River Crossings

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Asian Carp Issues

A bipartisan group of ten senators in mid-March sent a letter to Assistant Secretary of the Army Jo-Ellen Darcy calling on the federal government to take more action to prevent Asian carp from entering the Great Lakes. The letter was signed by Sens. Tammy Baldwin (D/WI), Sherrod Brown (D/OH), Bob Casey (D/PA), Al Franken (D/MN), Kirsten Gillibrand (D/NY), Ron Johnson (R/WI), Amy Klobuchar (D/MN), Carl Levin (D/MI), Charles Schumer (D/NY) and Debbie Stabenow (D/MI). The senators said there was a need for the U.S. Army Corps of Engineers (Corps) to implement short-term measures to keep the invasive species out of the region. Additionally, they said the agency needed to "move aggressively" toward a long-term fix.

The letter was filled with a number of detailed questions related to the Corps' invasive species strategy, especially concerning the Great Lakes and Mississippi River Interbasin Study (GLMRIS) report, which was released in January. The senators noted that the latest omnibus bill provided appropriations for emergency invasive species measures in the Mississippi River and Great Lakes basins and wondered, "What decision criteria will be used by the Corps to determine whether there exists an emergency?" Other questions addressed short-term control technologies, phased implementation of long-term solutions and previously passed legislation that would allow the Corps to start preconstruction engineering and design for projects that are deemed "justified."

Then in late April, the governors and leaders of the eight states (IL, IN, MI, MN, NY, OH, PA, and WI) and two Canadian provinces (Ontario and Quebec) surrounding the Great Lakes signed a mutual aid agreement in an effort to stave off invasive species like Asian carp. The signing entities agreed to pool staff and expertise to protect the Great Lakes' fishing industry and ecosystem. "The threat of aquatic invasive species transcends borders, and this agreement allows us to address this threat through collaboration and cooperation," said Michigan Gov. Rick Snyder (R), co-chairman of the *Council of Great Lakes Governors*. Disagreement over blocking aquatic pathways (canals) in Chicago waters has slowed progress in the past. While his state has strongly opposed the closures, Illinois Gov. Pat Quinn (D), the council's other co-chairman, spoke of cooperation. "We may come from different shorelines, but challenges go beyond our borders. As leaders of the region, we come together as champions for our beloved Great Lakes", he said.

In early May the Corps released a summary report of public feedback on the GLMRIS that included widely diverging opinions on how the federal government should deal with Chicago canal closures. Due to lack of public consensus, the Corps reported that it will hold off on additional study efforts

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until it receives instructions from the White House or Congress. About 40 percent of the public commenters believe the Great Lakes and Mississippi River basins should be physically separated to prevent the transfer of invasive species. "People who favored physical separation talked about how important it was to protect the Great Lakes from Asian carp and other invasive species citing impacts to commercial and recreational fishing and boating industries; private recreation; and tourism," the report said. Another 35 percent of the comments – which ranged from written letters to oral statements at public hearings – called for navigation to continue within the Chicago Area Waterway System, which would mean the basins would remain connected. Those remarks noted the importance of navigation to regional and national economies and the potential safety and environmental impacts that would come from switching shipping methods to rail or truck transportation. The bulk of the remaining commenters (24 percent) wanted the government to stop the spread of Asian carp and other invasive species, but did not specifically comment on the alternatives.

The Corps did note that more than 98 percent of commenters supported finding methods to control invasive species. Commenters suggested a number of options for that, including:

- Continuing public outreach specifically targeting anglers and boaters.
- Finding commercial uses for Asian carp, such as human and animal consumption, fertilizer and fish oil.
- Employing biological controls for species, including genetically altering carp so they can't reproduce, and releasing viruses that target the carp.

"Implementation of a range of non structural or permanent measures would require commensurate resource allocations by those agencies whose responsibilities are germane to their authorities," the report said. "As such, significant resource investments by other federal agencies and state and local stakeholders would likely be necessary to reach a joint decision on the issue (of aquatic nuisance species) in the CAWS." About 30 percent of commenters worried about the proposed timelines for the alternatives, many of which would take up to 25 years, because they believed that invasive species would spread before the projects were completed.

Meanwhile, in the Upper Mississippi River (UMR) Asian carp eggs, including late-stage embryos nearly ready to hatch from the egg, were recently identified in samples collected by U.S. Geological Survey (USGS) scientists collected between mid-May and mid-June 2013 from the UMR as far north as Lynxville, WI. This location is 250 miles upstream of the previously known reproductive population in the river. Because of downstream drift required for hatching, spawning would have occurred upstream from this site. Once the scientists visually identified the eggs, they examined other samples taken from the UMR and found Asian carp eggs at seven locations between Pool 19 near Keokuk, IA, and Pool 9 Lynxville. Iowa, Missouri, Illinois, Minnesota and Wisconsin border the navigation pools where the samples were collected.

The eggs and late-stage embryos were identified as either Bighead or Silver carp through visual analyses of specific features of the eggs and embryos. It is possible, however, that some of the eggs could be from Grass carp, although no eggs were visually identified as such. The USGS attempted genetic analyses to definitively determine which species of Asian carp the eggs belong to, but the results were inconclusive. Additional steps are being completed to attempt genetic confirmation. The research project that collected the eggs is being

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coordinated by the USGS in collaboration with Western Illinois University. Scientists plan to collect additional samples from the Mississippi River in 2014 as part of their on-going research project.

In Ohio, a report released in mid April by *the Nature Conservancy* – in conjunction with the *Muskingum Watershed Conservancy District*, the Ohio Department of Natural Resources (ODNR), and researchers from Central Michigan University – indicated that 10 of 222 samples taken from the Muskingum River in Ohio tested positive for Bighead carp eDNA. The upper Muskingum, a tributary to the Ohio River, provides potential pathways into the Lake Erie watershed. Asian carp have been established in the Ohio River for more than a decade, but these eDNA results indicate that the fish could be present in the Muskingum some 80 miles north of where it joins the Ohio at Marietta. The Muskingum has a series of old dams and deteriorating locks, but if the genetic evidence is accurate, those have not provided a significant impediment to the carp moving up the river system. "This information seems to indicate they have already gotten past the dams," said John Navarro of the ODNR. "They've shown no tendency to slow down. They are barreling up these waterways," Navarro said.

Meanwhile, in late January commercial fishers collected and reported 6 Black carp (another Asian carp species) from the Mississippi River near Festus, MO. According to Kevin Irons, Aquaculture and Aquatic Nuisance Species Program Manager for the Illinois Department of Natural Resources (IDNR) five of these have been tested for ploidy to date and all were diploids. Further analyses are underway regarding environmental history, histology, etc. by the cooperative efforts of Southern Illinois University (SIU), U.S. Fish and Wildlife Service and USGS. SIU reports 13 of the last 14 individuals collected have been diploid. IDNR has developed standard protocols for commercial fishermen to use when the fishes are reported.

Black carp - Rob Cosgriff, Illinois Natural History Survey Photo

In mid-April a large kill of Silver carp occurred on the Cumberland River below Lake Barkley, Kentucky. Fisheries biologists with the Kentucky Department of Fish and Wildlife Resources (KDFWR) estimated that upwards of a quarter million carp were killed. "Anglers were seeing dead fish a week ago, some two weeks ago, which is very typical of a fish kill caused by some type of viral pathogen," said Paul Rister, western fisheries district biologist for the KDFWR. "It's kind of a bell-shaped curve. You start seeing a few die, and a few more die, and then you reach the peak of the massive die-off. I think we're on that downhill side now," he said. After conferring with Asian carp researchers from around the country, KDFWR Director Ron Brooks said the belief among experts is that the fish kill is the largest ever involving Asian carp in the United States. Silver carp appeared to be the only fish affected. To help move the mass of fish down river, Corps officials opened three gates at Barkley Dam to flush dead fish downstream. "I don't think people have to worry about those pathogens affecting native species," Brooks said. "That's probably the best news of all."

While the cause has not been confirmed, possibilities include overstress from spawning or the presence of a pathogen that disrupts brain function in the fish, Brooks said. "Any time you have an event where there are a lot of fish congregating, it's just like any other animal, the chance for a pathogen to spread increases," he said. "Whether it's that pathogen or some other stressor, no one will know until we get word from the researchers." Dying silver carp collected from the area by KDFWR officials will undergo disease testing at Kentucky State University. Brooks said he is hopeful that researchers find something from this fish kill that leads to the eventual eradication of Asian carp. "It's comforting to know there's something out there that might take these things out before they just devastate everything," Brooks said. "Right now we just don't have it."

Source: Jessica Estepa, *Greenwire*, 3/19 and 5/8/14; *AP/Detroit Free Press*, 4/26/14; Cindy Kolar and Marisa Lubeck, *USGS News Release*, 3/11/14; Matt Markey, *Block News Alliance/Pittsburgh Post-Gazette*, 4/21/14; Kentucky Dept. of Fish and Wildlife Resources, *Press Release*, 4/25/14; *Greenwire*, 4/22 and 2/28/14; and Dave Ozman and Catherine Puckett, *USGS News Release,* 5/22/14

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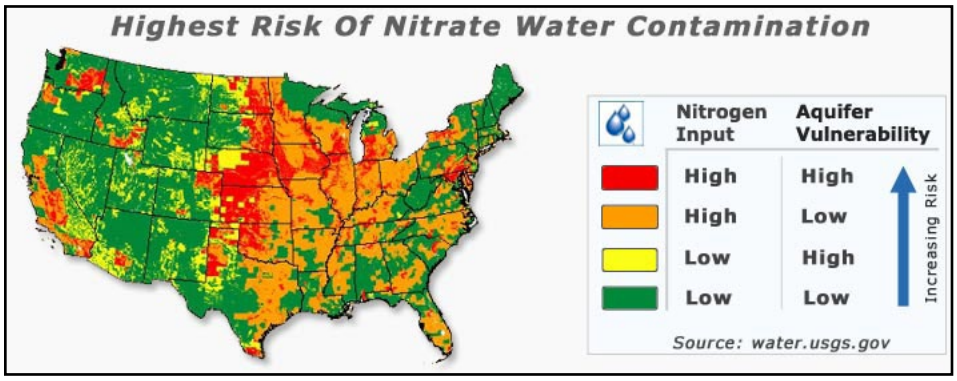
Nitrate Levels Continue to Increase in the Mississippi River

According to a U.S. Geological Survey (USGS) study released last fall, *Nitrate in the Mississippi River and Its Tributaries, 1980–2010: An Update*, nitrate levels continue to increase in the Missouri and Mississippi Rivers. However, nitrate levels in the Illinois River decreased between 2000 and 2010, marking the first time substantial, multi-year decreases in nitrate have been observed in the Mississippi River Basin since 1980. Nitrate trends from 1980 to 2010 were determined at eight long-term USGS monitoring sites in the Mississippi River Basin, including four major tributaries (Iowa, Illinois, Ohio, and Missouri rivers) and four locations along the Mississippi River using methodology that adjusts for year-to-year variability in streamflow conditions.

Findings include:

- Consistent increases in nitrate concentrations occurred between 2000 and 2010 in the upper Mississippi River (29 percent) and the Missouri River (43 percent).
- Nitrate concentrations increased at the Mississippi River outlet by 12 percent between 2000 and 2010.
- Nitrate concentrations steadily decreased by 21 percent in the Illinois River from 2000 to 2010. Decreases were also noted in the Iowa River during this time, but the declines were not as large (10 percent).
- Nitrate concentrations in the Ohio River are the lowest among the eight Mississippi River Basin sites and have remained relatively stable over the last 30 years.



Legacy nitrate from groundwater may be the predominant source of nitrate during low flows. If that is the case, it could take decades before decreases in nitrate concentrations could be measured in these rivers, irrespective of improvements in agricultural practices. If point sources predominate, there is a potential to affect nitrate concentrations sooner. The USGS report and information on nitrate trends in concentration and flux for each of the eight sites are available online. Additional information on USGS long-term monitoring sites in the Mississippi River Basin is also available online (*Water-Quality Monitoring and Modeling in the Mississippi and Atchafalaya River Basin*). Research on nitrate trends is conducted as part of the USGS *National Water-Quality Assessment* program. This program provides an understanding of water quality conditions, whether conditions are getting better or worse over time, and how natural features and human activities combine to affect water quality.

Source: *NonPoint Source News-Notes*, April 2014, Issue 95

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Mississippi River's Nitrate Buffering System Overwhelmed

A new method of measuring the interaction of surface water and groundwater along the length of the Mississippi River and tributaries network adds fresh evidence that the network's natural ability to chemically filter out nitrates is being overwhelmed. The research by Bayani Cardenas and Brian Kiel, hydrogeologists at The University of Texas at Austin, appeared in the May 11 edition of the journal *Nature Geoscience*. The analysis found that 99.6 percent of the water in the 311,000 river mile network passes through filtering sediment along the banks of creeks, streams and rivers. Such a high level of chemical filtration might sound positive, but the unfortunate implication is that the river's natural filtration systems for nitrates appear to be operating at or very close to full capacity. Although further research is needed, this would make it unlikely that natural systems can accommodate the high levels of nitrates that have made their way from farmland and other sources into the river network's waterways.

As a result of its filtration systems being overwhelmed, the river system operates less as a buffer and more as a conveyor belt, transporting nitrates to the Gulf of Mexico. "There's been a lot of work to understand surface-groundwater exchange," said Aaron Packman, a professor in the Department of Civil and Environmental Engineering at Northwestern University. "This is the first work putting together a physics-based estimate on the scale of one of these big rivers, looking at the net effect of nitrate removal in big river systems." Using detailed, ground-level data from the United States Geological Survey (USGS) and U.S. Environmental Protection Agency, Cardenas and Kiel analyzed the waterways for sinuosity (how much they bend and curve); the texture of the materials along the waterways; the time spent in the sediment (known as the hyporheic zone); and the rate at which the water flows through the sediment. The sediment operates as a chemical filter in that microbes in the sand, gravel and mud gobble up compounds such as oxygen and nitrates from the water before the water discharges back into the stream. The more time the water spends in sediment, the more some of these compounds are transformed to potentially more environmentally benign forms.

Cardenas and Kiel found that despite an image of water flowing freely downstream, nearly every drop gets caught up within the bank at one time or another. But not much of the water – only 24 percent – lingers long enough for nitrate to be chemically extracted. The "residence times" when water entered the hyporheic zones ranged from less than an hour in the river system's headwaters to more than a month in larger, meandering channels. A previous, unrelated study of hyporheic zones found that a residence time of about seven hours is required to extract nitrogen from the water. "Clearly for all this nitrate to make it downstream tells us that this system is very overwhelmed," Cardenas said. When a river system gets totally overwhelmed, "You lose the chemical functions, the chemical buffering," he said

Source: *University of Texas News Release*, 5/12/14

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Mississippi River Basin Nutrient Standards Delayed

The 5th U.S. Circuit Court of Appeals in mid-March granted the U.S. EPA a reprieve from developing numeric standards for water pollution in the Mississippi River Basin. The stay was granted until EPA completes its appeal of the district court case that last fall gave the agency six months to set standards for phosphorus and nitrogen or explain why they are not needed. The decision allowed EPA to consider factors like cost and workload in deciding whether to set numeric standards. U.S. rivers, streams and creeks are overloaded with phosphorus and nitrogen that washes off farm fields, suburban lawns and parking lots. The problem is particularly stark on the Mississippi River, which collects runoff from 31 states. Environmentalists are pushing for states to switch from narrative standards to numeric standards, which they say could stop problems before they start. They say that numeric standards are like posting a speed limit sign along a roadway, whereas narrative standards is like simply saying, "Don't drive too fast."

EPA shares a preference for numeric standards and has for years been encouraging states to implement them. But after its recent effort to press the issue in Florida spawned a costly, years-long legal battle, the agency has been less aggressive in pushing numeric standards. But U.S. District Judge Jay Zainey in New Orleans ruled last September that EPA did, indeed, need to formally declare whether numeric nutrient criteria were necessary in response to a 2008 petition from environmental groups. Zainey's ruling allowed EPA to say that even if numeric criteria are necessary, it didn't have the time or money to actually set them. But, many say that once EPA formally declares numeric criteria necessary, it will just be a matter of time before they have to move ahead. Victor Flatt, an environmental law professor at the University of North Carolina School of Law, said, declaring that numeric nutrient criteria are needed would open the floodgate to having to make such a declaration not just along the Mississippi River, but in other polluted water bodies.

Source: Annie Snider, *Greenwire*, 3/18/14 BACK TO TOP

Progress Made in Battle Against Gulf Hypoxia

A recent report (Reassessment 2013: Assessing Progress Made Since 2008) released by the Mississippi River/Gulf of Mexico Watershed Nutrient Task Force highlights progress made and identifies areas that need improvement in the efforts to address excess nutrient loads in the Mississippi/Atchafalaya River Basin and to reduce Gulf hypoxia. The 2008 Action Plan described a national strategy to reduce, mitigate, and control hypoxia in the northern Gulf of Mexico and improve water quality in the Mississippi River Basin. The plan outlined 11 key actions needed to complete and implement nitrogen and phosphorus reduction strategies, promote effective conservation practices and management practices, track progress, reduce existing scientific uncertainties, and promote effective communications to increase awareness of Gulf hypoxia.

Among those key actions was completion of the 2013 progress report. Areas of progress noted by the report included the following:

- States are making progress in developing and implementing nutrient reduction strategies. Seven states – IA, IN, LA, MN, MS, OH, and WI – have finalized or released drafts of nutrient reduction strategies, and the remaining states expect to have draft strategies completed in 2014.
- The U.S. Department of Agriculture continues to provide strong assistance for conservation practices.
- Science and monitoring continue to improve.
- The goal for reducing the Gulf hypoxic zone remains reasonable.

The report noted, however, that the Task Force must accelerate the implementation of nutrient reduction activities and identify ways to better measure progress at a variety of scales, from small streams to the mouth of the Mississippi River. In September 2013 federal agencies on the Task Force released a strategy entitled, *Looking Forward*, which focuses on supporting the development, refinement, and implementation of state nutrient reduction plans. The new strategy emphasizes federal efforts that will support state nutrient strategies with new science, programs, and approaches that can be tailored to particular needs associated with implementing individual state nutrient reduction strategies.

In implementing the *Looking Forward* strategy, Federal agencies will:

- Provide more scientific and technical assistance, such as monitoring and modeling efforts to help demonstrate progress locally, basin-wide, and in the Gulf, as well as additional research to better target conservation practices on the ground.
- Work on economic analyses of conservation practices to help producers identify the conservation practices that provide the most economic and environmental benefits.
- Support regulatory activities that provide reductions in nutrient runoff.
- Use innovation and leveraging to offer financial and technical assistance.
- Explore ways to expand market-based approaches.

"Achieving significant water quality improvements in water bodies as large as the Mississippi River and Gulf of Mexico takes time, and the increasing impacts of climate change such as more frequent extreme weather events pose additional challenges. The progress

we've made across the board during the past five years provides an excellent foundation and we will work to accelerate our progress over the next five years," said Nancy Stoner, acting Assistant Administrator for Water at the U.S. EPA and co-chair of the Task Force.

Source: *NonPoint Source News-Notes*, April 2014, Issue 95 BACK TO TOP

New Federal Conservation Management Plan for the Lower Mississippi

The U.S. Fish and Wildlife Service (USFWS) and U.S. Army, Corps of Engineers (Corps), using a little known provision [Section 7(a)(1)] of the Endangered Species Act (ESA), have developed an agreement to collaborate on a plan to use best management practices for the Lower Mississippi River. Section 7(a)(1) of the ESA provides an option to protect endangered species without initiating a formal – and perhaps confrontational – process. But few agencies take advantage of the provision, and the USFWS wants to change that. At a joint meeting in Washington, D.C. Interior Secretary Sally Jewell praised USFWS and Corps officials saying, "You're pioneers in this room, charting a path forward that's good for species as well as good for our economy."

At its most basic, the plan puts into writing how the Corps can help endangered species while it improves flood control and navigation. For example: When it's feasible, the Corps may use dike notching – making holes in rock embankments to allow water to flow through and thus improve habitat for fish and nesting birds. It will also look for opportunities to reconnect secondary channels to the main channel. But it all will only be done if it doesn't jeopardize navigation channels. So far, USFWS officials say the partnership has paid dividends for three endangered species in the Lower Mississippi River: the interior least tern, pallid sturgeon and fat pocketbook mussel. The tern population, in particular, has recovered enough to prompt USFWS to begin the process of de-listing the species as soon as 2015. USFWS Director Dan Ashe called it a "transformation." But he also acknowledged that the USFWS and the Corps haven't always had the friendliest relationship. "I grew up hating the Corps of Engineers," he joked, pointing to the influence of a father who spent 37 years at the USFWS. But "that's the old Fish and Wildlife Service. That's the old Corps of Engineers. We have learned we can get a lot more done working together," he said.

Source: Emily Yehle, *Greenwire*, 4/30/14 BACK TO TOP

Middle Mississippi Levee Lawsuit

A coalition of environmental groups, including the *National Wildlife Federation* (NWF) filed a lawsuit against the U.S. Army Corps of Engineers (Corps) in late May in a bid to block further construction of river training structures (i.e. wing dikes) in the Middle Mississippi River (MMR). The groups contend that the structures exacerbate flooding problems. The MMR is the 195 mile reach between the river's confluences with the Missouri and Ohio rivers. Over nearly two centuries the Corps has built more than 1,375 wing dikes in the MMR. The structures – essentially rock walls in the river – are aimed at reducing the amount of costly dredging necessary to maintain the federally required 9-foot navigation channel by concentrating river flow in the channel.

The Corps disputes the dozens of academic studies finding that the structures increase river heights during high waters and has produced its own studies in support of its position. Corps officials also argue that the structures bring an environmental benefit by decreasing the amount of environmentally damaging dredging that is needed and by providing habitat for fish and the macroinvertebrates that make up the base of the river's food chain. Following a 2011 Government Accountability Office (GAO) study faulting the Army Corps' justification for such structures, the agency agreed to do a new environmental impact statement on the issue. That document has not yet been completed, and environmental groups and communities along the river have argued that the Corps won't look at the issue broadly enough.

MMR Wing Dike Field - GAO Photo

Meanwhile, a handful of new wing dike complexes have received final Corps approval in recent months, two of which experts say would be along river reaches near levees that have failed recent inspections or have been overtopped in recent floods. "These new structures pose a real risk to public safety," said Melissa Samet, senior NWF water resources counsel. The environmental groups are supported by local levee district managers. The decision to move ahead now "puts the public's safety at risk and dramatically undermines the public's confidence in the Corps' decision making," five Illinois levee district commissioners wrote to the Corps in an April letter. Nicholas Pinter, a geology professor at Southern

Illinois University, Carbondale, who has authored a number of studies concluding that the structures exacerbate flooding, said that river heights have been increasing even when the amount of water flowing down the river has not. "Every major flood on this particular stretch of the river and others has had [these structures] as a significant component – and some of them have actually been caused by these navigation structures," he said.

Corps officials told the GAO in 2011 that any impact the structures have during high waters is dwarfed by the fact that the river also becomes much wider and deeper as waters rise. Officials also faulted the researchers' methods, saying that the river gauge data that researchers relied on couldn't isolate the effects of the river training structures from other changes in the floodplain and on the river. Pinter said, though, that the academic community is essentially unanimous in its findings. He also noted that any admission of error by the Corps could open the door to lawsuits over past floods. "There are questions about legal liability that have come up over the years if they were to admit that these structures have contributed to damages in the past and may in the future," Pinter said.

Source: Annie Snider, *Greenwire*, 5/22/14 BACK TO TOP

Missouri River Lawsuit

More than 200 farmers and landowners in the Missouri River basin sued the federal government in early March, accusing the U.S. Army Corps of Engineers (Corps) of improper decisions which they say led to costly flooding along the Missouri River. The landowners claim the Corps de-emphasized flood control over the past decade in favor of protecting fish and wildlife along the waterway. That choice, they said, led to floods – and an unconstitutional taking of their land. "Something is wrong," said Roger Ideker, a Holt County, MO, farmer and lead plaintiff in the lawsuit. "The recent flooding we have had is not normal." The legal dispute is likely to take years to play out, and figures to renew an unsettled national argument over supervision of the river.

The dispute involves a variety of interests with often conflicting priorities for the channel, ranging from recreation, water supply and power users to environmentalists, shippers, farmers and downstream users. "I hope that there is a speedy resolution to this case," U.S. Rep. Sam Graves of Missouri said in an email. "It brings to the forefront the ongoing debate over the management priorities of the Missouri River." Graves, a Republican who in Congress represents some of the suing landowners, has long argued for greater emphasis on flood control along the basin. In contrast, Caroline Pufalt, a volunteer with the Missouri chapter of the *Sierra Club* and a participant in discussions concerning the river, said the lawsuit had little merit. "(But) I really feel, if we all sat down, we could figure this out," she said. "If we came together in good faith."

Under federal law, the Corps must manage the river by balancing eight authorized purposes: flood control, navigation, water supply, irrigation, power, recreation, water quality and wildlife preservation. It pursues that goal by managing discharges from six large upstream reservoirs located in Montana, North Dakota and South Dakota, each designed to hold excess water during the spring and release it slowly over the rest of the year. When the system works as designed, water is available for boating, fishing, barge traffic, supporting wildlife and generating electricity – while minimizing flooding. But the plaintiff property owners claim the Corps decided in the mid-2000s to focus on just one of the uses – protecting wildlife – at the expense of spring flood control. The Corps, they allege, changed its rules in order to return the river to a more natural state and provide additional spawning and breeding areas for threatened species. In 2011, they say, that choice led to the worst flooding along the upper reaches of the basin in modern history. "The federal government changed its policies and procedures to choose environmental interests over flood control, and to sacrifice plaintiffs' land and other property in the process," the lawsuit says. Those property owners say the Corps also changed the way it manages dikes and dams along the river. But the Corps has long claimed the 2011 flood could not have been prevented. Excessive water from melting snow and spring rains, it says, poured trillions of excess gallons of water into the basin. That, the Corps contends, made floods inevitable. More broadly, the Corps denies changing rules enough to cause unanticipated flooding. Updates to management plans in 2004 and 2006 did not change "the volume of storage in the system reserved for flood risk reduction," the Corps' 2014 Missouri river operating plan says.

The landowner's lawsuit seeks unspecified damages from the federal government. The landowners' lawyer said the damages could exceed $250 million. The lawsuit does not ask the court to order the Corps to prioritize flood control. The landowners' lawyer – Dan Boulware of the Kansas City-based Polsinelli law firm – said only Congress can make that decision. Congress has struggled unsuccessfully for years to reach an agreement on how to manage the river. Upstream interests seek to keep the reservoirs as full as possible to provide recreation, power and water in the upper Great Plains states. Some downstream interests work to keep water in the reservoirs in the spring so there will be enough to support shipping in the summer and fall. Yet keeping the reservoirs full in the spring means less storage for runoff. When that runoff exceeds capacity – as it did in 2011 – the Corps has no choice but to release the water, contributing to downstream floods. After the 2011 floods, several Missouri River working groups were assembled, with governors, senators and House members discussing new guidelines for the Corps to more accurately address the competing concerns. To date, there has been no overall agreement.

Kenneth Reeder, a plaintiff who owns businesses and homes in a flood-prone area in St. Joseph, MO, says the public should pay for

his losses because it receives benefits when his properties are inundated. The public has realized "around $52 billion in savings to other infrastructure by parking that water on top of us for 25 weeks," he said. "You have to compensate us for that." Boulware, though, said his clients don't want the government to buy their flooded property. Instead, they want their damages covered but for the land to remain in private hands. "It's tough for them to abandon the land and move out," he said, "and they shouldn't have to."

But in order to fully understand this situation, one needs to recognize where much of the at-risk "private farmland" came from in the first place. It was and always will be part of the "Wide Missouri's" floodplain. It only became "farmland" after the Corps channelized the River in the 1930s as shown in the accompanying figure. The fallacy of that move became clear during the 1993 and 1994 floods when the river broke out of its "straight jacket" of levees and flooded bluff to bluff in both years. Additional flooding has occurred in recent years as claimed by the plaintiffs. But the floods of 1993 and 1994 caused common sense to return when some of the landowners chose to sell their land and allow it to be returned to a more natural state in order to absorb some of the flood waters when the great floods return. Those government buyouts also generated benefits for native wildlife. The need for returning a portion of the floodplain to a more natural state is clearly outlined in the "Galloway Report" (Sharing the Challenge: Floodplain Management into the 21st Century) prepared for the White House by the Interagency Floodplain Management Review Committee during the 1994 flood recovery effort. Floodplain managers would be well advised to follow that blueprint.

Graphic showing how the Missouri River floodplain was transformed by the federal bank stabilization and flood control project at Indian Cave Bend, NE. Natural habitats and floodplain flood storage capacity were eliminated when adjacent farmers claimed, cleared and leveed floodplain forests for farming. What was once public river floodplain lands was thus converted into private holdings. This occurred along much of the Missouri River downstream from Sioux City, IA. The natural flood storage capacity of the river's floodplain was thus eliminated along with most of the river's wildlife and fisheries habitats.

Source: Dave Helling, *The Kansas City Star*, 3/5/14

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Water Starved West Quietly Eyes the Mississippi River

Quick and decisive action is needed to save the Colorado River Basin in the face of severe drought and a warming climate, according to a new report entitled, *Mapping the River Ahead: Priorities for Action Beyond the Colorado River Basin Study*. The report, released in March, summarizes interviews with government experts and other stakeholders across the basin. But despite climate change and increasing water demand, the stakeholders remain positive that effective actions can and will be taken, if for no other reason than that the ongoing drought in the seven-state, binational basin has served as a wake-up call for many. The report was based on confidential interviews with 32 stakeholders conducted by the University of Montana's *Center for Natural Resources and Environmental Policy* (CNREP).

A Bureau of Reclamation study in 2012 forecast a potentially devastating supply-and-demand gap on the river. That study projected an average water deficit across the Colorado River Basin of more than 3.2 million acre-feet – or roughly 970 billion gallons – by 2060, in large part due to exponential population growth in the region and higher average temperatures. "I think what's really interesting is that people are ready to speak confidentially, and they are remarkably candid in both the scale of the threats [to the basin] and the

potential for significant action and response," said Sarah Bates, a senior fellow with the CNREP who conducted the interviews. The Reclamation study created a sense of urgency among stakeholders. "The urgency of the present situation cannot be over estimated, and no one knows the risks better than the water managers who will guide the actions and formulate the contingency plans of the future," Anne Castle, the Interior Department's assistant secretary for water and science, wrote in the forward to the 24-page report released in March. "While each has particular interests to guard, Colorado River experts also know that solutions will not be easy and will likely require adjustment to some heretofore jealously guarded positions and anticipated benefits," Castle wrote.

The 32 stakeholders in the report, whose responses were kept confidential, ranged from Jennifer Pitt of the *Environmental Defense Fund* and Jim Ogsbury, executive director of the *Western Governors' Association*, to Mario Lopez Perez of the *National Water Commission of Mexico* and Eric Kuhn, general manager of the *Colorado River Water Conservation District*. All the stakeholders who were interviewed "agreed that time is short, the need for action is urgent," the report said. Options for action suggested in the report include the following:

- Provide incentives for farmers who convert to drip irrigation or grow less thirsty crops.
- Improve efficiency of water use by city dwellers before demanding water from other sectors.
- Establish a water banking system, in which water rights and conserved water are saved for future use – ideally for dry years.
- Take water from outside the river basin to augment Colorado River water, possibly from the Mississippi River.

Stakeholders interviewed acknowledged that the water diversion option would only be pursued as a last resort. But Castle wrote that "The stakes have never been higher, but the level of engagement and willingness to acknowledge all the elephants in the room are also at an all-time peak. This report gives voice to some important ideas for potential refinement and a peek into the evolution of thinking and broad-based education that will be essential in identifying practical and implementable solutions to our common challenges."

Source: Scott Streater, *Greenwire*, 3/20/14 BACK TO TOP

U.S. Could Double its Hydropower Capacity

A new report from the U.S. Department of Energy (DOE) concludes that the United States has the potential to almost double its hydropower generation capacity and replace hundreds of millions of metric tons of carbon dioxide emissions each year. The report assessed the hydropower potential of more than 3 million rivers and streams in all 50 states, estimating that there could be 65 gigawatts of potential new hydropower development. Hydropower is the largest source of renewable electricity in the United States, providing 7 percent of total electricity generation. According to the DOE assessment, America's untapped hydropower potential is almost equivalent to its current production. Western states, particularly in the Pacific Northwest, have the greatest hydropower potential, the DOE says with potential capacity exceeding 24,000 megawatts.

Small Scale Hydropower Project - Worldwatch Institute Photo

"The United States has tremendous untapped clean energy resources and responsible development will help pave the way to a cleaner, more sustainable and diverse energy portfolio," Energy Secretary Ernest Moniz said in a statement. Responsible development was a focal point of the study. The assessment analyzed technical, socioeconomic and environmental characteristics of potential hydropower facility locations, and included stream- and river-specific information on local wildlife habitats, protected lands and fishing access areas. DOE emphasized that most of the new hydropower facilities that could tap into this unused capacity would be smaller operations. Large hydropower projects have been controversial in the United States and around the world for displacing communities and disrupting ecosystems. "There are still many opportunities to develop new hydropower projects around the country, most of which would likely be smaller, run-of-river facilities that could utilize new low-impact designs and technologies," said the DOE in a statement accompanying release of the report.

Source: Henry Gass, *ClimateWire*, 5/1/14 BACK TO TOP

EPA Permit Veto Authority Stands

The Supreme Court in late March declined to review a broad challenge to U.S. EPA's authority to retroactively veto Clean Water Act permits issued by the U.S. Army Corps of Engineers (Corps). *Mingo Logan Coal Co.*, a subsidiary of *Arch Coal Inc.*, challenged EPA's decision to veto parts of a Section 404 dredge-and-fill permit for a sprawling mountaintop-removal strip mine in Logan County, WV, four years after it was issued. By not taking up that challenge, the justices let stand a U.S. Court of Appeals for the District of

Columbia Circuit ruling last April that upheld EPA's veto authority. The three-judge panel of the D.C. Circuit had reversed a lower-court ruling and upheld EPA's actions. Writing for the court, Judge Karen Henderson said the "unambiguous language" of the Clean Water Act "manifests the Congress's intent to confer on EPA a broad veto power extending beyond the permit issuance". The panel is composed entirely of Republican-appointed judges, including Brett Kavanaugh, an influential conservative jurist. That may explain why the conservative-leaning Supreme Court passed on the case.

EPA decided in 2011 to withdraw several parts of the permit that had been issued in 2007, effectively halting development of Arch's *Spruce No. 1 mine*. The move was applauded by environmentalists who are critical of mountaintop-removal mining's impact on nearby waterways and had been pressuring EPA to be more aggressive in its oversight. But businesses decried the decision, saying it called into question whether EPA could revoke a Corps permit whenever it sees fit. Critics charged the agency had never before used that authority in a retroactive manner. Many influential trade groups, including the *U.S. Chamber of Commerce* and *National Association of Manufacturers*, intervened in the case in support of the coal company. *Arch* did not immediately provide comment on the Supreme Court decision, but spokeswoman Kim Link noted that litigation related to Spruce is far from over. When *Arch* sued EPA, it challenged its power to scrap any permits retroactively, but also the agency's decision to do so in the *Spruce* case.

The courts decided to take one issue at a time, with the threshold issue going first. *National Mining Association* spokesman Luke Popovich said, "We're disappointed, obviously, but now the case will be heard by the district court on the merits." Environmental groups expressed confidence that EPA would prevail in the ongoing litigation. And they praised the Supreme Court for not taking the case. "The Clean Water Act, enacted with wide bipartisan and public support, gave EPA broad authority to step in and stop this type of wholesale destruction and pollution of U.S. waters," *Earthjustice* President Trip Van Noppen said. "The Supreme Court refusal to hear industry's baseless case confirms that the EPA has the clear legal authority to prevent the dumping of waste whenever it would cause unacceptable harm to communities and the environment."

Source: Jeremy P. Jacobs and Manuel Quiñones, *Greenwire*, 3/24/14 BACK TO TOP

Swimming Ability of Hatchery vs Wild Fish

Researchers from Washington State University have found that hatchery fish swim more slowly than their wild counterparts. The researchers studied 100 fish from five different lines of rainbow trout. Each line had a varying degree of domestication: Some of the fish were more closely related to fish bred in hatcheries for more than a century, while others were descended from lines that became domesticated within the last couple of generations, making them more genetically similar to wild fish. Scientists studied the trout – all of which were propagated on the university campus – over a period of 10 to 15 weeks, measuring them for size and swimming speeds. According to the study, recently published in the journal *Aquaculture*, the fish from the more domesticated lines had higher growth rates, but moved at slower speeds than the wilder fish. The study builds on previous research done at the university, lead author Kristy Bellinger said.

Such findings should have implications for how hatcheries are managed, especially in the Pacific Northwest, where hatchery fish are used to supplement declining wild stocks of steelhead and salmon, she noted. Because of their likelihood to swim more slowly, they are also more likely to be caught by predators. To Bellinger, that means using hatchery fish to boost the native stocks is inefficient and a waste of money. There's an ongoing debate in the fishing community about hatchery fish versus wild fish, which has resulted in lawsuits in recent years from conservation groups that argue hatchery fish have negative impacts on wild populations. As policy makers wade into that argument, Bellinger said she hopes research like hers is taken into account. "It's super frustrating," she said. "There is so much science that shows the differences between hatchery and wild populations, but it never seems to be taken into account for management policy."

Source: Jessica Estepa, *Greenwire*, 3/14/14 BACK TO TOP

Hatchery Program Aims for Better Biting Fish

In Oregon, according to fishermen, it is getting harder and harder to get hatchery-bred steelhead to bite. Wild fish are more likely to be caught and released, but their numbers are declining. And there is a growing body of evidence showing that the "biting" discrepancy between hatchery and wild fish is not some fish story, but the result of natural selection. Wild fish, which generally must be released unharmed, retain the aggression that will land them on the end of a hook better than hatchery fish. A rainbow trout that goes to the ocean to grow up becomes known as a steelhead, but they do not feed when they return to their native river to spawn. They will, however, still bite a clump of roe, a ball of yarn, a worm, a fly, or a lure wiggling in their face.

As scientific evidence has grown that hatchery fish are less likely to survive in the wild, and even contribute to declines of wild fish, many hatcheries have been mixing in wild fish to improve the gene pool. Now, the Oregon Hatchery Research Center (OHRC) has

agreed to see if it can breed the bite back into hatchery steelhead. Results won't be known for at least four years, but one thing is certain: It makes no sense for the state to spend $25 million a year to produce fish for fishermen to catch, if those fish won't bite. "It's an exciting idea for us," said David Noakes, a professor of fisheries at Oregon State University and senior scientist at the research center. "Depending on what the answer is, we might be changing a lot of things about raising hatchery fish and stocking hatchery fish." Unfortunately, so few steelhead returned to the Alsea River this year that volunteer anglers did not turn in the 30 live wild fish needed to start the experiment, Ryan Courture, OHRC Director said. They'll try again next year. It takes a year to raise the fish to be old enough to release, then two more years to return as adults.

Surveys of Deschutes River anglers since 1977 consistently show that wild fish account for the bulk of fish caught, even as their numbers have dwindled. In 2013, nearly six wild fish were caught for every hatchery fish, while hatchery fish outnumbered wild fish nearly three to one. On the Alsea, the first year of a three-year creel survey found hatchery fish bred from wild parents were caught by fishermen three times more often than those bred from the hatchery's long-standing stock. The biter experiment goes a step further, breeding fish exclusively from wild parents caught by fishermen, and comparing them to non-biters that return to the hatchery.

There is evidence that when it comes to biting, a fish is not just a fish. A 30-year study published in *Transactions of the American Fisheries Society* in 2009 on the effects of fishing on black bass in an Illinois lake showed that removing the aggressive fish that bite while defending their nests during spawning season produces a population less likely to bite. In short, the tendency to bite can be inherited, said David Philipp, the study's lead author and principal scientist at the University of Illinois' Illinois Natural History Survey. "As you fish a population, you tend to catch the most aggressive ones. Often times they are removed from the population. As a result, the population becomes less vulnerable to angling because it is less and less aggressive," Philipp said.

Sources: Jeff Barnard, *AP*, 4/25/14; and *Greenwire*, 4/25/14 BACK TO TOP

No Kill Caviar

Collecting fish eggs for caviar usually means killing the fish. But now Anglea Köhler, a German scientist, has developed a new technique of massaging the ripe eggs from a female sturgeon – without killing or even cutting the fish open. Köhler says this technique could make caviar more abundant, more affordable, and more accessible to all. She has spent nine years developing the new production system and is calling it, "no-kill caviar". It is also being marketed as "cruelty-free caviar" and "correct caviar". The new technique could help reduce demand for black market caviar and save endangered wild sturgeon from being hunted to extinction.

The new method is being practiced at a small farm in Loxstedt, Germany, called *Vivace GmbH*. The technique involves first viewing a sturgeon's eggs by ultrasound. Then if the sturgeon are deemed ready, a signaling protein is administered to the sturgeon several days before the egg harvest. This, Köhler says, "induces labor" and releases the eggs from a membranous sack in the belly cavity. At that point, the eggs can be pumped from the belly with gentle massaging. Köhler says the process can be repeated every 15 months or so throughout a sturgeon's lifetime, which may last decades. The method is considered an improvement over so-called "C-section caviar" production, which requires making a small incision in the female fish to access her eggs. The C-section operation allows the producer to harvest the roe without using any chemicals to induce egg-laying. But C-sections subject a sturgeon to the risk of fatal infection and can damage the fish's ovaries, reducing future roe yields. "[The *Vivace* method] will make caviar production more financially reasonable," Köhler says. "It doesn't make much sense to take a fish that needs seven or eight years to mature and then, when it has its first eggs, kill it."

The *Vivace* farm in Loxstedt produced only about 1,100 pounds of caviar last year, Köhler says. If demand grows, output could eventually rise to 10 tons per year. That's still just a tiny fraction of current global output. But if enough other caviar farms adopt her method – which would involve paying money for proprietary information about the process – Köhler says caviar farming could become a relatively cheap endeavor. Supply could increase as prices dive. In the end, low-priced no-kill caviar could undercut the market for illegally produced wild sturgeon caviar. But some skeptics doubt that no-kill caviar will catch on. Geno Evans, owner of *Anastasia Gold Caviar*, in Pierson, FL, has tried making caviar without killing his fish, and he wasn't impressed. In order to massage the roe from the fish's body cavity, he explains, you have to wait until a sturgeon is nearly ready to lay her eggs. For Evans, this resulted in overly oily, soft caviar. "[The eggs] were mushy," he said. "It was gross. It wasn't caviar." Köhler's method addresses this texture issue by rinsing the tender, overripe roe immediately in a calcium-water solution. This makes the oil-rich pearls durable enough to undergo salting and curing without breaking. It also improves the texture, according to Deborah Keane, owner of the *California Caviar Company*, in Sausalito, CA, currently the only American importer of *Vivace* no-kill caviar. "You get what chefs call the 'Caspian pop – a very firm snap in your mouth as you bite each egg," says Keane.

Wesley Holton, the executive chef of *Rose. Rabbit. Lie.* in Las Vegas, is among several American chefs using the product. He says *Vivace* caviar tastes about the same as traditional caviar, but withstands heat better. (The traditional stuff tends to wilt when cooked.) *National Public Radio* journalists sampled the *Vivace* caviar alongside more traditional styles at Keane's tasting room. The traditional caviar from *Acipenser baerii*, the Siberian sturgeon, was creamy and buttery, with a pronounced flavor of brine, sardines and smoked

salmon. A similar product made from the eggs of *A. transmontanus*, the white sturgeon of Western North America, was also buttery smooth, with a salty flavor and an interesting finish of pond water and river fish. The *Vivace A. baerii* caviar was entirely different. The tiny black eggs did not melt in the mouth but, rather, popped. Flavor was faint and subdued, with quiet hints of salt marsh and catfish. It was not the journalists' favorite of the three. With regard to cost, an ounce of *Vivace* will run you $125 to $135 in Keane's shop, compared to $105 an ounce for conventional caviar of the same species. A custom-packed jar of *Vivace "golden caviar,"* taken from albino fish, will fetch up to $800 per ounce. But Keane argues that if more farms adopt the *Vivace* method, no-kill caviar could eventually become "an everyday indulgence," bringing costs down to $20 or $30 per ounce. But Michael Passmore, a Sacramento, CA area sturgeon farmer asked, "Why would producers of caviar want prices to continue to drop?"

Sources: Alastair Bland, *NPR*, 3/30/14; and *Greenwire*, 3/31/14 BACK TO TOP

Economic Benefits of Habitat Restoration

Habitat restoration programs helped create nearly 4,000 jobs and generated about $326 million in economic activity around the U.S., according to a new report from the U.S. Fish and Wildlife Service (USFWS). The "Restoration Returns" report, released in late April, analyzes the economic output of USFWS's *Partners for Fish and Wildlife Program* (PFW) and the *Coastal Program* in fiscal 2011. The programs provide funding for a combined 3,941 projects on both private and public lands. Every federal dollar spent on these projects resulted in $7 to $9 in economic benefits, according to the report. "This report provides further evidence of the power of public-private partnerships in not only achieving conservation goals, but in providing tangible incentives that can help sustain local economies," USFWS spokesman Gavin Shire said in an email. The report details how much money was invested in all 50 states, as well as the District of Columbia and the Caribbean territories, through PFW. It also notes the funds given to 21 states and the Caribbean territories for the *Coastal Program*.

Out of the thousands of projects completed in fiscal 2011, the report provides a sample of 15 efforts from around the country ranging from restoring tidal ecosystems in San Diego's South Bay to the removal of a dam in Minnesota. The report notes that its analysis does not include some benefits from restoration work, such as ecological services, improved recreational opportunities and land acquisition. USFWS plans to take a look at those kinds of benefits as analytical methods improve, Shire said. The agency used the *IMPLAN* model, an analysis originally developed by the Forest Service to study how forest plans affect the economy. This is the first time the agency has completed an economic analysis of these programs, Shire said. The agency prepared the report in order to better translate the value of restoration work.

Source: Jessica Estepa, *E&ENews PM*, 4/23/14 BACK TO TOP

Economic Benefits of National Parks

National parks generated more than $26 billion in economic activity in 2012, according to an annual report released in early March on the effects of visitor spending. Interior Secretary Sally Jewell released the report – along with one on the costs of last year's shutdown. In a conference call with reporters, Jewell called the report a "really important tool for us to use to make the case for why parks are good investments for American people." The 50-page document includes details on local effects, enabling so-called gateway communities to press their own legislators to support park funding. The message to congressional appropriators, while not explicit, was clear: National parks are a good investment. Jewell and National Park Service (NPS) Director Jon Jarvis emphasized that every $1 from Congress results in $10 of economic activity.

The report on last year's shutdown hammered home the importance of parks to local economies. Interior estimates the 16-day shutdown resulted in almost 8 million fewer visitors who would have spent $414 million. The agency calculated the effect using an average of data from October 2010, 2011 and 2012. In 2012, the nation's 401 parks attracted more than 280 million visitors. Those visitors spent money on gas, hotels, convenience stores, outfitters and other businesses – all of which added up to about $11.2 billion, according to the annual report. So-called secondary effects, such as the spending of employees at those businesses, totaled an additional $15.4 billion. Such spending supported 243,000 jobs, almost 200,000 of which were in local communities, according to the report. States with more parks – and bigger ones – benefited the most, with California at the top with $1.5 billion in visitor spending.

Though NPS has produced such data for more than two decades, the agency used a new economic spending model this year, making it difficult to compare this year with past years, Jarvis said. Among the differences are larger "gateway" regions that the agency says will "capture a greater portion of secondary spending." The new model also will enable NPS to release the annual report faster than in the past.

Source: Emily Yehle, *E&ENews PM*, 3/3/14 BACK TO TOP

Potential Paths to Water Contamination by Fracking

Risks to water resources from hydraulic fracturing can occur through four major routes, according to a new review released by scientists at Duke University:

- Stray methane gas from formations could leak from improperly constructed gas wells into shallow aquifers.
- Wastewater from shale gas drilling could spill at the surface or could be improperly disposed of in streams and rivers.
- Metals or radioactive elements could collect in rivers and streams where partially treated wastewater effluent is released.
- Freshwater withdrawals for fracking could stress groundwater availability in drought-prone regions.

The study was published in the journal *Environmental Science & Technology* in March and is a review of existing research by Avner Vengosh, Robert Jackson and colleagues at Duke University. Fracking, a process in which oil and gas companies inject water, chemicals and sand at high pressures to fracture shale rock and release oil and gas, has been a major concern for residents who worry that the process may contaminate water supplies. Most studies so far have found that fracking itself, narrowly defined, does not pose a risk. However, there is evidence that improper drilling techniques, especially faulty surface casing and cementing, can contaminate aquifers. Scientists have found elevated levels of hydrocarbon gases in some groundwater supplies, likely from leaks in well casings, the review states. Gas could also escape through abandoned oil and gas wells or through pre-existing fractures and faults that are adjacent to the formations being fracked. In most cases, it is a combination of both well integrity and local geology that leads to methane migration, the review states.

Source: Gayathri Vaidyanathan, *EnergyWire*, 3/24/14 BACK TO TOP

FracTracker - Oil and Gas Well Mapping Tool

Finding the nearest active oil or gas well could be just a few clicks away with the latest map from the *FracTracker Alliance*. Launched in March, the interactive map allows users to locate all 1.1 million active oil and gas wells in the U.S. and can also be limited to extraction plays in shale – where hydraulic fracturing is typically deployed – and the shale basins themselves. A chart that accompanies the nationwide map lays out the types of wells in the U.S., specifying directional, horizontal, vertical and frac drilling. For the purposes of the map, wells were considered active if they had been drilled and not yet plugged.

However, the map's makers caution that it is not perfect. It has no location data for wells in Maryland, North Carolina and Texas. Maryland and North Carolina have very little drilling, and *FracTracker* was still waiting for the states to provide the data. Well locations in Texas – which is among the places in the country with the greatest amounts of fracking, thanks to the *Eagle Ford Shale* – must be purchased, and state prohibitions against redistribution of the data made *FracTracker* worried about potential legal ramifications. State-by-state definitions also make a uniform map exceedingly difficult to compile, with different reporting requirements and different characterizations of what constitutes what kind of well. When it comes to tracking hydraulic fracturing, "that data is hard to get," said Matt Kelso, the manager of data and technology for *FracTracker*. "Trying to identify these wells that we're interested in is a challenge because the definitions legally vary from state to state," Kelso said. "It makes the nationwide data picture a mess." The *FracTracker Alliance* is a nonprofit primarily funded through foundations, especially the *Heinz Endowments*. The group's maps include fracking operations in 21 states and British Columbia.

Source: Bryan Koenig, *EnergyWire*, 3/31/14 BACK TO TOP

Climate Change Impacts on Stream Flow

As the globe warms, more precipitation is likely to come as rain rather than snow and this will likely have a negative impact on river flows according to a new study completed by Wouter Berghuijs for a Master's Degree at the Delft University of Technology in the Netherlands. The paper, published in mid-May in the journal *Nature*, reported that for 420 river basins across the U.S. between 1948 and 2001, when the water in those basins, or catchments, fell as snow, streams ended up having more water in them. "Snow appears to be a very important driver for how much water ends up in the river," said Berghuijs, currently a doctoral student at the U.K.'s University of Bristol. This is contrary to past assumptions, Berghuijs' paper states.

The basins analyzed in the research were very diverse, ranging from the wet northeast to semiarid regions and California's Sierra Nevada, Berghuijs said. And while the factor by which the stream flow increased varied basin to basin, the consistent result was that when a higher fraction of the total precipitation came as snow, the rivers ran higher. The impact on stream flow of less precipitation falling as snow seemed to be larger in semiarid environments such as the Sierra Nevada versus wetter environments, Berghuijs said. He was cautious, however, about making generalizations saying other factors, including human influence, can also play a role. This could have important implications for areas like California and much of the U.S. West, reliant on water from mountain streams that flow into storage reservoirs. "Our results indicate that if indeed it gets warmer and less of your precipitation falls as snow, then it

would decrease the amount of water flowing in the river and decrease the amount of water flowing into the reservoirs," Berghuijs said.

This year, due to a significant drought, California is expecting negligible flow into key storage reservoirs. Lake Powell, a major storage reservoir on the Colorado River, is at very low levels, threatening hydroelectric production from the dam. More than a sixth of the Earth's population depends on meltwater for its water supply, so "the socioeconomic consequences of a reduction in stream flow can be substantial," the paper states. Martyn Clark, a hydrologist with the *National Center for Atmospheric Research*, who was not affiliated with the paper, said the study raised an important point that had been neglected to a large extent by the scientific community.

Source: Stephanie Paige Ogburn, *ClimateWire*, 5/19/14 BACK TO TOP

Climate Change and Insurance Claims Lawsuit

Illinois Farmers Insurance Co. has withdrawn a lawsuit against Chicago for alleged climate-related flooding, marking an abrupt end to a legal claim with prospects of pushing cities to act against climate change. A spokesperson for *Farmers* said in a statement that the company reversed course after the lawsuit successfully gained national media attention and the attention of municipalities, which the company had accused of mismanaging their storm water systems. Local officials were quick to respond to the lawsuit with criticism and warning that taxpayers would shoulder the cost of the class-action suit.

Farmers filed nine class-action lawsuits in April 2014 alleging that dozens of Chicago-area municipalities were responsible for the damage caused by a two-day downpour last year in April. The company claimed that local officials are aware that climate change is causing heavier rainfalls, but failed to prevent sewage backups in more than 600 homes by draining water from the region's system of tunnels and retention basins before the storm. The *Farmers* lawsuit used the climate assertions by local officials to show that they know about the risks of a warmer and wetter atmosphere but didn't do enough to avoid damage. The suit points to the Chicago *Climate Action Plan* as evidence that the city is aware of the dangers. "The defendant knew or should have known that climate change in Cook County has resulted in greater rain fall [sic] volume, greater rainfall intensity and greater rainfall duration than pre-1970 rainfall history evidenced, resulting in greater storm water runoff," the lawsuit had stated.

Farmers claimed that the *Metropolitan Water Reclamation District of Greater Chicago*, an agency that operates the region's storm water system, and dozens of municipalities should have drained the network of tunnels before the storm. The sprawling system includes a massive tunnel project begun in 1968 to capture 20 billion gallons of water. The water reclamation agency notes that the *Tunnel and Reservoir Plan*, or TARP, is meant to handle increased runoff. A *Farmers* spokesman described the damage as "completely preventable" and said the court case was meant to "prevent it from happening again." *Farmers* was asking to be reimbursed for the claims it paid to homeowners who sometimes saw geysers of sewage ruin basement walls, floors and furniture. The company says it also paid policyholders for lost income, the cost of evacuations and other damages related to declining property values. But some analysts say that *Farmers* likely had a bigger prize in mind. The company, which is a subsidiary of global giant *Zurich Insurance Group*, could be positioning itself to avoid future losses nationwide from claims linked to floods, sea-level rise and even lawsuits against its corporate policyholders that emit greenhouse gases, said Andrew Logan, an insurance expert with *Ceres*.

Legal experts say the suit would have been the first of its kind, and if successful it could have far-reaching implications in the way that municipalities approach climate change. Several observers said that the outcome could have spurred municipalities around the nation to quickly upgrade their stormwater systems and uproot long-held design standards used by engineers when building infrastructure.

Source: Evan Lehmann, *ClimateWire*, 5/14/14, 6/5/14 BACK TO TOP

Useful Reports and Web Sites

The USEPA's Literature Review of Contaminants in Livestock and Poultry Manure and Implications for Water Quality is now available. The report was developed as part of ongoing efforts to better understand the environmental occurrence and potential effects related to contaminants of emerging concern. Past reviews of animal manure have focused primarily on nutrient issues. This report focuses on summarizing technical information on other components, particularly pathogens and contaminants of emerging concern such as antimicrobials and hormones that might affect water quality.

The USGS has released national maps and trend graphs showing the distribution of the agricultural use of 459 pesticides for each year during 1992–2009 for the entire conterminous United States. The maps and supporting national database of county-level use estimates for each pesticide were developed by the USGS for use in national and regional water quality assessments.

In May 2013 the USGS released Restoring a Stream, Restoring a Community – Urban watershed restoration fosters community improvement, an analysis of the Watts Branch of the Anacostia River in Washington, D.C. and Maryland's Prince George's County.

The report explains how restoration work on this urban tributary has had a substantial impact on the local economy.

New USGS research found that many wetlands created for habitat do very little to improve water quality problems in streams and rivers if not hydrologically connected. Lack of hydrologic connectivity to streams and rivers limits inputs of pollutants (sediment, nitrogen, and phosphorus) to both created and natural wetlands where the detrimental effects of these pollutants could be mitigated.

The USGS has developed an interactive, sediment data portal to improve the utility and accessibility of suspended sediment data for watershed managers, policy makers, researchers, and the public. This online database represents the best available compendium of suspended sediment data for streams in the U.S. Ancillary information on streamflow condition, sediment grain size, sampling method, and landscape condition are also available within the portal.

Source: *NonPoint Source News-Notes*, April 2014, Issue 95

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Meetings of Interest

Jul. 13-16: 2nd North American Congress for Conservation Biology, Missoula, MT. See: http://www.xcdsystem.com/scbna/website/

Jul. 27-31: 69th Soil and Water Conservation Society International Annual Conference - *"Making Waves in Conservation - Our Life on Land and its Impact on Water"*, Lombard, IL, See: http://www.swcs.org/index.cfm?nodeID=69027&audienceID=1

Jul. 28-Aug. 1: Conference on Ecological and Ecosystem Restoration, Hilton Riverside, New Orleans, LA. See: http://www.conference.ifas.ufl.edu/CEER2014/

Aug. 13-15: Invasion Genetics: The Baker and Stebbins Legacy Symposium, Asilomar, CA. See: https://www.eventbrite.com/e/invasion-genetics-the-baker-and-stebbins-legacy-symposium-registration-10538024515

Aug. 17-21: 144th Annual Meeting of the American Fisheries Society, Quebec City, Quebec, Canada. See: http://afs2014.org/

Aug. 23-28: 4th Biennial Symposium of the International Society for River Science (ISRS), Conference Theme: Connectivity, La Crosse Convention Center, La Crosse, WI. See: http://www.uwlax.edu/conted/isrs2015/index.htm

Sep. 30-Oct. 2: America's (Mississippi River) Watershed Initiative, Louisville, KY. See: http://www.conference.ifas.ufl.edu/awi/

Oct. 20-22: Upper Midwest Invasive Species Conference, Duluth, MN. See: http://www.umisc2014.org/

Oct. 26-30: Aquatic Resources Education Association, Traverse City, MI, Park Place Hotel. See: http://www.michigan.gov/dnr/0,4570,7-153-10369_46264_67816---,00.html

Dec. 8-11: A Community on Ecosystem Services (ACES), Crystal Gateway Marriot, Arlington, VA. See: http://conference.ifas.ufl.edu/aces/

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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. 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.

S. 659. Wyden (D/OR) and **H.R. 518,** Markey (D/MA) and 14 Co-sponsors. Reauthorizes and amends the *Reclamation States Emergency Drought Relief Act of 1991*, and for other purposes.

S. 1202. Whitehouse (D/RI) and Baucus (D/MT). Requires establishment of an interagency *Natural Resources Climate Change Adaptation Panel* to adopt the *National Fish, Wildlife, and Plants Climate Adaptation Strategy* and review and revise such strategy every four years.

H.R. 3988. Huffman (D/CA) and 8 Co-sponsors. Supplements Corps of Engineers (Corps) authorities to change reservoir operations in order to meet the needs of climate change.

H.R. 4461. Honda (D/CA) and 12 Co-sponsors. Climate Change Education Act.

Conservation

S. 51. Boxer (D/CA) and 11 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 10 Co-sponsors and **H.R. 2401**, Cotton (R/AR) and LaMalfa (R/CA). 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 41 Co-sponsors and **H.R. 2727**, McKinley (R/WV) and 12 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 24 Co-sponsors and **H.R. 2807**, Gerlach (R/PA) and 198 Co-sponsors. Amends the IRS Code to make permanent tax deductions for charitable contributions of real property interests for conservation purposes, and for other purposes.

S. 632. Mc Cain (R/AZ) and 12 Co-sponsors and **H.R. 1313**, Hartzler (R/MO) and 57 Co-sponsors. Repeals a provision of the *Food, Conservation, and Energy Act of 2008* establishing an inspection and grading program for catfish and other species of farm-raised fish or shellfish.

S. 741. Vitter (R/LA) and 15 Co-sponsors and **H.R. 2208**, Whittman (R/VA) and 9 Co-sponsors. Extends the *North American Wetlands Conservation Act* through 2017.

S. 923. Udall (D/NM) and **H.R. 1890**, Blumenauer (D/OR) and 25 Co-sponsors. Amends the *Food Security Act of 1985* to make a producer violating certain conservation requirements under the highly erodible land or wetland programs ineligible for federal crop insurance premiums.

S. 1441. Bennet (D/CO) and 3 Co-sponsors and **H.R. 3023**, Gardner (R/CO) and 5 Co-sponsors. Amends the IRS Code to facilitate water leasing and water transfers to promote conservation and efficiency.

S. 2080. Cardin (D/MD) and 2 Co-sponsors. Authorizes appropriation of $29 million over the 2015-2018 period for the Department of the Interior to fund projects to conserve fish habitats, and for other purposes.

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. 638. Fleming (R/LA) and 13 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). Reauthorizes Title 1 of the *Sikes Act* through 2019.

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

H.R. 1611. Ribble (R/WI). Authorizes use of Forest Service funds derived from conservation-related programs executed on National Forest System lands to utilize the *Agriculture Conservation Experienced Services Program* to provide technical services for conservation-related programs and authorities carried out on such lands.

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. 2261. Crawford (R/AR) and 6 Co-sponsors. Ensures continuation of successful fisheries mitigation programs by imposing charges for such mitigation on the federal agency developing an impacting project, 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.

H.R. 4551. Gibson (R/NY) and Garamendi (D/CA). Amends the *Cooperative Forestry Assistance Act of 1978* to authorize states to allow certain entities to acquire, hold, and manage conservation easements under the forest legacy program.

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 under the ESA, and for other purposes.

S. 1731. Paul (R/KY) and 2 Co-sponsors and **H.R. 3533**, Amodei (R/NV). Amends the ESA to permit state Governors to regulate intrastate endangered and threatened species, strips the protection from many currently listed species and their habitats, and for other purposes.

S. 2084. Pryor (D/AR) and Landrieu (D/LA) and **H.R. 4319**, Crawford (R/AR) and 5 Co-sponsors. Amends the ESA to require the Interior Secretary to publish and make available for public comment a draft economic analysis at the time a proposed rule to designate critical habitat is published.

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.

H.R. 4256. Stewart (R/UT) and 2 Co-sponsors. Amends the ESA to require counting the number of the species occurring on state and private lands before listing as endangered or threatened.

H.R. 4284. Neugebauer (R/TX) and 2 Co-sponsors. Amends the ESA to encourage greater state input and authority over species and habitat management by allowing states to propose and implement state Protective Action before species are listed under that Act, and for other purposes.

H.R. 4315 Hastings (R/WA) and 21 Co-sponsors. Amends the ESA to require Internet publication of the basis for threatened and endangered species determinations, and for other purposes.

H.R. 4316. Lummis (R/WY) and 24 Co-sponsors. Amends the ESA to improve the disclosure of certain expenditures under the Act, and for other purposes.

H.R. 4317. Neugebauer (R/TX) and 25 Co-sponsors. Amends the ESA to require disclosure of the basis of determinations under such Act, to the states to ensure use of information provided by state, tribal, and county governments in decision making under such Act, and for other purposes.

H.R. 4318. Huizenga (R/MI) and 27 Co-sponsors. Amends the ESA to conform citizen suits under the Act with other existing laws, and for other purposes.

Energy

S. 279. Tester (D/MT) and 9 Co-sponsors and **H.R. 596**, Gosar (R/AZ) and 57 Co-sponsors. Promotes development of renewable energy on public lands, and for other purposes.

S. 545. Murkowski (R/AK) and 12 Co-sponsors and **H.R. 267**, McMorris-Rodgers (R/WA) and 9 Co-sponsors. Improves hydropower, and for other purposes.

S. 1233. Inhofe (R/OK) and 13 Co-sponsors and **H.R. 2511** Black, (R/TN) and 37 Co-sponsors. Authorizes states to develop all forms of energy resources on available federal land in the state including meeting the requirements of the ESA and NEPA.

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

S. 1482. Hoeven, (R/ND) and 4 Co-sponsors. Prohibits the Interior Secretary from issuing or promulgating any guideline or regulation relating to oil or gas exploration or production on federal land in a state if the state has otherwise met the requirements under applicable federal law, and for other purposes.

S. 2010. Barrasso (R/WY) and **H.R. 1963.** Daines (R/MT) and 4 Co-sponsors. Amends the *Water Conservation and Utilization Act* to authorize development of non-Federal hydropower and issuance of leases of power privileges at projects.

S. 2280. Hoeven (R/ND) and 55 Co-sponsors. Approves the Keystone XL Pipeline.

H.R. 334. Poe (R/TX) and 42 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 prohibit FERC from considering public use and environmental purposes in issuing a license for a project in a state whose law expressly authorizes such a prohibition.

FWPCA and Water Quality

S. 496. Pryor (D/AR) and 11 Co-sponsors and **H.R. 311**, Crawford (R/AR) and 73 Co-sponsors. Directs the USEPA 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 60 Co-sponsors. Clarifies Congressional intent regarding regulation of pesticide use in or near navigable waters, and for other purposes.

S. 830. Manchin (D/WV) and 6 Co-sponsors and **H.R. 524**, McKinley (R/WV) and 13 Co-sponsors. Amends the FWPCA to clarify and confirm USEPA 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) and **H.R. 1829**, Capito (R/WV) and 21 Co-sponsors. Amends the FWPCA to provide guidance and clarification regarding issuance of new and renewal permits, and for other purposes.

S. 890. Paul (R/KY) and 8 Co-sponsors and **H.R. 3377**, Thornberry (R/TX) and 28 Co-sponsors. Prohibits FWPCA activities carried out by the USEPA or the Corps from impinging upon states' power over land and water use, clarifies the definition of navigable waters, 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. 1254. Nelson (D/FL) and 18 Co-sponsors. Amends the *Harmful Algal Bloom and Hypoxia Research and Control Act of 1998* to revise the membership requirements for the *Inter-Agency Task Force on Harmful Algal Blooms and Hypoxia*, and for other purposes.

S. 1343. Grassley (R/IA) and 5 Co-sponsors and **H.R. 4157** Crawford (R/AR) and 15 Co-sponsors. Prohibits the USEPA, or any EPA contractor or cooperator, from disclosing any information regarding the location of the owner, operator, livestock, or employee of any CAFO regulated under the Clean Water Act (CWA).

S. 1470. Kaine (D/VA) and Warner (D/VA) and **H.R. 2937**, Hurt (R/VA) and 6 Co-sponsors. Amends the FWPCA with respect to the guidelines for specification of certain disposal sites for dredged or fill material.

S. 1961. Manchin (D/WV) and 5 Co-sponsors and **H.R. 4024**, Capito (R/WV). Protects navigable waters from contamination by chemical storage facilities, and for other purposes.

S. 2225. Udall (D/NM) and Chambliss (R/GA). Provides for a smart water resource management pilot program.

S. 2226. Udall (D/NM) and 2 Co-sponsors and **H.R. 123**, Holt (D/NJ) and Miller (D/CA). Establishes a *WaterSense* program within the USEPA.

H.R. 1175. Cartwright (D/PA) and 70 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 4 Co-sponsors. Amends the FWPCA to clarify a maintenance exemption regarding the removal of sediment, debris, and vegetation from certain structures.

H.R. 1304. Walberg (R/MI) and 19 Co-sponsors. Permits the chief executive of a state to create an exemption from certain requirements of Federal environmental laws for producers of agricultural com-

modities, and for other purposes.

H.R. 1837. Pallone (D/NJ) and 84 Co-sponsors. Amends the FWPCA to clarify that fill material cannot be comprised of waste.

H.R. 1877. Bishop (D/NY) and 40 Co-sponsors. Amends the FWPCA to authorize appropriations for state water pollution control revolving funds, and for other purposes.

H.R. 1887. Engel (D/NY) and 3 Co-sponsors. Amends the IRS Code to deny all income tax credits and deductions to an offending oil polluter, 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. 2581. Hurt (R/VA) and 9 Co-sponsors. Replaces the need for an FWPCA permit for the discharge of dredged or fill material into navigable waters for projects which bring waters into uses for which they were not previously subject and where the flow or circulation of such waters may be impaired or the reach of such waters may be reduced with a requirement that a permit be obtained for any such discharge that is not currently exempted from permit requirements.

H.R. 2850. Smith (R/TX) and 15 Co-sponsors. Oversees review and release of the USEPA study on the impacts of hydraulic fracturing.

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 USEPA, and for other purposes.

H.R. 3464. LoBiondo (R/NJ) and 10 Co-sponsors. Amends the FWPCA to prohibit a permit from being required under such Act for a discharge incidental to the normal operation of a commercial vessel, and for other purposes.

H.R. 3582. Blumenauer (D/ID) and 7 Co-sponsors. Amends the IRS Code to establish a *Water Infrastructure Investment Trust Fund* for the USEPA to use in making capitalization grants under the CWA.

H.R. 4012. Schweikert (R/AZ) and 43 Co-sponsors. Prohibits the USEPA from releasing a regulation or related action without publicly disclosing the technical backing.

Grazing

S. 258. Barrasso (R/WY) and 8 Co-sponsors and **H.R. 657**, 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. 248. Begich (D/AK) and 2 Co-sponsors and **H.R. 584**, Young (R/AK) and 23 Co-sponsors. Amends the F*ederal Food, Drug, and Cosmetic Act* to require labeling of genetically engineered fish.

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 31 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 2 Co-sponsors and **H.R. 2856**, Fitzpatrick (R/PA) and 10 Co-sponsors. Amends the *Lacey Act* 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. 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 22 Co-sponsors. Amends the *Lacey Act* to prohibit the importation and exportation of quagga mussels.

H.R. 3105. Crawford (R/AR) and 5 Co-sponsors. Amends the Lacey Act to exclude from the meaning of the term "fish or wildlife" any animal accidentally included in a shipment of an aquatic species produced in commercial aquaculture for human consumption or for use for recreational or ornamental purposes.

H.R. 3994. Bishop (R/UT) and 2 Co-sponsors. Improves the control and management of invasive species on Federal lands, and for other purposes.

H.R. 4032: Hall (R/TX) and 2 Co-sponsors. Exempts from the *Lacey Act* certain water transfers by the *North Texas Municipal Water District* and the Greater *Texoma Utility Authority*, and for other purposes.

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 46 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. 2467. Markey (D/MA) and 2 Co-sponsors. Permits state or local governments or Indian tribes to petition for withdrawal of specific federal land from mining in order to protect specific values, and instructs the Interior Secretary to ensure that mineral activities on federal land are carefully controlled to prevent undue degradation of public lands and resources.

H.R. 2824. Johnson (R/OH) and 5 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. 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. 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. 1294. Alexander (R/TN) and Corker (R/TN). Designates specified federal lands in the Cherokee National Forest in Tennessee as wilderness and as additions to the *National Wilderness Preservation System*.

S. 1966. Barrasso (R/WY) and 2 Co-sponsors. Provides for restoration of the economic and ecological health of National Forest System land and rural communities, and for other purposes.

H.R. 916. Kind (D/WI) and 16 Co-sponsors. Directs the Interior Secretary to develop a multipurpose cadastre of federal real property to assist with federal land management activities, including, but not limited to, resource development and conservation, travel management, agricultural use, active forest management, environmental protection, and use of real property.

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. 1526. Hastings (R/WA) and 22 Co-sponsors. Doubles logging on national forests.

H.R. 1633. Amodei (R/NV) and 3 Co-sponsors. Provides for the conveyance of small parcels of federal lands up to 160 acres in size to adjacent landowners, and for other purposes.

H.R. 4545. Harper (R/MS) and 3 Co-sponsors. Directs the USDA to convey to the *Pat Harrison Waterway District*, approximately 8,307 acres of specified National Forest System land within the Bienville National Forest of Mississippi.

Public Works

S. 360. Udall (D/NM) and 9 Co-sponsors and **H.R. 1351**, Grijalva (D/AZ) and 41 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.

S. 994. Warner (D/VA) and 10 Co-sponsors, and **H.R. 2061** Issa (R/CA) and 10 Co-sponsors. Puts limits on federal spending for and attendance at scientific conferences, and for other purposes.

S. 1262. Nelson (D/FL) and 3 Co-sponsors and **H.R. 3451** Garcia (D/FL) and 29 Co-sponsors. Establishes a *Veterans Conservation Corps* to work on public lands.

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 13 Co-sponsors and **H.R. 1825**, Benishek (R/MI) and 108 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.

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 Corps dam, and for other purposes.

S. 982. Alexander (R/TN) and 3 Co-sponsors. Requires the Corps to: (1) cease implementing and enforcing any restricted area for hazardous waters at dams and other civil works structures in the Cumberland River Basin and (2) remove any permanent physical barriers constructed in connection with such area, and for other purposes.

S. 1554. Heinrich (D/NM). Requires publication of information on federal web sites of public lands available to public access for hunting, fishing and other recreational purposes.

S. 1996. Hagan (D/NC) and 27 Co-sponsors. Amends several acts and addresses multiple issues related to resource management and hunting and fishing on public lands.

S. 2018. Barrasso (R/WY) and 2 Co-sponsors and **H.R. 3492**, Lummis (R/WY) and Bishop (R/UT). Opens the rivers and streams of Yellowstone and Grand Teton National Parks in Wyoming to hand-propelled vessels. Declares specified regulations to have no force or effect with regard to the closing of rivers and streams of such Parks to such vessels.

S. 2028. Rockefeller (D/WV) and Thune (R/SD). Reauthorizes the *Sport Fish Restoration and Boating Trust Fund*, and for other purposes.

H.R. 2046. Gibbs (R/OH) and 8 Co-sponsors. Prohibits the Corps from promulgating or enforcing any regulation that prohibits an individual from possessing a firearm at a Corps water resources development project if the person can legally possess such firearm.

H.R. 2799. Latta (R/OH) and 7 Co-sponsors. Amends the *Fish and Wildlife Coordination Act* to establish the *Wildlife and Hunting Heritage Conservation Council Advisory Committee* to advise the Secs. of the Interior and Agriculture on wildlife and habitat conservation, hunting, and recreational shooting.

H.R. 3197. Latta (R/OH) and 4 Co-sponsors. Amends the *Toxic Substances Control Act* (TSCA) to exclude from the definition of "chemical substance" various types of hunting and fishing gear, and for other purposes.

H.R. 3590. Latta (R/OH) and 86 Co-sponsors. Amends several acts with regard to hunting and fishing on public

lands.

H.R. 3962. Daines (R/MT). Amends the *Land and Water Conservation Fund Act of 1965* to ensure that amounts are made available for projects to provide recreational public access, and for other purposes.

H.R. 4642. Israel (D/NY). Requires all recreational vessels to have and post passenger capacity limits and authorizes states to enter into contracts for the provision of boating safety education services, and for other purposes.

Water Resources

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 teams 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 33 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 50-foot 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) and **H.R. 3080**, Shuster, Bill (R/PA) and 47 Co-sponsors. *Water Resources Development Act of 2013*.

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

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.

S. 1630. Barrasso (R/WY) and 7 Co-sponsors and **H.R. 3189**, Tipton (R/CO) and 15 Co-sponsors. Prohibits the Secs. of Interior and Army from conditioning the issuance, renewal, amendment, or extension of any permit or similar action on the relinquishment of any water right directly to the U.S., and for other purposes.

S. 2055. Boozman (R/AR) and 4 Co-sponsors. Amends WRDA to authorize the Army Secretary to allow non-federal public or private entities to charge user fees for facilities which they are operating at civil works projects whether built by them or the government.

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. 1268. Palazzo (R/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 for other purposes.

H.R. 1460. Graves (R/MO) and 5 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 damages 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.

H.R. 2741. Noem (R/SD) and 2 Co-sponsors. Declares that states have authority to manage the waters of rivers located within their boundaries; and that states in which Missouri River mainstem reservoirs occur have the authority to allocate the quantity of water in the reservoir attributable to the natural flows of the Missouri River within its boundaries.

H.R. 2813. Cotton (R/AR). Amends the *Water Supply Act of 1958* to permit an interested state or local interest to submit to the Army Secretary by January 1, 2016, a plan for the utilization of future water storage under such Act.

H.R. 4001. Miller (R/MI) and 4 Co-sponsors. Directs the Corps to create a physical barrier between the Mississippi River System and Lake Michigan to prevent an Asian carp invasion of Lake Michigan.

H.R. 4029. Smith (R/MO), Requires the Interior Secretary to transfer all Federal land and facilities associated with the *Ozark National Scenic Riverways* to the State of Missouri.

H.R. 4182. Smith (R/MO). Adds the preservation of historical recreational activities as a purpose of the *Ozark National Scenic Riverways* in Missouri and prohibits the Interior Secretary from designating management zones in said Riverways.

H.R. 4258. Napolitano (D/CA) and 17 Co-sponsors. Amends the *Omnibus Public Land Management Act of 2009* to include "planning for or addressing the impact of drought" among the activities for which the Secretary may make grants and enter cooperative agreements for water management improvement, and for other purposes.

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