by warming temperatures. Deserts and other arid environments are better able to sustain critical ecosystem services when they contain a greater variety of plants, according to a global analysis of drylands led by Spanish researchers. The study, which looked at sites in California, Arizona and Utah in its assessment of dryland ecosystems at 224 locations around the globe, has implications for the importance of preserving biodiversity to slow desertification and climate change. The relationship between biological diversity and ecosystem functioning has been most studied in temperate grasslands. Deserts and other dry places have received relatively little attention, even though they cover 41 percent of the Earth's surface and are quite diverse in their own right, said Fernando Maestre, the study's lead author and an ecologist and professor at King Juan Carlos University in Spain.

Over the past five years, Maestre and his colleagues established a global research network to study dryland ecosystems on every continent except Antarctica. They first developed a method to study plots of land and collect soil samples in Spain, aiming to make it "simple and cheap" so it could be replicated even in developing countries, Maestre said. The researchers then analyzed more than 2,600 soil samples from around the world to determine how well they processed multiple nutrients, including carbon, nitrogen and phosphorus. Nutrient cycling underlies many functions beneficial to the environment and society, such as carbon sequestration. Soil from plots with a greater variety of plant species performed multiple functions at the same time better than those from plots with fewer plant types, according to the research, which was published in mid-January in the journal *Science*.

Warming temperatures in much of the U.S. could lead to a new wave of invasive species entering the country as the demand for heat-loving landscaping plants increases, a new study warns. Analyzing U.S. trade patterns and the potential for new plant species to be introduced into the U.S., along with climate projections expected to bring an earlier onset of spring and warmer winters in many areas of the country, gardeners will seek out more heat- and drought-tolerant plants, the researchers predict. Bethany Bradley, a biogeographer at the University of Massachusetts at Amherst and lead author of the study, said that to meet that demand, nurseries are likely to turn to new plant varieties from foreign regions that previously haven't engaged in much horticultural trade with the U.S., including Africa and the Middle East. Some of the newly imported plants could end up wreaking havoc on the ecosystems into which they are introduced, she said.

Meanwhile, residents of Virginia's Middle Peninsula are railing against plans to prepare for sea-level rise caused by a warming climate. The reason? They don't think human activity accelerates climate change. Residents called the plan a ploy to take their property when planners at a meeting of the *Middle Peninsula Planning District Commission* proposed rezoning land for use as a dike to stave off rising water. "Environmentalists have always had an agenda to put nature above man," said Donna Holt, leader of the *Virginia Campaign for Liberty*, a tea party-affiliate with 7,000 members. "If they can find an end to their means, they don't care how it happens. If they can do it under the guise of global warming and climate change, they will do it." Scientists say the

peninsula's geology – including an ancient meteor impact crater that is causing the land around it to sink – will create a perfect storm of problems for the area.

Along those lines, a new report says Louisiana's coastal restoration and levee projects should be designed to anticipate an average 3.3-foot increase in sea level over the next century. The report from the Louisiana Applied Coastal Engineering and Science Division gives planners a formula for anticipating the rate of relative sea level rise at various coastal locations. But planners must also consider whether other circumstances, like a reduction in the speed that coastal land is sinking or an increase in atmospheric temperatures, could produce sea level increases ranging from 1.6 feet to 4.9 feet.

Concern about man-made global warming is at its highest level since the House passed its carbon dioxide (CO_2) cap-and-trade bill in 2009, according to a *Rasmussen Reports* survey released in early January. Sixty-four percent of the 1,000 registered voters contacted said climate change was a serious problem. This shows a slight uptick compared to similar *Rasmussen* surveys conducted last year, which put concern about the issue in the high 50s to low 60s. The poll had a 3-point margin of error. Forty percent also said they believed that climate change is being driven by human activities, rather than the "long-term planetary trends" cited by 39 percent. Long-term planetary trends outstripped human activity as the likely primary cause of global warming in all *Rasmussen* surveys conducted last year – in some cases by fairly large margins. Anthony Leiserowitz of Yale University's *Project on Climate Change* attributes these findings to extreme weather events across the country in 2011. "I mean, almost everybody in America experienced at least one if not many of these events," he said.

The decision by China and India at the Durban, South Africa *Climate Change Conference* to move toward an international climate agreement with "legal force" to limit their fossil fuel emissions marked a major win for the U.S. in the two-decade-old debate about how to curtail global warming. Presidents Obama and George W. Bush pushed for parity between developing and industrialized nations after the Senate refused to ratify the Kyoto Protocol, under which developing nations had no commitments. The protocol currently regulates only about a third of greenhouse gas emissions. China and India have become two of the world's three biggest polluters in the 14 years since the pact was first approved.

In the Durban agreement, countries agreed to negotiate a new climate change deal by 2015 to take force by 2020. It would assign emissions-reduction responsibilities to all major emitters, not just developed countries. Sen. John Kerry (D/MA), who led the push on Capitol Hill for a Senate cap-and-trade bill in 2009 and 2010, said inclusion of major developing countries in the deal would help lay the groundwork for climate legislation at home. "It removes two stumbling blocks that have led to political paralysis here at home because it underscores we can't tackle this challenge without multilateralism and trust," he said. Senate Environment and Public Works Chairwoman Barbara Boxer (D/CA) said, "I am pleased that the nations meeting in Durban have agreed to develop a legally binding commitment that applies to all countries." The Senate's most vocal climate skeptic, Sen. James Inhofe (R/OK), declined to comment on the agreement. Earlier Inhofe had sent a withering video message to Durban, heralding the "complete collapse of the global warming movement and the failure of the Kyoto process."

Meanwhile, the *National Center for Science Education* (NCSE), a longtime champion of evolution education, is adding climate change to its repertoire after reports have increased of attacks against teachers who introduce the subject to their classes. The NCSE in mid-January rolled out an initiative to provide resources to help teachers broach the politically charged subject in their classrooms, and it will draw on its years of expertise in defending evolution education. "Climate change in the classroom is where evolution was 25 years ago," said Eugenie Scott, NCSE executive director. The launch of the new program highlights the pressures on teachers who want to include climate change in lesson plans and keys into an ideological split on how climate change should be taught.

Many of the leading associations of science teachers, including NCSE, say climate change should be taught as a settled phenomenon that a majority of scientists agree is occurring. Others, such as the right-leaning *Heartland Institute*, say students should be presented with all points of view and allowed to form their own opinions. But NCSE's Scott said that approach unfairly expects students to evaluate data sources and weigh conflicting figures. "Seventh-graders have a fairly limited grasp on what an atom and a molecule is, and we're asking them to evaluate how much of the heat load in the current rise in temperature is based on the heat-generating capacities of CO_2?" Scott said. "I don't think so." Such arguments are similar to those that NCSE has been fighting for the past three decades in its defense of evolution education.

Climate change is largely absent from state and federal education standards. Approximately 20 states have agreed to adopt standards that include climate change, Scott said, but none have finalized their plans. A national "No Child Left Inside" movement to require states to have environmental literacy programs for students ignores climate change. There are currently few elementary and secondary education courses devoted to climate change, said Francis Eberle, executive director of the *National Science Teachers Association* (NSTA). It is mostly taught in earth science courses, Eberle said, but "unfortunately, that is not a course that is offered consistently across the country."

A recent *National Earth Science Teachers Association* (NESTA) study found that 89 percent of U.S. teachers who currently teach climate science believe that global warming is happening, about 20 percent higher than the general population in the U.S. About 47 percent of teachers said they teach "both sides" of the human role in climate change, a trend that NESTA executive director Roberta Johnson called "a little bit disturbing for me." "Some teachers may really think there are two equal sides," Johnson said. "I think most people that are closely involved with the science know that there aren't two equal sides." In the survey, about a quarter of teachers covering climate change said students, parents, administrators, or community members have argued with them that climate change is not happening or is not a result of human activity. In an earlier survey, NESTA reported that 41 percent of teachers said they felt pressure to skip teaching climate change altogether. A different study by the (NSTA) in November found that the majority of teachers have faced skepticism about climate change from both students and parents.

The Chicago-based right-leaning *Heritage Institute* advocates for teaching the history of Earth's warming and cooling periods and holding off on speculating about the future, said Nick Loris, a policy analyst in energy and environment issues at the *Institute*. The group also hands out materials for teachers, including a video called *"Unstoppable Solar Cycles: Rethinking Global Warming"* and a book that presents seven theories explaining climate change. An email leaked from the *Institute* in mid-February also proposes that

they pay David Wojick, a climate skeptic and contractor with the Office of Scientific and Technical Information at the Energy Department, to develop a curriculum for school children "that shows that the topic of climate change is controversial and uncertain – two key points that are effective at dissuading teachers from teaching science." The curriculum project's $100,000 budget, also leaked with the email, would be provided by one individual, referred to in the document as "the Anonymous Donor." It was noted that the same donor has funded the *Heartland Institute's* climate change program to the tune of $8.6 million over the past five years. The budget also shows that the *Charles G. Koch Foundation* – which is tied to *Koch Industries* – gave the think tank $25,000 in 2011 and is expected to donate an additional $200,000 this year. The document argues that the school project is needed because "principals and teachers are heavily biased toward the alarmist perspective."

Meanwhile, backers of an effort to raise money to defend scientists from climate skeptic-led legal attacks in late January formally launched the *Climate Science Defense Fund*. The fund will be hosted by *Public Employees for Environmental Responsibility* (PEER), which will provide both financial and logistical support, according to a statement. Last fall, Scott Mandia, a physical sciences professor at Suffolk County Community College in Selden, NY, and John Abraham, an engineering professor at the University of St. Thomas in St. Paul, MN, quietly launched the fundraising effort. The campaign was primarily aimed at helping climate expert Michael Mann, a researcher at Pennsylvania State University, intervene in the high-profile court fight over emails he and others wrote when he was a professor at the University of Virginia. That litigation, distinct from a similar effort overseen by Virginia Attorney General Ken Cuccinelli (R), revolves around the attempt by the conservative *American Tradition Institute* to obtain various emails written by Mann and other scientists via Virginia's freedom of information law. Josh Wolfe, who is co-directing the fund with Mandia, said that it will be involved in other cases in the future. "We see the Mann litigation as part of an emerging trend," he added. "Industry-funded groups have been increasingly going after scientists whose work does not align with their interests."

Sources: Richard A. Lovett, *National Geographic News*, 2/2/12; Jonathan Amos, *BBC News*, 12/8/11; Kim Chipman and Alex Morales, *Bloomberg*, 12/12/11; Darryl Fears, *Washington Post*, 12/17/11; Mark Schleifstein, *New Orleans Times-Picayune*, 2/7/12; April Reese, *Land Letter*, 2/2/12; Laura Petersen, *Land Letter*, 1/12 and 12/8/12; Jean Chemnick, *Greenwire*, 12/12/11 and 1/9 and 2/15/12; Amanda Peterka, *Greenwire*, 2/4/11 and 1/18/12; Lawrence Hurley, *Greenwire*, 1/25/12; and *Greenwire*, 12/8, 12/12, 12/20/11 and 2/6 and 2/8/12

Summer of Paddling 2012

The *Summer of Paddling 2012* (SOP2012) is a series of paddling events on the Mississippi River for new and experienced paddlers. Events will be hosted by a variety of agencies from Lake Itasca to New Orleans. SOP2012 is an outcome of the Mississippi River Connections Collaborative (MRCC). The MRCC partners (Federal and State agencies working with non-governmental organizations) are striving to provide Americans and visitors from around the world with opportunities to experience the Mississippi River through recreational and stewardship programs. To post an event online or for more information see the SOP2012 web site at: http://www.sop2012.org/.

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, OR. See: http://acwi.gov/monitoring/conference/2012/index.html

May 4-7: River Rally 2012 – International gathering of the watershed conservation community, Doubletree Hotel Portland, OR. See: http://www.rivernetwork.org/events/national-river-rally-2012

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. 15-19: 10th International Congress on the Biology of Fishes, University of Wisconsin, Madison, WI. See: http://conferencing.uwex.edu/conferences/icbf2012/

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. 10-14: 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 (IRC) 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 IRC 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 IRC 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) and 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 IRC 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 IRC 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.

S. 1580. Hatch (R/UT) and Lee (R/UT) and **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.

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.

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.

H. R. 1861. Murphy (R/PA) and 10 Co-sponsors. Greatly enhances America's path toward energy independence and economic and national security, to conserve energy use, to promote innovation, to achieve lower emissions, cleaner air, cleaner water, and cleaner land, to rebuild our Nation's aging roads, bridges, locks, and dams, and for other purposes.

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. 1313. Whitehouse (D/RI) and 5 Co-sponsors. Amends the FWPCA to reauthorize the National Estuary Program, 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. 872. Gibbs (R/OH) and 21 Co-sponsors. Amends the Federal Insecticide, Fungicide, and Rodenticide Act and the FWPCA to clarify Congressional intent regarding the regulation of the use of pesticides in or near navigable waters, 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 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.

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 condi-

tions 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.

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

River Crossings

Published by

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

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

Send an e-mail to MICRA@MICRArivers.org to subscribe or unsubscribe to *River Crossings*.