

River Crossings

Volume 15

May/June 2006

Number 3

Water and Dollars: Rivers and a Robust Local Economy

Ernie Niemi of *ECONorthwest*, a private consulting firm headquartered in Eugene, OR, discussed the relationship between river management and the economies of local communities and states at the Annual Missouri River Conference held in Sioux City, IA in mid May. The following is a summary of his observations.

He discussed the Klamath River as an example of the “perfect storm” of economic problems and opportunities for understanding what is wrong with river management and lost economic opportunities in America. The Klamath first caught national attention in 2001, when two federal judges issued rulings that required the U.S. Bureau of Reclamation (BOR) to meet its obligations to protect habitat for three species of fish (including the coho salmon) listed under the U.S. Endangered Species Act (ESA).

These rulings led the BOR to shut down irrigation to some farmers, which in turn led to the belief that the government had destroyed the lives of countless farm families. Any number of websites substantiated the claim that “the ‘whacko’ environmentalists and the ESA destroyed the entire economy, undercut the livelihoods supporting thousands of people, and represented an assault on the entire U.S. economic system”.

However, research by Bill Jaeger, an economist at Oregon State University,

found that the economy did not collapse. Some farmers were in fact hurt, but, as a whole after receiving federal and state assistance, their incomes were more or less typical of recent years. Also, not all of the losses were attributable to ESA actions. Overall, 102,338 acres did not receive full irrigation. But the BOR already had initiated a program to retire land from irrigation, and paid \$2,760,000 (\$167/ac.) to farmers to retire 16, 525 acres. This scaled down the actual losses significantly.



Vision of a Missouri River National Park

But the underlying message of farmers didn’t change, and “the choice is obvious: the fish gotta go”. And, so the very next year the secretaries of Agriculture and

Interior traveled to the Klamath Basin to open the headgates in the spring, and then in September at least 30,000 — some say 80,000 — salmon died at the mouth of the river in California. Amid the controversy, the State of California declared that the kill was caused at least in part by the diversion of water to farm fields in the upper basin. The year 2002 was another low-snow-pack year, and again the Department of Interior directed that the irrigators receive their full allotment of water resulting in low flows downstream.

Then in 2005 and now in 2006, when the progeny of those dead fish should be mature salmon in the oceans, they are not, and fisheries managers have essentially closed the commercial fishery along 700 miles of the coast and severely cut the recreational fishery. Coastal representatives claimed that last year these closures caused the fishing community to lose \$150 million. So members of Congress are now calling for millions of dollars in emergency relief to help the local fishing community.

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So now, we see an entirely different set of choices: not fish versus the economy, not jobs versus fish, but jobs with fish versus jobs without fish. And you can look right here at the Missouri River and see similar symptoms of dysfunctional relationships between rivers and local economies. According to the National Research Council 51 of 67 native fish species in the mainstem portions of the Missouri River are listed as rare, uncommon, and/or decreasing across all or parts of their ranges. And Nationwide, Dale Hall, director of the U.S. Fish and Wildlife Service, noted during a late April teleconference that out of 822 native fish species, nearly 40 percent are in danger of extinction.

And in Nebraska and the other Great Plains states, analysis of water samples taken in 1998 from streams and reservoir outflows found that most samples contained more than 10 different herbicides or substances derived from the transformation of herbicides. More than 50 percent of the samples contained more than 14 herbicides or related products. It doesn't matter if EPA says concentrations are below standards, what if a group like *Greenpeace* put up a billboard at the state line announcing the herbicide problem. What would be the impact on the state's economy and tourism industry?

To understand these and other, similar problems, we first have to understand how rivers and the economy interact with one another. Water, per se, has no economic value, but people give value to the goods and services that water, with other elements of the ecosystem, produce for human consumption and enjoyment. Some of the goods and services that water provides are tangible (water for drinking, sand and gravel for building roads, etc.); while others are less tangible (recreational opportunities), but easily recognizable. So to understand the interactions between rivers and the economy, one approach would be to identify and quantify every good and service provided.

But economist's look at it in another way. We begin not with the ecosystem's production of goods and services, but with human competition for the use of those goods and services. In most places and most times, the rivers of the U.S. do not have the ability to satisfy the demands for all water-related goods and services, so some demands are satisfied, and others are not. This is a critical

lesson of the events in the Klamath Basin. One week before the courts ruled in 2001 that the basin's water had to be used to meet the needs of fish, farmers insisted that under the prior appropriation doctrine they owned the water and everybody else could be damned. This old view (commercial use vs environmental use) yields a simple, even simplistic, choice: "we can have a healthy environment or a healthy economy, but not both".

But the current view [commercial use (jobs) vs environmental nonuse (other values) vs competing commercial use (other jobs) vs quality of life (household location) is different. As soon as we recognize that a river produces many goods and services, then, regardless of the prior appropriation doctrine, things are more complex. The Klamath Basin shows very clearly that farmers compete with fishers, and across the country, irrigators and loggers whose actions affect the quality of water flowing in a river compete with the multitude of

downstream urban industries that pay to clean the water. Added to that, are the environmental or nonuse value and values of goods and services that are not often recognized. These are hard to measure trade-offs, but economists are catching up.

If we take into account that farming is highly subsidized, that reduced farming creates recreational benefits, and that nitrogen removal through the use of farmlands converted to floodplain wetlands is 3 times cheaper than through conventional treatment, the economic trade-offs become more clear. Some examples of environmental values include the following:

- the benefits vs costs of preserving salmon on the Klamath River is 9:1,
- the shade benefits (to salmon) provided by riparian trees on the Tualatin River (OR) is valued at \$50 million, and
- the benefits of nitrogen removal through the use of floodplain wetlands on the Illinois River is valued at \$740/acre.

River Crossings

Published by

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Bettendorf, IA 52722-0774

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Also, in terms of quality of life benefits, most of us could receive a 20% pay increase by taking a job in New York City, but we choose not to because we like where we live. Among the most important reasons for this are what economists call natural resource amenities (i.e. warm winters, mild summers and low humidity, days of sunshine, amount of water, mountainous terrain, clean streams, etc.), and these can be measured by what economists call “consumer’s surplus”. In other words because most of us would give up a 20% pay increase to not move to New York City, the natural resource amenities of our current location can be valued at up to 20% over our current salary level.

Another form of consumer’s surplus is how much more we would be willing to pay to participate in a given activity. Actual examples (extra dollars people are willing to pay above current prices) in the Intermountain Region of the U.S. for some of these activities include the following (in 2004 dollars/person-activity/day):

- Float/raft/canoe \$69.74
- Motorboat \$53.68
- Fish \$49.57
- Swim \$29.54

To support these kinds of activities we generally need clean and plentiful water. Before 2001, only one or two farmers in the Klamath River basin participated in the Conservation Reserve Program (CRP) or used water-conserving practices, such as no-till farming. Afterward, many farmers began to use these methods and found that their net revenues went up. In Nebraska, farmers in the Upper Big Blue Natural Resources District typically apply 14.8 inches of water to corn. But with just 10.8 inches, their yields would increase and profits would rise. A farmer with 500 acres would thus see net earnings rise by \$24,000 per year.

Also in Nebraska, between 1995 and 2000 almost 4,500 young people (22-29 year-olds) with at least a bachelor’s degree left the State. For the same period Nebraska lost another 3,064 people in the 30-64 age range who had college or college-plus educations. This “brain drain” converted to a loss of 1.1% of Nebraska’s annual income or \$246 million per year. Other Great Plains states have experienced similar losses, including the loss of high-wealth retirees.

A potential option to turn this trend around is to increase the Midwest’s natural resource amenities. For example, an Idaho advertisement in a national trade magazine shows pictures of a person skiing, a person kayaking, and a person trout fishing, and describes these as “employee benefits”, and as reasons why companies should relocate to Idaho. People demand high value recreational opportunities in their immediate vicinity, and these convert to real economic benefits. For example, a survey of 1,000 ranchers and farmers in Montana found that 5% already engage in agri-tourism, and earnings from agri-tourism equal approximately 16% of total farm or ranch income. As a general rule, Nebraska farmers that charge hunters to hunt on their lands earn enough income per acre to pay for real-estate taxes, about \$10 – \$20 per acre.

People need these natural resource amenities nearby in order to satisfy their “quality of life” needs. The Midwest could thus attract people and create jobs directly through promotion of tourism, they could reduce costs by improving ecosystem services, and they could improve public access amenities. One approach to this might be to establish a Missouri River National Park. But to do that would require a change in the way the river and its floodplain are managed. It would include allowing the river to take on a more natural appearance. Having a “nice place” such as a national park one-hundred miles closer would increase the second paycheck of people in the Omaha area by about 4 percent which would total about \$683 million for the city. A new Missouri River National Park could also increase the well-being of residents in the region by approximately \$600 billion per year, holding all else constant.

The problem is that the people in the region don’t currently have the vision or the political will to establish a national park, and don’t realize that they don’t have to create mountains to compete with Colorado or beaches to compete with Miami. But what they do need to do is to pay attention to the natural resource amenities that they have, and the Missouri River is one that offers great potential.

This is something for people across the entire Mississippi River Basin to think about with regard to how they view and manage their rivers for the future!

Source: Ernie Niemi, *ECONorthwest*, 99 W. 10th, #400, Eugene, Oregon 97401, 541-687-0051, niemi@eugene.econw.com

America’s Most Endangered Rivers 2006

America’s Most Endangered Rivers list for 2006, as compiled by the rivers advocacy group *American Rivers*, includes the Mississippi River Basin’s Upper Yellowstone River as the second most endangered river in the nation.

According to the report, burgeoning riverside developments and widespread bank alterations threaten to compromise the integrity of the Upper Yellowstone River. *American Rivers* says that the U.S. Army Corps of Engineers (Corps) must properly assess the cumulative impacts of bank stabilization and flood control projects along the river, working in tandem with local officials to guide development in a way that protects one of the West’s most scenic and vibrant rivers.



*Yellowstone River, MT
(Greater Yellowstone Coalition Photo)*

Dubbed “America’s last best river” by *National Geographic* magazine, the free-flowing Yellowstone journeys from the wild and rugged mountains of Yellowstone National Park through Montana’s expansive prairies until it reaches its confluence with the Missouri River just east of the North Dakota border. As the Yellowstone transforms from a racing mountain stream into a wide, meandering river, it supports an astounding array of fish and wildlife, from cutthroat trout and bison, to pallid sturgeon and elk.

The Upper Yellowstone, an 85 mile stretch, is treasured for its world-class wild trout fishery and magnificent views of the towering Absaroka and Gallatin mountain ranges. The river is heavily used by anglers and whitewater enthusiasts, and in late winter and spring, birdwatchers come to see nesting bald

eagles that congregate in its magnificent cottonwood forest. For these reasons, the Upper Yellowstone is frequently photographed and a popular recreation destination, making it central to local economies.

Although agriculture and ranching remain the dominant land uses in the surrounding Paradise Valley, the balance is shifting as ranches are continually parceled into new residential subdivisions, many of which are located on the banks of the highly flood-prone Yellowstone. In Park County, Montana, floodplain development has increased by 57 percent in the last two decades, with more than 600 buildings now located in the river's 100-year floodplain. This development has been accompanied by a dramatic increase in riprap, rock barbs, dikes, and levees that are intended to protect riverfront homes from flooding and erosion. Sadly, these so-called bank stabilization and flood control projects provide only a false sense of security to riverfront residents, and increase the threat of flooding downstream.

Floodplain development results in the loss of cottonwood forests and other riparian vegetation that provide natural flood protection and crucial habitat for fish and wildlife. Riprap and levees disconnect the Yellowstone from its floodplain, preventing adjacent wetlands from absorbing and then slowly releasing floodwaters. This, in turn, speeds the velocity of the current and increases the frequency and severity of flooding. In the long run, binding the river with riprap and levees also results in a loss of habitat diversity by eliminating side channels, logjams, islands, and other natural features that support the Yellowstone's wild trout and other fish and wildlife.

Unless future development is steered out of the floodplain, the Upper Yellowstone River will be deprived of the very qualities that currently attract thousands of visitors to Park County each year, fuel the local economy, and contribute to a high quality of life for local residents.

In 1999, Congress authorized and provided funding for the Corps to develop a Special Area Management Plan for the Upper Yellowstone. The plan will allow the Corps to assess the cumulative effects of bank stabilization and flood control projects on a watershed level, and implement a conservation strategy to protect important aquatic and riparian resources along the river. This is the first time the Corps is

doing such a plan for a river, providing an opportunity to establish a good precedent.

The management plan was originally slated to be completed by now, yet the Corps has made little progress and continues to hand out permits for new bank stabilization projects. In order to protect the Upper Yellowstone from relentless floodplain development, *American Rivers* says the Corps must commit to completing this plan in a timely manner. The result should be a cap on bank stabilization activity along the Upper Yellowstone.

In conjunction with the management plan, the Corps should also ask Congress to appropriate \$50 million to conserve ecologically critical riverfront lands. This approach would allow thoughtful, well-planned development to continue, while protecting agricultural open space, recreational opportunities, fish and wildlife habitat, and preserving one of Park County's most valuable economic assets. The County Commission should also commit to prohibiting any new residential building construction in the river's 100-year floodplain.

For more information on the Upper Yellowstone contact: Chad Smith, *American Rivers*, (402) 432-7950, csmith@americanrivers.org; or Scott Bosse, *Greater Yellowstone Coalition*, (406) 556-2823, sbosse@greateryellowstone.org

Other rivers listed on *American Rivers'* most endangered list include the: Pajoro River (CA), Willamette River (OR), Salmon Trout River (MI), Shenandoah River (VA/WV), Boise River (ID), Caloosahatchee River (FL), Bristol Bay (AK), San Jacinto River (TX), and Verde River (AZ). A complete copy of *America's Most Endangered Rivers of 2006* can be downloaded online at: http://www.americanrivers.org/site/DocServer/MER_final.pdf?docID=3781

New Carp Barrier Activated

The U.S. Army Corps of Engineers (Corps) flipped the switch on a new \$7 million electric carp barrier in the Chicago Sanitary and Ship Canal on May 8. That

same day, the agency turned off the juice on the older, temporary barrier.

The pulsing electric field generated by the barrier is designed to impede Asian carp and other unwanted species from migrating further upstream and into Lake Michigan. But the concern is that the new barrier only provides partial protection. Engineers still intend to construct a second "array" as part of the new barrier, but they've run out of money and still need an additional \$6 million or so to finish the job.



Map showing approximate locations of the two Aquatic Nuisance Species Dispersal Barriers in the Cal Sag and Chicago Sanitary and Ship Canal.

Asian carp have been migrating north up the Illinois River from the Mississippi River basin since they escaped captivity on southern fish farms more than a decade ago. The carp can grow to an average of 3-4 ft. in length and reach weights in excess of 100 pounds, while consuming up to 40 percent of their body weight each day. Biologists have said that the barrier is desperately needed to protect Great Lakes commercial and sport fisheries. The concern is that the carp would compete directly for food with plankton feeding Great Lakes fish which in turn support the popular salmon and trout fishery.

So the hope is that the old barrier could be used as a backup to the single array on the new barrier until money can be secured to build a second array. "We've long argued there needs to be a layer of redundancy on that canal, and it makes little sense to turn off a barrier that works," said Marc Gaden, spokesman for the *Great Lakes Fishery Commission*. The cost to keep the old barrier running is estimated at \$1,800 per month.

In late April, a bipartisan group of Great Lakes senators introduced legislation to continue to pay the electricity bill on the old barrier. There are also questions

about who will pay the electricity bill for the new barrier, which could approach \$20,000 per month. The Great Lakes states contend it should fall to the federal government, but so far the Corps has yet to get the funds to run it long-term. A separate piece of legislation has been introduced to provide federal funding to operate and maintain the new barrier, and to refurbish and continue to operate the old barrier

The Corps intends to cover operation costs of the new barrier for the next several months, but if Congress does not authorize the Corps to permanently operate it, the burden could fall to the State of Illinois, the Corps' local partner in the project. And "Illinois' capacity to deal with that is a question," said Gaden. Meanwhile, members of the *Great Lakes Sport Fishing Council* have been seeking donations to cover the electricity bill for the old barrier if the government won't. "We've got enough money for maybe a month," said a flabbergasted Dan Thomas, president of the council. "The bottom line is that we can't afford to let these critters into the Great Lakes. They will probably have the single most devastating impact of any invasive species."

Sources: Dan Egan, *Milwaukee Journal Sentinel*, 4/26/06; and *Greenwire*, 4/28/06

VA Eradicates Zebra Mussel

The Virginia Department of Game and Inland Fisheries (VDGIF) confirmed in early May that the Commonwealth's only infestation of zebra mussels, a notorious invasive aquatic species, has been exterminated. Eradication of this noxious species from a 12-acre, 93-foot-deep abandoned quarry is believed to be the first successful eradication of zebra mussels from a large, open body of water in North America, and perhaps the world.

Virginia's Secretary of Natural Resources L. Preston Bryant, Jr. said, "The existence of zebra mussels in Virginia posed a very real threat to our natural resources and to our economy. The price of eradication was small compared to the potential millions of dollars that would have been needed to control zebra mussels had they escaped into adjacent waters, not to mention the permanent impact on the environment of the Commonwealth. The VDGIF, which spearheaded this effort, along with the numerous partner agencies

and organizations involved, are to be applauded for doing what no other state in the nation has been able to do: successfully eradicate an established zebra mussel population from a large open body of water.

The presence of zebra mussels in Millbrook Quarry, an abandoned rock quarry now extensively used for recreational and instructional scuba diving, was first confirmed in late August 2002. Since the discovery, VDGIF has worked with numerous federal, state, and local agencies; industry and conservation organizations; and individuals to pursue eradication of the zebra mussel population. The 3½ year effort involved a panel of biologists, chemists, geologists, engineers, and human health experts representing seven Virginia agencies. The project contract was awarded in August 2005 to *Aquatic Sciences L.P.* of Orchard Park, NY, an industrial leader in zebra mussel control.

VDGIF had to prepare a comprehensive Environmental Assessment for approval by the U.S. Department of Agriculture, and the U.S. Fish and Wildlife Service (FWS). Because the selected chemical and treatment, injection of potash (potassium chloride) into the water, is not a federally registered pesticide use, VDGIF also had to secure approval to use the chemical from Virginia's Department of Agriculture and Consumer Services and from the U.S. Environmental Protection Agency. Final approval was received in January 2006.



Zebra mussels coating the shells of native mussels in the Upper Mississippi River.

To kill the zebra mussels through exposure to potassium, the entire quarry was injected with 174,000 gallons of potassium chloride solution over a 3-week period. Potassium concentrations throughout the quarry and in adjacent surface waters were measured each weekend during the treatment. The target concentration was 100 ppm potassium; far below the level that would invoke environmental or

human health concerns, but more than twice the minimum concentration needed to kill all the zebra mussels. Sampling at various depths and locations in the quarry after treatment revealed potassium concentrations ranging from 98 to 115 ppm, and no potassium leakage from the quarry into adjacent waters has been detected to date. Because there are no surface water connections to the quarry, and groundwater exchange is limited, potassium levels in the quarry are expected to remain lethal to zebra mussels for decades, thus preventing reinfestation.

Four separate methods of confirming eradication of the infestation were implemented. First, over a thousand mussels were scraped from rocks at numerous sites around the quarry during informal assessments, revealing no live mussels. Second, VDGIF scuba divers who had documented the extent of the infestation during pre-eradication studies conducted a visual inspection of the quarry, searching for live zebra mussels but finding none. Third, *Aquatic Sciences L.P.* conducted extensive video survey and documentation of the dead zebra mussels through use of a robotic camera. Finally, eighty bioassays of 100 live zebra mussels each were placed at various locations and depths throughout the quarry and thus exposed to the treated quarry water. After 31 days of exposure to the treated quarry water, 100% of the test mussels had died. None of the 100 "control" zebra mussels held in untreated water drawn from Broad Run died during their bioassay period. In dramatic contrast, other aquatic wildlife including turtles, fishes, aquatic insects, and snails continue to thrive in the quarry.

Water chemistry within Millbrook Quarry, and potassium concentrations in Broad Run and in nearby landowners' wells will be monitored by the Occoquan Watershed Monitoring Laboratory, a unit of Virginia Polytechnic Institute and State University, for 2 years to document water quality in the quarry, and leakage of potassium from the quarry into the adjacent stream or groundwater. Changes in the microbiology of the quarry sediments will also be monitored through a contract with George Mason University.

The contract awarded for the eradication and bioassays totaled approximately \$365,000, with another \$54,000 awarded in

contracts for the post-project monitoring. Primary funding for the eradication was provided through a Wildlife Habitat Incentive Program (WHIP) grant from the Virginia Office of the Natural Resources Conservation Service of the U.S. Department of Agriculture, and through a State Wildlife Grant from the FWS. The local water authority (Fairfax Water), Prince William County, the City of Manassas, and Dominion Virginia Power contributed the matching funds required to facilitate receipt of the federal grants.

For more information about zebra mussels and the Millbrook Quarry eradication effort visit the VDGIF Web site at www.dgif.virginia.gov.

Source: *VDGIF Press Release, 5/10/06*;
Contact: Ray Fernald, (804) 367-8364 or
Brian Watson, (434) 525-7522

Slimy Alga Threatens Rivers

The alga, formally called *Didymosphenia geminata*, typically has been a rare and retiring species, barely noticed in waters of northern latitudes. Lately, though, it has exploded in “nuisance blooms” in some areas, creating thick mats across stream beds and potentially disturbing the lives of insects, fish and others in the water.

“If they took a big shag carpet out of the living room and draped it across a river — that’s what it looks like,” said David Beeson, a Denver-based environmental consultant. Beeson, whose been monitoring the East Boulder River since 1998, said didymo showed up in low levels until 2004, when it abruptly spread from bank to bank at several spots. “Suddenly, it was just there,” he said.

“My concern is that it could be fundamentally changing streams,” said Sarah Spaulding, a scientist with the U.S. Geological Survey in Denver who has been tracking didymo. Excessive growths of didymo have been recorded in recent years on the Boulder and Kootenai rivers along with others in Montana, Idaho, Colorado, Washington, South Dakota and elsewhere in the U.S. In some places, the growths cover more than 10 miles.

Didymo was first discovered in high densities in the fall of 2004 along the Mararoa and Waiiau rivers in New Zealand’s Southland. The slime squeezed

out mayflies and caddis flies, a food staple of brown and rainbow trout. Midges and other smaller critters survived in the muck but when trout fed in those areas, they also consumed huge amounts of low-nutrient didymo with their meals. “They had guts that were full of didymo. It looked like mats of cotton,” said Barry Biggs, who works for New Zealand’s National Institute of Water and Atmospheric Research. In those areas, the number of trout has dropped 75 percent since the blooms of didymo began less than two years ago.

A publicity campaign has heightened didymo’s profile in New Zealand and the public is urged to take measures to prevent its spread. In North America, though, didymo is hardly familiar. “It’s totally off the radar screen,” said Max Bothwell of Environment Canada, a federal agency. Bothwell watched as didymo spread across Vancouver Island, where the first large-sized blooms showed up in the late 1980s. The outbreak has died down in recent years, but scientists are still unsure about what triggered it. The alga is native to parts of North America but typically doesn’t erupt in the kind of nuisance blooms that have been seen in recent years. “Something’s going on,” said Spaulding. “This isn’t normal.”

Didymo is tough and clings stubbornly to rocks when river flows are steady. It’s often washed away in heavy flows. When it does break off the rocks, it floats downstream. The slippery, gray tufts have been compared to wet toilet paper. When didymo showed up outside Vail, CO, people called authorities to report there was sewage in the water, Spaulding said. So not only does the alga pose potential problems for the function of the stream, it also poses an aesthetic problem for anglers, who also have to deal with tangles of didymo on their lines, and other water recreationists, she said. And when anglers begin to stay away from rivers for that reason, didymo poses an economic problem for communities that rely on fishermen who stay in hotels, eat at restaurants and buy groceries.

Scientists believe didymo spreads from river to river primarily by anglers, boaters and other people who move from one area to the next. Researchers in New Zealand recently found that the alga can survive for 40 days out of the water on a piece of equipment, Spaulding said. Leah Elwell, conservation coordinator for the *Federa-*

tion of Fly Fishers in Livingston, MT said anglers should do the same thing they do to prevent the spread of other nonnative species: check their gear before they leave an area and pick off any muck, clean gear thoroughly with a disinfectant and allow it to dry completely before using it again.

Even though there is still much to learn about didymo and its potential effects, it behooves the public and land managers to take it seriously and take measures to prevent its spread. “We can’t afford to play Russian roulette at this point,” Biggs said.

Source: Mike Stark, *Billings Gazette*, 5/18/06

Columbia River Sturgeon Problems

Pesticides and other pollution have turned Columbia River reservoirs into chemical stews playing havoc with the bodies of white sturgeon, the largest freshwater fish on the continent. A team of researchers that examined 174 sturgeon caught by commercial and tribal fishermen found male and immature females tricked by chemicals into thinking they are full of estrogen, a female hormone with feminizing effects. Male fish tainted with a cocktail of compounds including mercury and a by-product of the banned pesticide DDT showed depressed testosterone levels, which could keep them from maturing enough to spawn.

The chemical compounds can confuse their bodies, throwing the natural rhythms that govern reproduction and other functions out of whack, scientists say. Chemical-laden fish suffered low body weights and weakened immune systems that could compromise their survival, said Deke Gundersen, director of environmental studies at Pacific University and part of the research team. Populations behind the dams appear dominated by young fish that grow more slowly and take longer to reproduce, said Tom Rien of the Oregon Department of Fish and Wildlife.

Adult fish do not spawn as often as they could, and biologists find little sign of young some years. The most obvious reasons are that they spawn most successfully in cool, fast-moving water, which is lacking in the reservoirs. The dams also limit their access to food they

could otherwise find by cruising up and down the river.

The Columbia collects pollution from sewage treatment plants, pulp mills, smelters, mining, farm and urban runoff and other sources. PCBs were dumped in the course of dam operations. Scientists found the worst contamination in fish behind Bonneville Dam, the oldest impoundment — where chemicals from cancer-causing PCBs to toxic mercury have had the longest to collect. “You see this in a lab and it’s one thing,” said Carl Schreck of the U.S. Geological Survey and Oregon State University’s (OSU) Department of Fisheries and Wildlife. “But to see it in nature is disturbing.”

Contamination in the Columbia is no surprise. State authorities warned a decade ago that chemicals in some river fish, including sturgeon, pose a health risk for people who eat them. The U.S. Army Corps of Engineers plans to test fish near Bonneville Dam for human health risk in coming months, officials said. But the new study set out to look at the effect on the fish themselves. It focused on chemical levels in organs of the fish, not in parts people normally eat.

Sturgeon are the prehistoric giants of the river — living as long as a century, weighing as much as a ton and sometimes as big as small boats. They have long been a staple for Native Americans. And they are increasingly a featured entree at some of Portland’s finest restaurants emphasizing local fresh ingredients. “Contaminants are definitely a concern,” said Blaine Parker, a fisheries biologist with the Columbia River Intertribal Fish Commission, who was not involved in the research. “But it’s on top of everything else.”

Researchers originally expected the most contamination to be in sturgeon dwelling in the Columbia River estuary, toward Astoria and below the dams. They figured fish there would be exposed to more pollution from industrial sources in the Portland area, said Grant Feist, a fisheries biologist at OSU. However, those were among the cleaner and healthier fish, probably because the river’s flow carries pollution past. Behind the dams, though, it settles into sediments where sturgeon ingest it as they forage for crayfish, snails and other food on the bottom. “Sturgeon have adapted to an open river, and these fish are trapped in what essentially are big lakes and exposed to whatever is there,” Feist said. The researchers tested nearly 100 fish caught in 2000 and 2001 for 18 different pesticides and found all the pesticides in at least some fish. Fish showed consistently high levels of DDE, a toxic by-product left over when DDT is broken down by the body.

They also looked for 28 different PCBs, harmful chemicals used as lubricants and coolants but not manufactured in the U.S. since 1977. They found 26 of the PCBs in at least some fish. The expensive battery of testing took several years to complete, and looked only for a fraction of the many chemicals that may be affecting the fish, researchers said. “There’s literally thousands of compounds out there,” Feist said.

Gundersen said he wouldn’t hesitate to eat an occasional meal of Columbia River sturgeon. “But I wouldn’t make it a major source of protein in my diet,” he said

Source: Michael Milstein, *Portland Oregonian*, 4/9/06; and *Greenwire*, 4/11/06

Farm Subsidy Reform Key to Solving Dead Zone Problem

Each year, an average of \$270 million worth of wasted fertilizer flows down the Mississippi River into the Gulf of Mexico, creating a “Dead Zone” of more than 5,000 square miles that is completely devoid of marine life. Now, a new *Environmental Working Group* (EWG) analysis of government and industry data shows that reforms of wasteful federal farm programs could lead the way to restoration of one of America’s most valuable fisheries.

The dead zone has averaged more than 6,000 square miles over the past five years, said Nancy Rabalais with the Louisiana Universities Marine Consortium, known as LUMCON. That’s 20 percent greater than the 5,000-square-mile average since 1985. “Certainly there’s no evidence the problem is being mitigated. The hypoxic zone has not decreased over the last decade or five years,” said Alan Lewitus, a National Oceanic and Atmospheric Administration (NOAA) oceanographer who manages the agency’s hypoxia program. “There has to be a greater effort if we hope to meet the goal” of 1,930 square miles by 2015.

The dead zone overlaps an area known as the Fertile Fisheries Crescent — the core of the Gulf’s \$800 million fishing industry and also prime habitat for red snapper, tuna and other commercially valuable fisheries. No dollar amount has been fixed to the toll the dead zone has taken on those fisheries, but scientists say its impact is undeniable. But shrimp production declined 23 percent, or almost 20 million pounds annually, when the zone sharply expanded between 1985 to 1998, according to a study by National Marine Fisheries Service biologists. A study last year by Duke University said fish and shrimp outside the zone’s boundaries also may suffer from the effects of low oxygen, which impedes reproduction and growth among certain fish.

The dead zone forms after fertilizers and other pollutants flowing out of the 31-state Mississippi River basin spark massive algal blooms, in the same way they accelerate the growth of cotton, corn and other crops. As the algae die and decay, they suck almost all the oxygen from the water, forcing aquatic organisms to relocate or perish. Nitrogen, much of it from the fertilizer coming into the Gulf via the Atchafalaya and Mississippi, exceeded 2.2 billion pounds annually from 2001 to



Large white sturgeon (1,000+ lbs., 11 ft. 1 in. long, 56 in. girth) taken from the Willamette River, OR in May 2006.

2004, the latest year for which data was available, according to the U.S. Geological Survey.

In the wake of last summer's hurricanes, many wonder how much more environmental abuse the Gulf and its fishery can withstand. But EWG found that the vast majority of fertilizer pollution comes from a small area of heavily subsidized cropland along the Mississippi and its tributaries, where taxpayer-funded farm subsidies overwhelm spending on water quality and conservation by more than 500 to 1. So shifting a modest portion of crop subsidies, particularly those that go to the largest and wealthiest growers, into programs that encourage more careful fertilizer use, wetland restoration and the streamside planting of grass and trees to absorb runoff could reduce dead zone pollution significantly. At the same time these measures could boost the bottom line for family farms.

EWG researchers culled computerized records from nine different federal and commercial databases and found that by shifting a share of farm subsidies to proven conservation programs, Congress could cut the damage and save farmers hundreds of millions of dollars. "Taxpayers have been subsidizing wasteful commercial agricultural practices that hurt an important source of our fish, when we could be paying family farms to help us solve the problem," said EWG President Ken Cook. "Given how badly the Gulf needs help right now, it's a common-sense solution," he said.

Congress has historically steered billions of dollars away from programs that reward farmers for cutting pollution, erosion and fertilizer pollution and toward antiquated programs that pay farms based on past production of grains and cotton. The conservation programs turn down thousands of farmers a year due to a lack of money.

EWG analysts quantified for the first time the extent to which pollution and subsidies are interrelated. They found that:

- Farmlands in 15 percent of the Mississippi River Basin send 80 percent of the critical spring surge of fertilizer pollution into the Gulf.
- Farms in 124 counties that make up 5 percent of the Basin send 40 percent of the spring fertilizer pollution load to the Gulf.

- In those top polluting 124 counties, taxpayers spent 500 times more money on crop subsidies than on conservation programs.
- In the top fertilizer-polluting states of Iowa, Illinois and Indiana, 11,000 farmers were denied conservation payments in 2004 because the programs had no money.

"In the crudest sense, we're paying people to pollute," said Mary Booth, an ecologist with the EWG. But the *National Fertilizer Institute* disputes the report, saying it ignores other dead zone pollutants from sewage treatment plants, animal waste and automotive exhaust that settles out of the atmosphere. Institute Vice President Kathy Mathers said it is in the farmers' interest to use the minimum amount of fertilizer necessary. "Fertilizer prices are at an all-time high," Mathers said. "If you look at what farmers are paying, they're looking to apply what their plants need and to get maximum efficiency."

But Mathers also said farmers increasingly realize that whatever fertilizer runoff does occur could have effects far downstream. "We're working to make sure our house is very much in order," she said. "The awareness of farmers and the potential impact their practices might have on areas beyond their fields is certainly growing." To capitalize on that growing awareness, more money must be spent on the USDA's conservation programs, said Doug Daigle, a hypoxia specialist on contract with Gov. Kathleen Blanco's Office of Coastal Activities and the coordinator of the Lower Mississippi River Sub-basin Committee.

But David Salmonsens of the *American Farm Bureau Federation* said his group opposes attempts to increase conservation financing if they are at the expense of crop subsidies. Yet with more nations having similar hypoxia problems as they adopt Western agricultural practices, Rabalais said, the urgency to address the issue will increase. "A lot of the agricultural business is driven by the world economy, and there's all sorts of issues related to imports, exports and futures that drive what the modern agribusiness does," she said. "Somewhere there's got to be a balance, and it's beyond the political boundary of the Mississippi River watershed."

EWG's analysis, complete with maps, lists of counties and taxpayer subsidy records,

can be viewed online at <http://www.ewg.org/reports/deadzone/>. The group's work on farm subsidies, including the searchable Web site listing every subsidy recipient from 1995 onward, is available at <http://www.ewg.org/farm/>. For more information contact: EWG Public Affairs at 202-667-6982.

Source: *Environmental Work Group News Release*, 4/10/06; Matthew Brown, *New Orleans Times-Picayune*, 4/17/06; and *Greenwire*, 4/18/06

Ohio River Lock Plan Blasted

Federal plans to expand locks at two Ohio River dams will harm wildlife and waste more than \$350 million, leaders of two conservation groups said in mid April. A report from the *Ohio River Foundation* (ORF) and the *National Wildlife Federation* (NWF) accuses the U.S. Army Corps of Engineers (Corps) of using "bad math" to justify projects near Portsmouth, OH and Evansville, IN. It also casts doubt on an upcoming Corps study that could call for billions in additional work.

"This will continue a trend of habitat loss and destruction," said ORF Director Rich Cogen. "We need to protect what remains and restore what's possible." Corps officials wouldn't comment on the report but said the work is needed to decrease delays for barges waiting to get through the river's aging lock system. "They're going to become less reliable, and we're going to have to work on them more and more often," said Wes Walker, a regional economist for the Corps.

The Corps is responsible for 20 locks used by boats and barges that carry more than 200 million tons of coal, oil, rock, fertilizer and industrial chemicals each year. The Corps is expected to release a report next month that will outline projects to support river transportation through 2070. Officials currently want to double the length of 600-foot auxiliary locks at the Greenup dam east of Portsmouth and the John T. Myers dam near Evansville. The 600-foot locks, used when primary, 1,200-foot locks are being repaired, force boat crews to split their barge cargoes in half to get them through. That adds time and creates traffic backups, officials said. Walker said the main lock of the dam near Portsmouth has been closed for repair every year for the past decade. The closings ranged from 11 days to 52 days.

The \$356 million that Congress authorized to build the new locks are based in part on Corps estimates of future use. The conservationists' report calls those estimates "fundamentally flawed." One Corps estimate shows steady traffic increases at the Portsmouth-area dam, rising from 70.8 million tons in 1996 to 90.5 million tons in 2010. The groups report that actual traffic counts have dropped, from 67.3 million tons in 1996 to 64.5 million tons in 2004. Traffic at the Evansville-area dam dropped from 77.6 million tons in 1996 to 67.9 million tons in 2004. The Corps predicted 89.3 million tons in 2004.

Cogen and Tim Eder, director of the NWF's "Corps Reform Campaign," said their numbers don't support expanding these locks or others on the Ohio River. Both said the work would threaten colonies of mussels and fish living in the stream. Cogen also said that 70 percent of the Ohio River's historic habitat has been lost to riverfront development, industry and the dams. The report asks Congress to withhold approval until the Corps uses better estimates.

Source: Spencer Hunt, *The Columbus Dispatch*, 4/12/08

Supreme Court Trims Whistleblower Rights

The Supreme Court ruled by a 5-4 vote on May 30 that government whistleblowers do not enjoy the same rights as others to file lawsuits against retaliatory firings. Experts said the ruling is a blow to government biologists and environmentalists who have used whistleblower cases to spotlight government misconduct. While the Bush administration urged the court to limit whistleblower lawsuits on the grounds that civil servants have other avenues for petitioning a firing, including filing a civil service complaint, dissenters on the court argued the suit would silence would-be whistleblowers from going public.

The ruling was perhaps the clearest sign yet of the Supreme Court's shift with the departure of moderate Justice Sandra Day O'Connor and the arrival of Justice Samuel Alito. He joined the court's other conservatives in the decision, which split along traditional conservative-liberal lines.

Exposing government misconduct is important, Justice Anthony M. Kennedy wrote for the majority. "We reject, however, the notion that the First Amendment shields from discipline the expressions employees make pursuant to their professional duties," Kennedy said. The ruling overturned an appeals court decision that said Los Angeles County prosecutor Richard Ceballos was constitutionally protected when he wrote a memo questioning whether a county sheriff's deputy had lied in a search warrant affidavit. Ceballos had filed a lawsuit claiming he was demoted and denied a promotion for trying to expose the lie. Kennedy said if the superiors thought the memo was inflammatory, they had the authority to punish him.

"Official communications have official consequences, creating a need for substantive consistency and clarity. Supervisors must ensure that their employees' official communications are accurate, demonstrate sound judgment, and promote the employer's mission," Kennedy wrote. Stephen Kohn, chairman of the *National Whistleblower Center*, said: "The ruling is a victory for every crooked politician in the United States."

Justice David H. Souter's lengthy dissent said, "Private and public interests in addressing official wrongdoing and threats to health and safety can outweigh the government's stake in the efficient implementation of policy". Souter was joined by Justices John Paul Stevens and Ruth Bader Ginsburg. Justice Stephen Breyer also supported Ceballos, but on different grounds.

The ruling upheld the position of the Bush Administration, which had joined the district attorney's office in opposing absolute free-speech rights for whistleblowers. President Bush's two nominees, Alito and Chief Justice John Roberts, signed onto Kennedy's opinion but did not write separately. "It's a very frightening signal of dark times ahead," said Tom Devine, legal director for the *Government Accountability Project*.

Employment attorney Dan Westman said that Kennedy's ruling frees government managers to make necessary personnel actions, like negative performance reviews or demotions, without fear of frivolous lawsuits. Ceballos said in a telephone interview that "it puts your average government employee in one heck of a

predicament ... I think government employees will be more inclined to keep quiet."

Los Angeles County District Attorney Steve Cooley said in a statement that the ruling "allows public employers to conduct the people's business without undue disruption and without turning routine personnel decisions into federal cases." The court's decision immediately prompted calls for Congress to strengthen protections for workers. Kennedy said that government workers "retain the prospect of constitutional protection for their contributions to the civic discourse." They do not, Kennedy said, have "a right to perform their jobs however they see fit."

Sources: Gina Holland, *AP/San Jose Mercury News*, 5/30/06; *Greenwire*, 5/30/06

Judge Says States Can Charge Utilities Rent for Using Riverbeds

Federal law does not preempt a state from collecting rent from utilities for the use of certain riverbeds for hydroelectric dams, ruled state District Judge Thomas Honzel of Helena, MT. However, David Hoffman, external affairs manager for *PPL Montana* (PPL), said the ruling is in the early stages of the case, which is a long way from being resolved.

PPL, *Avista* (formerly *Washington Water Power Co.*) and *PacifiCorp* asked Honzel to rule that the Federal Power Act pre-empts Montana's hydroelectric resources law and the state's claims for compensation for the companies' use of the riverbeds. But in mid April Honzel granted the state's motion for a summary judgment, which means he ruled without conducting a full trial.

"It's clear that the judge did determine that the state does have to determine both the ownership (of the streambeds) through navigability and that the property is school trust land," state Attorney General Mike McGrath said. He also said state officials hope to talk with the utilities that own the dams about "what they're going to pay for occupying our property." He said the state will negotiate leases with the utilities.

McGrath said he will consult with the state Department of Natural Resources

and Conservation and his fellow Land Board members: Gov. Brian Schweitzer, Auditor John Morrison, Superintendent of Public Instruction Linda McCulloch and Secretary of State Brad Johnson.

The dispute began in October 2003 when two Gallatin County residents, later joined by the state and Great Falls elementary and high school districts, sued the three utilities for compensation for use of the riverbeds for their dams. They argued that the state riverbeds are part of the school trust lands, but the utilities hadn't paid to use them. The federal court later ruled that all of the plaintiffs except for the state lacked legal standing.

The utilities later filed the current case in state court, asking the judge to declare that the federal law preempted state law and to stop the state from asserting a right to collect lease payments from the utilities. In his decision, Honzel said the state's rights to ownership and possession of these riverbeds are protected from preemption under federal law.

"Although the state cannot regulate a hydroelectric project, nothing prevents the state from obtaining rental compensation under (state law)," the judge ruled. "The utilities take the position that merely asking them to sit down and negotiate a lease with the state constitutes regulation preempted under the Federal Power Act," Honzel added. "However, the court cannot accept this position."

Source: Charles S. Johnson, *Billings Gazette*, 4/19/06

Supreme Court Upholds States' Power to Regulate Rivers

States have broad power to regulate the quality of their rivers, according to a mid May ruling by the U.S. Supreme Court. By a 9-0 vote, the high court upheld a ruling by the Maine Supreme Judicial Court that allowed the state to set additional conditions on a hydropower dam owner in exchange for renewing his license to operate five dams on the Presumpscot River. The case in question was *S.D. Warren Co. v. Maine Board of Environmental Protection*, 04-1527.

A ruling against Maine would have eliminated a key regulatory tool used by nearly every state to improve the quality of waterways. The state said the

operation of the dams had caused long stretches of the natural river bed to be essentially dry. "The alteration of water quality ... is a risk inherent in limiting river flow and releasing water through turbines," Justice David Souter wrote. "Changes in the river like these fall within a state's legitimate legislative business and the Clean Water Act provides for a system that respects the states' concerns."

A ruling for the dam operators could have prevented states from using the Clean Water Act to set conditions for hydroelectric facilities, according to environmental groups. Environmentalists have said water moving through dams undergoes chemical changes that can affect habitat value and fish health. But the hydroelectric industry said the state-administered permits are redundant. "If the state has the authority then the federal power act become an anility," said Daniel Adamson, who represents the *Edison Electric Institute*.

Sources: *AP/Cleveland Plain-Dealer*, 5/15/06; and *Greenwire*, 5/15/06

Groups to Sue FWS Over Cutthroat Trout Listing

Three environmental groups announced on May 2nd that they have filed a 60-day notice of intent to sue the U.S. Fish and Wildlife Service (FWS) for failing to protect the Yellowstone cutthroat trout under the Endangered Species Act. The groups — *The Biodiversity Conservation Alliance*, the *Center for Biological Diversity* and *Pacific Rivers Council* — claim the federal agency illegally denied the fish federal protection.

The FWS ruled twice in the last several years that the fish does not warrant protection under the ESA. The first time, in 1998, the FWS determined the request to list the trout as threatened did not present substantial information to indicate listing may be warranted, according to court documents. Conservationists sued over the decision in 2001. A federal judge later overturned the decision and, in late 2004, ordered the FWS to do a 12-month status review.

In February, after reexamining the threats to the species based on a Colorado federal judge's order, FWS decided shrinking habitat, whirling disease, nonnative

predators and hybridization with other trout "do not compromise the continued existence" of the cutthroat "in the foreseeable future".

"It's well known and acknowledged that the species has declined and is facing a multitude of threats," said Noah Greenwald, a conservation biologist with the *Center for Biological Diversity*. The suit claims the FWS did not use the best available science when assessing the fish's status, which is in violation of the ESA. The groups said they would consider dropping the suit if the FWS revokes its "negative" finding.



*Yellowstone Cutthroat Trout
(National Park Service Photo)*

Diane Katzenberger, a regional FWS spokeswoman, said the agency stands behind its finding. She said a status assessment conducted for the fish found "stable, viable and self-sustaining populations of the fish are widely distributed throughout its historic range." While officials acknowledge there had been a decline, she said the status of the trout and trends indicate that the species is "not declining further or in jeopardy of going extinct in the foreseeable future." She said officials will continue to monitor the fish and the situation surrounding them closely.

The conservation groups say degradation of habitat and replacement by nonnative trout have wiped Yellowstone cutthroat trout from a large portion of its historic range. Greenwald said the fish is found in parts of Montana, Idaho and Wyoming, including Yellowstone National Park, and small parts of Nevada and Utah.

Sources: Becky Bohrer, *AP/Billings Gazette*, 5/2/06; and *Greenwire*, 5/3/06

Three Gorges Dam Completed

China is expected to complete all construction work on the Three Gorges Dam by late May, nine months ahead of schedule, the Chinese government said. In addition to preventing floods, the dam will be the largest hydroelectricity

producer in the world, with a planned capacity of 83 billion kilowatt-hours per year, transmitted over a 1,000-km radius.

The 365-mile project will create the world's largest reservoir. But environmentalists have said it will become a cesspool full of pollution. Sixty percent of the water flowing in will not be suitable for treatment. Moreover, 60 out of 90 tributaries entering the reservoir have been characterized as severely polluted.

Chinese authorities have also said that the project would reduce the threat of flooding. But critics have said the dams ability to control floods is unproven. They also cite more than 1 million people displaced during construction and the sand, silt and other refuse already clogging the reservoir. In the past, flooding along the river killed 145,000 people in 1931; 142,000 in 1935; and 33,000 in 1954.

But even as workers pour the final concrete on the Three Gorges Dam, government officials are eyeing a site for a second dam some 930 miles upriver. Dam builders have identified the 12,800-foot-deep Tiger Leaping Gorge, nestled in the mountains of southwestern Yunnan province, not only for the power it would generate but because it would help prevent silt from flowing into the reservoir behind the Three Gorges Dam. Prospecting has already started on the site, feeding rumors that construction of the 912-foot-tall dam could begin as early as 2008.

Sources: *Agence France-Presse*, 5/8/06; *BBC News online*, 5/8/06; Alan Wheatley, *MSNBC.com*, 5/18/06; and *Greenwire*, 5/8 and 5/18/06

Climate Change Update

Warming of the Earth's surface and the lower atmosphere since the late 1950s is at least partially due to human emissions of greenhouse gases (GHG), according to a synthesis and assessment report released in early May by the U.S. Climate Change Science Program (CCSP). The report conclusively debunks an often-cited discrepancy between lower air records and surface temperature data.

Climate scientists have long expected the troposphere to warm in tandem with — or even faster than — the Earth's surface,

due to the way heat is distributed throughout the atmosphere and the likely effects of GHG emissions. But until recently, data from satellites and weather balloons had not shown this warming trend. In fact, some observations since 1979 showed that the troposphere was cooling. And this discrepancy has been used to cast doubt on both the predictions of climate change models and the accuracy of the surface temperature record.

But the CCSP report concludes that recently identified errors in atmospheric temperature data collected by weather balloons and satellites were largely responsible for the temperature discrepancies. Errors outlined in three papers published last August in the journal *Science* include: satellites' tendency to drift eastward over time, causing them to report nighttime temperature readings as daytime ones, and artificially high temperature data collected by weather balloon thermometers exposed to direct sunlight. New data sets are free of such errors and do not show significant differences between the warming trend at the Earth's surface and aloft, the CCSP analysis notes.

"We've gone a long way to show a significant discrepancy is not there on a global scale," said report chief editor Thomas Karl, who directs NOAA's National Climatic Data Center in Asheville, NC. "Now we've closed that gap," Karl said in an interview. The report states that the observed changes cannot be explained unless human emissions of GHGs are taken into account.

Although it does not break new research ground, the CCSP report is the first official synthesis report to conclude that the computer model simulations of the changing atmosphere are largely in agreement with both surface and upper air observations on a global scale. As an official government report, the 180-page document carries significant political weight, according to Texas A&M atmospheric sciences professor Andrew Dessler. Unlike individual reports, "Assessments have a great deal of credibility in the policy community," he said.

In fact, backers of a stronger U.S. global warming policy hailed a surprise move by the House Appropriations Committee on May 10 to go on record supporting a

mandatory cap on GHG emissions. The resolution mirrors a "Sense of the Senate" resolution adopted last summer. Both summarize the scientific view that humans are to blame for rising GHG concentrations, concluding that those emissions could lead to dangerous changes in the Earth's climate. The resolutions also endorse the concept of an emissions cap as long as such a program does not harm the U.S. economy and also requires participation from international trading partners. "It's useful," said Rep. David Obey (D/WI), ranking member of the full committee. "It's hard to beat the charter members of the 'Flat Earth Society' in this Congress," he said.

But from the other side of the aisle, Republicans gave a mixed read on the resolution's meaning. Some Republicans on the committee shouted "no" during the voice vote on the amendment, but their chairman quashed efforts to hold a roll call. Several of the House's most outspoken opponents on global warming policy indicated they would continue to fight the language. "I still don't think [carbon dioxide] is a pollutant under the Clean Air Act," said Rep. Jo Ann Emerson (R/MO), who predicted more provisions that push in the opposite direction as Congress moves through other appropriations measures. House Minority Whip Steny Hoyer (D/MD) said he would not be surprised if Republicans pull the language out of the bill as it moves through the legislative process. "It's easy to adopt and dump it in conference, which has been the practice in the past," he said.

Top NASA climatologist and head of the *Goddard Institute for Space Studies*, James Hansen, in mid April blamed a sluggish federal response to curb U.S. GHG emissions on the influence of "special interest groups." "One way you can judge this is by looking at the situation in other countries, especially in Europe, where there has not been as strong a disinformation campaign," he said at a briefing sponsored by the *National Environmental Trust* to promote an article on global warming in the May issue of *Vanity Fair*. "They have accepted the need to take action to deal with the problem, while we haven't."

The *Vanity Fair* article links former *National Academy of Sciences* President Frederick Seitz with industry campaigns to discredit science on the dangers posed by smoking and by climate change. Seitz is

also president emeritus of the *George Marshall Institute*, a think tank that is skeptical about global warming. In a statement, the institute said the magazine article “reflects a campaign of character assassination and the lack of any standards of decency.”

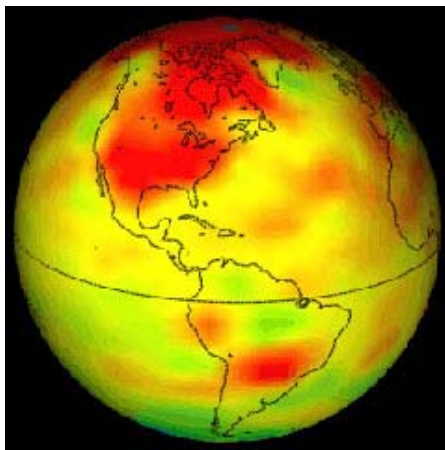
Hansen has been a highly visible and outspoken advocate of federal action on climate change in recent weeks, giving interviews to *60 Minutes*, the *London Independent*, the *New York Times* and the *Washington Post*, among others. The spate of publicity follows claims by Hansen, made public in January, that NASA attempted to prevent him from speaking out after he called for cuts in GHG emissions during a speech in December before members of the *American Geophysical Union*. Hansen reiterated in May his earlier calls for immediate action. “We’ve lost a decade due to denial but we cannot afford to lose another decade,” he said, predicting catastrophic economic and social impacts if GHG emissions are not addressed. The price tag for dealing with global warming’s economic, social and environmental impacts could “conservatively” reach \$10 trillion, Hansen said, calling the current national debt “chicken feed” in comparison.

“When the sea rises, when coastlines and cities are inundated, when island nations must abandon their islands and seek refuge ... Large parts of Florida, Bangladesh, China, various places around the world will be affected,” he said. “If you stop to think about who’s going to pay, well, it’s not going to be the politicians and it can’t be the oil companies either, because of the magnitude of the damages.” U.S. interests would be best served by taking the same approach to climate change that the government took in addressing depletion of the ozone layer in the 1980s, he said: “In that case we prevented what could have been a tragedy because we acted and we did not listen to the special interests.”

Meanwhile, America’s evangelical churches have descended on Congress with a split message. On one side is the *Evangelical Climate Initiative* (ECI), which issued a statement in February signed by 86 religious leaders urging the government to limit carbon dioxide (CO₂) emissions. Among those who endorsed the letter and an accompanying ad

campaign are Rick Warren, author of *The Purpose Driven Life*; the head of the Salvation Army; and the president of Wheaton College, the Rev. Billy Graham’s alma mater. “Our commitment to Jesus Christ compels us to solve the global warming crisis,” their ads proclaim.

But on the other side of the issue is the *Interfaith Stewardship Alliance* (ISA), which has aligned itself with prominent global warming skeptics, including University of Alabama professors John Christy and Roy Spencer, *Cato Institute* senior fellow Patrick Michaels, and MIT meteorologist Richard Lindzen. The ISA has launched a campaign to bring its views on global warming into churches through its nascent *Cornwall Network* of like-minded churches.



Climate Change (NOAA Image)

Both religious groups have framed climate change as a moral issue, one that has the potential to disproportionately affect the poor — those with the least ability to adapt to a changing environment or strict regulation. Climate change “isn’t a red state-blue state, or even a green issue,” said Rich Cizik, vice president for governmental affairs at the *National Association of Evangelicals* (NAE), which represents 52 denominations. While NAE has toed a relatively neutral line in the climate debate — issuing a statement in 2004 to “urge Christians to shape their lives in creation-friendly ways” — Cizik, a Presbyterian minister, has been outspoken on the need for evangelicals to curb global warming. Speaking in late April on an interfaith panel on religion and environmental issues, he dismissed the notion that religion and science cannot coexist — an idea fed, he said, by the debate over evolution and creationism.

“Climate change has been sort of the third rail,” Cizik said. “To me, it’s a crime that today, in the 21st century, people will allow their religious views to hurt people in the world, poor people, with their hostility to science.” In fact, Cizik said, he recently met with Harvard biologist E.O. Wilson to discuss bringing together scientists and religious leaders to talk about climate. Cizik noted that his conversion to belief in the science of global warming came at the hand of Sir John Houghton, cochairman of the scientific assessment working group from the United Nations Intergovernmental Panel on Climate Change and a Baptist.

But according to the Rev. Jim Tonkovich, president of a conservative Washington-based think-tank, the *Institute for Religion and Democracy*, “a Christian environmental policy is one that focuses on human beings, elevating them from poverty.” And according to Tonkovich and others aligned with ISA, limiting GHG emissions under the Kyoto Protocol or by other means will only penalize the world’s poor, driving up their energy costs and limiting development in the Third World.

Meanwhile, according to Gary Yohe, a Wesleyan University economist who studies ways to mitigate and adapt to the effects of climate change, “Recent science shows us climate change is accelerating.” “Temperature thresholds [for severe climate effects] that were academic curiosities three to four years ago are turning into real and scary possibilities.

“Observed [global] warming over the last 150 years has been primarily human-induced,” said Michael Schlesinger, an atmospheric scientist at the University of Illinois Urbana-Champaign and one of the world’s foremost climate modelers. “This warming, and the melting of glaciers, and the slowing of the [ocean’s] thermohaline circulation, are the smoking gun of global warming. “It is now clear we have no time to spare,” Schlesinger said. “We must act now.” Schlesinger’s comments came during a presentation of a new report sponsored by the British government on abrupt climate change. Released in the U.S. in mid May, the analysis compiles several peer-reviewed papers presented at a British-sponsored conference held in Exeter, England, last summer in advance of the *Group of Eight* industrialized nations’ conference in Gleneagles, Scotland.

Rachel Warren of the University of East Anglia's *Tyndall Centre for Climate Change* said that since the beginning of the Industrial Revolution, the global average temperature has risen by about 1 °F. With GHG emissions showing no signs of decreasing, "it's now going to be hard to avoid a 1.8 °F temperature rise relative" to temperatures in 1865, Warren said. That is worrisome because scientists now believe severe effects of climate change are possible at relatively small temperature increases that the world is on track to achieve given current CO₂ emissions levels, she added. A temperature increase of 2.7 °F, for example, could cause the onset of complete melting of Greenland's ice sheets — and an eventual 24-foot rise in sea level, according to one study by Britain's *Hadley Centre*.

It will be far less costly to ramp up policy from a moving train rather than a standing stop," said Yohe. One important area for action, Yohe and others said, is the United States' energy infrastructure. The U.S. Energy Information Administration predicts that by 2025, the world's coal use — largely due to increasing numbers of coal-fired power plants in the U.S. and China — will grow to 8,226 million tons, up from 5,262 million short tons in 2002. "There is a window of opportunity for action, but it is closing much more rapidly than we thought it would be," said Yohe. One important consideration for policy-makers, he said, is that "the final climate change policy is not going to be made in 2006." That some uncertainties remain in predicting the extent of climate change effects, particularly on a regional level, should not prevent immediate action, he said. Rather, governments should prepare to adjust climate policies in response to emerging scientific consensus. "The U.S. energy infrastructure will be locked in by decisions made over the next 10 years," Yohe said. "Henceforth, carbon will always cost more tomorrow than it does today."

Encouraging the use of carbon capture-and-storage technology at those plants, and boosting use of renewable, non-carbon based electricity sources — such as nuclear, wind, geothermal and hydropower — will be key to slashing global CO₂ emissions, said Princeton University engineering professor Robert Socolow. Carbon capture "is one of

many century-scale solutions" to cutting CO₂ emissions, he said. Current best estimates put the world's carbon storage capacity at 2 trillion tons of CO₂ — or about 200 years' worth of power plant emissions, he said. The bottom line, Socolow said, is that climate change is accelerating and must be dealt with.

Meanwhile, recent reports that planting forests as carbon sinks might increase methane in the atmosphere and impair groundwater flow should not dissuade policymakers from exploring this method of carbon sequestration, according to a new analysis by Duke University's *Nicholas Institute for Environmental Policy Solutions*. At issue are two scientific papers that documented potential downsides to planting carbon sinks — a practice encouraged under the Kyoto Protocol to combat climate change, the Energy Department's 1605(b) voluntary emissions registry, the Regional GHG Initiative and other programs.

One study by Frank Keppler of Germany's *Max Planck Institute* suggested that plants are an overlooked source of methane that could account for 10-30 percent of the annual global flow of GHG. A second by Robert Jackson of Duke concluded that planting large tracts of trees to sequester carbon can severely deplete stream flow and soil nutrients, leaving dirt saltier and more acidic. The papers received intense media coverage, especially Keppler's methane study, with several reports suggesting the research would force policymakers to reevaluate the wisdom of forested carbon sinks. But the bottom line is that carbon sinks are "essential components" of any strategy to fight climate change, *Nicholas Institute* director Tim Profeta said. "Both these papers have helped to further clarify the trade-offs and the scientific reality of what we can expect from carbon sinks, but neither of them gives any grounds for thinking that carbon sinks are less appropriate for climate change policy than we thought."

Meanwhile, GHG emissions and human activity are contributing to increasingly warm water in the tropical area of the Atlantic Ocean where many hurricanes form, according to a new study by federal climate scientists. The human influence on temperatures in the area, a portion of the Atlantic near the Cape Verde Islands that is known as the "Main Development Region," (MDR) is at least as strong as

that of natural climate cycles, said lead author Thomas Knutson, a senior research meteorologist at the NOAA's Geophysical Fluid Dynamics Laboratory. He and his colleagues came to that conclusion after examining climate data from the MDR over the last century, and running it through computerized climate models. The models most closely "hindcasted" the actual observed conditions in the area when they included data about GHG emissions from human activity — suggesting the strong human influence on the rising ocean temperatures.

Another study in an early May issue of the journal *Nature* suggests that human-caused global warming is also weakening a wind circulation pattern over the Pacific Ocean that could alter climate and the marine food chain in that area. The long-term effects might resemble those of the El Nino events, which boost rainfall in the southern U.S. and western South America and bring dry weather to Indonesia, Malaysia and other areas of the western Pacific, researchers said. The wind pattern, called the *Walker Circulation*, is a loop covering almost half the Earth's circumference. It blows across the Pacific from east to west, then sinks back to the surface and starts the loop again. Based on barometric pressure readings, scientists concluded the average wind speed of the circulation has dropped by about 3.5 percent since the mid-1800s, and according to computer simulations could weaken by another 10 percent by 2100. The speed has decreased at a faster rate since World War II, researchers said.

NASA launched two satellites into space this spring to study many of the still unknown factors as to how clouds affect the planet's climate. French, Canadian and American scientists will study the data that the two satellites (*CloudSat* and *CALIPSO*) collect on how clouds spread and deliver precipitation and how the clouds affect the Earth's atmosphere. "The scientific knowledge gained from such observations will be used to improve models that predict Earth's weather and climate," said Ghassem Asrar, a deputy associate administrator at NASA. One of the big questions scientists hope to have answered is whether the influx of GHGs in the atmosphere can produce changes in clouds that will further influence global temperatures. "A tiny, tiny fraction of the water on our planet is in clouds and yet that tiny, tiny fraction is what provides the fresh water on which humans depend,"

said Graeme Stephens, the *CloudSat* principal investigator from Colorado State University. "Clouds replenish our fresh water resources and yet we can't really tell you today how clouds will change under the pressures of global climate change".

Scientists' understanding of how glaciers will likely fare as climate change accelerates has changed dramatically over just the last five years, experts said.. New results from NASA's *GRACE* satellite, for example, show that Greenland's vast ice sheets are shrinking by 42 gigatons (GT) per year, a dramatic increase from the 11 GT per year loss they averaged in the 1990s. "In five years, we've gone from plus to minus" in Greenland, said Jay Zwally of the NASA Goddard Space Flight Center, who serves as project scientist for the space agency's *ICESat* program. Those changes are visible to the naked eye, he noted. Last year, Zwally and a crew from the public television show *NOVA* traveled to Jacobshavn Isbrae, Greenland's largest outlet glacier. What they saw was shocking, he said: The ice sheet, once 400 feet high, had shrunk to just a third of its size and was rapidly breaking into smaller pieces.

"The glaciers are...actually starting to rumble," Zwally told attendees at an *American Meteorological Society* briefing on Capitol Hill. "They're making noises that are detectable on seismic networks around the world." The news out of Greenland highlights how much scientific understanding of glaciers' response to global warming has changed in the last few years, said Richard Alley, a glaciologist at Pennsylvania State University. The 2001 report of the Intergovernmental Panel on Climate Change, for example, predicted that, during the coming century, glaciers would see more snow increase than melt with little change in ice flow, Alley said. That net growth would partially offset sea level rise caused by glacial melt. Even scenarios of glacial response to warming outlined in a 2004 Arctic Climate Impact Assessment are now basically outdated, he said. "What we're seeing [now] is a very clear potential for ice to get up and go as temperatures rise," he added. "We didn't really expect this to be happening."

The bottom line is that "we're here at the beginning of global warming," Zwally said. The global average temperature has risen about 1 °F over the last century, a small increase compared with the most

conservative predictions of scientific assessments such as the 2001 IPCC report. "Even though we've seen a small [temperature] increase, we're seeing big effects from that already, in Antarctica and other places." For example, the "roof of the world" glacier that accounts for 47 percent of China's total glacier coverage is shrinking by 7 percent per year due to global warming, a scientist with the *Chinese Academy of Sciences* said in early May.

Dong Guangrong said data collected from China's 681 weather stations over the past four decades indicate that the melting of the glaciers covering the Qinghai-Tibet plateau may cause more droughts, expand desertification and increase the frequency of sandstorms. A series of sandstorms this spring deposited almost 336,000 tons of dust on Beijing and lasted for two days. Han Yongxiang of China's National Meteorological Bureau said average temperatures in Tibet had risen 0.9 °C since the 1980s, melting glaciers and changing the climate of tundra in China. The Qinghai-Tibet plateau covers 960,000 square miles — about a quarter of China's land surface — at an average altitude of 13,000 feet above sea level.

In the Alps up to three-quarters of the glacial mass could be lost to climate change this century, according to new projections from the *World Glacier Monitoring Service* (WGMS) in Zurich. From the 1970s until 2000, Alpine glaciers decreased by 8.2 percent per decade, far faster than the rate of 2.9 percent per decade from 1850 to the 1970s, according to data presented at a recent *European Geosciences Union* meeting. In 2000, the glaciated area of the Alps was at 2,272 sq. km., down from 4,474 sq. km in the 1850s, WGMS researchers said.

Meanwhile, Arctic researchers who discovered a surprising number of abandoned baby walrus calves say melting sea ice may be the culprit, according to a study published in the April issue of *Aquatic Mammals*. During an icebreaker cruise in the Canada Basin two years ago, researchers measured a unusually warm mass of water — as high as 44 °F (7 C) — moving into the area from the Bering Sea to the south. This warm water may have rapidly melted seasonal sea ice over the shallow continental shelf north of Alaska, the study said. They found nine lone and possibly abandoned walrus calves in the area, an "unprecedented number" for

walrus calves since mothers tend to stay with their calves for two years. "We were on a station for 24 hours, and the calves would be swimming around us, crying. We couldn't rescue them," said team member Carin Ashjian, a biologist at *Woods Hole Oceanographic Institution*.

Sea ice offers foraging walrus calves a place to rest. Mothers leave their calves on the ice while they dive to feed on animals on the sea floor such as crabs and clams. But rising ocean temperatures may be forcing the walrus mothers to abandon their young as they follow the rapidly retreating ice edge north to colder waters, the study said. Without their mothers, the calves likely drown or starve, according to the research team. "The young can't forage for themselves," Ashjian said in a statement. "They don't know how to eat." Sightings of solo walrus calves far from shore have not been reported before and suggest increased polar warming may take a toll on the walrus population, the study said.

"If walrus and other ice-associated marine mammals cannot adapt to caring for their young in shallow waters without sea ice available as a resting platform between dives to the sea floor, a significant population decline of this species could occur," the researchers concluded. Funded by the *National Science Foundation*, the study investigated the impact of global climate change on the oceanic ecosystem over the continental shelf of Alaska.

Also seabirds in eastern Antarctica arrive at breeding sites and lay eggs days later than they did 50 years ago, a change partly due to a decline in sea ice, according to a new study by French government scientists. The nine species of seabirds included in the study now arrive at their breeding colonies an average of 9.1 days later than they did in the early 1950s, and they breed an average of 2.1 days later, the study says. Because the Antarctic ice cap limits how far south the birds can shift, "these species may be unable to respond appropriately to changes occurring in their breeding area and therefore may be disproportionately negatively affected by current climate changes," write authors Christophe Barbraud and Henri Weimerskirch of the *Centre d'Etudes Biologiques de Chizé*.

With all of this information at hand, it seems that environmental concerns may be winning in the court of public opinion. Several recent polls clearly show that a majority of Americans believe that the climate is changing, a top Republican pollster said in late April. Whit Ayres cited a *Gallup Poll* released in April that found a sharp rebound in public concern over global warming from 2004 to 2006, reversing a decline that started in 2000. Thirty-six percent of *Gallup Poll* participants said they “worry a great deal” about global warming, up from 26 percent in 2004. And a separate poll, conducted by Ayres in March for *Environmental Defense*, found that 71 percent of Americans believe that climate change is already happening.

Shareholder resolutions addressing global warming have also been growing steadily every year as environmentalists, trade unions, religious groups and regular citizens push corporations to account for their emissions of heat-trapping GHGs. Shareholders have entered 32 resolutions so far this year targeting a range of companies — from *Exxon Mobil Corp.* and *Ford Motor Co.* to *Home Depot* and *Whole Foods Markets Inc.* Most resolutions are seeking an analysis of business plans for reducing emissions or improving energy efficiency, according to a report released in late April by the trade group *Social Investment Forum*. Shareholder resolutions have become increasingly common as advocates for more aggressive U.S. action on global warming seek to influence a company’s decision making. Thirty-four shareholder resolutions were submitted in the first six months of 2005, the group said.

“There is clearly a consensus that global warming is happening,” said Thomas Brewer of Georgetown University, who studies the politics and economics of climate change. “That’s almost a non-issue.” But more interesting, according to Brewer, Ayres and other polling experts, is data from several recent surveys that indicate government policy may be out of step with public opinion. According to a poll issued in March by the *Civil Society Institute* and *40mpg.org*, 76 percent of Americans believe that the government is “not doing enough to address global warming and develop alternative energy sources in order to reduce our dependence on foreign oil.” Similarly, a *Time/ABC/Stanford University* poll found that 68 percent of Americans are in favor

of more government action. “There’s a clear pattern here [calling] for the federal government to do more than it has been,” Brewer said. “The question is, what should it do?”

An option for addressing global warming that is supported by most Americans is the Kyoto Protocol, said Clay Ramsay, research director for the *Center on Policy Attitudes* at the University of Maryland School of Public Affairs. “There is long-term, consistent support for the Kyoto idea,” Ramsay said, though the U.S. is one of a handful of industrialized nations that have chosen not to ratify the agreement. Instead, the Bush Administration has pursued a partnership with five Asia-Pacific nations intent on developing and sharing technologies to curb GHG emissions.

But a 2002 *Chicago Council on Foreign Relations* (CCFR) poll found 64 percent of Americans supported the Kyoto treaty to cut GHGs — a percentage that rose to 71 percent in a 2004 CCFR poll and to 73 percent in a survey done last year by the University of Maryland’s *Program on International Policy Affairs* (PIPA) and polling firm *Knowledge Networks* (KN). But just 41 percent of public officials and 29 percent of their staffers correctly estimated the degree of public support for the treaty, the PIPA/KN survey found. The same poll also documented strong support for requiring developing countries to cut their GHG emissions, and for legislation in the U.S. to require large companies to cut GHG output to 2000 levels by 2010 and to 1990 levels by 2020 — steps proposed in legislation by Sens. John McCain (R/AZ) and Joe Lieberman (D/CN).

Meanwhile, in late April ten states (CA, CT, ME, MA, NM, NY, OR, RI, VT and WI), two cities (Washington, D.C. and New York City) and three environmental groups (*Natural Resources Defense Council*, *Sierra Club* and *Environmental Defense*) filed a lawsuit against the Bush Administration for failing to regulate heat-trapping GHG emissions from new power plants. New York Attorney General Eliot Spitzer (D) took the lead on the lawsuit, which was filed in the Washington-based federal appeals court. The suit takes aim at a final U.S. EPA regulation issued in February that set limits on soot and smog-forming emissions from new coal, oil and natural gas electric utilities. Plaintiffs say EPA had a legal obligation to also include

CO₂. “EPA’s newly adopted rule represents an abdication of leadership and foresight in favor of the unacceptable status quo,” Spitzer said in a statement. The environmental groups also filed their own related petition.

In Alaska, the State Senate in early May approved the creation of a commission to advise the state on how communities can deal with effects of global warming like erosion, floods and thawing permafrost. The 11-member *Alaska Climate Impact Assessment Commission*, approved by the state House this spring, would consist of a mix of legislators; experts on climate change, land management and wildlife; and people from affected communities and businesses. The group would assess the effects and costs of global warming on the state’s residents, natural resources and economy. The resolution says the group would conduct eight hearings and deliver a preliminary report by next March, with a full report due by January 2008.

Global warming is also resulting in a heated debate between the U.S. and Canada over the Northwest Passage regarding who controls the lucrative shipping route. The U.S. claims that the passage is an international strait, whereas Canada insists the passage is under its control because it is an internal waterway.

While sea ice used to block the passage for about 11 months of the year, global warming is making the ice-free season longer. The Northwest Passage can be a viable shipping route within decades or even a few years, according to the U.S. Navy. In addition, China has taken the unusual step of purchasing its own icebreaking ship.

John Falkingham, chief of ice forecasting for the Canadian Ice Service, notes that satellite photos show the ice cover in the Arctic Ocean is shrinking by about 3 to 4 percent per decade. But since 2000, the ice has been melting at a rate of 8 percent per decade. “At the end of the century, there could be an extended summertime shipping season,” he said. However, a 2001 U.S. Navy report predicted that within 10 years, the passage would be open to non-ice-strengthened vessels for one month per year. Michael Byers, who holds the Canada Research Chair in Global Politics and International Law at the University of British Columbia, agrees. “A commercially viable passage is coming. It’s just a matter of time,” Byers

said. He said the historically close U.S.-Canada trade relationship will motivate both to chart a course toward compromise on the waterway: "I think cooler heads will prevail".

Meanwhile, former Vice President Al Gore plans to start a global warming educational group that includes two former U.S. EPA administrators and a former national security advisor, sources said. *Alliance for Climate Protection* will include former EPA heads Carol Browner and Lee Thomas and Brent Scowcroft, who was National Security Adviser under presidents Gerald Ford and George H.W. Bush. The group will operate "like a political campaign," Thomas said. The group plans to use advertising and grassroots organizing to persuade the public to back mandatory limits on GHG emissions, especially among labor groups, hunters, evangelicals and conservatives in general. "For the public to demand that change, we need to get the facts in front of the public more effectively than we have," Thomas said. The group's initial funding will come from Gore's "An Inconvenient Truth" film documentary and from an advance he received for a paperback book about global warming.

Theodore Roosevelt IV, a managing director at *Lehman Brothers* who will be cochairman of the *Alliance*, says it is too early to predict how much the *Alliance* can raise but says the group is already in contact with some "megadonors" who could give large sums. "There is a recognition we are getting much closer to serious adverse consequences," says Mr. Roosevelt, who is the great-grandson of the conservationist Republican president of the same name.

But the campaign will go up against critics of emissions caps. Fred L. Smith, president of *Competitive Enterprise Institute*, a free-market lobbying group, says environmental groups are "panicking" because "they are convinced that no one is listening." Mr. Smith says that despite risks of climate change, the world will be better placed to face them if it keeps using fossil energy.

Sources: JoAnne Allen, *Reuters*, 4/14/06;; Richard Black, *BBC News online*, 4/4/06; *Xinhua*, 5/2/06; *Reuters*, 5/2/06; Antonio Regalado, *Wall Street Journal*, 5/10/06; Rebecca Dube, *USA Today*, 4/4/06;; Jonathan Amos, *BBC News online*, 4/28/06; *Agence France-Presse*, 4/28/06; AP/

Wall Street Journal, 5/3/06; Darren Samuelsohn, *Greenwire*, 4/26, 4/27 and 5/11/06; Lauren Morello, *Greenwire*, 4/4, 4/14/, 4/20, 4/25, 5/4, 5/11/06; Andrew Freedman and Lauren Morello, *Greenwire*, 5/3/06; and *Greenwire*, 4/4, 4/5, 4/17, 4/21, 4/28, 5/3, 5/4, 5/10, 5/11/06

Stream Gauges May Fall to Budget Cuts

Stream experts are worried that federal budget cuts could jeopardize the 7,400 stream gauges around the country that can help warn of impending flash floods. River flooding kills about 125 people annually and causes billions of dollars in property damage. Each of the stream gauges costs about \$13,500 to run, according to National Streamflow Information Program coordinator Michael Norris. The entire network costs about \$120 million annually.

"This year we've been hearing from quite a few of our funding sources that things are not looking so good for continued funding," said Glenn G. Patterson, head of the cooperative water program for the U.S. Geological Survey, which pays for 65 percent of the network. The rest is paid for by the U.S. Army Corps of Engineers, the U.S. Bureau of Reclamation and more than 800 state and local contributors.

For the first time since the last decade, the network is shrinking; it lost about 400 gauges last year, said Norris, with 350 added for a total loss of 50. Although the Bush Administration has requested an additional \$2 million on top of the \$14 million direct federal contribution to the program, it will reinstate only about 50 gauges, when about 200 gauges are "threatened" by budget cuts, Patterson said.

Shutting down long-running gauges also disrupts stream flow records, which can be helpful in determining trends. "If you have a discontinuity of a couple of years even, you lose part of the substantial investment that's been made in the period of record," said Mark Anderson, director of the South Dakota Water Science Center. "It is these longer-term stream flow records that help us unravel what is going on with climate change."

Sources: John Schwartz, *New York Times*, 4/11/06; and *Greenwire*, 4/11/06

The Fisherman's Psalm

In times when interest in fishing among the younger generation seems to be waning in favor of video games and other electronic distractions, it was refreshing to see the high school graduation announcement of Ben Grabill of Manning, Iowa. Ben included the following as part of his announcement:

THE FISHERMAN'S PSALM By Ben Grabill

**The LORD is my fishing guide,
I shall not get lost.
He makes me troll in deep waters,
He leads me beside large timbers,
He catches my soul.
He casts me in fish abundant waters
for His name's sake.
Even though I hear the rapids before
me I have no fear of capsizing,
for You are with me: Your reel and
tackle box comfort me.
You prepare a loaded boat before me
in the presence of my fishing buddies.
You fill my head with great fishing
stories; my live well overflows.
Surely bass and walleye will follow me
all the days of my life
And I will thrive in the giants lakes of
the Lord forever.**



Obviously Ben has a way with words as well as a love for fishing and the outdoors. We enjoyed reading his contribution and thought many of our readers would as well.

IAFWA Changes Its Name

Members of the *International Association of Fish and Wildlife Agencies* (IAFWA), the organization that represents the fish and wildlife agencies of North America, announced on May 1 that they have voted overwhelmingly in favor of a resolution that changed the organization's

name to “*Association of Fish and Wildlife Agencies*” (AFWA)

“The name change is intended to more directly reflect the Association’s membership,” says Executive Vice President, John Baughman. “Our voting members are really only found in North America, and are made up mainly of state fish and wildlife agencies. Dropping the word ‘International’ allows for a shorter, less confusing name.”

The final vote took place in Columbus, Ohio, at the annual North American Wildlife and Natural Resources Meeting in March. The resolution was approved by nearly all members who voted in person or by proxy. In addition, the AFWA has also adopted a new logo and website (www.fishwildlife.org).



The change takes effect immediately. “For more than a century the AFWA has been part of some of the nation’s most important conservation actions. We are hopeful the new name will increase the visibility of the great work by the collective fish and wildlife agencies we represent,” says Baughman. The AFWA’s name change does not affect the strategic mission of the organization, which includes an International Relations Program and both Canadian and Mexican members. “As we have been since the 1930’s, we’re still very involved in working with Canada and Mexico,” says Baughman. “In today’s world, everything is so globally connected; it would be a mistake for us to change our mission. Wildlife know no boundaries, and it is important that the we work collaboratively for conservation.”

“As our awareness efforts advanced on Capitol Hill, with the media, and among our members, it became clear that having the nickname ‘The International’ and working in a sea of international

organization diluted our message,” said Baughman. “People want to know that a professional credential is backed up by a reputable organization, but the minute we introduced ‘the International’ into our messaging, it created unnecessary confusion.”

The AFWA was created in 1902, when eight wildlife managers from six states met in Yellowstone National Park on behalf of the country’s beleaguered fish and wildlife populations. They realized that the nation’s rich fish and wildlife legacy would survive only with careful planning and vigilance. Today, after more than a century, the AFWA represents the fish and wildlife professionals in the 56 states and territories, and the federal agencies of the U.S. The AFWA also represents many provinces of Canada and Mexico. Its core functions are interagency coordination, legal services, international affairs, conservation and management programs, and legislation.

Source: *IAFWA News Release*, 5/1/06

Meetings of Interest

Aug 6-11: 8th International Conference on Mercury as a Global Pollutant, Madison WI. See: www.mercury2006.org. Contact: James Weiner, weiner.jame@uwlax.edu, (608) 785-6454.

Aug 22-23: The Invasive Asian Carps in North America: A Forum to Understand the Biology and Manage the Problem, Peoria, IL. See: <http://www.waux.cerc.cr.usgs.gov/MICRA/Asian%20Carp%20Symposium.htm>. Contact: Duane Chapman, dchapman@usgs.gov

Sep 10-14: American Fisheries Society 136th Annual Meeting, Lake Placid, NY. Contact: Betsy Fritz, bfritz@fisheries.org, (301) 897-8616, ext. 212.

Oct 10-13: Managing Agricultural Landscapes for Environmental Quality - Strengthening the Science Base. Soil and Water Conservation Society, Westin Crown Center Hotel, Kansas City, MO. See: www.swcs.org/en/swcs_international_conferences/managing_agricultural_landscapes

Nov 2-3: 3rd Annual Conference on Ecosystems Restoration and Creation,

Plant City, FL. Contact: Patrick Cannizzaro, pcannizzaro@hccfl.edu, (813) 253-7523.

Nov 5-8: 60th Annual Southeastern Association of Fish and Wildlife Agencies Conference: Wildlife Management in the Next New World, Norfolk, VA. See: <http://seafwa2006.org>. Contact: Tom Wilcox, tom.wilcox@dgif.virginia.gov, 804/367-6892.

Nov 8-10: North American Lake Management Society’s 26th Annual International Symposium: Making Connections—People, Lakes, Watersheds, Indianapolis, IN. See: www.nalms.org. Contact: Carol Winge, wingec@nalms.org, 608/233-2836.

Dec 3-6: 67th Midwest Fish and Wildlife Conference, Omaha, NE. See: www.midwest2006.org. Contact: Mark Porath, Mark.Porath@ngpc.ne.gov, 402/471-7651.

Dec 15-19: Ninth Biennial Conference of the International Society for Ecological Economics, Delhi, India. See: www.ISSE2006.com.

Feb 7-11, 2007: Southern Division of the American Fisheries Society and

Tennessee Chapter of AFS, Memphis, TN. See: www.sdafs.org/meetings/2006.

Feb 18-23, 2007: Sixth International Symposium on Ecohydraulics, Christchurch, New Zealand. See: www.conference.co.nz/echohydraulics2007. Contact: Rachel Cook, rachel@conference.co.nz.

Jun 6-9, 2007: Fourth International Reservoir Symposium: Balancing Fisheries Management and Water Uses for Impounded River Systems, Atlanta, GA. Sponsored by the Southern Division AFS Reservoir Committee. Contact: Mike Colvin, Mike.Colvin@mdc.co.gov.

Sep 2-6, 2007: American Fisheries Society, 137th Annual Meeting, San Francisco, CA. Contact: Betsy Fritz, bfritz@fisheries.org, 301/897-8616, ext. 212

Sep 16-19, 2007: International Symposium: WILD TROUT IX, West Yellowstone, MT. See: www.wildtrout-symposium.com/. Contact: Dirk Miller, Dirk.Miller@wgf.state.wy.us, (307) 777-4556

Congressional Action Pertinent to the Mississippi River Basin

Climate Change

S. 245. Collins (R/ME) and 5 Co-Sponsors. Provides for the development and coordination of a comprehensive and integrated U.S. research program that assists in understanding, assessing, and predicting human-induced and natural processes of abrupt climate change.

S. 342. McCain (R/AZ) and 12 Co-Sponsors and **H. R. 759.** Gilchrest (R/MD) and 25 Co-Sponsors. Provides for scientific research on abrupt climate change, to accelerate the reduction of greenhouse gas (GHG) emissions in the U.S. by establishing a market-driven system of GHG tradeable allowances, to limit GHG emissions in the U.S. and reduce dependence upon foreign oil, and ensure benefits to consumers from the trading in such allowances.

S. 387. Hagel (R/NE) and 3 Co-Sponsors. Amends the Internal Revenue Code of 1986 to provide tax incentives for the investment in GHG intensity reduction projects, and for other purposes.

S. 388. Hagel (R/NE) and 3 Co-Sponsors. Amends the Energy Policy Act of 1992 to direct the Secretary of Energy to carry out activities that promote the adoption of technologies that reduce GHG intensity and provides credit-based financial assistance and investment protection for projects that employ advanced climate technologies or systems, provides for the establishment of a national GHG registry, and for other purposes.

S. 887. Hagel (R/NE) and 6 Co-Sponsors. Amends the Energy Policy Act of 1992 to direct the Secretary of Energy to carry out activities that promote the adoption of technologies that reduce GHG intensity and to provide credit-based financial assistance and investment protection for projects that employ advanced climate technologies or systems, and for other purposes.

S. 1151. McCain (R/AZ) and Lieberman (D/CT). Provides for a program to accelerate the reduction of GHG emissions in the U.S. by establishing a market-driven system of GHG tradeable allowances.

H. R. 955. Olver (D/MA) and Gilchrest (R/MD). Amends the Clean Air Act to

establish an inventory, registry, and information system of U.S. GHG emissions, and for other purposes.

H. R. 2828. Inslee (D/WA) and 14 Co-Sponsors. Ensures that the U.S. leads the world in developing and manufacturing next generation energy technologies, to grow the economy, create new highly trained, highly skilled American jobs, eliminate American overdependence on foreign oil, and address the threat of global warming.

Conservation

S. 260. Inhofe (R/OK) and **H. R. 2018.** Sullivan (R/OK). Authorizes the Secretary of the Interior to provide technical and financial assistance to private landowners to restore, enhance, and manage private land to improve fish and wildlife habitats through the Partners for Fish and Wildlife Program.

S. 339. Reid (D/NV) and 4 Co-Sponsors and **H. R. 731.** Udall (D/CO) and Otter (R/ID). Reaffirms the authority of States to regulate certain hunting and fishing activities.

S. 421. Lott (R/MS) and Kohl (D/WI). Reauthorizes programs relating to sport fishing and recreational boating safety, and for other purposes.

S. 964. Alexander (R/TN) and 3 Co-Sponsors. The "American Outdoors Act of 2005" provides a conservation royalty from Outer Continental Shelf revenues to establish the Coastal Impact Assistance Program, to provide assistance to States under the Land and Water Conservation Fund Act of 1965, to ensure adequate funding for conserving and restoring wildlife, to assist local governments in improving local park and recreation systems, and for other purposes.

H. R. 524. Berkley (D/NV). Amends the Internal Revenue Code of 1986 to provide incentives for the conservation of water.

Endangered Species Act (ESA)

S. 2110. Crapo (R/ID) and 3 Co-sponsors. Amends the ESA to enhance the role of States in the recovery of endangered and threatened species, to implement a species conservation recovery system, to

establish certain recovery programs, to provide Federal financial assistance and a system of incentives to promote the recovery of species, and for other purposes.

H. R. 93. Gilchrest (R/MD). Assists in the conservation of flagship species throughout the world.

H. R. 1299. Cardoza (D/CA) and 16 Co-Sponsors. Amends the ESA to reform the process for designating critical habitat under that Act.

H. R. 1837. Flake (R/AZ) and 4 Co-Sponsors. Amends the ESA to establish limitations on the designation of critical habitat, and for other purposes.

H. R. 2779. Herger (R/CA). Amends the ESA to enable Federal agencies responsible for the preservation of threatened and endangered species to rescue and relocate members of any of those species that would be taken in the course of certain reconstruction, maintenance, or repair of Federal or non-Federal man-made flood control levees.

H. R. 3300. Graves (R/MO) and 2 Co-Sponsors. Amends the ESA to authorize species recovery agreements under which the Federal Government is obligated to make annual payments or provide other compensation for activities that improve the recovery of one or more species listed under that Act, and for other purposes.

H. R. 3824. Pombo (R/CA) and 13 Co-Sponsors. Amends and reauthorize the ESA to provide greater results in conserving and recovering listed species, and for other purposes.

H. R. 4857. McMorris (R/WA) and 5 Co-Sponsors. Better informs consumers regarding costs associated with compliance for protecting endangered and threatened species under the ESA

Energy

S. 1860. Domenici (R/NM) and 5 Co-sponsors. Amends the Energy Policy Act of 2005 to improve energy production and reduce energy demand through improved use of reclaimed waters, and for other purposes.

H. R. 140. McHugh (R/NY). Promotes use of anaerobic digesters by agricultural producers and rural small businesses to produce renewable energy and improve environmental quality.

H. R. 174. Millender-McDonald (D/CA). Encourages greater use of geothermal energy resources.

H. R. 2064. Udall (D/CO). Assures that development of certain Federal oil and gas resources will occur in ways that protect water resources and respect the rights of the surface owners, and for other purposes.

H. R. 3263. Wamp (R/TN) and 10 Co-Sponsors. Reduces the growth of energy use in the U.S., limits the impact of growing energy use on the economy, environment, and national security of the U.S. through reductions in energy demand and for other purposes.

Federal Water Pollution Control Act (FWPCA) Amendments:

S. 912. Feingold (D/WI) and 8 Co-Sponsors and **H.R. 1356.** Oberstar (D/MN) and 125 Co-Sponsors. Amends the FWPCA to clarify the jurisdiction of the U.S. over waters of the U.S.

S. 1400. Chafee (R/RI) 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. 74. Davis (R/VA). Amends the FWPCA to impose limitations on wetlands mitigation activities carried out through the condemnation of private property.

Invasive Species

S. 363. Inouye (D/HI) and 3 Co-Sponsors and **H. R. 5030.** Miller (R/MI). Amends the Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990 to establish vessel ballast water management requirements, and for other purposes.

S. 507. De Wine (R/OH) and 4 Co-Sponsors and **H. R. 1593.** Ehlers (R/MI). Establishes the National Invasive Species Council, and for other purposes.

S. 770. Levin (D/MI) and 12 Co-Sponsors and **H.R. 1591.** Gilchrest (R/MD) and 4 Co-Sponsors. Amends the

Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990 to reauthorize and improve that Act.

S. 1402. DeWine (R/OH) and 7 Co-Sponsors and **H. R. 3049.** Green (R/WI). *Asian Carp Prevention and Control Act* amends the Lacey Act, to add certain species of carp to the federal list of injurious species that are prohibited from being imported or shipped.

S. 1541. Akaka (D/HI) and 3 Co-Sponsors. Protects, conserves, and restores public land administered by the Department of the Interior or the Forest Service and adjacent land through cooperative cost-shared grants to control and mitigates the spread of invasive species, and for other purposes.

H. R. 489. Pearce (R/NM). Provides for an assessment of the extent of the invasion of Salt Cedar and Russian Olive on lands in the Western U.S. and efforts to date to control such invasion on public and private lands, including tribal lands, to establish a demonstration program to address the invasion of Salt Cedar and Russian Olive, and for other purposes.

H. R. 1592. Ehlers (R/MI) and 5 Co-Sponsors. Establishes marine and freshwater research, development, and demonstration programs to support efforts to prevent, control, and eradicate invasive species, as well as to educate citizens and stakeholders and restore ecosystems.

H. R. 3049. Green (R/WI). Amends section 42 of title 18, U.S. Code, popularly known as the Lacey Act, to add certain species of carp to the list of injurious species that are prohibited from being imported or shipped.



Mining

S. 961. Rockefeller (D/WV) and **H. R. 1600.** Cubin (R/WY) and 4 Co-Sponsors. Amends the Surface Mining Control and Reclamation Act of 1977 to reauthorize and reform the Abandoned Mine Reclamation Program, and for other purposes.

S. 1701. Thomas (R/WY) and Enzi (R/WY). Amends the Surface Mining Control and Reclamation Act of 1977 to improve the reclamation of abandoned mines.

S. 2616. Santorum (R/PA) and Specter (R/PA). Amends the Surface Mining Control and Reclamation Act of 1977 and the Mineral Leasing Act to improve surface mining control and reclamation, and for other purposes.

H. R. 905. Cubin (R/WY). Amends the Mineral Leasing Act to provide for the development of Federal coal resources.

H. R. 1165. Kanjorski (D/PA) and 6 Co-Sponsors. Amends the Internal Revenue Code of 1986 to allow a credit against income tax to holders of bonds issued to finance land and water reclamation of abandoned mine land areas.

H. R. 1265. Udall (D/CO). Provides a source of funding for the reclamation of abandoned hardrock mines, and for other purposes.

H. R. 1266. Udall (D/CO) and Salazar (D/CO). Facilitates the reclamation of abandoned hardrock mines, and for other purposes.

H. R. 2721. Peterson (R/PA) and 16 Co-Sponsors. Amends the Surface Mining Control and Reclamation Act of 1977 to reauthorize collection of reclamation fees, revise the abandoned mine reclamation program and for other purposes.

Public Lands

S. 1897. Corzine (D/NJ) and Dodd (D/CT). Amends the Forest and Rangeland Renewable Resources Planning Act of 1974 and related laws to strengthen the protection of native biodiversity and ban clear-cutting on Federal land, and for other purposes.

H. R. 599. Udall (D/CO) and Tancredo (R/CO). Provides a source of funds to carry

out restoration activities on Federal lands under the jurisdiction of the Secretary of the Interior or the Secretary of Agriculture, and for other purposes.

H. R. 975. Tancredo (R/CO) and 5 Co-Sponsors. Provides consistent enforcement authority to BLM, NPS, FWS, and FS to respond to violations of regulations regarding the management, use, and protection of public lands under the jurisdiction of these agencies, and for other purposes.

H. R. 3166. Grijalva (D/AZ). Provides compensation to livestock operators who voluntarily relinquish a grazing permit or lease on Federal lands where conflicts with other multiple uses render livestock grazing impractical, and for other purposes.

Water Resources

S. 232. Smith (R/OR). Authorizes the Secretary of the Interior, acting through the Bureau of Reclamation, to assist in the implementation of fish passage and screening facilities at non-Federal water projects, and for other purposes.

S. 353. Conrad (D/ND) and Dorgan (D/ND). Amends the Water Resources Development Act of 1999 to direct the Secretary of the Army to provide assistance to design and construct a project to provide a continued safe and reliable municipal water supply system for Devils Lake, ND.

S. 728. Bond (R/MO) and 17 Co-Sponsors and **H.R. 2864** (Passed by the House). Provides for the consideration and development of water and related resources, to authorize the Secretary of the Army to construct various projects for improvements to rivers and harbors of the U.S., and for other purposes.

S. 753. Feingold (D/WI) and McCain (R/AZ). Provides for modernization and improvement of the Corps of Engineers, and for other purposes.

S. 802. Domenici (R/NM) and 10 Co-Sponsors and **H. R. 1386.** Hastings (D/FL) and 24 Co-Sponsors. Establishes a National Drought Council within the Department of Agriculture, to improve national drought preparedness, mitigation, and response efforts, and for other purposes.

S. 1017. Chaffee (R/RI) and 10 Co-Sponsors. Reauthorizes grants for the water resources research and technology institutes established under the Water Resources Research Act of 1984.

S. 2288. Feingold (D/WI) and McCain (R/AZ). Modernizes water resources planning, and for other purposes.

H. R. 109. Herseth (D/SD). Provides compensation to the Lower Brule and Crow Creek Sioux Tribes of South Dakota for damage to tribal land caused by Pick-Sloan Projects along the Missouri River.

H. R. 135. Linder (R/GA) and 8 Co-Sponsors. Establishes the "Twenty-First Century Water Commission" to study and develop recommendations for a comprehensive water strategy to address future water needs.

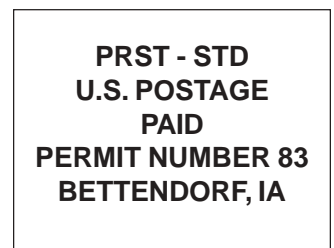
H. R. 391. Leach (R/IA). Directs the Secretary of the Army to convey the remaining water supply storage allocation in Rathbun Lake, IA, to the Rathbun Regional Water Association.

H. R. 487. Pearce (R/NM). Imposes limitations on the authority of the Secretary of the Interior to claim title or other rights to water absent specific direction of law or to abrogate, injure, or otherwise impair any right to the use of any quantity of water.

H. R. 1368. Burgess (R/TX) and 2 Co-Sponsors. Provides the Secretary of the Army with additional and enhanced authority with respect to water resources projects, and for other purposes.

H. R. 4588. Doolittle (R/CA). Reauthorizes grants for and requires applied water supply research regarding the water resources research and technology institutes established under the Water Resources Research Act of 1984.

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