River Crossings

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Chairman's Comments

MICRA hosted the Mississippi River Basin Panel for a workshop on the potential for commercial harvest to be an effective tool to reduce Asian carp populations in the Mississippi River Basin. The workshop provided fisheries professionals the opportunity to hear about current research and provided an opportunity for in-depth discussion of the issues surrounding this topic.

MICRA, in partnership with the U.S. Fish and Wildlife Service (USFWS), is scoping a study to report the economic value of Mississippi River Basin recreational and commercial fisheries. MICRA and USFWS will be working with the basin states over the next 12-15 months to complete the report.

MICRA will hold a Stakeholder and Congressional Outreach Workshop in January 2014 at the 74th Midwest Fish and Wildlife Conference in Kansas City, MO, The purpose of the workshop is to help MICRA members with techniques to engage stakeholders in fisheries policy issues and to educate local and national decision makes on MICRA issues.

On a final note, applications for the 2014 Young Professional Travel Stipend are being accepted through January 15, 2014. The annual award provides an individual who has recently begun their professional career with travel funds to attend a professional meeting or conference that they would not otherwise be able to attend. More information is available at: www.MICRArivers.com.

Asian Carp Issues

In late July, the Obama administration released the 2013 Asian Carp Control Strategy Framework (Framework). The 2013 Framework includes a series of new measures to keep Asian carp out of the Great Lakes, including a new electric barrier to replace the more-than-decade-old demonstration barrier that is currently in place. A mobile electric barrier would also be constructed that could be deployed during emergencies, as well as the testing of other tools such as water guns and netting, and chemicals like pheromones that attract fish. Additionally, the plan calls for barriers at key points along waterways flowing into Lake Erie. Stepped-up water sampling would also be included in southern Lake Michigan, western Lake Erie and other potential entry points for the fish. More study of environmental DNA (eDNA) testing methods would also be completed. "This strategy continues our aggressive effort to bolster our tools to keep Asian carp out of the Great

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Lakes while we work toward a long term solution," said John Goss coordinator of the Asian carp effort for the White House Council on Environmental Quality. "The 2013 framework will strengthen our defenses against Asian carp and move innovative carp control projects from research to field trials to implementation," he said.

Regarding eDNA, there are currently open questions among scientists about whether a positive test in fact indicates the presence of live Asian carp. "Much progress has been made in the development and refinement of Asian carp detection and control tools and in the understanding of the food and habitat required for Asian carp reproduction and survival," said Leon Carl, Midwest director for the U.S. Geological Survey. "We will continue moving forward to get these new technologies and information into the hands of managers and other decision makers." In mid August the U.S. Fish and Wildlife (USFWS) announced that it had assumed responsibility for eDNA sample processing from the U.S. Army Corps of Engineers (Corps), Engineering and Research Development Center. The new operation will be headquartered at the USFWS' new Whitney Genetics Lab in Onalaska, WI. With guidance from the Corps, the USFWS planned, constructed, equipped, staffed and calibrated this new state of the art genetics lab. This task was accomplished utilizing *Great Lakes Restoration Initiative* funding. The Whitney Genetics Lab will process this year's eDNA samples from the Chicago Area Waterways System (CAWS), and funds have also been allocated to process samples from the Great Lakes, Upper Mississippi, and Ohio rivers. As part of the sample processing move, the USFWS also announced that responsibilities for maintaining the Quality Assurance Project Plan (QAPP) for eDNA monitoring of Asian Carp was also transitioned from the Corps. The QAPP ensures continuity among all agencies involved in eDNA sampling activities. Asian carp eDNA sampling is a process in which genetic material, such as cells containing DNA from tissue, mucus, feces and/or urine, is extracted from water samples to help determine the potential presence of the invasive fish. The eDNA results, along with the QAPP and the USFWS' communication protocols for notifying affected partners, can be found online at http://www.fws.gov/midwest/fisheries/eDNA.html.

The Obama administration has spent $200 million so far in its bid to keep Asian carp out of the Great Lakes. But a number of environmental groups and state officials contend that the only way to keep them out for good is to return the Great Lakes and Mississippi River watersheds to the physically separate systems that they were before shipping channels were built to join the two ecosystems. The Corps is due to release a shortlist of options for dealing with the problem for good by the end of the year, although any new construction project could take years and hefty funding to implement. While Illinois officials have argued against permanent closure, Governor Quinn made comments in early June suggesting he is considering reversing that position. Addressing a summit of the *Council of Great Lakes Governors* in Mackinac Island, MI, Quinn said, "ultimately … we have to separate the basins. That is the ultimate solution." However, speaking to reporters afterwards, he clarified that he supported further study of the issue in order to determine costs. He estimated that such a project would cost about $3.5 billion, which would need backing from the federal government. "There's no question it would be a very expensive endeavor. But if it's necessary to have clean water in the Great Lakes in the 21st century, it's worth looking at," he said.

Indiana and Illinois are the only two Great Lakes states that have traditionally opposed closure, saying it would result in billions of lost shipping dollars. W. Lindsay Chadderton, director of the *Great Lakes Aquatic Invasive Species* program at *The Nature Conservancy* in

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South Bend, IN, says Quinn's comments are "clearly encouraging" in that he is recognizing "the solutions that can be put in place to achieve ecological separation, while maintaining the economic benefits the canal system provides." Mr. Chadderton agrees that such a massive engineering project will take years to develop and implement; to figure out the right solution may take up to five years. "The reality is we're not talking about something that is going to happen overnight," he said.

Meanwhile, a new poll of voters in Minnesota found that 63 percent of the people surveyed are concerned about the spread of Asian carp in that state's waterways, and are willing to use barriers on rivers and streams to block the fish from advancing upstream – including closing navigation locks in the Mississippi River in Minneapolis. Majorities of Democrats (66 percent), Republicans (66 percent) and independents (59 percent) supported these conclusions. The poll, released in early August by the *Stop Carp Coalition,* was conducted by *Belden Russonello Strategists LLC*, a Washington, D.C. based firm. "Asian carp have a track record of economic and environmental devastation," said Gary Botzek, executive director for the *Minnesota Conservation Federation*. He added, "The good news is that we have a solution that stops Asian carp from moving further upstream. But public officials cannot drag their feet. They have to act with urgency."

A day's catch by one commerical fisherman on the Illinois River - IL Natural History Survey Photo.

On another front, a Chinese company is planning to open the first fishery in the U.S. dedicated solely to the processing of Asian carp and its export to markets in Southeast Asia. *Two Rivers Fisheries*, said in its announcement that it aims to process 10,000 carp daily from local waterways. There are currently an estimated one million Asian carp in the Illinois River alone. *Two Rivers Fisheries* says it plans to invest $2.5 million in building the fishery in Wickliffe, KY., a city located about two miles south of the confluence of the Ohio and Mississippi Rivers. The company will purchase the fish from local fishermen, and process them for shipping overseas, where the fish will be sold for human consumption and animal feed and where byproducts are used for products such as fertilizer. "Our hope is that this facility benefits Kentucky's waterways as well, removing Asian carp from the rivers and turning them into a positive resource," company CEO Angie Yu said in a statement.

The idea of harvesting Asian carp for export to China was first floated in 2010 by Illinois Gov. Pat Quinn, who said the opportunity would create jobs and income for fishermen along the Illinois River, where as much as 30 million pounds of Asian carp could be caught annually. The state invested $2 million to upgrade private facilities downstate so they could start processing the fish, and a state program has even served more than 2,000 Asian carp meals to needy families over the past two years. According to researchers at Southern Illinois University, Asian carp dominate the Illinois River, making up about 63 percent of its fish population. But the combined efforts are only likely to thin the herd, not stop it, says Jonathan Freedman, a researcher with the Illinois Natural History Survey. Mr. Fredman says that, because fisheries are primarily interested in large fish greater than 16 inches in length, the younger carp will likely remain unscathed, allowing them to continue the species' rapid reproduction. "You would have to process a lot of Asian carp to make a dent in the population. It's certainly doable, but only time will tell," he says.

Sources: Mark Guarino, *Christian Science Monitor*, 6/5/13; *USFWS News Release*, 8/12/13; Spencer Hunt, *Columbus Dispatch*, 6/3/13; Scott Streater, *E&E News PM*, 8/7/13; Annie Snider, *Greenwire,* 7/24/13; and *Greenwire*, 6/4/ and 6/6/13 BACK TO TOP

USFWS Seeks to Improve the Injurious Species Listing Process

The U.S. Fish and Wildlife Service (USFWS) has proposed to refine the environmental review process for listing species as injurious under the federal Lacey Act. The proposal known as a "categorical exclusion" would generally preclude the need for preparing an environmental assessment under the National Environmental Policy Act (NEPA) for the action of listing species as "injurious." Under the Lacey Act, the USFWS can prescribe by regulation those wild mammals, birds, fish, mollusks, crustaceans, amphibians and reptiles, and the offspring or eggs of any of the aforementioned, that are injurious to human beings, or to the interests of agriculture, horticulture, or forestry, or to the wildlife or wildlife resources of the U.S. A species designated as injurious is prohibited from being imported into the U.S. or transported across state lines.

Currently, the listing process can take several years because it includes many steps, including a review under NEPA that includes a rather lengthy environmental assessment. During this time delay, a species that could have been stopped from entering the U.S. or crossing a state line could become irreversibly invasive. It is important to note that all of the environmental assessments prepared by the USFWS to date for Lacey Act listings have concluded that the action of listing the species as injurious would have no significant effect on the human and natural environment. This is because the listing action helps keep species out of the U.S. that are not naturally found here or helps prevent the spread of injurious wildlife into new areas within the country where they are not naturally found. Thus

there is no negative effect of the listing on the environment.

A notice of the proposal appeared in the July 1 issue of the Federal Register and can be found online at http://www.gpo.gov/fdsys/pkg/FR-2013-07-01/pdf/2013-15707.pdf.

Source: *USFWS Press Release*, 7/1/13 BACK TO TOP

Genetically Modified Salmon Can Breed With Wild Fish

Genetically modified (GM) Atlantic salmon bred for food can mate with the closely related brown trout, according to a new study published in the *Proceedings of the Royal Society B*. The study highlights the risk that genetically modified fish, like those developed by biotech company *AquaBounty Technologies Inc.*, could infiltrate wild species the authors said. The GM salmon which were engineered with extra genes to make them grow more quickly passed on this trait to the hybrid offspring. About 40 percent of the 363 offspring analyzed carried the modified genes.

When the fish were placed in a mocked-up stream inside the laboratory, researchers found that the hybrids were out-competing both the GM salmon and wild salmon, significantly stunting their growth. "This was likely a result of competition for limited food resources," explained Dr. Darek Moreau, Memorial University of Newfoundland. In the wild, Atlantic salmon occasionally mate with the brown trout, successfully producing offspring. The researchers acknowledged that the risks of such an escape and subsequent encounter with a brown trout were low, but said this information should still be taken into account by those who are regulating GM animals.

GM salmon (back) next to an unmodified salmon of the same age showing faster growth of the GM salmon – AquaBounty Photo

Researchers warned that their study points to possible ecological consequences should GM fish escape to the wild. But *AquaBounty* officials said the fish it produces are all female, are sterile and would be kept in tanks on land. "Overall, the study seems to present no new evidence for any added environmental risk associated with the *AquAdvantage* salmon," said Ron Stotish, CEO of *AquaBounty*. Stotish said further that, "It is worth noting that in 1995, Peter Galbreath and Gary Thorgaard of Washington State University published research that the Atlantic salmon-brown trout hybrid is sterile. If this holds true, such a hybrid would pose little ecological threat as the fish would not reproduce. The transgenic salmon are currently being assessed by U.S. authorities, and could be the first GM animals to be approved for human consumption.

Sources: Rebecca Morelle, *BBC News*, 5/29/13; and *Climatewire*, 5/29/13 BACK TO TOP

Frog and Toad Populations Declining at Alarming Rate

Frogs, toads and other amphibians are vanishing so fast nationwide that if the decline continues at the same rate, they'll be gone from half their current habitats in 20 years, a recent U.S. Geological Survey (USGS) study reports. The study stretched over a decade, on 48 species at 34 sites from California to the Rocky Mountains to Florida's swamps. Federal scientists found that the declines are more widespread and severe than previously thought and that amphibian populations are disappearing at an overall rate of 3.7 percent each year. Even species inside federally-protected areas, including Rocky Mountain National Park, are disappearing. "Even in what we consider pristine areas, we are seeing amphibian decline," said Fort Collins, CO-based USGS biologist Erin Muths, who helped conduct the study. "If anything is doing poorly in an area we think is protected, that says something about our level of protection and about what may be happening outside those areas."

The USGS team determined that amphibians already listed as threatened by the *International Union for Conservation of Nature* (IUCN) are vanishing from their habitats at an even faster rate of 11.6 percent a year. At that pace, the threatened species would disappear from half their current habitat in six years. The scientists concluded that "while there was some variation across the U.S., the trend was consistently negative" and that "declines are occurring on lands managed by federal agencies with the greatest observed rate of decline on National Park Service lands." USGS Director Suzette Kimball issued a statement saying these findings show "that the pressures amphibians now face exceed the ability of many of these survivors to cope." Although the USGS study did not address the causes for decline, it gives the best national estimate of the rate at which frogs, toads and salamanders are disappearing. As early as the 1980s, scientists began recognizing that this was happening, and in 2004, a global IUCN assessment found that nearly a third of amphibian species worldwide were declining. That assessment attributed the declines to habitat loss, diseases, invasive species,

pollution and climate change.

Amphibians play an ecological role that includes pest-control and serving as prey for snakes, birds and fish. Establishing a rate of decline is expected to give scientists a basis for measuring populations. "Amphibians are going, but a lot of other species are going, too. Snakes are declining. Mammals are declining. We're seeing bird declines. Amphibians are probably declining at a faster rate than other groups, and they may be a little more sensitive," said USGS zoologist Stephen Corn, one of the authors of the study. Amphibians "are a good example of the collapse of the world's ecosystems that we seem to be seeing right now," he said. "We're seeing a lot of species in a lot of places declining at the same time."

Sources: Bruce Finley, *Denver Post*, 5/22/13; and *Greenwire*, 5/23/13 BACK TO TOP

U.S. Aquifers Dropping at an Unprecedented Rate

Water levels in U.S. aquifers between 2000 and 2008 dropped at a rate that was almost three times as great as any time during the 20th century, U.S. Geological Survey (USGS) officials said in late May. The accelerated decline is due to a combination of factors, most of them linked to rising populations in the U.S., according to Leonard Konikow, a USGS research hydrologist. The big rise in water use started in 1950, at the time of an economic boom and the spread of U.S. suburbs. However, the steep increase in water use and the drop in groundwater levels that followed World War II were eclipsed by the changes during the first years of the 21st century, the USGS study showed. As consumers, farms and industry used more water starting in 2000, aquifers were also affected by climate changes, with less rain and snow filtering underground to replenish what was being pumped out, Konikow said.

The USGS study looked at 40 different aquifers from 1900 through 2008 and found that the historical average of groundwater depletion – the amount the underground reservoirs lost each year – was 7.5 million acre-feet. From 2000 to 2008, the average was 20.2 million acre-feet a year. One of the best-known aquifers, the High Plains Aquifer, also known as the Oglala Aquifer, had the highest levels of groundwater depletion starting in the 1960s. That area has been hit hard by drought in recent years.

According to another paper published in mid-June in the journal *Science*, the recent drought has left a swath of regions across the southern half of the U.S., stretching from West Virginia to California, with significant groundwater depletion since 2003. Scientists and observers of groundwater can see this nationwide change in part because of a satellite program called the NASA *Gravity Recovery and Climate Experiment* (GRACE), a technology that is able to measure the changes in water underneath the surface of the land. The paper authored by Jay Famiglietti, director of the *UC Center for Hydrologic Modeling* at the University of California, Irvine, and Matthew Rodell, chief of the *Hydrological Sciences Laboratory* at the NASA Goddard Space Flight Center called for continued investment in the GRACE program to improve management of groundwater resources in the U.S. and worldwide. "[There is a] very dire situation that we face right now in the United States that, frankly, I don't think many people recognize," Famiglietti said. "I'm talking about the very rapid rates of groundwater depletion."

Ogallala Aquifer - USGS Image

But even in the face of these groundwater depletions, farm subsidies aimed at helping farmers purchase more efficient irrigation equipment are resulting in higher water use, researchers have found. New studies suggest the irrigation systems purchased through the Agriculture Department's Environmental Quality Incentives Program are depleting groundwater instead of conserving it. University of California, Davis, researchers conducted a study this year that found farmers in Kansas were using their water savings to expand irrigation or grow water-intensive crops. A 2008 study by New Mexico State University yielded the same results.

While aquifers do recharge over time that recharge is going to be minimal. Virginia McGuire, another USGS research hydrologist said, "You pump that water out, and with recharge at about an inch a year, it'd be a heck of a long time before you get it back." Agriculture claims 96 percent of the water taken from the country's aquifers, but managing that use can be tricky, McGuire said. Among the High Plains states, only Kansas mandates that its farmers meter their water use, she said. For the rest, water managers have to assemble a massive amount of indirect data – from the power usage of water pumps to test wells to meteorological data – to try to estimate how much water is being used in a given year.

"You see different approaches to monitoring and controlling water use as you look across the High Plains," she said. "In Kansas, you

have water metering; in Oklahoma, it's referred to as 'mining for water,' and the state has the ability to regulate the amount of water pumped." Texas, however, stands out for its relative lack of regulation. "The rule of capture has existed here since the 1940s," said Janie Hopkins, manager of the groundwater division for the *Texas Water Development Board*. "Essentially, the biggest straw wins." But the recent declines have shocked many districts into reconsidering their options, she said. And as they do so, they're realizing that a managed decline might be their only feasible course forward. "They've gone ahead with, 'We're going to deplete our resource.' That's an assumption in the regional water plans," she said. "What they're trying to do now is manage that depletion in such a way that they can adapt to it."

Depletion of groundwater can cause land to subside, cut yields from existing wells, and diminish the flow of water from springs and streams. Along with agriculture, the energy industry, including oil and coal extraction, is a big aquifer water user in the U.S. But because it costs more to pump water from lower levels in an aquifer, some farmers may give up, or irrigate fewer fields, Konikow said. Another problem with low water levels underground is that water quality can deteriorate, ultimately becoming too salty to use for irrigation. "That's a real limit on water," Konikow said. "You could always say that if we have enough money, you build a desalination plant and solve the problem, but that really is expensive."

Sources: Deborah Zabarenko, *Reuters*, 5/20/13; Ron Nixon, *New York Times*, 6/6/13; Nathanael Massey, *ClimateWire*, 5/30/13; Stephanie Paige Ogburn, *ClimateWire*, 6/17/13; and *Greenwire* 5/21, 6/7/13 BACK TO TOP

Freshwater Crisis on the Horizon?

According to water scientists, unless we change our ways, we are less than two generations away from a severe self-inflicted freshwater crisis. More than 350 top water scientists from around the world met in late May at the *Water in the Anthropocene* conference in Bonn, Germany, to discuss the current state of the global water system and its changes, mainly due to man's influence. Their conclusions were far from optimistic. "Fresh water systems across the planet are in a precarious state. Mismanagement, overuse and climate change pose long-term threats to human well-being," scientists wrote in a declaration at the end of the conference. Water is limited, and only 2.5 percent of total water in the planet qualifies as fresh water – 70 percent of which is locked up in ice and snow. Yet demand for the resource is continuously increasing.

According to the joint statement, small, local human actions – such as applying large quantities of nitrogen that leaks from soil into groundwater and surface water or diverting big amounts of already scarce fresh water to harness fossil energy – have added up. The uses reverberate into larger regional, continental and global changes, drastically changing water flows and storage and resulting in impaired water quality and damaged aquatic ecosystems. "Humans typically achieve water security through short-term and often costly engineering solutions, which can create long-lived impacts on social-ecological systems," the declaration says. For there to be any hope of a water-stocked future, governments and society in general need to act now, scientists said.

"We need a definite, clear change in thinking in science, in policy, in professional communities when we want to really deal with the challenges," *Global Water System Project* co-chairwoman Claudia Pahl-Wostl said at the conference. The problem is well mapped out and the evidence is clear, Pahl-Wostl added. But so far, little is happening in terms of coming up with solutions. "We need to move from problem identification to the co-design of evidence-based solutions," she said. This, she said, will not be an easy task. Scientists and policy makers face two major challenges ahead: historically established human behavior in terms of water use – or misuse – and devising a new regulatory framework for proper water resource management. With water allocation, for example, the typical response when dealing with water scarcity is to increase the efficiency of irrigation systems or divert water from other locations, she said, responses still prevalent in most parts of the world.

In the last few years, however, scientists and policy makers have begun to question the sustainability of old water management practices, arguing in favor of treating water as the limited resource it is. Now, the task is to move from conversation to action, scientists said. In the declaration, the scientists urge scientists, public stakeholders, decision makers and the private sector to develop a broad, community-consensus blueprint for a reality-based water action agenda. Among their recommendations are to improve our knowledge of water science and the complex, interlinked nature of the global water system; expand water data monitoring; consider ecosystem-based alternatives to costly structural solutions for climate-proofing; stimulate innovation; and design effective green growth strategies and policies. But mainly, the declaration encourages the inclusion of water security as a key issue in the agenda of the *2015 U.N. Sustainable Development Goals*. "We are truly in a biosphere shaped by humanity," *Stockholm Resilience Center* Executive Director and scientist Johan Rockström said at the conference. "Therefore, we are in the driving seat of change."

Source: Ines Perez, *ClimateWire*, 5/29/13 BACK TO TOP

U.S. Stream Health Reduced by Streamflow Modifications and Contaminants

A new U.S. Geological Survey (USGS) report describes how the health of the nation's streams is being degraded by streamflow modifications and elevated levels of nutrients and pesticides. According to USGS officials, the national assessment of stream health was unprecedented in the breadth of the measurements – including assessments of multiple biological communities as well as streamflow modifications and measurements of over 100 chemical constituents in water and streambed sediments. "Healthy streams are an essential part of our natural heritage. They are important to everyone – not only for recreation and for public water supply and public health, but also for economic growth," said USGS acting Director Suzette Kimball. "A broad understanding of the complex factors that affect stream health across the Nation will aid us in making efficient, long term decisions that support healthy streams."

To assess the ecological health of streams, USGS scientists examined the relationship of the condition of three biological communities (algae, macroinvertebrates, and fish) to human-made changes in streamflow characteristics and water quality. The ability of a stream to support these biological communities is a direct measure of stream health. Researchers found that stream health was reduced at the vast majority of streams assessed in agricultural and urban areas. In these areas, at least one of the three aquatic communities was altered at 83 percent of the streams assessed. In contrast, nearly one in five streams in agricultural and urban areas was in relatively good health, signaling that it is possible to maintain stream health in watersheds with substantial land and water-use development.

"Understanding the interacting factors that impact multiple aquatic communities is essential to developing effective stream restoration strategies," said Daren Carlisle, USGS ecologist and lead study scientist. Streamflow modification is a critical factor in stream health because the life cycles of many native fish species are synchronized with – and therefore dependent upon – the timing and variation in natural streamflow patterns. Annual low and high streamflows were modified in 86 percent of the streams assessed. Over 70,000 dams and diversions contribute to modified streamflows across the Nation. Flood control structures in the East and groundwater withdrawals for irrigation and drinking water in the arid West also contribute to streamflow modification.

Biological alteration associated with elevated nutrient concentrations was most pronounced for algal communities. The occurrence of altered algal communities increased by as much as 40 percent above baseline in streams with elevated nitrogen and phosphorus concentrations. Macroinvertebrate communities were altered by as much as 40 percent above baseline conditions in streams with elevated pesticide toxicity. Although concentrations of insecticide mixtures, such as chlorpyrifos, carbaryl, and diazinon, in streams are highly variable seasonally and from year to year, they can reach levels that are harmful to aquatic life, particularly in agricultural and urban streams.

Highlights and major findings and implications of the study follow:

• The presence of healthy streams in watersheds with substantial human influence indicates that it is possible to maintain and restore healthy stream ecosystems. Such streams can also offer insights into how stream health can be maintained amid anticipated changes in land use or restored when stream health has deteriorated as a result of human actions.

• Assessments that are limited to a single biological community are likely to underestimate the effects of land and water use on stream health. Assessments of multiple biological communities increase our ability to detect streams with diminished health and provide a more complete understanding of how land and water use influence stream health.

• Water quality is not independent of water quantity because flows are a fundamental part of stream health. Because flows are modified in so many streams and rivers, there are many opportunities to enhance stream health with targeted adjustments to flow management.

• Efforts to understand the causes of reduced stream health should consider the possible effects of nutrients and pesticides, in addition to modified flows, particularly in agricultural and urban settings.

• Stream health is often reduced due to multiple physical and chemical factors. Assessments and restoration efforts should therefore take a multifactor approach, wherein a number of factors – and their possible interactions – are considered. Understanding how these multiple factors influence biological communities is essential in developing effective management strategies aimed at restoring stream health.

The full report, *Ecological Health in the Nation's Streams*, 1993-2005 (USGS Circular 1391, 132 pp.) is available online at: http://pubs.usgs.gov/circ/1391/.

Source: *USGS Press Release*, 7/12/13 BACK TO TOP

New Research Can ID Pollution Sources in Appalachian Waters

Chemicals found in waters affected by mountaintop-removal coal mining sites are distinct from those found upstream according to a new Duke University study. Duke's Nicholas School of the Environment researchers say their findings help distinguish naturally occurring materials from pollution from mountaintop-removal mining or other activities. Avner Vengosh, Duke geochemistry and water quality professor said they can distinguish if contaminants are coming from natural sources, fracking and shale gas development, coal mining, coal ash disposal, or other causes. Another Vengosh study released last year found links between coal ash dumps in North Carolina and water pollution. His research has also dismissed links between hydraulic fracturing and waterway contamination.

For the latest study – published online in August in the peer-reviewed journal *Environmental Science and Technology* – Vengosh and his co-authors studied the chemical signatures of water samples collected in 2010 from the Mud River and its tributaries in southern West Virginia. They examined isotopic compositions of sulfur in sulfate, carbon in dissolved inorganic carbon, and strontium. Isotopes are defined as variations of one same chemical element. An element may have the same number of protons but a different number of neutrons.

"Essentially, we found that these elements have unique isotopic fingerprints, meaning we can use them as diagnostic tools to quantify mountaintop mining's relative contribution to contamination in a watershed," Vengosh said. The result, the researchers wrote, was that isotopic compositions connected to the three chemical elements "measured in saline and selenium rich mountaintop-removal coal mining impacted tributaries are distinguishable from those of the surface water upstream of mining impacts….These traces can therefore be used to delineate and quantify the impact of mountaintop-removal coal mining in watersheds." Mountaintop-removal mining involves removing the surface to reach coal seams below. Waste rock and other material, or overburden, is often dumped in nearby "valley fills." Selenium, often found nearby, can be harmful to aquatic life.

Vengosh and his co-authors also conducted leaching experiments with powder-crushed samples of rocks collected from core drilling at the Hobet 21 mine. They recovered coal and non coal rocks from the *Pennsylvanian*, *Allegheny* and *Kanawha* formations. The scholars were able to determine the chemistry of the different formations that end up in fills and identify a difference in the chemical signature of elements found in streams flowing from reclaimed mine sites compared with active mine sites. "This helps us further pinpoint the source of contamination by linking it directly to the type of rocks in the valley fills," Vengosh said.

The paper is part of the scientific community's attempt to better assess the impact of mountaintop-removal mining amid ongoing political debate over its future. Environmental advocates are engaged in a fierce disagreement with mining companies and some regulators over the impact of the practice and the harm elements like selenium can cause to aquatic life.

Source: Manuel Quinones, *Greenwire*, 8/16/13 BACK TO TOP

New Mexico Irrigation District Votes to Assists Restoration Projects

An irrigation district in southern New Mexico has agreed to let farmers sell some of their water rights to help restore habitat on the Rio Grande. The *Elephant Butte Irrigation District* board voted in June to allow such transfers, clearing the way for sales of some water for restoration projects downstream. The transfer deal, crafted in collaboration with *Audubon New Mexico*, is intended to bring much-needed water to native vegetation planted in a restoration effort approved several years ago by the U.S. section of the *International Boundary and Water Commission* (IBWC), a binational organization charged with implementing and enforcing boundary and water treaties between the U.S. and Mexico.

The project aims to restore cottonwoods, willows and other native vegetation on about 500 acres at 30 sites along a 100-mile stretch of the Rio Grande between Percha Dam and the New Mexico-Texas border. "When you get into the southern portion of New Mexico, this is the only perennial river and just plays an incredible role in sustaining birds and wildlife," said Beth Bardwell, director of freshwater conservation for *Audubon New Mexico*, which will help the commission carry out the program along with the *National Fish and Wildlife Foundation*. "When that goes, we lose the biodiversity down there, and I don't think anybody wants to see that." "Restoring native habitat along the Rio Grande will require some water and this program is a voluntary, market-based program to meet that need in a way that protects farmers and benefits the environment," Edward Drusina, commissioner of the U.S. section of the IBWC, said in a statement.

Under the deal, IBWC will acquire water rights at fair market value from willing sellers. Such transfers can be particularly appealing to farmers during a drought, when delivery cutbacks from irrigation districts can force farmers to grow less crops. Signing up to transfer some or all water rights in a dry year can help replace some of that lost income, irrigators say. *Audubon* has received inquiries from a couple of potential sellers and hopes to have at least one deal finalized by the end of September, Bardwell said. The organization waited to start putting water transaction deals together until the irrigation district formally approved the program, she added.

"I think there's a lot of good will we can tap to restore our rivers," she said. "There's a long way to go, but I think we can find that common ground." It's the driest three-year period on record in many parts of New Mexico, however, and it's unclear how much actual water will be available to support the project. According to the Bureau of Reclamation, the current elevation at Elephant Butte Reservoir is 4,136 feet, and three of the lake's four boat ramps are closed. "Down here in southern New Mexico on the Rio Grande," Bardwell said, "it's not clear to me that there will be water next year. There's very little in storage, and no one's quite sure what the monsoon season will be."

Source: April Reese, *Greenwire*, 7/9/13 BACK TO TOP

Supreme Court Rules for OK over TX in Interstate Water War

The Supreme Court in mid-June ruled that Texas has no right to Oklahoma's water under a 1980 interstate compact in a case seen as having broad implications in the arid western U.S. Justices unanimously held in *Tarrant Regional Water District v. Herrmann* that Oklahoma laws effectively limiting the ability of an out-of-state entity to tap its resources are not pre-empted by the *Red River Compact*. The *Tarrant Regional Water District* (TRWD), which provides water to the rapidly growing Fort Worth, TX, area, argued that the compact, which was ratified by Congress, gave it access to 25 percent of the water in one of the river's sub-basins regardless of state lines. The Red River flows from New Mexico across the Oklahoma-Texas line, into Arkansas and through Louisiana. The case has been closely watched for potential impacts on nearly 30 interstate compacts that govern increasingly precious water resources.

Justice Sonia Sotomayor, writing for the court, said that although the language of the compact is ambiguous, there are three pivotal reasons to conclude that drafters of the compact didn't intend for water withdrawals across state lines. First, she wrote, states rarely cede their sovereign authority to natural resources. "Adopting *Tarrant's* reading would necessarily entail assuming that Oklahoma and three other States silently surrendered substantial control over the water within their borders when they agreed to the *Compact*," Sotomayor wrote.

Confluence of the Kiamichi and Red rivers - Jeremy J. Jacobs, Greenwire Photo

Second, other interstate compacts offer clear, unambiguous language for when a state may take water from a neighbor, she wrote. "Tellingly, many of these compacts provide for the terms and mechanics of how such cross-border relationships will operate, including who can assert such cross-border rights," Sotomayor wrote. "Put plainly, the end result would be a jurisdictional and administrative quagmire," she added. "The provisions in the other interstate water compacts resolve these complications. The absence of comparable provisions in the *Red River Compact* strongly suggests that cross border rights were never intended to be part of the States' agreement."

And third, Sotomayor pointed to the history of the compact. Notably, she said, no state has ever before tried to use Texas' reasoning to take water from another state. Texas was seeking to withdraw about 130 billion gallons of water in Oklahoma's southeast corner, where the Kiamichi River meets the Red River. Texas claimed the compact gave it a right to that water in a provision that says as long as enough water is flowing through to Arkansas, each state has "equal rights" to the resource as long as none takes more than 25 percent of the water in excess of the base line. Texas interpreted that provision to mean that the compact allots 25 percent of the water to each state. The Texas argument said that if it took all the Red River water within its borders for that area, it could only get 17 percent. Texas has been trying to claim that water for more than a decade.

Jim Oliver, the TRWD's general manager, expressed disappointment with the decision, but he said he sees room for negotiations with Oklahoma. "The decision does not address the problem of Oklahoma's lack of water infrastructure, and we believe solutions that benefit both Texas and Oklahoma still exist," he said. "We will continue to explore and advance those opportunities."

Source: Jeremy P. Jacobs, *Greenwire*, 6/13/13 BACK TO TOP

New Hydropower Measures Signed Into Law

President Barack Obama signed H.R. 267, the *Hydropower Regulatory Efficiency Act of 2013*, into law on August 9. The new law modifies the *Public Federal Power Act* and the *Utility Regulatory Policies Act* to promote and facilitate the development of

hydroelectric capacity. Specifically, it increases the small hydro exemption from 5 MW to 10 MW; removes conduit projects under 5 MW from jurisdiction of the Federal Energy Regulatory Commission (FERC); increases conduit exemptions to 40 MW for all projects; provides the FERC the ability to extend preliminary permits; and requires the FERC to examine a two-year licensing process for non-powered dams and closed-loop pumped-storage projects.

These measures could lead to a proliferation of small hydro projects on smaller streams. The legislation received unanimous approval from the U.S. Senate and enjoyed strong bipartisan support in the House.

Source: *HydroWorld.com*, 8/9/13 BACK TO TOP

Draft EIS Released for Controversial Mississippi River Floodway Project

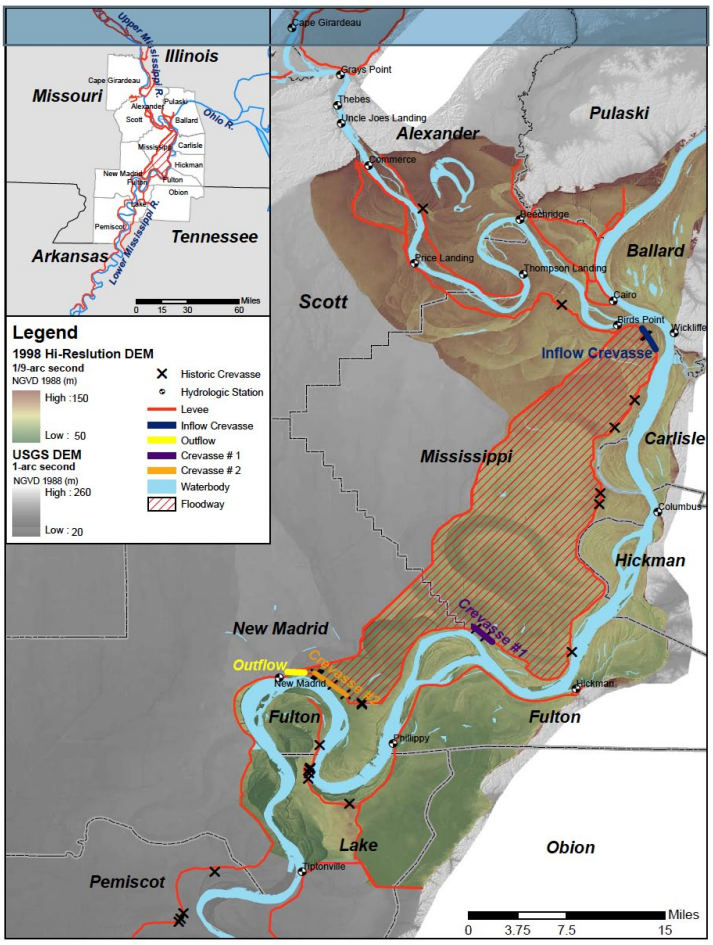
The U.S. Army Corps of Engineers (Corps) released the long-awaited draft environmental impact statement (DEIS) for the St. John's Bayou-New Madrid Floodway project in late July, the same day U.S. EPA Administrator Gina McCarthy was sworn in. Sen. Roy Blunt (R/MO) had placed a hold on McCarthy's nomination over disagreements between the Corps, EPA and the U.S. Fish and Wildlife Service (USFWS) about the $165 million project's impact and the Corps' plan for mitigating the damage. McCarthy's nomination was approved 59-40 later that day with Blunt voting "no" and Missouri Democratic Sen. Claire McCaskill approving the nomination.

The flood control project, aimed at protecting small communities and a large swath of productive agricultural land, would cut the river off from the only area in Missouri where it has significant access to its natural floodplain. That connection is critical for wildlife, as well as for water filtration and floodwater storage, resource agencies say. "The project would essentially eliminate a unique landscape and ecological feature in southeast Missouri and result in loss of thousands of acres of wetlands and their connection to the Mississippi River that cannot be adequately mitigated," the USFWS said in its "Coordination Act Report." The USFWS opposed the approach tentatively selected by the Corps.

The project was initially proposed in the 1950s and has been staunchly opposed by environmentalists. Opponents thought they had killed it for good in 2007 when a federal judge ruled that the Corps' plan would not do enough to offset environmental damage. But the Corps received funding from Congress to try again. The new DEIS is based on "more accurate environmental methodologies, analyses and results," the Corps said. But environmental groups say the original problems still stand.

In the accompanying map, the New Madrid Floodway is shaded in red. The levees that surround the floodway, also shown in red, are 60 feet high and totally surround the New Madrid Floodway, except for a quarter-mile gap at New Madrid. This quarter mile gap is the yellow "Outflow" line on the map. The most controversial element of the St. Johns Bayou New Madrid Floodway Project is a new proposed levee, known as the New Madrid Levee, to close that quarter-mile gap. Closing this gap with the proposed New Madrid Levee will increase the flooding threats to a dozen riverside towns by encouraging more agribusiness and development in the New Madrid Floodway, thereby discouraging its use. Throughout history, the Corps has faced significant opposition from people owning land inside of the levee (i.e. in the floodway) and the associated political obstacles when it has tried to activate the floodway during major flooding. The new levee will only add to that problem.

To activate the New Madrid Floodway, the Corps fills in pre-drilled holes in the existing levees with explosives and literally explodes the levee at Birds Point, just south of Cairo, IL. The water flowing into the floodway then relieves pressure on the entire flood control system, and reduces flood heights regionally in Cairo and other nearby towns.



St. John's Bayou - New Madrid Floodway - EcoWatch.com Map.

In 1937, the first time the Corps used the floodway, it had to call in the National Guard to fend off armed Missouri floodway farmers, even though the federal government has compensated floodway landowners by purchasing flowage easement to flood their farmland. In 1983, when the Corps was preparing to use the floodway, Missouri floodway farmers sued and the judge issued an order preventing the Corps from using the floodway until April of the following year. Fortunately floodway activation levels were never reached. But during the great Mississippi River Flood of 2011, activation levels were reached, then surpassed before the Corps activated the floodway. While Cairo and other towns that were under mandatory evacuation orders saw flood heights start rapidly lowering, the Len Small Levee protecting the City of Olive Branch breached before the Corps activated the floodway, destroying 50 homes and causing millions of dollars in damages.

Cairo, IL, Paducah, KY, and Sikeston, MO, are some of the towns that will face greater flooding risks if the Corps builds the New Madrid Levee. According to the Corps' *2006 Environmental Analysis*, "Non-operation of the floodway during project flood conditions means that many citizens outside the floodway would not be provided the level of flood protection that they are authorized to have by law." The Corps models show higher river stages as far as 40 miles up the Ohio and Mississippi Rivers, with those towns experiencing "overtopping of floodwalls and/or levees and flooding." Hickman, KY, will see an additional 3.9 feet; Cairo an additional 4.6 feet and Paducah, KY, an additional 1.8 feet of flooding.

"There is no reason to spend millions of taxpayer dollars to prevent a floodway from flooding," George Sorvalis, water campaign manager for the *National Wildlife Federation*, said in a statement. "This project would sever the last remaining connection the Mississippi River has to its floodplain in Missouri, devastating fish and wildlife populations. The Obama administration needs to put this boondoggle to rest once and for all." Under the Clean Water Act, EPA has the authority to veto the project if the agency deems it to have an "unacceptable adverse effect" on fisheries, wildlife, water supplies, recreational areas or shellfish beds. In 2008, the agency vetoed another long-embattled flood control project, the Yazoo Pumps project in Mississippi, because of wetlands impacts.

Source: *EcoWatch.com*; and Annie Snider, *Greenwire*, 7/22/13 BACK TO TOP

Corps Chief Suggests U.S. May Need Stronger Levees as the Climate Changes

The commander of the U.S. Army, Corps of Engineers (Corps) said the agency might need to strengthen its levee designs as flooding from higher sea levels and storm surge grows, a move that could overhaul building benchmarks used by the federal government for decades. The Corps currently builds national infrastructure to withstand a 100-year storm, or a storm that has a 1 percent chance of occurring in a given year, but that standard has been criticized for being too low and for encouraging development behind flood walls that might fail during a natural disaster. "Well, if you have several 100-year storms in one year, you've got to ask yourself, is that the right metric to be using for insurance and for construction?", Lt. Gen. Thomas Bostick, commanding general of the Corps, said in an interview. "And I think climate change is causing us to ask the question of how do we adapt in both of those areas, if necessary, based on what we're seeing. We haven't made decisions on that."

Bostick's comments align with the assertions of some floodplain managers, environmentalists and engineers who believe the nation is underestimating the risk of disasters as temperatures rise and development expands along shorelines and seacoasts. The 100-year standard looks predominantly at past events to determine the likelihood of future storm damage, though the Corps also analyzes some climate risks like rising seas. The standard, moreover, is a thread that connects the National Flood Insurance Program and the Corps in a relationship that some experts describe as harmful. The flood insurance program uses the metric to establish the lowest level of protection against inundation. The program's building standards for homes and its insurance pricing are based on the 100-year storm. In other words, a home that's located just outside the 100-year flood zone is not required to buy flood insurance, even though it might face substantial risk from water damage.

For decades the Corps has built its levees to the 100-year standard. In other words, levees are being constructed just high enough to remove homes from the 100-year flood zone, said Gerald Galloway, an engineering professor at the University of Maryland, who believes the standard has been "badly misinterpreted" as a benchmark for safe levee construction. "Much to the detriment of the people who are in flood-prone areas, they have been led to believe that having 1 percent level protection magically takes away the threat," Galloway said. "They figure if they live across the street from the [100-year] line, they're safe. Nature doesn't play that way."

David Conrad, a water specialist who tracks national flood policies, said developers have taken advantage of the Corps' construction projects in rural areas. Levees are built to prevent damage to existing homes; outside cities, that often means small levees are designed to protect a small number of homes. But that also makes it attractive to developers, who can build homes behind levees that technically, if not practically, are outside the 100-year floodplain. Buyers don't have to purchase flood insurance and might feel a false sense of being safe from inundation. But those levees weren't designed to protect that much property. "It was kind of a perverse incentive to bring in development behind what we now realize were inadequate levees," Conrad said.

Bostick believes the 100-year standard is sufficient, at least for now. "I'd say it depends on the area," he said when asked whether

it was strong enough. "In most places, I think given all of the things that we have to consider, which include resources and the location that we expect these storms to occur and the economics of the decision, at this point in time I think it is. But I'd say ... it's something that we all have to consider on whether we need to adapt that as we see climate change is a factor." He pointed to a buffet of policies that can be used to reduce the threat of flooding, like increased restoration of marshy ecosystems and coastal habitat, the use of levees and beach renourishment projects, and efforts to raise homes on pilings. Bostick also suggested that some controversial measures might be needed, like decreased development on barrier islands and along coasts. "Finally, the last thing that might help is to retreat from certain areas," Bostick said. "And I think that's got to be an option going forward, where we just feel we cannot, with all of those other systems, protect human life." He added, "I would say yes, there are areas that probably cannot – the risk cannot be reduced enough for the threats that are going to continue to approach certain areas."

Bostick would not identify areas that he believes should be abandoned, but he highlighted vulnerable barrier islands as places that may require outsized investments for dunes that would protect a handful of people. "I think there are certain barrier islands that people can somewhat safely build homes and be protected based on ... where they're located," he said. "And then there are some that are located in places where it's going to be very, very difficult to provide, or reduce the risk enough that their safety would not be in jeopardy. Again, it's hard to make broad statements, but I do believe there are places where you really don't want to have population growth or population you may even want to reduce. But that's a local decision based on the climate and environment in that particular part of the country."

The Corps has spent $14.5 billion on levees and floodgates in New Orleans since Hurricane Katrina inundated portions of the city in 2005. Although the project beefed up its designs to withstand stronger storms in the future, some of the levees could be overtopped if an event surpasses the 100-year estimate. It's designed that way – to let water, sometimes up to 5 feet of it, spill across the levee rather than destroy it. Edward Thomas, a longtime official with the Federal Emergency Management Agency who's now president of the *Natural Hazard Mitigation Association*, applauded the Corps' New Orleans project as a lesson in resiliency. But he indicated that it's a rare example out of thousands of other levees that don't make the grade. He noted that the Netherlands builds levees to a 1,200-year standard in agricultural areas and to a 10,000-year standard in cities. The United States should increase its standard tenfold, at least, he said. "A levee that's built to a 1 percent standard does not meet engineering standards of the civilized world," Thomas said.

Source: Evan Lehmann, *ClimateWire*, 6/18/13 BACK TO TOP

Conservation Measures Boost Yields in Drought-stricken Areas

Farmers who planted cover crops between growing seasons last year saw corn yields increase an average of 9.6 percent compared to farmers who did not plant cover crops, U.S. Departyment of Agriculture (USDA) officials said. Farmers also saw soybean yields increase an average of 11.6 percent with the planting of cover crops. "Cover crops are among today's exciting frontiers in conservation," the Sustainable Agriculture Research and Education Program said of the survey, which was completed in June. "The survey demonstrates conclusively that users saw yield benefits from their cover crops."

Cover crops such as winter cereal grains and annual grasses have been grown for generations but have become popular in the past five years. They are typically planted over the winter on lands used for corn and soybeans to improve soil structure and choke out weeds. Agriculture Secretary Tom Vilsack has made boosting multi-cropping a key component of a new USDA climate initiative, because of its ability to trap carbon from the atmosphere. But the survey also showed that cover crops boost farmers' livelihoods in dry years by helping to retain moisture in the soil.

Farms with cover crops last year yielded an average of 126.2 bushels of corn per acre, compared to 115.1 bushels per acre on farms without the crops. In IL, IN, IA, KS, MO, NE and SD – the states most affected by the drought – cover crop farms saw their yield boosted on average by 11.3 bushels per acre, or about 11 percent. Soybean yields increased by more than 14 percent. While there was significant farm-to-farm variability in the yield impacts of cover crops," USDA said, "the clear trend is that growers enjoyed better corn yields after cover crops." Planting the crops over the winter before the drought helped the soil retain moisture by shading the soil's surface and building up organic matter, said Rob Myers, an agronomist at the University of Missouri and the regional director of extension programs for the North-Central Region of USDA's Sustainable Agriculture Research and Education Program. "It is especially noteworthy how significant the yield benefits for cover crops were in an extremely dry year," Myers said.

The Sustainable Agriculture Research and Education Program and the public-private organization *Conservation Technology Information Center* conducted the survey of 759 farmers over the past winter and spring. The department found that cover crop planting among survey respondents has doubled since 2011 and estimated that nationwide farmers planted between 1.5 million to 2.0 million acres of cover crops in 2012. Despite the increases in recent years, farmers say there are still several challenges to planting cover crops. According to the survey, farmers had trouble dealing with the increased time, labor and management needed to establish fields of cover crops. The costs of seeds and planting, concerns about cover crops using up too much moisture in the soil and a lack of available seed also posed barriers.

Planting cover crops between growing seasons significantly reduces soil erosion, sediment and pollution runoff to streams, rivers and lakes significantly benefitting our natural aquatic ecosystems.

Source: Amanda Peterka, *Greenwire*, 7/9/13 BACK TO TOP

Heavy Spring Rains Caused Damaging Erosion in Iowa

Heavy rains and poorly protected farmland combined this Spring to cause widespread erosion in Iowa, an environmental watchdog said in a late May report. The rains that rolled across the state May 25-29 washed more topsoil off 1.2 million acres of Iowa farmland in five days than would be considered tolerable for an entire year, the *Environmental Working Group* (EWG) said in a report based on data collected by Iowa State University. Erosion was especially damaging on lands where farmers did not use soil-protecting conservation practices, the group said.

"The storms that pushed streams and rivers out of their banks have battered largely unprotected cropland soils throughout the region, sending tons of mud and farm chemicals into road ditches and streams across the heartland," the report says. Based on an analysis of Iowa State University's *Iowa Daily Erosion Project*, the group said that in 50 townships spanning 1.2 million acres, farmland eroded on average more than 5 tons per acre during the five-day rains. In 15 of those townships, average erosion was between 7.5 and 13 tons per acre. Vulnerable and poorly protected lands suffered worse, in some cases losing up to 40 tons per acre of topsoil. The Department of Agriculture's Natural Resources Conservation Service considers 5 tons per acre of erosion "tolerable" for the entire year.

Despite the high erosion levels, the EWG said that its estimates were likely conservative because the numbers from Iowa State University don't take into account "gully erosion." During a driving tour of Iowa immediately after the storms, EWG staffers recorded gullies carved into the lands at the lowest parts of fields. The gullies, they said, created networks of channels that led into local waterways. "This gully erosion is the most visible and most damaging form of soil erosion because it creates a direct pipeline carrying mud and farm chemicals into ditches, streams and, in some cases, into runoff," EWG wrote.

While farmers can't prevent Mother Nature from dumping water on their lands, in general, erosion was greatly diminished where it was apparent that farmers had put in place conservation practices such as grassed waterways, terraces and buffers, EWG said. "Well-protected fields suffered little damage even where poorly protected fields just down or across the road had suffered badly," the report says. EWG is urging Congress to require farmers to establish basic conservation measures to receive federal subsidies for crop insurance premiums.

In recent years, as Midwestern farms have been consolidated into larger and larger units they have become more like large corporations than family farms. At the same time, farm machinery has gotten larger and larger, making it increasingly difficult for operators to maneuver the machinery in a way in which conservation practices such as contour farming can be used to reduce erosion. As a result, more and more farmers are planting row crops straight up and down the hills rather than along the contour of the hills. Planting up and down the hills creates channels for water to run straight down the hills carrying increased amounts of soils and chemicals straight into nearby streams and lakes.

Source: Amanda Peterka, *Greenwire*, 7/11/13 BACK TO TOP

EPA Releases Stormwater Runoff Calculator

The U.S. EPA in late July launched an electronic tool to help property owners calculate the amount of stormwater runoff produced at a specific site and test changes that could help stanch the flow. The *National Stormwater Calculator* is part of what the Obama administration is calling a "virtual climate resilience toolkit" being developed as part of the President's climate plan. The calculator is a desktop application that looks at local soil conditions, slope, land cover and historical rainfall records in calculating stormwater runoff at any U.S. location. Users can experiment with how specific changes, such as the addition of rain barrels or green roofs, could reduce runoff.

"EPA's research is providing innovative solutions to protect our nation's water resources," Lek Kadeli, principal deputy assistant administrator for EPA's Office of Research and Development, said in a statement. "The *Stormwater Calculator* demonstrates different types of green infrastructure approaches which can result in protection from flooding, energy savings, improved air quality, increased property values, healthier communities, and cost savings for the American people." Stormwater runoff is a major source of water pollution flowing into U.S. waterways.

Expanding urban and suburban areas have covered the fields and forests that used to soak up rainwater with impervious pavement.

Water picks up dirt and chemicals as it flows over these hard surfaces before emptying into waterways. The increased runoff can also overwhelm sewer systems, leading to overflows that dump billions of gallons of raw sewage and trash into waterways each year. Climate change is predicted to lead to more extreme storms, worsening the problem. The *National Stormwater Calculator* is currently in the final stages of review and will be available on EPA's "Models, Databases and Tools for Water Resource Protection" website when finished. EPA is also working on a stormwater rule that is expected to set the first-ever national requirements for private property owners to curb stormwater runoff from their land. The proposed rule was required under a legal settlement with an environmental group in 2010, and is now years overdue.

Source: Annie Snider, *Greenwire*, 7/24/13 BACK TO TOP

National Blueways Program Put on Hold

The White River watershed was withdrawn from the *National Blueways Program* by the U.S. Department of the Interior in early July. The river was one of only two waterways to have so far been designated under the voluntary initiative launched by Interior Secretarial Order in May 2012. Interior Department spokeswoman Jessica Kershaw said the White River was withdrawn from the program after recent requests from local and state stakeholders. Arkansas and Missouri lawmakers and residents were miffed that they had not been consulted about the program prior to the designation, and recent meetings on the initiative reportedly drew standing-room-only crowds. "While this is a great honor for the State of Arkansas, the conflicts and controversy surrounding the designation are such that we must respectfully request that you remove the *National Blueway* designation from the White River," the directors of the Arkansas Game and Fish Commission, Arkansas Waterways Commission, Arkansas Natural Resources Commission, Arkansas Forestry Commission, Arkansas Natural Heritage Commission, and Arkansas Department of Parks and Tourism wrote to Interior Secretary Sally Jewell late in June.

Western Republicans have been particularly concerned about the program after an Interior official said late last year that the Yellowstone River could make a good candidate for the program. Lawmakers elicited support from Interior Secretary Ken Salazar before he stepped down earlier this year that he obtain a promise of state support before designating any additional watersheds in the program. "This withdrawal was appropriate and necessary given the strong local objections to the *Blueways* designation on the White River," said Rep. Cynthia Lummis (R/WY), who signed a February letter to the department demanding an end to the program. "But this withdrawal doesn't fix the fundamental flaws of the *National Blueways* secretarial order. It is no secret that Interior has tried to foist the same designation on the Yellowstone River by administrative fiat and over objections by Wyoming citizens and local elected officials."

Then on July 17, Interior Secretary Sally Jewell placed a pause on the entire *National Blueway* program just hours before a hearing on the issue commenced in the House Natural Resources Subcommittee on Water and Power (NRSWP). No new blueway designation will occur "until we figure out the future of the program," Jewell said. The order, signed in early 2012 by then Secretary Salazar, intended to draw national attention to watersheds "conserved through diverse stakeholder partnerships." "It's intended to be a bottoms-up community focus to bring recognition to its rivers," Jewell said, noting that it does not envision any new restrictions. But she said she was "responding to community demands" in ordering the pause.

"The *National Blueways* secretarial order creates new unilateral authority to designate entire watershed as *National Blueways* and impose severe water and land use restrictions," Doc Hastings (R/WA) NRSWP Chairman said in his opening statement on July 17 at the committee hearing on the issue. "The committee has witnessed an alarming pattern of decisions being made either unilaterally without proper input from the people and communities directly impacted," he said. Republicans on the committee had also not hidden their dissatisfaction that the program is led by Rebecca Wodder, the former CEO of *American Rivers*, who was previously nominated to become Interior Assistant Secretary for Fish, Wildlife and Parks. That nomination was later withdrawn amid Republican opposition to her advocacy on hydraulic fracturing, mountaintop coal removal and other issues.

NRSWP witnesses from Arkansas and Missouri said they feared a national designation of the White River in their states could lead to unwanted regulations that could harm the area's tourism and timber industries. They were joined by a property rights attorney from Wyoming and other NRSWP Republicans in opposing the *Blueways* program. While the *Blueways* program explicitly states it is not intended to affect the use of private property or exercise any new regulatory authority, witnesses argued the order has shut out local stakeholders and could pave the way to future federal red tape. "The fact that the Department of Interior can impose these designations without having to get the approval of Congress proves it is arbitrary, as well as the reality that the power they are allowed to wield is unlimited," said Eddy Justice, a witness who owns an insurance company in Butler County in southeast Missouri. He said new regulations associated with *Missouri's Ozark National Scenic Riverway* – including restrictions on boating access and buffers for cattle – are "a good indication of what could possibly happen" with a *Blueways* designation. The *Ozark National Scenic Riverway*, which is administered by the National Park Service, imposed "harsh restrictions on access to the Current River and strict guidelines for use of the river while attempting to impose it without the input of the local residents," he said.

But a fourth witness, Sutton Bacon, who runs an outdoor recreation company that offers river trips in the Nantahala National Forest in North Carolina, said he would welcome a *National Blueways* designation, which he said would bring more recognition to his region's outdoor amenities. "We are precisely the kind of community and diverse, willing stakeholder group that could benefit from future federal recognition programs such as the *National Blueways*," said Bacon, who is CEO of *Nantahala Outdoor Center*. "We would absolutely in our region cherish the recognition of the blue ribbon and especially the brown [Department of Transportation] highway sign we could put on our interstate."

Democrats on the panel repeatedly pressed critics to name any new regulations or personal harm that had come from *Blueways* designations. "We have heard a lot today about how this program might lead to certain things, might be interpreted certain ways, could have certain effects that could lead to other effects," said Rep. Jared Huffman (D/CA). "I'd like to try to dial this back in to what has actually occurred thus far in the real world." Huffman asked witnesses whether any outside special interest groups had nominated a watershed that was designated as a *Blueway*, whether such a designation had ever pre-empted local planning efforts or resulted in new regulation, whether a designation had ever caused anyone to lose property or water rights or precluded the construction of a building, or whether such a designation had ever impeded recreation. All those questions were met by silence. "It's kind of interesting that we've had what is an entirely hypothetical discussion here today about a program that, frankly, has been paused even though it has not had any of the effects that people have raised as concerns," Huffman said.

Sources: Annie Snider, *Greenwire*, 7/5/13; Phil Taylor, *Greenwire*, 7/17/13; and Phil Taylor, *E&E Daily*, 7/18/13 BACK TO TOP

Climate Change is Making Poison Ivy Bigger and Badder

Rising atmospheric levels of carbon dioxide (CO_2) and higher temperatures occurring with climate change are causing poison ivy to grow bigger and meaner. Lewis H. Ziska, a research weed ecologist with the U.S. Department of Agriculture, said laboratory and field studies show that poison ivy is advancing with climate change. Pie-pan sized leaves now are common, and poison ivy is choking trees and filling the edges of woodlands. That trend will continue as CO_2 levels keep rising from the current average level of about 400 ppm to 560 ppm or higher in the next 30 to 50 years, with predicted levels reaching 800 ppm by century's end, he said.

A lacquer-like oil called urushiol contained in poison ivy is what causes the itching and rash when transferred to human skin. "The chemistry of the oil itself changes in such a way that it more likely will produce a rash when you come in contact with it," Ziska said. "In the last 50 years, the growth rate of the poison ivy plant already has doubled, increasing the risk of being exposed to urushiol." Poison ivy's growth and potency could double again once CO_2 levels reach the 560 ppm mark, Ziska said. Enough urushiol to fit on the head of a pin can cause misery for 500 people. Even a billionth of a gram of urushiol on the skin is said to cause agony.

Jacqueline Mohan, an assistant professor of biology at the University of Georgia, participated in the study in which Mr. Ziska and Duke University researchers in 2006 exposed poison ivy to CO_2 levels expected to exist within 100 years, proving that the troublesome ivy will thrive and become more potent with climate change. "Poison ivy and vines in general really, really benefit from higher atmospheric CO_2," she said. "Vines use the infrastructure of trees, which means they can use carbohydrates generated from photosynthesis to make bigger, greener leaves." In her study of forests, she said poison ivy and other vines, including invasive kudzu can flourish by wrapping around trees and hindering tree growth while the vines take control. Citing other studies, Ms. Mohan said surveys of forest plants in South Carolina showed poison ivy to be one of only a few plants to be increasing in abundance in coastal plain forests. "It's getting happier and nastier," she said. Even after the poison ivy plant is dead, or after the urushiol is deposited on a surface, it can remain active for five years, and in some cases, decades.

After working its way under the skin, urushiol is oxidized by an enzyme that allows it to attach to skin proteins. The oil spreads to cause the rash. Up to 70 percent of people have immune systems that view the modified skin protein as a foreign invader or health threat. The resulting immune response to otherwise harmless urushiol causes the rash, which swells into itchy pimples, which, in turn, can produce large, dome-shaped, orange blisters. Poison ivy can cause five days to six weeks of itchiness. *Tecnu* soap and *Ivy Cleanse* are designed to remove stubborn urushiol before a rash begins. Other products prevent urushiol from reaching the skin. Doctors use steroid treatments to calm the itching. Some dish washing soaps including *Dial Ultra* can be used to remove urushiol from the skin before an allergic reaction occurs. But once it does, a person can only try to calm the itch with *Calamine* lotion, cortisone topical treatments or such treatments as *All Stop* and *Zanfel*. Ice can help tame the rash, too. Very hot water on the skin can relieve itching but also can open pores to allow more urushiol under the skin, said Rebecca Braslau, chemistry professor at the University of California, Santa Cruz. Her UCSC team – the *Braslau Research Group* – has developed and now is refining a fluorescent compound that will attach to urushiol to make it visible under a black light, so a person can wash it away before trouble begins.

If poison ivy is burned and inhaled, it can cause swelling of airways and the linings of the lungs, which can be deadly. Poison ivy can also become airborne from weed-whacking and cause body-wide itching. Sleeping with a pet with urushiol on its fur or a night in a sleeping bag that has urushiol can cause a massive rash that could require hospital care. "If you use the weed-wacker and cover your

body in it, get to the hospital," Cynthia Morton, curator of botany at the *Carnegie Museum of Natural History* said. "If it is burned and you breathe it in, you need to get to the hospital," she said.

Sources: David Templeton, *Pittsburgh Post-Gazette*, 7/22/13; and *Greenwire*, 7/23/13 BACK TO TOP

Recreation Related Deaths and Lightning

Since 2006, nearly two out of every three U.S. lightning deaths occurred while the victim was participating in a leisure activity – and despite what many people might think, golf wasn't the activity at the top of the list. A new study released by the National Oceanic and Atmospheric Administration (NOAA) in late June found that of the 152 lightning deaths that were associated with leisure activities, 26 of those occurred while the victim was fishing. With eight lightning deaths, golfing was behind camping (15 deaths), boating (14 deaths), playing soccer (12 deaths), beach activities (11 deaths) and several other activities such as riding a bicycle, motorcycle or all-terrain vehicle (10 deaths each).

The report was released by NOAA as part of *National Lightning Safety Awareness Week*. NOAA is hoping the report will help call attention to the danger of participating in outdoor activities during a thunderstorm. "When people think of lightning deaths, they usually think of golf," National Weather Service lightning safety specialist John Jensenius, who conducted the NOAA analysis said in a news release. "While every outdoor activity is dangerous when a thunderstorm is in the area, outdoor activities other than golf lead to more lightning deaths." Jensenius noted that NOAA has made an effort to raise lightning awareness in the golf community for more than a decade and said those efforts have helped decrease lightning deaths among golfers by 75 percent.

When it comes to fishing, camping and boating, Jensenius said, those activities require extra time to get to a safe place. "People often wait far too long to head to safety when a storm is approaching, and that puts them in a dangerous and potentially deadly situation," he said. The NOAA press release noted that prior to agency lightning safety efforts, lightning killed an average of 73 people per year in the U.S., but today, the average has dropped to 37 per year. All told, 238 deaths were attributed to lightning over the last seven years, with 82 percent of the victims being male. So far in 2013, there have been seven lightning fatalities, two in Florida and Illinois and one each in Louisiana, Missouri and Texas. Three of the seven deaths occurred while the victim was fishing.

Source: John McArdle, *Greenwire*, 6/28/13 BACK TO TOP

Hottest Year on Record for U.S. – 2012

The U.S. experienced its warmest year yet in 2012, with the highest surface temperatures since record keeping began in the mid- or late 1800s, according to the annual "State of the Climate" report released in early August by the National Oceanic and Atmospheric Administration (NOAA). Last year also ranked either eighth or ninth in highest surface temperatures worldwide, depending on which of the four data sets considered by the report were used. The 2012 report shows a continuation of longer-term trends in climate change, including accelerated sea-level rise, warmer oceans, more atmospheric humidity and changing weather patterns. Polar sea ice coverage has also shifted dramatically since the middle of the last century, and ice sheets are diminishing in the Arctic, Greenland and Antarctica, it said. Posted online by the *American Meteorological Society*, the report was authored by an international group of nearly 400 scientists, with those from NOAA's National Climatic Data Center serving as its lead editors.

Thomas Karl, director of NOAA's National Climatic Data Center, said the report does not try to attribute any changes to human or natural activity. "It does not try to explain why we are seeing what we're seeing," he said. "So this report is focused on what are the observations telling us, and are they telling us a story that we think makes sense in a holistic picture of a changing planet?" But while it did not make the link between industrial emissions and a shifting climate, the report did note that global greenhouse gas emissions were on the rise last year. Global mean CO_2 reached 392.6 parts per million, an increase of 2.1 ppm over 2011 levels. Global mean levels of methane, which is 21 times as climate-forcing as CO_2, reached 1,808.5 parts per billion last year, up 5.1 ppb from the previous year.

Source: Jean Chemnick, *E&E News PM*, 8/6/13 BACK TO TOP

Meetings of Interest

Oct. 5–9: 86th Annual Water Environment Federation Technical Exhibition and Conference (WEFTEC), Chicago, IL. See: www.weftec.org/

Oct. 6-11: 5th World Conference On Ecological Restoration, Madison WI. See: http://www.ser2013.org/

Oct. 9–12: Promoting Excellence in Environmental Education: 42nd Annual North American Association for Environmental Education Conference, Baltimore, MD. See: www.naaee.net/conference.

Jan. 26-29, 2014: 74th Midwest Fish and Wildlife Conference. Sheraton Kansas City, Kansas City, MO. See: http://www.midwestfw.org/html/call.shtml

Mar. 10-13, 2014: Analyzing Risk: Principles, Concepts, and Applications. Boston, MA. See: https://ecpe.sph.harvard.edu/programs.cfm?CSID=RISK0000&pg=cluster&CLID=1

May 18-23, 2014: First Joint Aquatic Sciences Meeting, Oregon Convention Center, Portland, OR. Meeting will bring together the Society for Freshwater Science, (formerly NABS), the Association for the Sciences of Limnology and Oceanography, the Society of Wetland Scientists, and the Phycological Society of America. See: http://aslo.org/meetings/portland2014/sessions/index.php

Jul. 28-Aug.1: Conference on Ecological and Ecosystem Restoration, Hilton Riverside, New Orleans, LA. See: http://www.conference.ifas.ufl.edu/CEER2014/?utm_source=2014+CEER+call+for+session+proposals&utm_campaign=CEER&utm_medium=email

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Congressional Action Pertinent to the Mississippi River Basin

Climate Change

S. 7. Reid (D/NV) and 21 Co-sponsors. Promotes investment to ensure resilience to extreme weather and disasters and ensures that the federal government is a leader in reducing pollution, promoting the use of clean energy sources, and improving energy efficiency.

S. 163. Vitter (R/LA) and Inhofe (R/OK). Prohibits any regulation regarding CO_2 or other GHG emissions reduction in the U.S. until China, India, and Russia implement similar reductions.

S. 332. Sanders (I/VT) and Boxer (D/CA). Addresses climate disruptions, reduces carbon pollution, enhances the use of clean energy, and promotes resilience in the infrastructure of the U.S., and for other purposes.

S. 376. Pryor (D/AR) and 4 Co-sponsors and **H.R. 2431**, Hall (R/TX) and 2 Co-sponsors. Reauthorizes the National Integrated Drought Information System to better inform and provide for more timely decision making to reduce drought related impacts and costs.

H.R. 518. Markey (D/MA) and 14 Co-sponsors. Amends the Reclamation States Emergency Drought Relief Act of 1991 to extend authority and appropriations through FY 2018, and requires cooperative drought contingency plans to address projected long-term climate variability and change.

H.R. 662. Luetkemeyer (R/MO) and 26 Co-sponsors. Prohibits U.S. contributions to the IPCC and the *U.N. Framework Convention on Climate Change*.

Conservation

S. 51. Boxer (D/CA) and 10 Co-sponsors and **H.R. 263**, Grimm (R/NY) and Dingell (D/MI). Reauthorizes the *National Fish and Wildlife Foundation*.

S. 327. Barrasso (R/WY) and 8 Co-sponsors. Authorizes the Secs. of Agriculture and Interior to enter into cooperative agreements with States authorizing State foresters to provide certain forest, rangeland, and watershed restoration and protection services.

S. 338. Baucus (D/MT) and 32 Co-sponsors. Amends the Land and Water Conservation Fund Act of 1965 to provide consistent and reliable authority and funding for it, and for other purposes.

S. 526. Baucus (D/MT) and 12 Co-sponsors and **H.R. 2807**, Gerlach (R/PA) and 137 Co-sponsors. Amends the IRS Code to make permanent the tax deduction for charitable contributions by individuals and corporations of real property interests for conservation purposes, and for other purposes.

S. 632. McCain (R/AZ) and 12 Co-sponsors and **H.R. 1313**, Hartzler (R/MO) and 47 Co-sponsors. Amends the Food, Conservation, and Energy Act to repeal a duplicative program relating to inspection and grading of catfish and other species of farm-raised fish or shellfish.

S. 741. Vitter (R/LA) and 14 Co-sponsors. North American Wetlands Conservation Extension Act of 2013.

S. 801. Thune (R/SD) and 6 Co-sponsors and **H.R. 686**, Noem (R/SD) and 20 Co-sponsors. Amends the Federal Crop Insurance Act to reduce crop insurance assistance and non insured crop disaster assistance for crops grown on native sod acreage converted to cropland for the first four years.

S. 923. Udall (D/NM) and **H.R. 1890**, Blumenauer (D/OR) and 21 Co-sponsors. Provides for development and implementation of highly erodible land conservation plans and highly erodible land conservation systems.

S. 1441. Bennet (D/CO) and Crapo (R/ID) and **H.R. 3023**, Gardner (R/CO) and 2 Co-sponsors. Amends the IRS Code to facilitate water leasing and water transfers to promote conservation and efficiency.

H.R. 48. Bishop (D/NY) and Hanna (R/NY). Amends the IRS Code to allow installment sales treatment for land sold to a governmental unit or tax-exempt charitable organization for conservation purposes even though the purchase funds for such sale are held in a sinking or similar fund, as required by state law.

H.R. 349. Roby (R/AL) and 3 Co-sponsors. Prevents enrollment of land in the conservation reserve that is classified as class I or class II land under the NRCS land capability classification system, unless such land is enrolled as a buffer, filterstrip, or strip adjacent to a riparian area.

H.R. 638. Fleming (R/LA) and 12 Co-

sponsors. Amends the National Wildlife Refuge System Administration Act of 1966 to require that any new national wildlife refuge may not be established except as expressly authorized by statute.

H.R. 910. Fleming (R/LA). Sikes Act Reauthorization Act of 2013.

H.R. 1080. Bordallo (D/GU). Amends the Sikes Act to promote the use of cooperative agreements under such Act for land management related to the Department of Defense on military readiness activities.

H.R. 1788. Bachmann (R/MN) and 9 Co-sponsors. Amends the Migratory Bird Treaty Act to delegate double-crested cormorant management authority to a state on the date the Interior Secretary approves a cormorant management plan submitted by such state, and for other purposes.

H.R. 1834. Grijalva (D/AZ). Establishes the 21st Century Great Outdoors Commission to assess the use, value, job creation, and economic opportunities associated with the outdoor resources of public lands and other U.S. lands and water areas.

H.R. 2208. Wittman (R/VA) and 8 Co-sponsors. Amends the North American Wetlands Conservation Act to extend it through FY 2017.

H.R. 2261. Crawford (R/AR) and 2 Co-sponsors. Ensures the continuation of successful fisheries mitigation programs, and for other purposes.

H.R. 2714. Meadows (R/NC). Amends the IRS Code to allow taxpayers to assign to another taxpayer the amount of the unused charitable deduction for qualified conservation contributions.

Endangered Species

S. 19. Cornyn (R/TX) and 17 Co-sponsors and **H.R. 1314**, Flores (R/TX) and 5 Co-sponsors. Amends the ESA to establish a procedure for approval of certain settlements.

S. 1175. Feinstein (D/CA) and **H.R. 2280**, Calvert (R/CA). Requires that the Treasury Secretary establish a program to provide loans and loan guarantees to enable state political subdivisions to acquire interests in real property pursuant to habitat conservation plans approved by the Interior Secretary under the ESA conservation plans, and for other purposes.

H.R. 576. Stockman (R/TX) and 2 Co-sponsors Amends the ESA to provide for captive breeding and for other purposes.

H.R. 1866. Young (R/AK). Amends the ESA to promote sustainable-use conservation, to harmonize it with the *Convention on International Trade in Endangered Species of Wild Fauna and Flora* (CITES), and for other purposes

Energy

S. 279. Tester (D/MT) and 7 Co-sponsors and **H.R. 596**, Gosar (R/AZ) and 15 Co-sponsors. Promotes the development of renewable energy on public lands, and for other purposes.

S. 545. Murkowski (R/AK) and 12 Co-sponsors. Improves hydropower, and for other purposes.

S. 582. Hoeven (R/ND) and 24 Co-sponsors. Approves the Keystone XL Pipeline.

S. 1233. Inhofe (R/OK) and 13 Co-sponsors and **H.R. 2511**, Black (R/TN) and 35 Co-sponsors. Achieves domestic energy independence by empowering States to control the development and production of all forms of energy on all available Federal land.

S. 1234. Inhofe (R/OK) and 18 Co-sponsors and **H.R. 2513**, Gohmert (R/TX) and 11 Co-sponsors. Gives a State sole authority to regulate hydraulic fracturing on Federal land within the boundaries of the State.

H.R. 334. Poe (R/TX) and 33 Co-sponsors. Approves a specified permit regarding certain energy-related facilities and land transportation crossings on the international boundaries of the U.S. for the Keystone XL pipeline project.

H.R. 1235. Hartzler (R/MO) and 5 Co-sponsors. Amends the Federal Power Act to permit States to exempt projects from certain FERC considerations in issuing licenses for such projects.

H.R. 1769. Richmond (D/LA). Improves energy infrastructure resilience through federal water resource investments, and for other purposes.

H.R. 1963. Daines (R/MT). Amends the Water Conservation and Utilization Act to authorize development of non-Federal hydropower and issuance of leases of power privileges at projects.

FWPCA

S. 830. Manchin (D/WV) and 6 Co-sponsors. Amends the FWPCA to clarify and confirm EPA authority to deny or restrict use of defined areas as disposal sites for discharge of dredged or fill material.

S. 861. McConnell (R/KY) and Paul (R/KY). Amends the FWPCA to provide guidance and clarification regarding issuance of new and renewal permits, and for other purposes.

S. 1006. Barrasso (R/WY) and 27 Co-sponsors. Preserves existing rights and responsibilities with respect to waters of the U.S.

S. 1470. Kaine (D/VA) and Warner (D/VA). Amends the FWPCA with respect to the guidelines for specification of certain disposal sites for dredged or fill material.

H.R. 524. McKinley (R/WV) and 11 Co-sponsors. Amends the FWPCA to eliminate EPA authority to disapprove permits after they have been issued by the Corps under section 404 of such Act.

H.R. 1175. Cartwright (D/PA) and 57 Co-sponsors. Amends the FWPCA to direct the Interior Secretary to conduct a study with respect to stormwater runoff from oil and gas operations, and for other purposes.

H.R. 1296. Miller (R/CA) and 3 Co-sponsors. Amends the FWPCA to clarify a maintenance exemption regarding the removal of sediment, debris, and vegetation from certain structures.

H.R. 1837. Pallone (D/NJ) and 77 Co-sponsors. Amends the FWPCA to clarify that fill material cannot be comprised of waste.

H.R. 1877. Bishop (D/NY) and 34 Co-sponsors. Amends the FWPCA to authorize appropriations for State water pollution control revolving funds, and for

other purposes.

H.R. 1948. Mica (R/FL) and 2 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. 2937. Hurt (R/VA) and 4 Co-sponsors. Amend the FWPCA with respect to the guidelines for specification of certain disposal sites for dredged or fill material.

Grazing

S. 258. Barrasso (R/WY) and 8 Co-sponsors and **H.R. 657**, Labrador (R/ID) and 15 Co-sponsors. Amends the Federal Land Policy and Management Act of 1976 to improve management of grazing leases and permits, and for other purposes.

Invasive Species

S. 125. Brown (D/OH) and 5 Co-sponsors and **H.R. 358**, McCollum (D/MN) and 25 Co-sponsors. Requires the USFWS, in coordination with the Corps, the NPS, and the USGS, to lead a multi agency effort to slow the spread of Asian Carp in the Upper Mississippi and Ohio River basins and tributaries by providing high-level technical assistance, coordination, best practices, and support to state and local government strategies, to slow, and eventually eliminate, the threat posed by such carp.

S. 365. Klobuchar (D/MN) and Franken (D/MN) and **H.R. 709**, Ellison (D/MN) and 3 Co-sponsors. Authorizes the Corps to take actions to manage the threat of Asian carp traveling up the Mississippi River in the State of Minnesota, and for other purposes.

S. 1153. Gillibrand (D/NY) and 2 Co-sponsors and **H.R. 996**, Slaughter (D/NY) and 30 Co-sponsors. Establishes an improved regulatory process for injurious wildlife to prevent the introduction and establishment in the U.S. of nonnative wildlife and wild animal pathogens and parasites.

S. 1463. Boxer (D/CA) and Vitter (R/LA). Amends the Lacey Act Amendments of 1981 to prohibit importation, exportation, transportation, sale, receipt, acquisition, and purchase in interstate or foreign commerce of any live animal of any prohibited wildlife species.

H.R. 584. Young (R/AK) and 4 Co-sponsors. Amends the Federal Food, Drug, and Cosmetic Act to require labeling of genetically engineered fish.

H.R. 985. Rogers (R/MI) and 12 Co-sponsors. Directs the Corps to prevent the spread of Asian carp in the Great Lakes and the tributaries of the Great Lakes, and for other purposes.

H.R. 1823. Heck (R/NV) and 5 Co-sponsors. Amends the Lacey Act to prohibit the importation and exportation of quagga mussels.

Mining

S. 222. Udall (D/NM) and 3 Co-sponsors and **H.R. 488.**, Pearce (R/NM) and Lujan (D/NM). Amends the Surface Mining Control and Reclamation Act 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. 1443. Udall (D/CO) and Bennet (D/CO) and **H.R. 2970**, Tipton (R/CO). Facilitates the remediation of abandoned hardrock mines, and for other purposes.

H.R. 526. Yarmuth (D/KY) and 39 Co-sponsors. Places a moratorium on permitting for mountaintop removal coal mining until health studies are conducted by the Department of Health and Human Services, and for other purposes.

H.R. 2824. Johnson (R/OH) and 4 Co-sponsors. Amends the Surface Mining Control and Reclamation Act of 1977 to implement the final rule on excess spoil, mining waste, and buffers for perennial and intermittent streams, and for other purposes.

Public Lands

S. 368. Heinrich (D/NM) and 7 Co-sponsors. Federal Land Transaction Facilitation Act, and for other purposes.

S. 400. Boozman (R/AR) and Merkley (D/OR). Amends the Federal Lands Recreation Enhancement Act to include the Corps as a Federal land management agency, and for other purposes.

S. 1262. Nelson (D/FL). Establishes a veterans Conservation Corps to work on public lands.

H.R. 1017. Poe (R/TX) and Jones (R/NC). Directs the sale of certain BLM and Forest Service lands to reduce the Federal budget deficit, and for other purposes.

H.R. 1021. Stivers (R/OH). Directs that there shall be no net increase in the acres of BLM, NPS, USFWS or FS lands unless the Federal budget is balanced for the year in which the land would be purchased.

H.R. 1633. Amodei (R/NV) and Tipton (R/CO). Provides for the conveyance of small parcels of federal lands up to 160 acres in size to adjacent landowners, and for other purposes.

Public Works

S. 360. Udall (D/NM) and 4 Co-sponsors and **H.R. 1351**, Grijalva (D/AZ) and 38 Co-sponsors. Promotes a new generation of young men and women with the desire to seek careers in resource stewardship and public service by working directly with professionals.

H.R. 188. Kaptur (D/OH) Authorizes re-establishment of the Civilian Conservation Corps to provide gainful employment to unemployed and underemployed citizens of the U.S. through the performance of public work, and for other purposes.

Recreation

S. 170. Murkowski (R/AK) and 12 Co-sponsors. Recognizes the heritage of recreational fishing, hunting, and recreational shooting on Federal public land and ensures continued opportunities for those activities.

S. 311. Landrieu (D/LA). Directs the Interior Secretary to study the suitability and feasibility of designating sites in the Lower Mississippi River Area in the State of Louisiana as a unit of the National Park System, and for other purposes.

S. 421. Alexander (R/TN) and 3 Co-sponsors and **H.R. 826**, Whitfield (R/KY) and 6 Co-sponsors. Prohibits the Corps from taking any action to establish a

restricted area prohibiting public access to waters downstream of a dam, and for other purposes.

H.R. 322. Miller, J. (R/FL) and 94 Co-sponsors. Amends the Toxic Substances Control Act to exclude from the definition of "chemical substance": (1) any component of any pistol, revolver, firearm, shell, or cartridge and (2) any sport fishing equipment the sale of which is subject to federal excise tax and sport fishing equipment components.

H.R. 1825. Benishek (R/MI) and 107 Co-sponsors. Directs Federal public land management officials to facilitate use of and access to Federal public lands for fishing, sport hunting, and recreational shooting, and for other purposes.

Water Quality

S. 496. Pryor (D/AR) and 11 Co-sponsors and **H.R. 311**, Crawford (R/AR) and 71 Co-sponsors. Directs the EPA to change the Spill Prevention, Control, and Countermeasure rule with respect to certain farms.

S. 802. Hagan (D/NC) and 13 Co-sponsors and **H.R. 935,** Gibbs (R/OH) and 57 Co-sponsors. Clarifies Congressional intent regarding regulation of the use of pesticides in or near navigable waters, and for other purposes.

H.R. 311. Crawford (R/AR) and 69 Co-sponsors. Authorizes the EPA to require certification of large capacity farm storage tanks (> 10,000 gal.) under the Spill Prevention, Control, and Countermeasure rule.

H.R. 1304. Walberg (R/MI) and 18 Co-sponsors. Permits the chief executive of a State to create an exemption from certain requirements of Federal environmental laws for producers of agricultural commodities, and for other purposes.

H.R. 2948. Matheson (D/UT) and Harper (R/MS). Requires analyses of the cumulative and incremental impacts of certain rules and actions of the EPA, and for other purposes.

Water Resources

S. 4. Reid (D/NV) and 14 Co-sponsors. Updates and enhances dams, ports, water infrastructure, and flood protection infrastructure, and for other purposes.

S. 66. Vitter (R/LA) and 2 Co-sponsors. Directs the Corps to establish a pilot program to evaluate the cost-effectiveness and project delivery efficiency of non-federal sponsors as the lead project delivery team for authorized Corps civil works flood control and navigation construction projects.

S. 407. Casey (D/PA) and 6 Co-sponsors and **H.R. 1149**, Whitfield (R/KY) and 28 Co-sponsors. Provides funding for construction and major rehabilitation for projects located on inland and intracoastal waterways of the U.S., and for other purposes.

S. 565. Durbin (D/IL) and 2 Co-sponsors and **H.R. 1152**, Enyart (D/IL) and 3 Co-sponsors. Provides for the safe and reliable navigation of the Mississippi River, and for other purposes.

S. 566. Durbin (D/IL) and Kirk (R/IL) and **H.R. 1153**, Bustos (D/IL) and 7 Co-sponsors. Establishes a pilot program to evaluate the cost-effectiveness of allowing non-Federal interests to carry out certain water infrastructure projects, and for other purposes.

S. 574. Landrieu (D/LA) and **H.R. 1161**, Richmond (D/LA). Modifies the Mississippi River Ship Channel, Gulf of Mexico to Baton Rouge for navigation, and for other purposes.

S. 601. Boxer (D/CA) and Vitter (R/LA). Water Resources Development Act of 2013.

S. 732. Paul (R/KY). Modifies the criteria used by the Corps of Engineers to dredge small ports.

S. 890. Paul (R/KY) and 6 Co-sponsors. Clarifies the definition of navigable waters, and for other purposes.

S. 970. Cardin (D/MD) and Boozman (R/AR). Amends the Water Resources Research Act of 1984 to require research into new ideas that expand the understanding of water resources and for other purposes.

S. 996. Landrieu (D/LA) and 2 Co-sponsors and **H.R. 1035**, Moore (D/WI) and 2 Co-sponsors. Improves the National Flood Insurance Program, and for other purposes

H.R. 123. Holt (D/NJ) and Miller (D/CA). Establishes a *WaterSense* program to identify and promote water efficient products, buildings and landscapes, and services to reduce water use, conserve energy, and preserve water resources.

H.R. 136. Matsui (D/CA) and Bera (D/CA). Authorizes the Corps to implement any flood risk management project for which the Defense Secretary has transmitted to Congress, before the date of enactment of this Act, a letter that is technically sound, environmentally acceptable, and economically justified; and consistent with the President's policy and programs.

H.R. 399. Matsui (D/CA) and 27 Co-sponsors. Directs the Corps to undertake a comprehensive review of the policy guidelines on vegetation management for levees in order to determine whether current federal policy is appropriate for all regions of the U.S.

H.R. 1268. Palazzo (/MS). Amends the IRS Code to allow qualified taxpayers a tax credit, up to $5,000 in a taxable year, for flood mitigation expenses and other purposes.

H.R. 1460. Graves (R/MO) and 4 Co-sponsors. Directs the Corps to revise certain authorized purposes described in the Missouri River Mainstem Reservoir System Master Water Control Manual.

H.R. 1489 Maloney (D/NY) and 2 Co-sponsors. Amends the National Dam Safety Program Act to identify and ensure the safety of dams in need of repair and rehabilitation, and for other purposes.

H.R. 1662. Richmond (D/LA) and Boustany (R/LA). Provides for liability for the Corps in cases of damage caused by the gross negligence of an officer or employee of the Corps.

H.R. 1769. Richmond (D/LA). Provides for a study to evaluate the National benefits of flood protection.

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