River Crossings

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Remarks From the MICRA Chairman

Almost any direction you turn today the media is reporting on another non-native aquatic invasive species causing real problems to humans or the environment. Organisms like quagga mussels, zebra mussels, Asian carp, apple snails, snakehead fish, tilapia, hydrilla, salvinia, etc…. are making headlines throughout the U.S. Consequences of these unintentional or deliberate introductions can be devastating, both economically and ecologically.

MICRA began in the late 1980's as an association concerned about protecting, restoring, and enhancing aquatic communities, particularly fisheries resources within the Mississippi River and its tributaries. While the Paddlefish Committee was MICRA's first working group and continues to remain active, the Mississippi River Basin Panel on Aquatic Nuisance Species has now moved to the forefront to address invasive species issues. MICRA has fully supported the Panel's work and urges everyone to become more involved in its issues. Our "*River Crossings*" newsletter continues to be a very important gateway to information on aquatic resource issues, and particularly on invasive species issues...so stay tuned.

The quality of the newsletter is largely thanks to Jerry Rasmussen and his passion for the resource, obvious during his long years of service as MICRA's Executive Director. *River Crossings* reflects that dedication, and while Jerry has officially retired from the U.S. Fish and Wildlife Service (USFWS), he has agreed to stay on as compiler/editor of *River Crossing* ensuring the quality and continuity of the publication that we have come to expect. Thanks Jerry!

- Bobby Reed, MICRA Chairman

Jerry Rasmussen with a 26 pound bighead carp collected in the Illinois River in 2002. Rasmussen was among the first to warn of the Asian carp threat to our rivers and to the Great Lakes. (USFWS photo)

Great Lakes Asian Carp Emergency

The unthinkable has happened for the Great Lakes. Asian carp have apparently breached the electronic barrier in the Cal Sag and Chicago Sanitary and Ship Canal (CSSC) which was designed and installed to prevent their invasion of Lake Michigan. Such an invasion opens the door for spread of the carp to the other four Great Lakes as well as to all adjoining waters to the north. If the carp invade in large enough numbers and can find adequate spawning habitat in the lakes and/or their tributaries, the fear is that they have the potential to establish thriving populations, upset the Great Lakes' ecosystem, and jeopardize the $7 billion Great Lakes sport fishery.

Inside This Issue

Scientists recently found Asian carp DNA in 32 samples collected from waterways lying between the electronic barrier and Lake Michigan. The DNA (see the following article) was detected in the Cal-Sag channel (see accompanying map) which splits off the CSSC. While biologists have observed no live carp in the canal, "There is no reason to think that there aren't carp present when the DNA is detected," said Dr. David Lodge, University of Notre Dame invasive species scientist in charge of the DNA study. If the Asian carp have passed through the $9 million electronic barrier, the only remaining obstacle between them and Lake Michigan is the O'Brien navigation lock on the Calumet River. And some of the carp DNA was found as close as 1 mile downstream of that lock, beyond which lies a 7-mile stretch of open water leading straight into the lake.

Officials said they have more DNA samples yet to process, but it takes 10 to 14 days to do that, so more information may be forthcoming as to how much farther the carp may have moved. The original samples were collected from the canals on Sept. 23 and Oct. 1, but results were not available to the U.S. Army Corps of Engineers (Corps) until Nov. 17. The Corps is in charge of operation and maintenance of the barrier. Lodge said no DNA tests have been conducted in Lake Michigan itself, but he said there is still reason to be optimistic that they would be negative. Further testing will be done in the area, said Col. Vincent Quarles, the Corps' Chicago district commander.

"It's a disaster," said Dan Thomas, president of the *Great Lakes Sport Fishing Council*. "Heads should roll for this," he said. Environmental groups have called for tougher action, including closure of all Illinois gateways and locks leading to Lake Michigan. "If we don't close the locks, we are waving the white flag and allowing one of the greatest ecological tragedies to occur," said Jennifer Nalbone of *Great Lakes United*. "We're going to keep throwing everything we possibly can at them to keep them out," said Cameron Davis, senior Great Lakes adviser to Lisa Jackson, head of the U.S. Environmental Protection Agency.

For several years, the northern migration of the silver carp appeared to be stalled in the pool just above the Dresden Island Lock and Dam on the Des Plaines River southwest of Joliet, IL – about 20 miles downstream from the barrier. But in August, the environmental DNA testing that Notre Dame biologists had quietly begun using in the canal revealed that the fish had started to move again, and it's been all hands on deck ever since.

Even before the current announcement, plans had been made to poison reaches of the canal below the barrier because routine maintenance was scheduled which requires shutting the barrier down for a short period of time. John Rogner, assistant director of the Illinois Department of Natural Resources (IDNR), announced in early November that his agency would lead an interagency effort to poison more than five miles of the CSSC in early December. More than 200 people would participate in the two-day, $0.75 million to $1.5 million event. "We want to be sure we get those (Asian carp) out of there before the maintenance," Phil Moy, *University of Wisconsin Sea Grant* and co-chairman of the barrier advisory panel working with the Corps said.

But after learning of the potential barrier breach, Moy said in an email to his panel members, "We need to temper somewhat the rhetoric about these fish leading to the destruction of the Great Lakes ecosystem. If they gain access to the lake in large numbers then there is a higher chance they can become established. If we keep the numbers low we reduce that risk". Further he said, "...We must continue to strive to keep the numbers of fish spreading through the canal low and increase our efforts to create the long term physical separation necessary to protect these two great national drainage basins".

Moy also recommended poisoning small portions of the Des Plaines River so researchers could get an idea of how many Asian carp have colonized that waterway. Unfortunately, the Des Plaines has a history of flooding its banks and spilling into the nearby CSSC via a roughly 6-mile long shared flood zone between the two waterways. The distance between the two is, in places, only a matter of yards. And a flood between the two would provide the carp a bypass around the barrier. Moy also recommended immediate construction of an emergency dike (earthen berm) or wall of sandbags to raise the narrow strip of land separating the Des Plaines from the CSSC. On his panel's web site Moy speculated that

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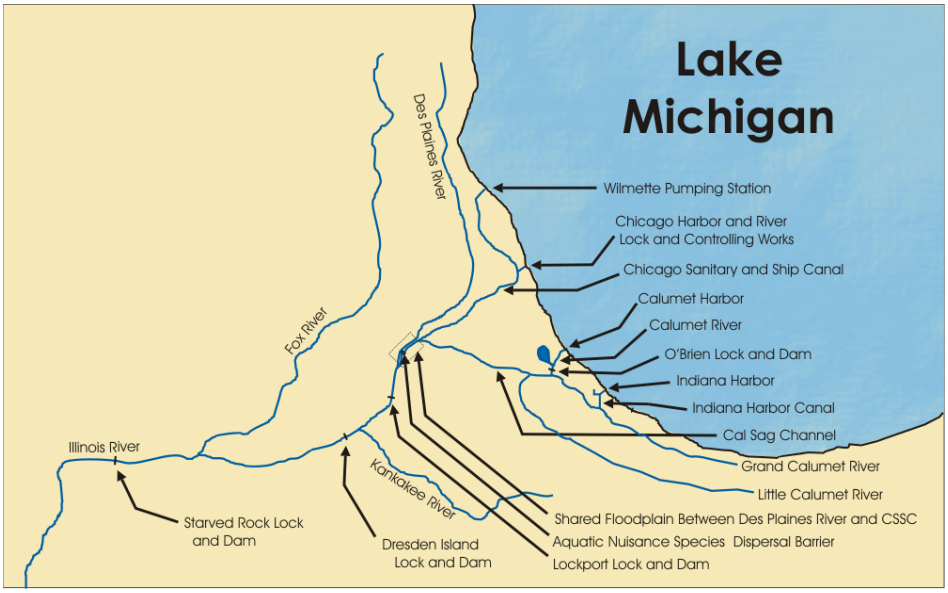


Map showing approximate locations of canals and connections between the Illinois River and Lake Michigan in the Chicago area, excluding the I&M Canal which parallels the CSSC near the Aquatic Nuisance Species Dispersal Barrier.

if the carp were present in the Des Plaines in 2008 they may have bypassed the barrier during a 50-year flood event that the area experienced in September of that year.

EPA's Cameron Davis said it was a "painful decision" to decide to poison the water. "I'm likening this action to chemotherapy," he said. "Nobody wants to go through chemo, but you do it to protect the good cells from being overridden by the bad cells. That's what this is." "If the carp get in, it will be catastrophic," Davis said. *Great Lakes Sport Fishery Council's* Dan Thomas said, "As a fish guy, I look at the big issue, and I can live with that procedure." "I don't have a problem with it all." He said the dead fish will be scooped up and trucked to a landfill. Corps officials agree, and said the agency will steam ahead with plans to poison the canal so the barrier can be shut down for a day or two for regular maintenance in early December. "This new information reinforces the importance of preventing any further intrusion of the Asian carp via the largest pathway, the Chicago Sanitary and Ship Canal," said Corps Maj. Gen. John W. Peabody.

IDNR's John Rogner said before the toxicant is introduced into the water, his agency will try to remove any sport fish like largemouth bass, catfish and bluegill, although surveys show carp and gizzard shad to be the main fish in the area. Also, even though rotenone (the fish toxicant to be used) naturally degrades within hours to a few days, it will be detoxified with potassium permanganate 5.7 miles downstream at the Lockport navigation lock. Rogner said it should take 12 to 16 hours for the poisoned canal water to reach the downstream lock. "This (the poisoning) is a temporary solution during the maintenance of the electrical barrier," he said. But poisoning the canal had been considered a last-ditch solution to preventing a Great Lakes invasion.

Corps officials said they would also consider taking Moy's advice to poison other areas where the carp DNA has been detected. Thomas agreed that the plan to poison the canal is going to have to grow to cover areas above the barrier. "Unless we treat that canal real quick as far up as we can, then we can almost be assured that they're on their way into the lake," he said.

Michigan Lt. Gov. John Cherry said that although Michigan supports the emergency poisoning, it's not enough. Environmental and conservation groups, including *Georgian Bay Forever*, *Ontario Federation of Anglers and Hunters* and *Great Lakes United* are not only urging the Corps to take emergency action, but for the Canadian government to support the effort. Canadian citizens are also being asked to urge their Minister of the Environment, Jim Prentice, and Fisheries and Oceans Minister Gail Shea to lend Canada's help in any effort to stop the invasive fish. Citizen groups and organizations in the U.S. are also calling for installation of an additional barrier (bubble/acoustic) to stop the carp from migrating upstream into the Des Plaines River; and, for critical sections of the Illinois and Michigan (I&M) Canal to be filled in.

Corps officials said they would consider changing the way they operate two busy navigation locks near the shoreline of Lake Michigan. But conservationists said the only thing left to do now is to close the navigation locks to determine with certainty if the fish have indeed breached the barrier. "The important thing now is to make sure no fish get into Lake Michigan, and since we've got those structures in place that will help us do that, that is where we've got to focus," said Joel Brammeier of the *Alliance for the Great Lakes*. "The situation is so drastic, every possible pathway into the lake has got to be blocked, period," said Jeff Skelding of the *Healing Our Waters-Great Lakes Coalition*. "If the carp get in, it's game over," he said.

But Lynn Muench, vice president of the *American Waterways Operators*, representing barge operators, said it's now clear that the electric barriers won't keep the fish out, so government agencies need to look at ways to control the carp once they get into the Great Lakes. Federal officials responded by saying that research is already under way to try to manage carp populations in the lakes, similar to the Great Lakes lamprey sterilization program that keeps numbers of that invasive parasite in check. "We anticipate that someday this kind of operation may have to occur with carp," said Charles Wooley, deputy regional director for U.S. Fish and Wildlife Service.

Barge operators already are upset over the planned canal closure during the scheduled fish poisoning and barrier maintenance work. A total shutdown would ground the 18,500 barges that pass through the port of Chicago each year, Muench said. The barges carry oil, cement, coal, stone and the like, which would have to be off-loaded onto trucks or rail cars to get to their destinations if the locks are closed.

Meanwhile, Corps officials declined to speculate on how the carp might have made it past the barrier. But one possible reason is that the barrier wasn't operating at a level strong enough to repel all sizes of the fish until August, when the newly developed DNA tests first detected the carp closer to the barrier than expected. A year ago Corps officials planned to operate the barrier at one-quarter of its designed strength, due to the potential for electrical arcing and the resulting safety concerns for barge operators and boaters in the canal. They made that decision despite research which showed that one-quarter strength, or one volt per inch, is not strong enough to repel all sizes of Asian carp. At the time, Corps officials said they would consider bumping up the voltage if

the carp were detected closer to the barrier. And they did so by turning up the power to two volts per inch in late August after conducting several days of safety tests. Agency officials said that laboratory tests showed two volts, with the proper pulse frequency, would be strong enough to repel all sizes of the fish.

So the barrier has never been turned up any further to reach its full capacity of four volts per inch. And now when the barrier is temporarily shut down for routine maintenance, the weaker experimental barrier just upstream becomes the last line of defense against the carp. The new barrier is designed to be shut down about every six months for maintenance, and this is the first of those scheduled events. Depending on what Corps officials find, they may decide that future shutdowns could be spaced more than six months apart. Col. Quarles said he doesn't believe the barrier is in imminent danger of breaking down, but he conceded nobody really knows how the $9 million contraption is holding up until they can turn it off and get a look under the hood. "I'm sure once we shut it down we'll learn a lot," he said. The Corps hopes to have a nearby twin barrier constructed and running sometime next fall.

The Corps also is the exploring other emergency measures such as building the berm along the CSSC (recommended by Moy) in order to prevent Asian carp from riding floodwaters from the Des Plaines River into the canal above the barrier. Additionally, the Corps is beginning to explore the possibility of creating some type of permanent structure to separate Lake Michigan from the Mississippi River Basin – a measure strongly supported by biologists.

The U.S. Senate voted in mid October to provide $6 million for continuing efforts to prevent the Asian carp from invading the Great Lakes. Money to address the problem was included in a mammoth $33.5 billion appropriations measure for water and energy projects. President Barack Obama is expected to sign the measure which includes money for construction and operation of electronic barriers, and completion of a Corps study of the barriers' effectiveness and possible other options to combat the fish. The legislation also grants the Corps authority to prevent aquatic nuisance species from bypassing the CSSC's electronic dispersal barrier. Zachary Cikanek, spokesman for Rep. Judy Biggert (R/IL) said short-term action by the Corps might include plugging a possible bypass through the I&M Canal. That canal is connected to the CSSC by small culverts that the carp can swim through during heavy rains.

Although all of the current news is pretty glum, observers noted that it was a bright spot that testing did not show evidence of carp in the ship canal leading up to the lock at Navy Pier in downtown Chicago. But on the other hand, the carp are in the Calumet River, which has two tributaries that join Lake Michigan in Indiana. But Notre Dame's Lodge said no one knows for certain how the fish would fare in the Great Lakes. So far, they've taken over only large rivers. "It's too early to give up," he said. Perhaps too few fish would invade to be able to establish themselves, he said.

But if enough numbers of carp do invade the lakes, it seems likely that they would be quite happy there. And despite literature which says the carp need flowing waters for their eggs to hatch, Mississippi River Basin biologists have observed Asian carp eggs hatching in as unusual places as zip lock bags in the lab. So who know what conditions may really be needed. Life (especially invasive life) often times seems to find a way to survive despite the odds.

Bighead and silver carp (both plankton feeders) can eat up to 40% of their body weight daily and they can grow up to 80 pounds or more in size. Plankton forms the basis for virtually every aquatic food chain. And Great Lakes' plankton populations are already over stressed by the abundant invasive, plankton feeding zebra and quagga mussels. Asian carp will only add fuel to that fire, further displacing the native plankton eating fish which support the $7 billion sport fishery.

Marc Gaden, spokesman for the *Great Lakes Fishery Commission* and others said, the CSSC should be fully or partially closed. The canal is an important link to Lake Michigan for barges and recreational boats. The city of Chicago dumps its wastewater into it. But protecting the Great Lakes from carp and other invasive species is paramount, he said. And most biologists agree that the only reliable long term solution to the problem is to re-establish the hydraulic separation that existed historically between the Great Lakes and the Mississippi River Basin ecosystems. In other words construction is needed of a physical barrier, which Asian carp and other invasive species cannot penetrate. But such a measure would disrupt navigation, so it will likely not happen, at least in time.

The bottom line appears to be that Great Lakes enthusiasts should get used to the idea that Asian carp will likely soon be a part of the lakes' native fish fauna as they are rapidly becoming in many areas of the Mississippi River Basin. And being cool to cold water loving fish, the carp may very well establish thriving invasive populations, not only in the lakes, but in many areas beyond, including the St. Lawrence Seaway. The only thing that could stop such a catastrophe is rapid government action to hydraulically separate the two watersheds. But it seems clear that the government likely cannot or will not move in a timely enough manner to take such action – even though MICRA began warning of the potential for such a catastrophe nearly ten years ago.

But as *Wisconsin Sea Grant's* Phil Moy says on his panel's web site we cannot give up, "...we must redouble our efforts to identify and implement an ecological or hydrologic separation of the Great Lakes and other formerly separate drainage basins that are currently connected by man-made canals".

We couldn't agree more!

Sources: U.S. Army Corps of Engineers, *News Release*, 9/18/09; Dan Egan, *Milwaukee Journal Sentinel*, 9/29, 11/4, 11/6, 11/13, 11/19 and 11/20/09; *Chicago Public Radio*, 11/13/09; Michael Hawthorne, *Chicago Tribune*, 11/14/09; AP, 11/13/09; *Lake County News-Sun*, 11/14/09; Tina Lam, *Detroit Free Press*, 11/14, 11/15, 11/20 and 11/21/09; *AP/CBS News.com*, 10/15/09; and Charlene Peck, *Beacon Star*, 10/30/09; John Flesher, *AP/Yahoo News*, 11/20/09; http://www.seagrant.wisc.edu/AIS/Default.aspx?tabid=393

DNA Testing Used to Locate Asian Carp

As part of its ongoing Asian carp monitoring program, the U.S. Army Corps of Engineers (Corps) has been working with the University of Notre Dame using environmental DNA (eDNA) genetic testing of water samples to monitor the presence of bighead and silver carp in the Chicago Sanitary and Ship Canal (CSSC), the Des Plaines River, and the Illinois and Michigan (I&M) Canal.

Fishes, including Asian carp, release DNA into the environment in the form of mucoidal secretions, feces, and urine. This eDNA degrades in the environment, but this process is not instantaneous, and eDNA can be held in suspension and transported. The presence of species can be detected by filtering water samples, and then extracting and amplify-

ing short fragments of the shed DNA. In contrast to other surveillance methods, the eDNA method does not rely on direct observation of Asian carp to evaluate their presence or absence.

Laboratory and field studies using eDNA methods confirm that Asian carp can be detected in 2 liter water samples from sites where electrofishing has indicated high, moderate, or even low densities of carp. Water samples are collected in the field and filtered in the lab. eDNA is extracted from the filtrate, and any DNA from bighead and silver carp is amplified with PCR (polymerase chain reaction) using genetic markers that are unique to bighead and silver carp. The eDNA approach uses standard genetic identification methods in a novel application – the extraction of low concentrations of DNA from water sampled in the field that allows for species-specific detection.

Sources: U.S. Army Corps of Engineers, *News Release*, 9/18/09; and *Risk Reduction Study Fact Sheet Environmental DNA (eDNA)*, Center for Aquatic Conservation, Department of Biological Sciences, University of Notre Dame, No Date

Mississippi River Basin Healthy Watersheds Initiative

Agriculture Secretary Tom Vilsack announced in late September a new initiative to improve water quality and the overall health of the Mississippi River Basin. The *Mississippi River Basin Healthy Watersheds Initiative* (MRBI) will provide approximately $320 million over the next four years for voluntary projects in priority watersheds located in 12 key states (Arkansas, Kentucky, Illinois, Indiana, Iowa, Louisiana, Minnesota, Mississippi, Missouri, Ohio, Tennessee, and Wisconsin).

Participation in this initiative, to be managed by USDA's Natural Resources Conservation Service (NRCS), will be made available through a competitive process for potential partners at the local, State and national levels. "USDA is going to partner with farmers to implement a range of land stewardship practices, including conservation tillage, nutrient management, and other innovative practices," said Dave White, Chief of NRCS. "We all live downstream of other water users and this initiative will help make the Mississippi River Basin and the Mississippi River and its tributaries healthier for everyone."

"The Obama Administration is committed to taking bold steps with our State and local partners to clean up the entire Mississippi River Basin, a critical natural resource that provides drinking water for tens of millions of Americans," Vilsack said. "Industrial, municipal, residential, and agricultural sources have all contributed pollutants to the waters of the Mississippi River Basin, and the MRBI will provide resources that will help us come together to address this issue," he said.

The natural capacity of the Mississippi River Basin to remove nutrients has been diminished by a range of human activities over the years, including modification of floodplains for agricultural and urban land. MRBI will help agricultural producers implement conservation and management practices that avoid, control, and trap nutrient runoff. The initiative is performance oriented, which means that measurable conservation results are required in order to participate. By focusing on priority watersheds in 12 basin states, USDA, its partner organizations, State and local agencies, and agricultural producers will coordinate their resources in areas requiring the most immediate attention and offer the best return on the funds invested.

Priority watersheds for the initiative will be identified by NRCS in consultation with conservation partner organizations and State Technical Committees. Watersheds will be selected using an evaluation process that will include information from the *Conservation Effects Assessment Project*, the USGS *Spatially Referenced Regression on Watersheds Attributes*, state-level nutrient reduction strategies and priorities, and available monitoring and modeling of nitrogen and phosphorus levels in the Basin.

Assessment of the progress in implementing MRBI will be critical, as will evaluation of outcomes at the field scale/edge-of-field and on the watershed basis. Successful measures of the initiative will include a reduced nutrient footprint and environmental impact through more efficient use of nutrients for crop production in the priority watersheds.

In addition to other federal, State, and partner funding, NRCS is targeting $80 million annually over the next four years through the *Cooperative Conservation Partnership Initiative*, *Conservation Innovation Grants*, and the *Wetlands Reserve Enhancement Program*. This is in addition to other NRCS program funding and assistance such as *Environmental Quality Incentives Program*, *Wildlife Habitat Incentives Program*, and the *Conservation Stewardship Program*. Funds available for projects in the MRBI will focus on 8-digit or smaller hydrologic units (watersheds) that contribute high loads of nutrients in the Mississippi River Basin.

For information about the MRBI, including eligibility requirements see: www.nrcs.usda.gov or your USDA Service Center.

Source: *USDA News Release No. 0463.09*, 9/24/09

Major Dam Removal Planned

In a development that could herald the largest dam removal in modern history, 29 parties have signed a draft agreement to destroy four Klamath River dams to restore salmon and steelhead runs that have been partially blocked for the better part of the past century. The agreement, signed in September, is the product of years of often bitter negotiations among electric utilities, government officials, fishers, farmers, native tribes and environmental groups. It calls for the breaching and removal of four hydroelectric plants owned and operated by *PacifiCorp* on the California-Oregon border.

PacifiCorp, which is owned by Warren Buffett's *Berkshire Hathaway Inc.*, appears ready to go along with the agreement when – and if – officials from Oregon, California and the Interior Department make the pact official through a number of policy measures. "If the federal government and the states of California and Oregon sign onto this negotiated final settlement, then we will join with them and all the other stakeholder groups that may choose to sign this agreement," said Greg Abel, chairman and CEO of *PacifiCorp*.

Abel went on to say his company's top priority is "to keep our customers out of legal harm's way and keep their costs and risks as low as possible when compared against the option of relicensing the dams." In other words, *PacifiCorp* executives appear ready to remove the dams rather than pursue expensive fish-saving modifications that would have cost the utility more than $300 million. A study by the California Energy Commission determined that dam removal would cost about $100 million less than the modifications.

Officials from the Interior Department, the National Marine Fisheries Service, the California Department of Fish and Game, and the Oregon Department of Fish and Wildlife were listed as signatories on the agreement

as were a number of environmental groups, native tribes, and irrigation and water districts in both states. California Gov. Arnold Schwarzenegger (R) and Oregon Gov. Ted Kulongoski (D) also signaled official support in complementary statements. "The agreement calls upon each of us to do our part," said Kulongoski, whose constituents would largely finance the effort.

But before actual dam removal can take place, the deal calls for the secretary of the Interior to confirm by March 31, 2012, that the project is in the public interest. After that takes place, *PacifiCorp* would transfer title of the dams to the federal government, which would oversee their destruction. *PacifiCorp's* ratepayers in Oregon would foot much of the bill for dam removal and river restoration. The agreement calls for the Oregon and California public utilities commissions to raise money for removal through customer surcharges. Oregon ratepayers would be responsible for up to $184 million of the project's cost. California ratepayers would be on the hook for no more than $16 million of the total cost. If the project's costs go higher, the California Legislature would be expected to pass a bond for any additional cost.

Steve Rothert, California director for *American Rivers*, said "the finish line is in sight." "When the Klamath dams come down, it will be the biggest dam removal project the world has ever seen," he said. The group insists that *PacifiCorp* will be able to replace the lost power, which serves about 70,000 customers, with efficiency and renewable power. Glen Spain, of the *Pacific Coast Federation of Fishermen's Associations*, reiterated the same feeling that a breakthrough had been reached and said the draft represents "nearly nine years total of negotiations over the fate of these dams."

Source: Colin Sullivan, *Greenwire*, 9/30/09 Update

Corps Negligent For Katrina Flooding

A federal judge ruled in mid November that the U.S. Army Corps of Engineers (Corps) bears responsibility for catastrophic flooding in New Orleans after Hurricane Katrina because the agency failed to properly maintain the Mississippi River-Gulf Outlet (MRGO) shipping channel. "The failure of the Corps to recognize the destruction that the MRGO had caused and the potential hazard that it created is clearly negligent on the part of the Corps," U.S. District Court Judge Stanwood Duval Jr. said in a 189-page ruling. "Furthermore the Corps not only knew, but admitted by 1988, that the MRGO threatened human life."

Six homeowners and businesses sued the government in the wake of the disaster, claiming that the Corps' poor construction and upkeep of the shipping channel were directly responsible for flooding in three hard-hit neighborhoods. Duval ruled in favor of plaintiffs who lived in the Lower 9th Ward and St. Bernard Parish. "For over 40 years," he wrote, "the Corps was aware that the Reach II levee protecting Chalmette and the Lower Ninth Ward was going to be compromised by the continued deterioration of the MRGO."

Duval's ruling paves the way for more than 100,000 other businesses and residents to seek billions of dollars of combined damages from the government. The Justice Department last year determined that the U.S. could face as much as $100 billion in damages as a result of Katrina-related court claims. The government is expected to appeal the ruling.

Taryn Luntz, *Greenwire*, 11/19/09

FEMA Sued Over Flood Insurance Program

The advocacy group, *WildEarth Guardians*, filed a lawsuit against the Federal Emergency Management Agency (FEMA) in mid September claiming the agency violated the Endangered Species Act by issuing flood insurance without determining whether development would impact imperiled plants and animals. The *Guardians* lawsuit, filed in federal court in New Mexico, further claims that the agency's National Flood Insurance Program encourages development in flood plains without determining whether threatened or endangered species would be harmed.

FEMA officials did not comment on the pending litigation. The lawsuit follows a similar complaint filed by the group in early September in Arizona. Environmental groups, including the *National Wildlife Federation* and the *Florida Wildlife Federation*, also have challenged FEMA over the impacts of the program on species in Washington, Oregon and Florida. "I think FEMA really doesn't have any understanding, particularly here in the West, that flood plain development is a huge environmental problem that's been overlooked and under scrutinized for far, far too long," said John Horning, executive director of the advocacy group.

Horning said it's been more than three decades since the environmental impacts of the flood insurance program have been assessed on a national level, and the goal of the lawsuits is to force the agency to consider the impacts on species and habitat across the nation. The lawsuits filed in New Mexico and Arizona seek injunctions that would require FEMA to consult with the U.S. Fish and Wildlife Service (USFWS) about the impacts of the flood insurance program.

WildEarth Guardians also wants to prevent the agency from issuing insurance policies for new construction in flood-prone areas if the activity would harm threatened or endangered species. They point to state and federal agencies that say New Mexico's water ways are vital to the survival of imperiled species, including the Rio Grande silvery minnow and the Southwestern willow flycatcher. In all, more than half of vertebrates in New Mexico and Arizona are entirely dependent on riparian areas, according to the USFWS. "You couldn't find a more precious piece of real estate in terms of its environmental value," Horning said of flood plains in the arid West.

In administering the flood insurance program, FEMA identifies and maps flood-prone areas, adopts requirements for development in those areas and provides for flood insurance or federal disaster assistance. Lenders generally require property owners and developers to obtain flood insurance in areas FEMA determines are at risk.

Environmentalists contend that if FEMA does a better job of scrutinizing the impacts of development in flood plains, there would be less risk to homeowners as well as to species and their habitat. "I think the federal government has been a pushover and has provided a rubber stamp that has allowed development to occur in places that it really shouldn't have," Horning said.

Sources: Susan Montoya Bryan, *Associated Press*, 9/16/09; Allison Winter, *Greenwire*,10/1/09 and *Greenwire*, 9/17/09

Pollution Problems in PA

The boom in Pennsylvania's natural gas industry has led to a rapid increase in drilling. And many of these operations use hydraulic

fracturing, or "fracking" which involves pumping millions of gallons of water into their wells to break rock and release gas. Wastewater then returns to the surface with a heavy load of salt and other minerals called Total Dissolved Solids (TDS). These solids eventually find their way into the state's waterways, increasing TDS load and creating problems for the environment and for other users.

State Department of Environmental Protection (DEP) officials say drilling site wastewater can contain high enough concentrations of salt and other minerals to make them five times as salty as sea water. And some 4,000 gas and oil wells were drilled last year alone in the state, second most in the country after Texas. According to DEP estimates, these wells disgorge about 9 million gallons of wastewater per day, a number expected to rise to 19 million gallons by 2011.

TDS is not particularly harmful to people, but a TDS spike in the Monongahela River last year prompted the DEP to order a temporary reduction in the wastewater the natural gas industry could dump into that river. Large quantities of TDS can clog machinery and affect the color, taste and odor of drinking water which is precisely the problems reported along the Monongahela. Heavy loads of TDS can also damage aquatic life in freshwater streams.

Gas drilling companies currently dispose of most of their wastewater in Pennsylvania's municipal sewage plants, but these treatment facilities do not remove TDS, so the untreated load is essentially discharged into adjacent rivers and streams. The U.S. Environmental Protection Agency (EPA) warns against this form of treatment, since the plants aren't equipped to remove TDS or any of the chemicals the water may contain. But of even greater concern, is the fact that high TDS loads can disrupt a plant's ability to treat ordinary sewage, including human waste.

But Steve Rhoads, president of the *Pennsylvania Oil and Gas Association*, an industry trade group, argues that most of the TDS comes from abandoned mines, not from drilling wastewater. A study prepared for a different trade group came to the same conclusion. Rhoads also says Pennsylvania's waterways "are not anywhere near" their capacity to handle TDS and that the DEP's estimate of how much wastewater the industry produces is "completely exaggerated."

Meanwhile, DEP chief John Hanger said he is confident his agency can control the wastewater problem. In April drilling companies began temporarily trucking their wastewater to other states or to sewage treatment plants in other parts of Pennsylvania to dilute the TDS by spreading it among more rivers. Hanger said a more permanent solution will begin on Jan. 1, 2011, when he has promised that new regulations will be in place requiring that the wastewater be treated by plants capable of removing TDS. But currently, no such plants exist in the state, and it is doubtful they will be ready by 2011.

"Every time you set an aggressive goal generally you have a transition period to get there," said Jon Capacasa, EPA's top mid-Atlantic water pollution regulator. "I don't know that even our [water] program people had any idea about the volumes of water that would be used," said Dana Aunkst, the head of DEP's water program. So for now, the DEP is allowing municipal sewage plants to continue taking drilling wastewater, even though none of them can remove TDS.

Bruce Baizel, a senior attorney for the *Oil and Gas Accountability Project*, a Colorado-based nonprofit that focuses on the environmental impact of natural gas drilling said, "...the DEP is inviting legal problems as well as environmental problems." Compounding the problem is the likelihood that as the DEP's responsibilities continue to grow, its operating budget could be slashed: The state legislature's latest draft of Pennsylvania's 2010 budget calls for a 25 percent cut in DEP funding.

Meanwhile in late October, the DEP fined *Cabot Oil & Gas Corp.* $56,650 for three spills of *LGC-35*, a lubricant used in natural gas drilling to obtain gas trapped in rock formations. The agency also ordered the company to stop "fracturing" until it cleaned up the spills and submitted an updated pollution control plan. *Cabot* spilled about 8,000 gallons of the lubricant, in the rural community of Dimock, Susquehanna County, on Sept. 16 and 22. Anti-drilling activists criticized the fine as too small. And some residents of Pennsylvania and other U.S. gas-drilling areas oppose hydraulic fracturing, or "fracking", claiming chemicals used in the process contaminate ground water, causing sickness and rashes, and forcing users to drink bottled water.

But *Cabot* spokesman Ken Komoroski said his company has paid the fine and met the DEP's environmental requirements, taking measures to prevent spills including installing high-pressure pipe connectors and storing drilling gel closer to the wells. And Robert Yowell, DEP's north central regional director said, "We expect that *Cabot* will do a better job in the future of overseeing its contractors now that the company has an improved preparedness, prevention and contingency plan in place."

But Barbara Arrindell of the Pennsylvania anti-drilling group *Damascus Citizens for Sustainability* blasted the fine as "a joke" too small to remedy pollution. "This environment is violated," she said. "It's not going to get cleaned up because *Cabot* has to pay the DEP a few thousand dollars." Arrindell accused the DEP of being in "partnership" with the gas industry, which is developing the massive Marcellus Shale gas formation beneath Pennsylvania and parts of surrounding states. "There's a lack of regulation and a lack of enforcement," she said.

Also, the industry has declined to specify all of the chemicals it uses in fracking fluids, saying the information is proprietary. And drillers say the chemicals cannot get into drinking water because they are injected through layers of steel and concrete thousands of feet below the aquifers. Komoroski said his company is drilling 40 to 60 new Marcellus wells in Susquehanna County this year and plans another 60 in 2010, adding to the 20 it had at the start of 2009.

Meanwhile, a report released in late October by the environmental group *PennEnvironment* says industries are discharging millions of pounds of pollutants into Pennsylvania rivers and streams making the state the sixth-largest dumping grounds in the nation for toxic releases. The report chronicled data gathered in 2007 and released in May 2009 by the U.S. Environmental Protection Agency.

According to the report, more than 10 million pounds of chemicals like formaldehyde, lead and arsenic were legally dumped into Pennsylvania's waterways in 2007. The largest contributor by volume was *U.S. Steel's Clairton Coke Works* site, which released more than 2.5 million pounds of pollutants into the Monongahela River and Peters Creek, a tributary to the river.

The report also ranked the Ohio River as first in the nation for toxic discharges, saying that in 2007 more than 31 million pounds of pollutants were dumped into that waterway. "We should be outraged by this," said Erika Staaf, *PennEnvironment's* clean water advocate. "Most of us are drinking water that comes out of these rivers," said Myron Arnowitt, who attended the report's release

as the Pennsylvania director of *Clean Water Action*, another environmental group.

The data used in the report was self-reported by the companies that released the pollutants, so it may have underestimated the amounts released, said Ms. Staaf. "No one is actually out on the water sampling in order to make sure what's supposed to be coming out of the businesses' pipes is actually coming out of the businesses' pipes," said Ned Mulcahy, of *Three Rivers Waterkeeper*, a local watchdog group. Ms. Staaf urged companies to use "safer alternatives" to toxic chemicals, and asked lawmakers and environmental agencies to strictly enforce the Clean Water Act, saying that violators should be given "credible penalties, not just warning letters."

Sources: Don Hopey, *Pittsburgh Post-Gazette*, 9/20/09 ; Joaquin Sapien, *ProPublica*, 10/3/09; Vivian Nereim, *Pittsburgh Post-Gazette*, 10/22/09; Jon Hurdle, *Reuters*, 10/22/09; and *Greenwire*, 9/11, 10/5, 10/22 and 10/23/09

EPA Will Review 79 Mountaintop Removal Mining Permits

U.S. EPA announced in mid September that it is conducting further environmental analyses of 79 pending permits for mountaintop mining. The agency said the permits issued by the U.S. Army, Corps of Engineers (Corps) could all potentially pose a threat to mountain watersheds and streams, warranting further review under the Clean Water Act (CWA). EPA and Corps officials will work together in evaluating the permits to ensure CWA compliance, EPA said in a statement. "We look forward to working closely with the Army Corps of Engineers, with the involvement of the mining companies, to achieve a resolution of EPA's concerns that avoids harmful environmental impacts and meets our energy and economic needs," the statement said.

The identified permits span four states – Kentucky, Ohio, Tennessee and West Virginia – where surface coal mining is widespread, but has been repeatedly criticized for its environmental impacts.

This is the second time EPA has put the brakes on permits for mountaintop mining. In March, the agency placed six permits that had been issued by the Corps on hold, requesting that the agency re-examine the effects those permitted operations could have on mountain waterways and air quality. While that move raised hopes with mountaintop opponents who believed the Obama administration's actions would mean an end to the practice, those hopes were diminished two months later when EPA allowed 42 other permits for Appalachian mining operations to move forward.

The next month, the administration announced it would be taking a closer look at its environmental effects and ways to curtail mountaintop extraction. As part of that initiative, EPA identified 108 pending Corps permits that it had concerns with and would review to determine whether they should be revised to minimize their environmental impacts. Twenty-nine of those were dropped from the list for various reasons since EPA began its review in June, the agency explained, including requests from applicants that their permits be withdrawn.

Opponents of mountaintop mining said they are cautiously optimistic about the September announcement, noting that while the administration has not pledged to end mountaintop mining, it is taking steps to minimize its environmental impacts. "By recommending these permits not be approved, the EPA and the Army Corps has demonstrated their intention to fulfill a promise to provide science-based oversight, which will limit the devastating environmental impacts of mountaintop removal mining," said Willa Mays, executive director for *Appalachian Voices*.

Proponents of the practice said the announcement further demonstrates EPA's continued insistence to review permits that are supposed to be the responsibility of the Army Corps, jeopardizing the livelihoods of rural communities that depend on coal mining to feed their economies. "No one outside of EPA – not even the Corps – knows what criteria EPA has used to now find these 79 permits insufficient," *National Mining Association's* Hal Quinn said in a statement. "Permit applicants do not know what conditions outside the bounds of the existing regulations they must meet to obtain a permit," he said

As part of its review effort, EPA's Science Advisory Board (SAB) is assembling a scientific panel to provide expert advice on the ecological impacts of mountaintop mining and valley-fill operations. The panel will advise EPA on a draft assessment being prepared by the Office of Research and Development on how mountaintop mining contributes to the loss of headwater streams and how that loss affects downstream water quality and aquatic life. The assessment will also review restoration and recovery efforts used by mining companies after mountaintop operations.

Sources: Eric Bontrager, *Greenwire*, 9/11 and 9/24/09

Deficiencies Found at WV's Coal-ash Dams

A report released in early November by West Virginia's Department of Environmental Protection (DEP) found that almost two-thirds of the coal-ash dams throughout the state were in need of repairs. The 10-month "comprehensive review", launched after the failure of a TVA coal-ash impoundment in East Tennessee, uncovered stability problems, seepage and erosion at some of the dams. Agency officials also found problems that prompted at least five enforcement actions at landfills where dry waste products from coal-fired power plants were dumped.

In a news release, agency officials downplayed the problems found during aerial and on-site inspections and said owners of the dams were making any needed repairs. "We were able to identify stability issues along some embankment slopes, but largely the problems we noted involved control of animals and vegetation," said Brian Long, coordinator of DEP's dam safety program. "The agency is requiring the owners to address any issues found at their sites and bring them into satisfactory condition."

However, during their review, DEP inspectors discovered that *American Electric Power* (AEP) had built two coal-ash dams at one Mason County site without the state knowing it. Neither of the dams, located at the Little Broad Run Landfill, were designed or built to comply with safety standards in West Virginia's Dam Safety Act, according to the DEP Report. Both dams were listed in unsatisfactory condition, meaning there were deficiencies that require "immediate or emergency" action.

Originally designed as fly-ash landfill, stormwater control measures the dams were expanded to greater than 25 feet tall, bringing them under state Dam Safety Act jurisdiction. DEP inspectors found no spillways and embankments consisting of "highly erodible fly ash materials without apparent connection to natural ground foundation." But inspectors concluded that the "downstream hazard potential appears to be high – loss of life is likely if the dams were to fail." As a result, DEP officials issued an

order requiring AEP to fix the problems.

West Virginia dam-safety experts seldom inspect state coal-ash dams because state law does not require periodic reviews by DEP officials. Dam owners do have to conduct periodic inspections, with mandated schedules varying according to the potential hazards of specific sites. But DEP Secretary Randy Huffman said his agency is now exploring options for more frequent inspections of the 20 coal-ash impoundments under its dam-safety jurisdiction.

The DEP reported that eight of the 20 coal-ash dams examined were in satisfactory condition, meaning there were no "existing or potential" safety deficiencies. Seven dams were listed in fair condition, meaning action might be needed to avoid risks posed by "rare or extreme hydrologic and/or seismic events." Three were listed in poor condition, meaning safety deficiencies were found that require further investigations, studies or repairs.

Sources: Ken Ward Jr., *Charleston Gazette*, 11/5/09; and *Greenwire*, 11/6/09

Blue-green Algae/Nutrient Runoff Concerns Increase

Blue-green algae, a concern in many fertile lakes, became a growing problem in waterways across the upper Midwest this past summer. Ugly, smelly and potentially deadly blue-green algae, bloomed by drought and fertilizer runoff from farm fields, reportedly killed dogs and sickened many people. Aquatic biologists say it's a problem that falls somewhere between a human health concern and a nuisance, but will eventually lead to more human poisoning.

State officials told people who live on algae-covered lakes to close their windows, stop taking walks along the picturesque shorelines and keep their dogs from drinking the rank water. Peggy McAloon, 62, who lives on Wisconsin's Tainter Lake, calls the algae blooms the "cockroach on the water." "It is like living in the sewer for three weeks. You gag. You cannot go outside," she said. "We have pictures of squirrels that are dead underneath the scum and fish that are dead. ... It has gotten out of control because of the nutrient loads we as humans are adding to the waters."

Blue-green algae are common in waters but not every lake develops serious problems until plentiful "man-induced" nutrients like phosphorous arrive, said Jim Vennie, a Wisconsin Department of Natural Resources (WDNR) expert. The toxins released by the algae can be deadly. Symptoms include rash, hives, runny nose, irritated eyes and throat irritation. No people have died in the U.S. from the algae's toxins, according to Wayne Carmichael, a retired aquatic biologist and toxicology professor in Oregon. But many have gotten sick: "Sooner or later, we are going to have more acute human poisoning," Carmichael said. But the scum has killed dozens of dogs over the years — including at least four in Oregon, three in Wisconsin and one in Minnesota this past summer. Wisconsin wildlife experts are warning duck hunters with dogs to be extra cautious this fall. "If the water is pea-soup green, be sure to have clean water along to wash the dog off," Vennie said. "Don't let it drink the water."

Fewer than 100 lakes in Wisconsin typically have some problems with algae blooms each summer and the ones in western Wisconsin that caused so much discomfort this year were fueled by a perfect storm, Vennie said. When there is little rain along with warm, sunny days and little wind, the blooms just sit there, growing, then decaying and smelling. "Some people say they have gotten nauseous and vomited from smelling it," said Ken Schreiber, a WDNR water quality specialist. Officials have banned recreational activities at some lakes in Washington state because of blooms. And in Oregon, the blue-green algae is the number one water quality issue, Carmichael said.

Yet other countries have worse problems, Carmichael said, because many have waters with even more nutrients than exist in U.S. lakes. In France, a horse died on a beach in July after falling into some decaying algae sludge. Last year, the Chinese government brought in the army to remove the slimy growths so the Olympic sailing competition could be held.

Stephanie Marquis, a spokesman for the Wisconsin Department of Health Services, said her agency had received 41 complaints related to health concerns with blue-green algae this season. Rashes, sore throats and eye irritation among the problems, she said. In Minnesota, Matt Lindon a pollution control specialist for the state called 2009 a typical year for complaints about algae scum. But for some reason this summer, Bagley Lake in northwest Minnesota, an "historically clean lake," generated respiratory and odor problems, he said. "It may be related to the water level or some new runoff source," he said.

Loren Hake, 71, has lived about two blocks from Lake Menomin in western Wisconsin since 1963. This summer he felt like a prisoner in his own home, isolated by a stench "something like a pig pen" that forced he and his wife to run the air conditioner, he said. For the first time, the couple couldn't set on an outside deck because of the smell from the algae-covered bay. "I don't know what they can do about it," Hake said. There's little anybody can do besides wait for cooler temperatures, Vennie said.

John Plaza, president of the *Chetek Lakes Protection Association*, which represents six lakes in northwest Wisconsin, said farm runoff, lawn fertilizers, septic systems and even ashes from leaves being burned on the shorelines are among factors contributing to the algae problems. "I have been a user of these lakes since 1962," he said. "I have never experienced anything like this before. It's nasty. People are saying we can't live with this any more."

Problems with excess nutrients even surfaced this year in such unlikely places as Lac Court Oreilles Lake in northern Wisconsin. Famous for its clear water and record sized muskies, the lake's shallow Musky Bay experienced an extensive winter fishkill, apparently the result of low dissolved oxygen levels caused by excess nutrient runoff from nearby agricultural operations and septic systems, raising the concerns of fishermen and some local residents.

The classic "pea soup" of a heavy blue-green alge bloom.

Meanwhile, a coalition of environmental groups which includes *Milwaukee Riverkeeper*, the *Sierra Club* and *Wisconsin Wildlife Federation* is threatening to sue U.S. EPA if it fails to promptly set legal limits for nutrients in Wisconsin waters. The agency pledged a decade ago to regulate phosphorus and nitrogen pollution in all states, but the it has not lived up to its legal requirements, according to the coalition. "The Wisconsin Department of Natural Resources has developed the science needed for sound phosphorous standards," said Betsy Lawton, a *Midwest Environmental Advocates* attorney representing the coalition. "EPA must honor its 1999 pledge to set standards for this harmful pollutant that hampers recreation for Wisconsin residents by contributing to green, stinky water, closed beaches and toxic algae."

The coalition's 60-day notice of intent to sue follows the resolution of a similar case earlier this month between environmental groups and EPA over Florida waters.

Source: Robert Imrie, *AP*, 9/27/09; and Taryn Luntz, Greenwire, 11/24/09

Robofish Finds Toxic Algae Blooms

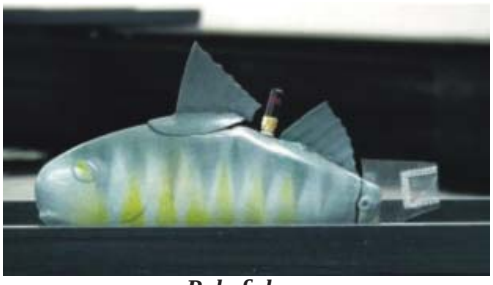
Michigan State University (MSU) is developing a robotic sensor that swims like a fish and is designed to monitor water temperature, oxygen levels, invasive algae populations and pollutants. The robofish or *Navigating EAP-Controlled Module with Onboard Resources* (NEMO) will be able to navigate independently and transmit information about the location of toxic algae blooms.

"We chose to fit these fish with sensors for toxic algae blooms, but I think other researchers will use this technology in the future to monitor different aspects of water quality," said MSU zoology professor Elena Litchman. Excess nutrients and warmer temperatures create an ideal growth environment for algae, which release toxins that are dangerous to other aquatic organisms and humans, Litchman said. By giving researchers and scientists an accurate picture of what's going on underwater, the robofish will aid in the early identification of problems like an expanding invasive species population or other causes of declining native species.

According to chief developer Xiaobo Tan, assistant professor of electrical and computer engineering at MSU, the robots won't disturb their aquatic neighbors with loud electrical motors or awkward or jerking movements. They'll be able to maneuver themselves in the water like real fish. The polymer material Tan used in the prototype operates on electricity, activating fins that function like muscle fibers. The fins, which are powered by an internal lithium battery, move either when the remote control tells them to or, much like biofeedback, when the robot's sensors and GPS indicate there is a reason to move.

Tan said he believes this technology should be affordable enough that it will have multiple applications. He's designing the robofish to cost less than $1,000 per fish, but he doesn't know when it will go into full production. The project, funded by the *National Science Foundation*, cost about $410,000, Tan said. The background research for the project was another half million dollars. "I believe the reason we were able to secure funding is because our fish can operate for three weeks to several months without being recharged," Tan said. "Other researchers have been working on robotic fish since the 1990s, but I don't think any can last that long without recharging."

Source: Mehak Bansil, *Capital News Service*, Michigan State University School of Journalism, 11/17/09



Robofish

CWA Violations Increasing

Over the past decade, enforcement of the Clean Water Act (CWA) has slipped off across the country, with some 300,000 serious violations occurring within the past five years alone, according to an extensive review of water pollution records by the *New York Times*. The paper found that in the past five years public sewage plants, chemical factories and other workplaces violated the act 500,000 times. Sixty percent of those were deemed cases of "significant noncompliance" – violations that range drastically in severity, from failing to report or measure pollution records to dumping toxic chemicals.

In large dairy states, like Wisconsin, farmers have sprayed liquefied animal feces onto fields that eventually leached into wells. In New York, California and elsewhere, storm overflows cause human waste to wash onto beaches. And tap water in parts of the Farm Belt contain pesticides at possibly dangerous concentrations. States, many of which are financially strained, have had trouble keeping up with the rising demands of the CWA. While the number of regulated facilities has doubled over the past decades, many state enforcement budgets, adjusted for inflation, have remained flat. Wells are more likely to be contaminated by water violations than community sewage systems.

During 2007 and 2008, U.S. EPA officials noted, 92 percent of the U.S. population served by community water systems received water that had no reported health-based violations. But in recent memos obtained through Freedom of Information Act requests, EPA officials detailed a water regulatory system that, in many ways, does not work. Some 30 states had major problems documenting water violations, one memo noted; states' "personnel lack direction, ability or training" to levy fines large enough to deter pollution, said another.

EPA needs to improve, said the agency's administrator, Lisa Jackson. "Do critics have a good and valid point when they say improvements need to be made? Absolutely," Jackson said. "But I think we need to be careful not to do that by scaring the bejesus out of people into thinking that, boy, are things horrible. What it requires is attention, and I'm going to give it that attention."

Among other critiques of the *Times* investigation, the agency noted that "much of the country's water quality problems are caused by discharges from nonpoint sources of

pollution, such as agricultural runoff, which cannot be corrected solely through enforcement."

An interactive, national database of water pollution violations is available at the *Times'* Web site: http://www.nytimes.com/interactive/2009/09/13/us/0913-water.html?scp=1&sq=clean%20water%20act%20violations&st=cse.

Sources: Charles Duhigg, *New York Times*, 9/13/09; and *Greenwire*, 9/14/09

Atrazine Concerns

A review of more than 100 scientific studies by two University of South Florida (USF) biologists concludes that there's evidence the popular weed killer atrazine harms fish and frogs. Atrazine is an economical pesticide that is used on most corn and grain sorghum grown in the U.S. About 80 million pounds are used annually in the U.S. to control broadleaf and other weeds. But the USF researchers say study after scientific study shows that atrazine alters or interferes with the development, behavior and the immune, hormone and reproductive systems of aquatic animals.

"There are clear, consistent effects of atrazine on freshwater fish and amphibians … and many of those effects are on vital systems," said Jason Rohr, an assistant professor in USF's department of integrative biology. Rohr and postdoctoral fellow Krista A. McCoy published their conclusions in the journal *Environmental Health Perspectives*.

In response, atrazine's manufacturer, *Syngenta AG*, defended atrazine as a "mainstay of American agriculture" with "wide margins of safety." "Atrazine is one of the most closely examined herbicides in the marketplace," Sherry Duvall Ford, a spokeswoman for *Syngenta Crop Protection*, said in an e-mail to the *St. Petersburg Times*. Studies worldwide have concluded that atrazine has been used safely for 50 years, she said. She noted that in 2006, the U.S. EPA reviewed atrazine and concluded that it poses no harm to infants, children or adults. *Syngenta* says federal standards for atrazine in drinking water are so conservative that a 150-pound adult could safely drink 21,000 gallons of water containing 3 parts per billion of atrazine — the federal limit — every day for 70 years. *Syngenta* also said it has commissioned scientific studies of atrazine and frogs, and those experiments show no effect on the normal development of frogs, the company says.

But it was *Syngenta's* role in some of the science surrounding atrazine that prompted Rohr to review the literature himself. He said *Syngenta* and its corporate predecessors had commissioned four previous reviews of scientific studies on atrazine. His analysis found patterns of effects that those earlier reviews did not, he said. "I think this offers perhaps a more objective synthesis of the literature that might be useful to the regulatory process as well as to direct future scientific research," he said.

Rohr and McCoy offer no conclusions about whether the EPA should enact new restrictions on the use of atrazine. Rather, they say the effects on wildlife should be weighed against its benefits. While atrazine typically does not kill amphibians and freshwater fish, the USF report said it did:

- Reduce the size of amphibians at or near metamorphosis in 19 of 19 studies;
- Make amphibians and fish more active in 12 of 14 studies, but reduced behaviors used to evade predators in six of seven studies;
- Alter at least one aspect of male frogs' reproductive development in eight of 10 studies; and
- Reduce the functioning of animals' immune systems and often put them at risk of infection.

Atrazine's effect on frogs has been a hot topic since 2002 when scientists at the University of California at Berkeley reported in the journal *Nature* that male frogs in water polluted with atrazine were turning into hermaphrodites. Researchers said then that the finding might help explain why scores of amphibian species had gone extinct or become endangered in recent decades. While Rohr cautioned against extrapolating his study's findings to humans, he said the study of creatures like frogs is important. Changes in an ecosystem's biodiversity can reduce its ability to produce clean water and food and to buffer people from disease, he said.

Europe banned atrazine in 2003, but it remains the second most commonly used pesticide in the U.S. However, U.S. EPA announced in early October the start of a review of atrazine weighing a possible revision of its risk assessment. Steve Owens, assistant administrator for EPA's Office of Prevention, Pesticides and Toxic Substances, said the review is spurred by Administrator Lisa Jackson's interest in improving the management and assessment of chemical risks. "As part of that effort, we are taking a hard look at the decision made by the previous administration on atrazine," Owens said.

EPA's review will focus on atrazine's potential for causing cancer, birth defects, and premature and low-weight births. The agency plans to examine data generated since 2003 from laboratory and population studies and seek advice from an independent science advisory panel.

Mae Wu, a staff attorney for the *Natural Resources Defense Council*, said the emphasis on noncarcinogenic effects could help clarify the low-dose issue because endocrine disruption is just as likely at low doses as at high ones. "This is a great first step toward the agency hopefully doing what needs to be done and what we've called for repeatedly to minimize risk of atrazine," Wu said. "The agency is finally going to take a look at those issues ... and hopefully seeing a connection that is bad."

EPA plans to finish its evaluation of the pesticide by September 2010 and seek a peer review then.

Sources: Richard Danielson, *St. Petersburg Times*, 9/29/09; Brian Brueggemann, *Belleville News-Democrat*, 9/27/09; Sara Goodman, *Greenwire*, 10/7/09; and Greenwire, 9/30/09

Pesticide Concentrations Decline in Corn Belt Waterways

Pesticide concentrations in Corn Belt waterways have declined or been stable over the past decade, the U.S. Geological Survey (USGS) said in a report released in early November. USGS scientists studied 11 common herbicides and insecticides in 31 waterways in Illinois, Indiana, Iowa, Nebraska and Ohio and found that concentrations fell between 1996 and 2006 as new U.S. EPA regulations took effect. The report says the regulations are "effective and reliable" in reducing water pollution from the herbicides that are frequently used to control weeds in corn and soybean fields.

"Pesticide use is constantly changing in response to such factors as regulations, market forces and advances in science," said Dan Sullivan, the study's lead scientist. Just one pesticide, simazine, increased during the study period. The chemical, which is used for weed control, increased more sharply than the trend for agriculture use, suggesting that urban use may have been on the rise.

The herbicides cyanazine, alachlor and metolachlor declined in response to new regulations and the availability of replacement chemicals. The insecticide diazinon declined from 2000 to 2006, as EPA phased out nonagricultural uses.

But with the decline of some chemicals, the use of others has risen. For instance, farmers turned to new chemicals acetochlor and S-metolachlor as they decreased their use of similar herbicides alachlor and metolachlor, which are thought to be more harmful than the new versions.

Source: Allison Winter, *Greenwire*, 11/9/09

Pesticide Use and Risk of Parkinson's Disease

Researchers at the *Parkinson's Institute* in Sunnyvale, CA announced in mid September they had made more links between the use of pesticides and Parkinson's disease but said they only found a higher risk for people who use the chemicals as part of their job. Three compounds, including an ingredient in the Vietnam-era herbicide Agent Orange, the herbicide paraquat and the insecticide permethrin were associated with a more than three-fold increased risk of Parkinson's disease, they found.

Their study, published in the *Archives of Neurology*, backs a growing body of research linking the incurable and often deadly brain disease with pesticide and herbicide use. "Because few investigations have identified specific pesticides, we studied eight pesticides with high neurotoxic plausibility based on laboratory findings," Dr. Caroline Tanner and her colleagues wrote. They studied 519 people with Parkinson's disease and 511 similar people who did not have Parkinson's. "We examined risk of parkinsonism in occupations (agriculture, education, health care, welding, and mining) and toxicant exposures (solvents and pesticides) putatively associated with parkinsonism," they wrote.

"Work in agriculture, education, health care, or welding was not associated with increased risk of parkinsonism," they added. "Occupational use of pesticides was associated with an almost 80 percent greater risk of parkinsonism. Growing evidence suggests a causal association between pesticide use and parkinsonism."

In July, an *Institute of Medicine* panel found links between Agent Orange exposure and both Parkinson's and heart disease, but the report by Tanner's team is the first to make a link with permethrin, a commonly used synthetic bug killer and repellent.

Sources: *Reuters*, 9/14/09; and *Greenwire*, 9/15/09

Road Salt Concerns Increase

Many urban streams have become salty enough to harm aquatic life, largely because of salt used for de-icing roads in the winter, according to a new government study released in mid September. The U.S. Geological Survey (USGS) studied urban streams and groundwater for levels of chloride, a component of salt, in 20 states from Alaska to the Great Lakes and the Northeast. It found chloride concentrations above federal recommendations designed to protect aquatic life in more than 40 percent of urban streams tested. The highest levels were measured during the winter — as much as 20 times the federal guidelines — when salt and other chemicals are commonly used for de-icing.

The problem was less serious in groundwater, and fewer than 2 percent of the drinking-water wells sampled had chloride levels higher than federal standards for human consumption. Chloride levels generally were much higher in urban than rural areas. High chloride levels can slow plant growth, impair reproduction and reduce the diversity of organisms in affected waters. It also can affect the taste of drinking water drawn from them.

Matthew Larsen, USGS associate director for water, said road safety is a top priority when state and local officials decide to use salt. "And clearly salt is an effective de-icer that prevents accidents, saves lives, and reduces property losses," Larsen said in a statement accompanying the report. "These findings are not surprising, but rather remind us of the unintended consequences that salt use for de-icing may have on our waters." For those reasons, Larsen noted, transportation officials continue to develop innovations that reduce the need for road salt without compromising safety.

The study found the rising levels were consistent over the last two decades with more use of road salt and the expansion of road networks and parking lots that get de-icing. Some of the highest concentrations of chloride were found in two creeks in the Twin Cities and four creeks in suburban Chicago, but Lincoln Creek in Milwaukee exceeded the federal guidelines the most out of all the streams cited in the study.

The findings are consistent with several other studies that blamed road salt, and its increased use, for water quality problems in streams and aquifers. A University of Minnesota study published in *Science of the Total Environment* last year linked increasing salinity in Twin Cities lakes to increased use of road salt in their watersheds. Another study by some of the same researchers this year found those waters were getting saltier because most of the salt was being retained in the watersheds instead of being flushed down the Mississippi River.

And a 2005 study published in the *Proceedings of the National Academy of Sciences* said chloride concentrations were increasing in many surface waters in the northeastern states at a rate that threatened to render them undrinkable and toxic to freshwater life. Eric Novotny, a researcher who worked on both of the Minnesota studies, said certain species, mostly insects at the bottom of the food chain, are typically the first affected by rising chloride levels. Either they're killed outright or it affects their reproduction, reducing biodiversity among less tolerant species, which can have consequences farther up the food chain.

The states included in the study were Alaska, Washington, North Dakota, Nebraska, Iowa, Illinois, Indiana, Michigan, Minnesota, Wisconsin, Ohio, Pennsylvania, Rhode Island, Vermont, New Hampshire, New Jersey, New York, Connecticut, Massachusetts and Maine. The study looked at data from 1,329 wells in 19 states and 100 surface water basins in 15 states. Because those two data sets don't perfectly overlap, the number of states is actually 20, said John Mullaney, the study's lead author.

Besides road salt, other sources of chloride include wastewater treatment plants, septic systems, water softeners, farms and more salt leaching from landfills, as well as natural sources.

Sources: *AP/MSNBC.com*, 9/16/09; and *Greenwire*, 9/17/09

Satellites Track Water Consumption

Officials in the arid West have long struggled to quantify how much water is diverted from rivers and how much is pumped from hundreds of thousands of wells. Now a technique developed by the Idaho Department of Water Resources (IDWR) and the University of Idaho is refining an inexact science by using satellites to measure how much water is "consumed" on a particular tract of land through evapotranspiration – a combination of the evaporation of water into the atmosphere and the water vapor released by plants through respiration.

The program – METRIC, or *Mapping EvapoTranspiration With High Resolution and Internalized Calibration* – was launched in 2000 with a NASA/Raytheon Synergy Project grant and is used by 11 states. The technology is able to measure how much water actually leaves an area for the atmosphere, rather than including water that is diverted onto land only to return quickly to the water table or river for other users. Data from METRIC have already been used to help settle a century-long fight between Colorado and Kansas over water in the Arkansas River and a dispute between Idaho irrigation districts. Previously, officials had to look at well-pumping records and electricity use to estimate each irrigation district's usage. Water managers say the data help to settle and avoid litigation.

METRIC uses images from the two Landsat satellites, which orbit Earth every 16 days, meaning an image of a given field is available every eight days unless cloud cover interferes. Until this year users had to pay the U.S. Geological Survey $600 for each 185-by-180-kilometer "scene." But starting in 2009 the government satellite images, which are also used for *Google Earth*, are free to the public. METRIC developers have published their algorithms for anyone to use, but agencies must write their own computer codes.

James Levitt, director of the *Program on Conservation Innovation* at the Harvard Forest, Harvard University, said he thinks METRIC will help Western states adapt to climate change, as more extreme heat and less precipitation are expected. "The water conflicts that are brewing are intense," he said. "If you don't have water you can't farm. Climate change is actually happening now. This will allow government and farmers to adapt.

Kari Lydersen, *Washington Post*, 9/14/09; and *Greenwire*, 9/15/09

NRC Calls for 'New Biology' Initiative

Several of the thorniest energy and environmental challenges facing the U.S. today could be partially solved by focusing scientific funding on integrative approaches to the biological sciences, the *National Research Council* (NRC) said in a report released in mid September. The report calls on the U.S. to create a national "new biology" initiative to fund cross-disciplinary projects that otherwise would fall through the cracks. Such an initiative would focus on addressing four societal challenges:

- increasing sustainable, local food production;
- understanding ecosystem services;
- optimizing biomass stocks and catalysts for biofuels; and
- individualized medicine.

All of these sectors – which, in their larger aspects, represent some 50 percent of the U.S. economy – are at an inflection point, said Phillip Sharp, co-chairman of the committee that wrote the report and a professor for the *Koch Institute for Integrative Cancer Research* at the Massachusetts Institute of Technology. "The major innovative force that will address these problems over the coming decades will be the life sciences," Sharp said.

As biofuels move away from low-energy ethanol, with its corrosiveness and stress on the food system, the challenge for next-generation fuels developed from non-food plants or algae will be to produce fuel more cheaply than by using yeast to ferment starch into ethanol. Recent advances in biotechnology – such as high-throughput DNA sequencing, automated gene expression measurement and metabolic engineering – make this an achievable goal, the report says.

The report coins a term – "new biology" – to describe a dynamic that has long since arrived: The life sciences require the aid of chemists, physicists, computer scientists, engineers and mathematicians to help parse the reams of data gathered through the analysis of complex systems. Rare is the biologist today, the report says, who does not use computational tools to analyze data. But to begin genuinely modeling and then predicting these systems, far more significant physical and computational resources will need to be mustered, Sharp said. To make these resources available, funding agencies and universities need to shift their perspectives, allowing projects in the life sciences to apply for research grants outside their narrowly prescribed fields, the report says. Some academic departments do little to foster this collaboration and rarely reward it.

The "new biology" initiative would draw on resources from the *National Institutes of Health*, *National Science Foundation*, and U.S. Department of Energy, among others. The initiative requires a new dedicated stream of funds that should be guaranteed for at least 10 years, the report recommends.

Source: Paul Voosen, *Greenwire*, 9/17/09

Climate Change Update

The North Pole could see ice-free summers within a decade, according to data released in mid October. Members of *Catlin Arctic* firm found that most of the ice in the northern part of the Beaufort Sea is first-year ice measuring just 6 feet deep which will melt next summer. The area traditionally has had multi-year ice that is thicker and doesn't melt as quickly. "With a larger part of the region now first-year ice, it is clearly more vulnerable," said Professor Peter Wadhams of the *Polar Ocean Physics Group* at the University of Cambridge that analyzed the data. "The area is now more likely to become open water each summer, bringing forward the potential date when the summer sea ice will be completely gone." The *Catlin* survey data supports the consensus that the Arctic will be ice-free in summer within two decades, and a great deal of that decrease will happen within a decade, Wadhams said.

Already this year, two German ships will conclude the first commercial trip by a western shipping company on the Northern Sea Route along Russia's Arctic-facing northern shore – a voyage made possible by climate change. The route from Asia to Europe is thousands of miles shorter than various other routes, and Russian officials hope it will eventually compete with the Suez Canal for traffic during the summer.

Scientists are now concerned about the impact global warming will have on the fragile, interlinked ecosystem of the Galapagos Islands. Already, abrupt and frequent changes in sea temperatures and the death of nearby coral reefs have shown the toll climate change can have on the islands. "If the corals die, we lose thousands of species that are associated to the coral," said Galapagos-based marine biologist Judith Denkinger.

The loss of marine life could trigger a domino effect on land-based species like sea lions and the Galapagos penguin. If the worst climate fears come true, drastic steps may need to be taken, said Gabriel Lopez, executive director of the *Charles Darwin Foundation*.

Climate change could also be the cause of a large dead zone that has formed off the coast of Oregon and Washington for the past eight years, according to a researcher at Oregon State University (OSU). "What we're seeing is changes in the oxygen content of the water and the winds that drive the ocean and cause that flushing," said Jack Barth, professor of physical oceanography at OSU. The affected waters don't have a problem with polluted river runoff, leading Barth to conclude that evolving wind conditions from climate change, rather than pollution, are responsible. Barth's press briefing came as the *National Science Foundation* released a multimedia report that showed the number of dead zones worldwide doubling every decade.

Global warming-related geological changes could lead to more earthquakes, volcanic eruptions, landslides and tsunamis, British scientists warned in mid September at the first major conference to look at global warming's potential effects on geological hazards. "When the ice is lost, the earth's crust bounces back up again and that triggers earthquakes, which trigger submarine landslides, which cause tsunamis," said University College London professor Bill McGuire, who organized the three-day conference. Climate-linked geological changes may also trigger "methane burps," the release of a potent greenhouse gas (GHG), currently stored in solid form under melting permafrost and the seabed, in quantities greater than all the carbon dioxide (CO_2) in our air today.

"Climate change doesn't just affect the atmosphere and the oceans but the earth's crust as well. The whole earth is an interactive system," Professor Bill McGuire of University College London told *Reuters*. David Pyle of Oxford University said small changes in the mass of the earth's surface seems to affect volcanic activity in general, not just in places where ice receded after a cold spell. Weather patterns also seem to affect volcanic activity – not just the other way round, he told the conference. Tony Song of NASA's Jet Propulsion Laboratory in California warned of the vast power of recently discovered "glacial earthquakes" – in which glacial ice mass crashes downwards like an enormous landslide. In the West Antarctic, ice piled more than one mile above sea level is being undermined in places by water seeping in underneath. "Our experiments show that glacial earthquakes can generate far more powerful tsunamis than undersea earthquakes with similar magnitude," said Song. "Several high-latitude regions, such as Chile, New Zealand and Canadian Newfoundland are particularly at risk." He said ice sheets appeared to be disintegrating much more rapidly than originally thought and glacial earthquake tsunamis were "low-probability but high-risk." McGuire said the possible geological hazards were alarming enough, but just one small part of a scary picture if man-made CO_2 emissions were not stabilized within around the next five years.

A new report prepared for the British government challenges the assumption that rising global temperatures may only seriously threaten future generations, warning that unchecked GHG emissions could raise temperatures 4 ^oC as early as 2060. The report was released in late September by the *Met Office Hadley Centre*. "We've always talked about these very severe impacts only affecting future generations, but people alive today could live to see a 4 ^oC rise," said Richard Betts, head of climate impacts at the *Met Office*, whose findings were delivered to the Department of Energy and Climate Change. Aside from threatening the water supply of half the world's population and having a crippling effect on biodiversity, scientists say the 4 ^oC average rise would be exceeded by 10 ^oC increases in places like the Arctic and western and southern Africa.

The Earth's oceans, a long reliable carbon sink, have recently become less efficient at absorbing CO_2 emissions, according to a report published in mid November in the journal *Nature*. While the oceans' intake of atmospheric CO_2 largely kept up with rises in industrial emissions last century, the growth in this absorption rate has declined markedly since 2000. This decline is due to a rise in acidity stemming from increased CO_2 levels, said Samar Khatiwala, the study's lead author and a professor at the Georgia Institute of Technology. "It's a small change in absolute terms," Khatiwala said. "What I think is fairly clear and important in the long term is the trend toward lower values, which implies that more of the emissions will remain in the atmosphere." To calculate the intake rate, Khatiwala combined data from tens of thousands of measurements of seawater taken over the past 20 years. The resulting model found that the oceans' rate growth dropped 10 percent from 2000 to 2007, he said.

Preventing the destruction of marine life, which capture more than half of the world's CO_2 emissions, could help offset current GHG emissions by 3 to 7 percent, a United Nations report said in mid October. The "*Blue Carbon*" report found that life in the seas and estuaries, such as plankton and mangrove forests, captures and stores up to 1,650 million metric tons of CO_2 every year, the equivalent of almost half the world's transportation emissions, it said. "We already know that marine ecosystems are multitrillion dollar assets linked to sectors such as tourism, coastal defense, fisheries and water purification services," said Achim Steiner, head of the *U.N. Environment Programme*. "Now it is emerging that they are natural allies against climate change," he said. But the report estimates that up to 7 percent of these "blue carbon" stores are lost every year due to pollution and coastal development. The report proposes a fund that could protect such systems and eventually be funded in a manner proposed for deforestation efforts in the U.N. climate talks.

A coalition of nearly 600 conservation, outdoor and recreation groups is calling on the U.S. Senate to dedicate billions of dollars in a climate change bill to wildlife and natural resources threatened by global warming. "Climate change poses an immediate and profound threat to the healthy natural systems that provide us with drinking water, flood protection, food, medicine, timber, recreational opportunities, scenic beauty, jobs, and numerous other services," the groups wrote. "Local, state, federal, and tribal fish, wildlife and land managers are critically short of funding needed to effectively respond to the combination of these challenges." The more than 40 national groups that signed the letter include *Defenders of Wildlife*, the *National Wildlife Federation*, the *Wilderness Society*, the *National Parks Conservation Association* and *The Nature Conservancy*. The remaining groups include regional and local conservation, outdoor, hunting and fishing, recreation and faith groups. They argue that the funds will provide crucial support for job-creating conservation initiatives, such as restoring landscapes, strengthening ecosystems to withstand disruptive changes, removing invasive species from natural areas and repairing damaged watersheds.

Meanwhile, thousands of scientists urged world leaders in late August to include water management strategies in the next global climate pact to curb GHG emissions. The more than 2,500 scientists, politicians and officials who met in Stockholm for the *World Water*

Week conference said climate change will have drastic effects on water supplies and could severely affect the economies of poorer countries. "At the moment the water issue doesn't get enough attention in the climate negotiations," said Anders Berntell, head of the *Stockholm International Water Institute*. "To be effective, climate negotiations must factor in the impact and importance of water for the world and, indeed, human well-being." Because water plays such an integral role in economies, communities and public health, developing countries will need help adapting to changing climates, Berntell said. "When you change the availability of water, you change the prerequisites for farming – the possibility to feed this planet – and you change the possibilities for energy production, forestry and industries," he said.

A collection of 60 Nobel laureates are calling on world leaders to strike a deal at the U.N. climate talks in Copenhagen in December that "matches the scale and urgency of the human, ecological and economic crises facing the world today." The letter's signatories are drawn from a variety of disciplines, and include: Mikhail Gorbachev; the Dalai Lama; Mohamed el-Baradei, chief of the International Atomic Energy Agency; and the authors Doris Lessing, John Coetzee and Wole Soyinka. "It is indispensible that in such a critical situation the finest independent minds of the scientific community raise their voices," said Hans Joachim Schellnhuber, director of the *Potsdam Institute for Climate Impact Research*, which hosted a collection of laureates earlier this year as part of its interdisciplinary series on global sustainability. "The evidence is increasingly compelling for the range and scale of climate impacts that must be avoided, such as drought, sea-level rise and flooding leading to mass migration and conflict," it says. "The robust scientific process by which this evidence has been gathered should be used as a clear mandate to accelerate the actions that need to be taken. "Political leaders cannot possibly ask for a more robust, evidence-based call for action."

President Obama will attend U.N. global warming negotiations in Copenhagen on Dec. 9, and the White House has confirmed that Obama will propose that the U.S. plans to curb its emissions by 2020 in the range of 17 percent below 2005 levels – which is the same as the thresholds in the House-passed climate bill. "We are pleased that President Obama will be in Copenhagen…," said Keya Chatterjee, the *World Wildlife Fund's* climate program director. "It's important that his words during this important moment convey that the United States intends to make climate change a legislative priority, not simply a rhetorical one." But Jonathan Pershing, chief U.S. climate change negotiator said at the recent U.N. climate negotiations meeting in Bangkok, "We are not going to be in the *Kyoto Protocol*…We cannot be stuck with an agreement 20 years old. We want action from all countries." A new, more flexible treaty is needed, he said.

Some economists estimate that the cost of a climate agreement could reach $100 billion a year by 2020. Others put the price tag at closer to $1 trillion. Meanwhile a group of leading economists led by Frank Ackerman, *Stockholm Environment Institute* and Tufts University, say the world can significantly reduce GHG emissions at a cost of between 1 and 3 percent of gross domestic product. The report released in early October addressed what would be needed to meet the recommendations of climate scientists who want to reduce carbon atmospheric concentrations from their current level at 387 parts per million to 350 parts per million. But Robert Shapiro, chairman of the *U.S. Climate Task Force* and the economic advisory group *Sonecon*, called a plan to reduce carbon concentrations below their current levels unrealistic. "The only prospect of reaching 350 is if we came to develop a technology that would pull greenhouse gases out of the atmosphere ...", Shapiro said

Since the *Kyoto Protocol* was agreed upon in 1997, the level of CO_2 in the atmosphere has increased 6.5 percent -- far worse than originally predicted. "The latest science is telling us we are in more trouble than we thought," said Janos Pasztor, climate adviser to U.N. Secretary General Ban Ki-moon. From 1997 through 2008, world CO_2 emissions from the burning of fossil fuels have increased more than 30 percent and U.S. emissions of CO_2 rose 3.7 percent.

China wants the *Kyoto Protocol* strengthened and is calling for wealthy nations to reduce their emissions 40 percent by 2020, according to Yu Qingtai, China's chief negotiator. But according to the U.S.-based *Clean Energy Foundation* and *World Wildlife Fund* (WWF) think tank, if the Chinese economy continues to rely heavily on fossil fuels to power its explosive growth, the country's power consumption will exceed the planet's capacity, and by mid-century its consumption will become unsustainable with the nation emitting 17 billion tons of CO_2 per year. That amount would account for 60 percent of global emissions and three times the country's current levels, the think tanks' study said. The report proposed an alternative development path in which China could return its CO_2 emission levels to 2005 levels by 2050. That would require investing an extra $146 billion (1 trillion yuan) in efficiency measures every year from now until 2020 and $248 billion annually between 2020 and 2030.

Meanwhile, the *U.S. Chamber of Commerce*, representing 3 million large and small American businesses, has said it wants to put the science behind global warming on trial and challenge the evidence behind man-made global warming. The so-called "Scopes monkey trial of the 21st century" would include witnesses, cross-examinations and a judge who would rule on whether humans are to blame for the Earth's changing climate, said chamber officials. If EPA refuses to participate, the group said it will take its fight to federal court. "It would be evolution versus creationism," said William Kovacs, the chamber's senior vice president for environment, technology and regulatory affairs. "It would be the science of climate change on trial," he said. EPA called the hearing a "waste of time" and said a threatened lawsuit would be "frivolous." It "brings to mind for me the Salem witch trials, based on myth," said Brenda Ekwurzel, a climate scientist for the environmental group *Union of Concerned Scientists*. "In this case, it would be ignoring decades of publicly accessible evidence".

Early this fall *Exelon Corp., PNM Resources Inc.* and *PG&E Corp*. said they will not renew their membership with the *U.S. Chamber of Commerce* because of its climate policy positions. *Nike Inc*. resigned from the chamber's board in late September for similar reasons, but remains with the business group's more than 3 million members. Chamber President and CEO Tom Donohue said, the chamber supports "strong federal legislation and a binding international agreement". But "We believe that Congress should set climate change policy through legislation, rather than having the EPA apply existing environmental statutes that were not created to regulate GHG emissions," Donohue said.

Meanwhile, in Montana, a new advocacy group has formed with a campaign to also throw into question whether CO_2 emissions are actually contributing to global climate change. The group, *CO_2 Is Green*, led by former oil industry executive H. Leighton Steward, aims to "get the message out there" that CO_2 "is a net benefit for the planet," and, by extension, kill any attempts by

Congress to impose limits on CO_2 emissions. The group is already running a television ad saying "there is no scientific evidence that CO_2 is a pollutant. In fact higher CO_2 levels than we have today would help the Earth's ecosystems." Steward is joined by Corbin J. Robertson Jr., chief executive of and leading shareholder in *Natural Resource Partners*, a Houston-based owner of coal resources. The two have formed a second educational group, *Plants Need CO_2*, which they have submitted for 501(c)(3) tax status, so that contributions would qualify as charitable donations.

Climate change skeptics have also created a film challenging Al Gore's 2006 documentary, *"An Inconvenient Truth"*. The documentary, *"Not Evil Just Wrong,"* aims to rebut both Gore and others who argue that unchecked emissions of heat-trapping gases will lead to catastrophe, arguing that their efforts disregard the fortunes of the developing world and blue-collar Americans. The movie's creators – two former Irish journalists – hope their documentary might provide climate change skeptics with a way to reach people who are unfamiliar or not engaged with the issue. A significant segment of the movie examines the controversy over the pesticide DDT, whose global ban – the movie maintains – was enacted with little scientific justification and led to the deaths of millions in Africa. The movie compares the 1960s campaign to ban DDT with Gore's effort to address climate change, saying both were built on shaky scientific foundations and will hurt poor people and nations. "We're sort of the cinematic wing of the *Tea Party* movement," Phelim McAleer, the documentary's co-creator said. For their part, environmentalists and others on the left say the documentary is inaccurate and misleading. "McAleer is a disinformer, a denier, a liar," Joe Romm, a senior fellow at the *Center for American Progress* and a prominent voice in the climate debate, wrote in his blog. Romm describes the movie as an "anti-Gore and anti-environmental junk science," which is riddled with errors.

Western Republicans are objecting to an order by Interior Secretary Ken Salazar to incorporate climate change impacts into decision-making at his department. The group of lawmakers led by Sen. John Barrasso (WY) and Rep. Rob Bishop (UT) said the move raises questions about the future management of public lands and is a way for the Obama administration to implement regulations while Congress continues to debate global climate change legislation. Bishop said Salazar is "bypassing the congressional approval process." At issue is a secretarial order Salazar signed in September that establishes a *Climate Change Response Council* made up of senior Interior officials to develop an across-the-board approach to climate change for the resources managed by the department. The council, chaired by Salazar, will also coordinate with other federal departments. The move was vital to ensure cooperation among the agencies in a department that has been a "divided house" throughout its history, Salazar said at the time. The council is intended to help enable bureaus to fulfill the requirements already in place to consider and analyze potential climate change impacts when undertaking long-range planning exercises, setting priorities for scientific research, developing management plans and making major decisions regarding potential use of resources.

The lawmakers said they are concerned that the order "puts into question past and future management agreements related to oil and gas development, renewable energy development, recreational use, grazing, hunting on public and private property, and wildlife protection." They claim that existing agreements with states on wildlife management will now be subject to change and that energy companies could be faced with changes in terms of what they can do on public lands. Salazar's order will also create eight "regional climate change response centers." The U.S. Geological Survey already has been developing regional science centers to provide climate change impact data and analysis geared to the needs of fish and wildlife managers as they develop adaptation strategies. These centers, currently known as "regional hubs" of the *National Climate Change and Wildlife Science Center*, will be renamed and their scope broadened to encompass other climate change impacts on Interior resources.

The lawmakers contend that the new centers will affect local land-use planning on private property across America in the name of climate change. "The net result of such federal intrusion would be to stifle economic growth and job creation," they wrote. Republican senators, in addition to Barasso and Bishop, who signed the letter include Mike Enzi (WY), Orrin Hatch (UT), David Vitter (LA) and John Thune (SD). House members include Doug Lamborn (CO), Don Young (AK), Cynthia Lummis (WY), Michael Conaway (TX), Paul Broun (GA), Tom McClintock and Wally Herger (CA), Jason Chaffetz (UT), Denny Rehberg (MT), and Dean Heller (NV).

Undoubtedly all of this anti-climate change rhetoric has effected the percentage of Americans who believe there is solid evidence that human activities, including burning fossil fuels, are causing global temperatures to rise. A newly released poll by the *Pew Research Center for the People & the Press* conducted between Sept. 30 and Oct. 4 shows that only 57 percent of respondents believe there is "solid evidence" that the Earth is warming, down from 71 percent in April 2008. But more respondents support CO_2 controls than oppose them. Asked if they back setting emissions limits and making companies pay for their emissions, even if it may mean higher energy prices, 50 percent said they were in favor and 39 percent said they were opposed. The level was 77 percent in January 2007 and August 2006. Only thirty-six percent of the respondents believe warming is occurring because of human activity, down from 47 percent in April 2008. It was also 47 percent in the 2006 and 2007 surveys. The poll also shows declines in the percentage of people who see solid evidence of global warming across the political spectrum, although the partisan divide is significant. Among Democrats, 75 percent believe there is solid evidence of global warming, down from 91 percent in 2006, 86 percent in 2007 and 83 percent last year. Among independents, the number is now 53 percent, a sharp drop from the 75 percent of independents who believed there is solid evidence of global warming last year and similar levels in 2006 and 2007. Thirty-five percent of Republicans see solid evidence of global warming, down from 49 percent last year, 62 percent in 2007 and 59 percent in 2006. The poll also finds that 35 percent view global warming as a "very serious problem," down from 44 percent in the April 2008 survey. Pew surveyed 1,500 adults using cell phones and land lines. The survey had a 3 percent margin of error.

Also, according to a poll released in late November by the *Washington Post-ABC News* a smaller percentage of Americans believe in global warming, even though a majority continue to support legislation to curb GHG emissions. The poll found 72 percent of the public agrees with the idea that "the world's temperature may have been going up slowly," while 26 percent believe such a change in temperature is not happening. That level of belief in global warming is down 8 percent from last year, when the same question was asked, and represents the lowest level of support since at least 1997, the pollsters said. But of those individuals who believe global warming is happening, 82 percent believe that it is a serious prob-

lem and 53 percent support a cap-and-trade system to deal with the problem. The level of support for cap and trade is essentially unchanged from a poll which asked the same question earlier this fall, but it does represent a 6-percentage-point drop from August 2007. Additionally, 55 percent of those polled expressed support for U.S. action on global warming even if other nations don't "do equally effective things" to address the problem. Twenty-one percent said the U.S. should act if other countries do, as well, and 22 percent said it should take no action at all. The poll surveyed a random sample of 1,001 adults nationwide between Nov. 12-15 and has an error margin of plus or minus 3 percentage points.

But climate change is the top concern among businesses looking to improve their sustainability, according to a poll released in late October by *Business for Social Responsibility* (BSR), a group that helps businesses implement environmental, economic and social sustainability programs. Forty-one percent of attendees representing 274 businesses from 15 countries at a BSR business sustainability conference listed climate change as their top social and environmental priority. Human rights and workers' rights came in next, followed by water availability and quality. Energy, agriculture, transportation, information technology, biotechnology and retail companies were among the sectors represented. Energy efficiency was by far the preferred strategy for addressing climate change, with 44 percent of businesses listing it as their most significant tool. About 10 percent of businesses are mainly employing technological innovation, while 5 percent are purchasing carbon offsets. Five percent listed influencing public policy as their chief strategy. Companies that are not addressing climate change listed "competing strategic priorities" as the biggest barrier to doing so, followed by "short-term financial pressures/recession." Respondents also cited the complexity of implementing a plan and uncertainty about policy frameworks. A large majority of attendees said sustainability initiatives were helping businesses' bottom lines, with 86 percent saying benefits to reputation are increasingly important.

Seattle Mayor Greg Nickels in early October announced Mesa, AZ as the 1,000th city that has signed a pact to significantly reduce GHG emissions in line with *Kyoto Protocol* standards. Scott Smith (R), Mesa mayor said, "I am signing up because this is too important an issue for us to stand on the sideline." "This is not a group without diversity, it's not a group that agrees on everything, but it is a group that is completely united and committed to this one issue," he said.

Midwestern states are working with energy companies to find ways to transport CO_2 from its industrial source to its final resting place. The *Midwestern Governors Association* in mid October announced a goal to site and permit by 2012 at least one interstate pipeline to ferry global warming pollution from the region's power plants to suitable underground storage sites. An early step in the accord involves the development of a pipeline that would move CO_2 from capture-ready coal plants in Indiana, Illinois and Kentucky to the Gulf Coast for use in enhanced oil recovery (EOR). EOR pumps CO_2 into underground oil reservoirs to push previously unrecoverable oil to the surface. It can increase productivity in some wells by up to 60 percent of the original amount of recoverable oil, according to Energy Department estimates. If built, the Midwest pipeline would become the first of its kind in the eastern U.S. and would represent a major step in an effort to decarbonize the area's coal.

NASA Deputy Administrator Lori Garver in mid September said the agency will promote environmental goals and science education to give taxpayers "better value." Among other services, the agency will offer satellite image tracking of global climate change and potential natural disasters

And finally, in early November the U.S. EPA sent its final endangerment finding to the White House for review. The 133-page draft finding that EPA released in April says GHGs threaten public health and welfare. The endangerment finding would set the stage for broad EPA regulations aimed at curbing heat-trapping emissions. The Office of Management and Budget has up to 90 days to review the proposal. The agency's finding comes in response to a 2007 Supreme Court decision that ordered the agency to reconsider whether GHGs are pollutants subject to regulation under the Clean Air Act.

Sources: *AP/MSNBC*, 10/15/09; Kramer/Revkin, *New York Times*, 9/10/09; Eduardo Garcia, *Reuters*, 10/2/09; Kim Murphy, *Los Angeles Times*, 10/3 and 10/9/09; Richard Meares, *Reuters*, 9/16/09; David Adam, *London Guardian*, 9/28/09; Sindya N. Bhanoo, *New York Times/San Francisco Chronicle*, 11/19/09; Wendell Roelf, *Reuters*, 10/14/09; Malin Rising, *AP/San Francisco Chronicle*, 8/21/09; John Vidal, *Guardian*, 10/7/09; Henry Sanderson, *AP*, 9/16/09; Jim Tankersley, *Los Angeles Times*, 8/25/09; Steven Mufson, *Washington Post*, 9/25/09; *E&ENews PM*, 9/14/09; Elisabeth Rosenthal, *New York Times*, 10/15/09; Juliet Eilperin, *Washington Post*, 10/6/09; Andy Pasztor, *Wall Street Journal*, 9/16/09; Seth Borenstein, *AP*, 11/23/09; Alex Kaplun, *Greenwire*, 10/27/09; Noelle Straub, *Greenwire*, 9/15 and 10/28/09; Paul Voosen, *Greenwire*, 11/10/09; Michael Burnham and Anne C. Mulkern, *Greenwire*, 10/7/09; Ben Geman, *Greenwire*, 10/22/09; Debra Kahn, *Greenwire*, 10/22/09; Phil Taylor, *Greenwire*, 10/13/09; Robin Bravender, *Greenwire*, 11/09/09; Alex Kaplun, *Greenwire*, 11/25/09; Darren Samuelsohn, *Greenwire*, 11/25/09 Update; *Greenwire*, 8/24, 8/25, 9/11, 9/17, 9/25, 9/28, 9/30; 10/2, 10/5, 10/6, 10/7, 10/9, 10/14, 10/15, 11/19 and 11/23/09

Meetings of Interest

Jan. 20-21: MICRA Paddlefish/Sturgeon Committee meeting, Nashville, TN. See: http://wwwaux.cerc.cr.usgs.gov/MICRA/

Jan. 22: MICRA Executive Board meeting, Nashville, TN. See: http://wwwaux.cerc.cr.usgs.gov/MICRA/

Feb. 11-12: Using Hydroacoustics for Fisheries Assessment, Seattle, WA. See: www.htisonar.com/at_short_course.htm

Mar. 1-5: Aquaculture 2010, San Diego, CA. See: www.was.org

April 12-14: Species Introductions and Reintroductions: Opportunities and Challenges, Joint American Fisheries Society and Wildlife Society Symposium, Mississippi State University. Contact: Dr. Jeffrey E. Hill, Tropical Aquaculture Laboratory, University of Florida, Ruskin, (813) 671-5230 ext 118, jeffhill@ufl.edu

April 20-21: Mississippi River Basin Panel, Nashville, TN. See: http://wwwaux.cerc.cr.usgs.gov/MICRA/

Jun. 19-22: Second International Catfish Symposium, St. Louis, MO. See: wwwcatfish. 2010.org

June 21-24: International Symposium on Genetic Biocontrol of Invasive Fish, Minneapolis, MN**.** See: http://www.seagrant.umn.edu/ais/biocontrol

Jul. 5-9: Fish Habitat - Understanding and Improving Connectivity and Suitability, International Congress on the Biology of Fish, Barcelona, Spain. Contact: Chris Myrick, Colorado State University, Fort Collins, CO.

Jul. 7-12: Joint Meeting of Icthyologists and Herpetologists, Providence, RI. See: www.dce.ksu.edu/conf/jointmeeting/future.shtml

Jul. 25-30: Climate Change and Fish - Fisheries Society of the British Isles Conference, Belfast, Northern Ireland. See: www.fsbi.org.uk/events.htm

Sep. 12-16: American Fisheries Society 140th Annual Meeting, Pittsburgh, PA. See: www.fisheries.org

Sep. 27-30: Wild Trout Symposium, West Yellowstone, MT. See: www.montana.edu/cs/images/wild_trout/fish.jpg

Sep. 27-30: The Working Waterways and Waterfronts National Symposium on Water Access 2010, Portland, ME. See: http://www.wateraccessus.com/

Aug. 1-5, 2011: 4th National Conference on Ecosystem Restoration (NCER), Baltimore, MD. See: www.conference.ifas.ufl.edu/NCER2011

Jul. 15-20, 2012: International Congress on the Biology of Fish, Madison, WI, Monona Terrace Convention Center

Congressional Action Pertinent to the Mississippi River Basin

Climate Change

S. 137. Brown (D/OH). Creates jobs and reduces U.S. dependence on foreign and unsustainable energy sources by promoting the production of green energy, and for other purposes.

S. 1035. Reid (D/NV) and 2 Co-sponsors. Enhances the ability of drinking water utilities in the U.S. to develop and implement climate change adaptation programs and policies, and for other purposes.

S. 1733 Kerry (D/MA) and Boxer (D/CA) and **H. R. 2998.** Waxman (D/CA) and Markey (D/MA). Creates clean energy jobs, achieves energy independence, reduces global warming pollution and transitions to a clean energy economy.

S. 1933. Bingaman (D/NM) and 3 Co-sponsors and **H. R. 2192.** Grijalva (D/AZ) and 9 Co-sponsors. Establishes an integrated Federal program to protect, restore, and conserve the Nation's natural resources in response to the threats of climate change and for other purposes.

H. R. 232. Baldwin (D/WI) and 3 Co-sponsors. Provides for creation of a Federal greenhouse gas (GHG) registry, and for other purposes.

H. R. 391. Blackburn (R/TN) and 9 Co-sponsors. Amends the Clean Air Act to provide that GHG are not subject to the Act, and for other purposes.

H. R. 594. Stark (D/CA) and McDermott (D/WA) Amends the Internal Revenue Code of 1986 to reduce emissions of carbon dioxide by imposing a tax on primary fossil fuels based on their carbon content.

H. R. 1438. Fortenberry (R/NE). Prohibits any Federal agency or official, in carrying out any Act or program to reduce the effects of GHG emissions on climate change, from imposing a fee or tax on gaseous emissions emitted directly by livestock.

H. R. 1666. Doggett (D/TX) and 21 Co-sponsors. Amends the Internal Revenue Code of 1986 to establish an auction and revenue collection mechanism for a carbon market that ensures price stability with environmental integrity.

H. R. 1760. Inslee (D/WA) and 2 Co-sponsors. Mitigates the effects of black carbon emissions in the U.S. and throughout the world.

H. R. 1862. Van Hollen (D/MD) and 3 Co-sponsors. Caps the emissions of GHG through a requirement to purchase carbon permits, to distribute the proceeds of such purchases to eligible individuals, and for other purposes.

H. R. 1905. Capps (D/CA) and 3 Co-sponsors. Amends the Coastal Zone Management Act of 1972 to require the Secretary of Commerce to establish a coastal climate change adaptation planning and response program, and for other purposes.

H. R. 2306. Dicks (D/WA). Provides for the establishment of a National Climate Service, and for other purposes.

H. R. 2407. Gordon (/TN). Establishes a National Climate Service at the National Oceanic and Atmospheric Administration.

H. R. 2685. Bordallo (D/GU) and 9 Co-sponsors. Establishes a National Oceanic and Atmospheric Administration and a National Climate Enterprise, and for other purposes.

H. R. 2757. Kind (D/WI) and 3 Co-sponsors. Requires the return to the American people all proceeds raised under any Federal climate change legislation.

H. R. 3129. Luetkemeyer (R/MO). Prohibits U.S. contributions to the Intergovernmental Panel on Climate Change.

Conservation

S. 655. Johnson (D/SD) and 3 Co-sponsors. Amends the Pittman-Robertson Wildlife Restoration Act to ensure adequate funding for conservation and restoration of wildlife, and for other purposes.

S. 1214. Lieberman (ID/CT) and 7 Co-sponsors and **H. R. 2565.** Kind (D/WI). Conserves fish and aquatic communities in the U.S. through partnerships that foster fish habitat conservation, to improve the quality of life for the people of the U.S., and for other purposes.

H. R. 404. Grijalva (D/AZ) and 23 Co-sponsors. Establishes the National Landscape Conservation System, and for other purposes.

H. R. 631. Matheson (D/UT). Increases research, development, education, and technology transfer activities related to water use efficiency and conservation technologies and

practices at the U.S. EPA.

H. R. 1080. Bordallo (D/GU). Strengthens enforcement mechanisms to stop illegal, unreported, and unregulated fishing, and for other purposes.

H. R. 1328. Bishop (D/NY) and 2 Co-sponsors. Amends the Internal Revenue Code of 1986 to allow an unlimited exclusion from transfer taxes for certain farmland and land of conservation value, and for other purposes.

H. R. 2188. Kratovil (D/MD) and 3 Co-sponsors. Authorizes the Secretary of the Interior, through the U.S. Fish and Wildlife Service, to conduct a Joint Venture Program to protect, restore, enhance, and manage migratory bird populations, their habitats, and the ecosystems they rely on, through voluntary actions on public and private lands, and for other purposes.

H. R. 2807. Kind (D/WI) and Jones (R/NC). Sustains fish, plants, and wildlife on America's public lands.

H. R. 3086. Bordallo (D/GU). Coordinates authorities within the Department of the Interior and within the Federal Government to enhance the U.S.'s ability to conserve global wildlife and biological diversity, and for other purposes.

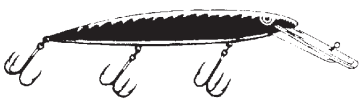
Endangered Species Act (ESA)

S. 724. Barrasso (R/WY) and Vitter (R/LA). Amends the ESA to temporarily prohibit the Secretary of the Interior from considering global climate change as a natural or manmade factor in determining whether a species is a threatened or endangered species, and for other purposes.

Energy

S. 531. Bingaman (D/NM) and Murkowski (R/AK). Provides for the conduct of an in-depth analysis of the impact of energy development and production on the water resources of the U.S., and for other purposes.

S. 539. Reid (D/NV). Amends the Federal Power Act to require the President to designate certain geographical areas as national renewable energy zones, and for other purposes.



H. R. 2227. Murphy (R/PA) and 6 Co-sponsors. Greatly enhances America's path toward energy independence and economic and national security, to conserve energy use, to promote innovation, to achieve lower emissions, cleaner air, cleaner water, and cleaner land, and for other purposes.

H. R. 2300. Bishop (R/UT) and 34 Co-sponsors. Provides the U.S. with a comprehensive energy package to place Americans on a path to a secure economic future through increased energy innovation, conservation, and production.

Federal Water Pollution Control Act (FWPCA)

S. 696. Cardin (D/MD) and Alexander (R/TN). Amends the FWPCA to include a definition of fill material.

S. 787. Feingold (D/WI) and 23 Co-sponsors. Amends the FWPCA to clarify the jurisdiction of the U.S. over waters of the U.S.

S. 1005. Cardin (D/MD) and 3 Co-sponsors. Amends the FWPCA and the Safe Drinking Water Act to improve water and wastewater infrastructure in the U.S.

H. R. 700. McNerney (D/CA) and Tauscher (D/CA). Amends the FWPCA to extend the pilot program for alternative water source projects.

H. R. 1262. Oberstar (D/MN) and 9 Co-sponsors. Amends the FWPCA to authorize appropriations for State water pollution control revolving funds, and for other purposes.

Invasive Species

S. 237. Levin (D/MI) and 4 Co-sponsors and **H. R. 500.** Ehlers (R/MI) and 20 Co-sponsors. Establishes a collaborative program to protect the Great Lakes, and for other purposes.

S. 462. Boxer (D/CA) and Vitter (R/LA). Amends the Lacey Act Amendments of 1981 to prohibit the importation, exportation, transportation, and sale, receipt, acquisition, or purchase in interstate or foreign commerce, of any live animal of any prohibited wildlife species, and for other purposes.

S. 594. Casey (D/PA) and Stabenow (D/MI). Requires a report on invasive agricultural pests and diseases and sanitary and phytosanitary barriers to trade before initiating negotiations to enter into a free trade agreement, and for other purposes.

H. R. 48. Biggert (R/IL). Amends the Lacey Act, to add certain species of carp to the list of injurious species that are prohibited from being imported or shipped.

H. R. 51. Kirk (R/IL). Directs the Director of the USFWS to conduct a study of the feasibility of a variety of approaches to eradicating Asian carp from the Great Lakes and their tributary and connecting waters.

H. R. 669. Bordallo (D/GU) and 9 Co-sponsors. Prevents the introduction and establishment of nonnative wildlife species that negatively impact the economy, environment, or other animal species or human health, and for other purposes.

Mining

S. 140. Feinstein (D/CA) and **H. R. 699**. Rahall (D/WV) and 20 Co-sponsors. Modifies the requirements applicable to locatable minerals on public domain lands, consistent with the principles of self-initiation of mining claims, and for other purposes.

S. 409. Kyl (R/AZ) and McCain (R/AZ) and **H. R. 2509**. Kirkpatrick (D/MI) and Flake (R/AZ). Secures Federal ownership and management of significant natural, scenic, and recreational resources, to provide for the protection of cultural resources, to facilitate the efficient extraction of mineral resources by authorizing and directing an exchange of Federal and non-Federal land, and for other purposes.

S. 796. Bingaman (D/NM) and **H.R. 699.** Rahall (D/WV) and 20 Co-sponsors Modifies the requirements applicable to locatable minerals on public domain land, and for other purposes.

H. R. 493. Rahall (D/WV). Directs the

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

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Secretary of the Interior to promulgate regulations concerning the storage and disposal of matter referred to as ``other wastes'' in the Surface Mining Control and Reclamation Act of 1977, and for other purposes.

H. R. 3203. Lamborn (R/CO) and Bishop (R/UT). Promotes remediation of inactive and abandoned mines, and for other purposes.

National Environmental Policy Act (NEPA)

H. R. 585. Lee (D/CA) and 5 Co-sponsors. Directs the President to enter into an arrangement with the *National Academy of Sciences* (NAS) to evaluate certain Federal rules and regulations for potentially harmful impacts on public health, air quality, water quality, plant and animal wildlife, global climate, or the environment; and to direct Federal departments and agencies to create plans to reverse those impacts that are determined to be harmful by the NAS.

H. R. 996. Nunes (R/CA) and McCarthy (R/CA). Temporarily exempts certain public and private development projects from any requirement for a review, statement, or analysis under the NEPA of 1969 (42 U.S.C. 4321 et seq.), and for other purposes.

Water Quality

H. R. 135. Linder (R/GA) and 3 Co-sponsors. Establishes the *21st Century Water Commission* to study and develop recommendations for a comprehensive water strategy to address future water needs.

H. R. 276. Miller (R/MI). Directs the Administrator of the USEPA to convene a task force to develop recommendations on the proper disposal of unused pharmaceuticals, and for other purposes.

H. R. 631. Matheson (D/UT). Increases research, development, education, and technology transfer activities related to water use efficiency and conservation technologies and practices at the USEPA.

H. R. 1145. Gordon (D/TN). Implements a *National Water Research and Development Initiative*, and for other purposes.

H. R. 3202. Blumenauer (D/OR) and 3 Co-sponsors. Establishes a *Water Protection and Reinvestment Fund* to support investments in clean water and drinking water infrastructure, and for other purposes.

Water Resources

S. 637. Baucus (D/MT) and Tester (D/MT). Authorizes the construction of the *Dry-Redwater Regional Water Authority System* in the State of Montana and a portion of McKenzie County, North Dakota, and for other purposes.

S. 1712. Reid (D/NV), and 2 Co-sponsors and **H.R. 3747**. Berkley (D/NV) and Titus (D/NV). Promotes water efficiency, conservation, and adaptation, and for other purposes.

H. R. 172. Salazar (D/CO) and Markey (D/CO). Provides for the construction of the *Arkansas Valley Conduit* in CO.

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