River Crossings

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The Value of Sportfishing in the Mississippi River Basin

The *American Sportfishing Association* (ASA) recently released a report entitled *"Sportfishing in America"*. In it they summarized the tremendous contribution that sportfishing makes to our society in terms of its intrinsic recreational value as well as its contribution to the economy. Senators Malcolm Wallop (R/WY) and John Breaux (D/LA), leaders in national legislation which has contributed significantly to the interests of fishing and fisheries conservation provided the following introduction:

"Fishing is truly an enduring American tradition. Each year, our families, along with millions of other Americans, look forward to our time on the water with a fishing pole in hand, and a friend or loved one by our side. Over generations, these peaceful moments, when we connect with the natural world around us, have helped foster our nation's passionate conservation ethic. And it is through sharing the quiet, patient practice of fishing that this strong ethic is passed down from generation to generation.

'Aside from being one of the most popular outdoor pastimes, fishing plays an important role in strengthening our economy and the vitality of our fisheries and waterways. Millions of anglers spend billions of dollars and support thousands of American jobs in communities from coast to coast. They generate hundreds of millions of dollars each year that return to local communities to conserve our natural resources as a result of the Sport Fish Restoration Act.

'Through this unique cycle created by the Sport Fish Restoration Act, more than $4 billion has been provided to state fish and wildlife agencies over the past five decades. In 1984, we strengthened this cycle by sponsoring what has become known as the Wallop-Breaux amendments, which further enhanced anglers and boaters' contributions to conservation.

Arkansas brown trout. Photo courtesy of the Arkansas Game and Fish Commission.

'We were proud to secure the legacy of the Sport Fish Restoration Act and advance the long-standing tradition of sportfishing in this country. Each time Americans go fishing, they make a positive contribution to our fish, our waters and the fabric of American society."

In fact on average, 83% of the funding for state fish and wildlife agency aquatic resource management budgets are supported by sportsmen. These funds are generated through fishing license sales, taxes on fishing equipment, and special use and habitat stamps. Fees paid by fishermen also fund many boat ramps and other facilities which are used by all types of water-based recreationists and boaters. And most anglers are pleased to support license sales and fees because they know that their dollars go a long way toward helping to guarantee the future of their sport and the quality of their lives.

Inside This Issue

Nearly nine in ten Americans believe outdoor recreation benefits the environment because it gives them a good reason to care about natural resources. Surveys also indicate that 95% of Americans support legal recreational fishing. A 2001 Harris poll identified recreational fishing as Americans' top outdoor leisure time activity.

Angling involves more than 44 million people, from all ages and all walks of life, from every corner of the country. ASA reports that America's anglers spend $41.5 billion in retail sales and generate $116 billion in economic benefits for the nation each year. On average, an angler spends over $1,200 every year on the sport. Hidden, but none-the-less real, is a multiplying factor that effectively triples what is spent on the initial expenditure as those dollars ripple through the economy.

For example, the $10 plunked down by an angler for a new a lure spreads outward just like the ripples made after the lure hits the water. That revenue helps the stores' owners pay there rent, bills and employees. These individuals then use part of that money for other goods and services and the rippling effect further spreads and repeats. Of course, ten dollars isn't very significant by itself, but when 44 million anglers spend $41.5 billion in a year, the result in jobs, wages, and other economic effects is an extraordinary pillar of America's economic health.

Sportfishing is thus more than just a traditional American pastime, it is a powerful economic force, and an unparalleled contributor to conservation and a vital part of American culture. More Americans fish than play golf and tennis combined. In Florida, people spend over three times more days fishing than at *Walt Disney World's Magic Kingdom*. According to the ASA, the overall impact of angler expenditures would make sportfishing 32nd on the *Fortune 500* list of America's largest companies, above such global giants as *Target*, *Sears*, and J*ohnson & Johnson*.

Further, ASA reports that nine times more jobs are supported by anglers than are employed by *AT&T*. The 1.1 million jobs, $7.3 billion in tax revenues, and $30 billion in wages generated by recreational fishing are many times greater than those created by corporate giants like *Ford*, *Microsoft* or *Nike*. Generating more than $116 billion in total output, this remarkably simple activity of dipping one's line in the water provides nine times the economic benefit of commercial fishing. Fishing ranks among the top family leisure-time activities. Each year, nearly 9 million women and more than 10 million kids under the age of 16 go fishing. Unlike fad sports, fishing is a lifelong pursuit passed on from one generation to the next.

Table 1 summarizes the importance of freshwater fishing to the recreational interests and economies of the 28 MICRA states for the year 2001 — the most recent period for which this information is available. These data show that more than 22 million anglers participated in freshwater fishing in the 28 MICRA states in 2001 and spent over 316 million days fishing for freshwater fish. This activity generated more than $17 billion in retail sales, supported over 322,000 jobs, and provided local, state and federal governments with over $2.3 billion in tax revenues. Total economic output that rippled through the economy as a result of these expenditures exceeded $32 billion. Under anybody's standard, this is "Big Business"!

But while the 28 MICRA states all share the Mississippi River Basin watershed, all of their freshwater fisheries do not occur in the Mississippi River Basin. So we prepared Table 2 in order to get a better handle on the contribution that fishing in the Mississippi River Basin contributes to the quality of life and economy of the Basin and the United States. In this instance, we estimated the percent of each state's geographic area that actually lies within the Mississippi River Basin — column titled: "Percent in Mississippi River Basin". Using these figures for each state, we then multiple all of the data shown in Table 1 by the appropriate percentage to arrive at the figures shown in the other columns of Table 2.

Accordingly, these calculations show that more than 13 million anglers participated in sportfishing in the Mississippi River Basin in 2001. These anglers spent more than 194

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Table 1. Total Number* of Freshwater Anglers, Fishing Participation and Economic Activity by State for the 28 MICRA states for 2001.

State	Freshwater Anglers	Fishing Days	Economic Output	Jobs	Retail Sales	Sales, Fuel, State and Federal Taxes
Alabama	732,204	9,877,338	1,458,214,818	16,936	746,568,643	89,469,394
Arkansas	781,772	13,005,934	843,349,209	10,009	471,099,603	59,287,347
Colorado	915,077	9,267,000	1,579,687,512	15,253	790,901,984	116,166,264
Georgia	1,016,703	13,076,379	1,077,486,505	10,064	537,433,015	65,350,045
Illinois	1,060,181	14,246,349	1,420,518,018	11,276	644,503,235	116,328,576
Indiana	745,468	12,756,189	979,541,090	9,831	474,082,009	70,181,476
Iowa	541,613	7,484,539	741,050,479	7,119	362,542,553	56,208,995
Kansas	403,691	5,662,266	403,200,176	4,226	205,141,349	31,231,929
Kentucky	779,677	12,393,649	1,299,964,305	13,268	671,707,079	98,342,184
Louisiana	659,237	8,418,850	1,036,312,596	10,796	568,594,888	76,255,108
Minnesota	1,559,750	28,159,112	2,719,433,004	27,000	1,387,604,775	230,949,617
Mississippi	494,165	8,465,881	405,215,401	4,393	209,311,346	30,042,464
Missouri	1,214,950	13,278,827	1,621,784,787	14,889	832,776,355	142,688,180
Montana	349,443	4,068,266	544,795,715	7,029	318,535,459	26,093,029
Nebraska	296,090	3,203,580	339,682,059	3,798	187,235,156	23,099,409
New York	900,659	13,022,349	1,158,507,797	9,838	643,178,572	92,450,997
North Carolina	847,994	12,073,372	1,687,243,633	18,428	826,673,735	126,373,390
North Dakota	178,621	2,185,612	303,445,966	3,181	177,548,262	17,923,727
Ohio	1,080,814	15,212,033	1,451,464,173	14,527	681,825,620	119,844,150
Oklahoma	774,254	12,740,550	992,311,004	11,403	484,178,493	67,142,047
Pennsylvania	1,163,204	17,200,772	1,502,427,648	13,589	744,355,720	111,061,069
Sourth Dakota	214,429	2,984,192	360,685,439	4,453	207,327,717	21,225,023
Tennessee	903,385	15,035,262	1,159,593,818	11,478	564,667,336	87,553,352
Texas	1,814,749	25,650,350	3,582,277,897	32,431	1,713,804,353	244,558,252
Virginia	721,301	10,848,612	891,741,130	8,260	470,935,420	66,669,545
West Virginia	317,632	4,151,742	179,517,111	2,038	105,874,521	13,396,152
Wisconsin	1,306,461	19,139,074	2,084,185,795	23,604	1,085,412,038	136,882,515
Wyoming	292,915	2,497,084	337,426,900	3,511	227,239,545	15,490,092
TOTAL	**22,066,439**	**316,105,163**	**32,161,063,985**	**322,628**	**17,054,863,134**	**2,352,264,328**

* Figures in this table include fishing activity attributed to anglers 16 years of age and older. There are additional economic impacts generated by minors. Also, economic figures provided by the *American Sportfishing Association/Southwick Associates* (ASA/SA) source report were prorated to include "only" expenditures for freshwater fishing by basing the figures used here on the portion of freshwater anglers and freshwater fishing days reported by ASA/SA.

Sources: *American Sportfishing Association*, *Sportfishing in America — Values of Our Traditional Pastime*, ASA, 225 Reinekers Ln., Suite 420, Alexandria, VA 22314 and U.S. Fish and Wildlife Service, *2001 National Survey of Fishing, Hunting and Water-Associated Recreation*.

million days fishing, and generated more than $9.5 billion in retail sales, supporting 193,000 jobs, and generating nearly $1.5 billion in tax revenues for local, state and federal governments. Total economic output of this activity, as it rippled through the economy, reached nearly $19 billion. And it is important to note that these figures are considered conservative because of the manner in which the "percentage of area in the basin" was estimated, and because of the fact that four non-MICRA states (MI, MD, SC and NM) also share portions of the watershed, but were not included in the data.

Fishing in the Mississippi River Basin is thus not only a tremendously satisfying recreational activity for millions of people, it is also a "Big Business" which is important to the states' , the Basin's and the Nation's economies. Closer to home, recreational fishing is a family tradition for many, that generates tremendous family values and bonding between parents and children — an important feature that cannot be found in many other recreational activities.

Beyond that, it is important to restate that fishermen pay their own way. Funds from license fees, habitat and special use stamps, as well as excise taxes on the purchase of fishing gear go right back to the states for use in improving habitat, water quality and access to streams and lakes which everyone can use and enjoy. Unfortunately, most other water-based recreationists, who pay far fewer user fees (i.e., boaters, campers, water skiers, divers, sightseers, etc.), have little appreciation for the huge economic contribution that fishermen provide in support of other water-based recreation.

Sources: *American Sportfishing Association*, *Sportfishing in America — Values of Our Traditional Pastime*, ASA, 225 Reinekers Ln., Suite 420, Alexandria, VA 22314, www.asafishing.org and U.S. Fish and Wildlife Service, *2001 National Survey of Fishing, Hunting and Water-Associated Recreation*

Table 2. Total Number* of Freshwater Anglers, Fishing Participation and Economic Activity by State in the Mississippi River Basin for the 28 MICRA States in 2001**

State	Percent*** in Mississippi River Basin	Freshwater Anglers	Fishing Days	Economic Output	Jobs	Retail Sales	Sales, Fuel, State and Federal Taxes
Alabama	40	292,882	3,950,936	583,285,928	6,775	298,627,458	35,786,958
Arkansas	100	781,772	13,005,934	843,349,209	10,009	471,099,603	59,287,347
Colorado	50	457,539	4,633,500	789,843,756	7,627	395,450,992	58,083,132
Georgia	5	50,836	653,819	53,874,326	504	26,871,651	3,267,503
Illinois	95	1,007,172	13,534,032	1,349,492,118	10,713	612,278,074	110,512,148
Indiana	95	708,195	12,118,380	930,564,036	9,340	450,377,909	66,672,403
Iowa	100	541,613	7,484,539	741,050,479	7,119	362,542,553	56,208,995
Kansas	100	403,691	5,662,266	403,200,176	4,226	205,141,349	31,231,929
Kentucky	100	779,677	12,393,649	1,299,964,305	13,268	671,707,079	98,342,184
Louisiana	70	461,466	5,893,195	725,418,818	7,558	398,016,422	53,378,576
Minnesota	80	1,247,800	22,527,290	2,175,546,404	21,600	1,110,083,820	184,759,694
Mississippi	40	197,666	3,386,353	162,086,161	1,758	83,724,539	12,016,986
Missouri	100	1,214,950	13,278,827	1,621,784,787	14,889	832,776,355	142,688,180
Montana	60	209,666	2,440,960	326,877,429	4,218	191,121,276	15,655,818
Nebraska	100	296,090	3,203,580	339,682,059	3,798	187,235,156	23,099,409
New York	5	45,033	651,118	57,925,390	492	32,158,929	4,622,550
North Carolina	10	84,800	1,207,338	168,724,364	1,843	82,667,374	12,637,339
North Dakota	75	133,966	1,639,209	227,584,475	2,386	133,161,197	13,442,796
Ohio	60	648,489	9,127,220	870,878,504	8,717	409,095,372	71,906,490
Oklahoma	99	766,512	12,613,145	982,387,894	11,289	479,336,708	66,470,627
Pennsylvania	30	348,962	5,160,232	450,728,295	4,077	223,306,716	33,318,321
Sourth Dakota	100	214,429	2,984,192	360,685,439	4,453	207,327,717	21,225,023
Tennessee	100	903,385	15,035,262	1,159,593,818	11,478	564,667,336	87,553,352
Texas	20	362,950	5,130,070	716,455,580	6,487	342,760,871	48,911,651
Virginia	10	72,131	1,084,862	89,174,113	826	47,093,542	6,666,955
West Virginia	60	190,580	2,491,046	107,710,267	1,223	63,524,713	8,037,692
Wisconsin	60	783,877	11,483,445	1,250,511,477	14,163	651,247,223	82,129,509
Wyoming	60	175,749	1,498,251	202,456,140	2,107	136,343,727	9,294,056
TOTAL		**13,381,878**	**194,272,695**	**18,990,835,747**	**192,943**	**9,669,745,571**	**1,417,207,623**

* Figures include fishing activity attributed to anglers 16 years of age and older. There are additional economic impacts generated by minors.
** Economic figures provided by the *American Sportfishing Association/Southwick Associates* (ASA/SA) source report were prorated to include "only" expenditures for freshwater fishing by basing the figures used here on the portion of freshwater anglers and freshwater fishing days reported by ASA/SA.
*** The percent of each state's geographic area lying within the Mississippi River Basin shown here was multiplied by the figures for each respective state displayed in Table 1 to arrive at an estimate for the Basin. The estimated percent of each state's geographic area which lies in the Mississippi River Basin was based on a rough visual estimate, not through the use of any kind of GIS application. When in doubt, the area of a state within the Basin was rounded down so the figures displayed here are considered to be conservative. Additionally, data from four additional states (MI, MD, SC and NM), which also share portions of the Mississippi River Basin, but are not members of MICRA, were not included in this table, making the figures even more conservative.

Sources: *American Sportfishing Association*, *Sportfishing in America — Values of Our Traditional Pastime*, ASA, 225 Reinekers Ln., Suite 420, Alexandria, VA 22314 and U.S. Fish and Wildlife Service, *2001 National Survey of Fishing, Hunting and Water-Associated Recreation*.

Black Carp Escapes to the Wild

The first black carp (*Mylopharyngodon piceus*) ever reported taken from the wild in the United States was collected on 3/26/03 by Jim Beasley, a commercial fisherman, from Horseshoe Lake, IL (an oxbow lake) near the confluence of the Mississippi and Ohio rivers. The exotic carp measuring 30.8 inches and weighing 12.8 lbs was determined to be four years of age, and exhibited the molar-like pharyngeal (throat) teeth typical of the species. Black carp are very similar in appearance to the grass carp except for the presence of this characteristic (see accompanying photo).

Rob Maher, Commercial Fishing Program Manager for the Illinois Department of Natural Resources (ILDNR) received the fish from Mr. Beasley and vouchered it with Brooks Burr, Southern Illinois University, Carbondale. Working with Maher, Greg Conover (U.S. Fish and Wildlife Service Marion, IL) obtained the services of Paul Wills at the *Logan Hollow Fish Farm* to conduct further tests. Mr. Wills extracted a blood sample from the fish and tested it to determine the size of the red blood cells (RBCs). Three known diploid (fertile) grass carp and three known triploid (sterile) grass carp were used as a reference regarding the nuclear diameter of the RBCs. The RBCs in the black carp sample were identical in size to that of the sterile grass carp.

According to Mike Freese, *Keo Fish Farms* (a primary supplier of triploid black carp in Arkansas), the nuclear diameter of RBCs are consistent between grass and black carp, suggesting that the Horseshoe Lake fish was in fact sterile. However, Conover cautioned that these results are preliminary and additional tests using tissue samples will be analyzed to confirm the fish's fertility.

Horseshoe Lake black carp

In late 1999 MICRA learned that fish farmers in the South were planning to begin using the imported black carp as a control for snail infestations in their catfish production ponds. Fearing that these fish would escape to the wild and prey on wild populations of threatened and endangered freshwater mollusks, MICRA petitioned the U.S. Fish and Wildlife Service (USFWS) on February 24, 2000 to list the black carp as an injurious species of wildlife under the federal Lacey Act. Such a listing would prevent interstate shipment of the species, and hopefully safeguard against its escape to the wild. Readers are referred to *River Crossings* Vol. 8, No. 6 and Vol. 9 Nos. 1-4 available on the Web at http://wwwaux.cerc.cr.usgs.gov/MICRA/. MICRA's hope was that the black carp could be listed and "contained" before it was allowed to escape to the wild. It had already been reported that a half dozen or so black carp had escaped from a private fish hatchery near Lake of the Ozarks, MO during the 1994 floods.

After more than two years of controversy and delay, the USFWS, on July 30, 2002 published in the Federal Register a notice of intent to so list the black carp. Most MICRA states and many other groups and individuals expressed support for such a listing, but to date no Lacey Act listing has been made. Based on the age of the fish taken from Horseshoe Lake, it is the result of a 1999 year class and so has escaped captivity sometime since then, validating MICRA's concern that any fish held in farm fish ponds or other loosely controlled environments will, in fact, escape to the wild. Under intense political pressure in 2000, Missouri chose to begin raising triploid black carp at one of its state fish hatcheries in order to supply fish farms in their state with the needed fish. Missouri feared that if left in private hands, triploidy may not be guaranteed. Since 2001 Missouri has supplied about 1,800 sterile black carp to 5 different fish farmers.

If the Horseshoe Lake black carp, indeed, proves to be sterile, biologists can breathe a slight sigh of relief — for now, no fertile black carp have been captured in the wild, so no natural reproduction should have occurred, and wild populations should not be established. But the truth is, that even sterile wild black carp will consume large numbers of freshwater mollusks. According to the USFWS, the species can grow to five feet in length and reach weights up to 150 pounds. Fish this size can consume huge amounts of freshwater mollusks to maintain their biomass. An Asian carp brochure and key to identification can be found on the MICRA Web Site.

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Addressing the Hypoxia Crisis in the Gulf of Mexico

The *World Resources Institute* (WRI) on 3/6/03 released a new report entitled, *"Awakening the Dead Zone: An Investment for Agriculture, Water Quality, and Climate Change."* The report evaluates several policy options for addressing the hypoxia, or oxygen depletion, crisis in the Gulf of Mexico. It suggests the use of market mechanisms like nutrient trading to provide the greatest overall environmental benefits and a cost-effective strategy for reducing the Mississippi River Basin's contribution to the Dead Zone.

Nutrient trading is a highly targeted program in which farmers are paid not according to the practices they implement or changes they make, but instead according to the reductions in nitrogen and phosphorous loss to the waterways they can achieve. To make these reductions, farmers are allowed to use practices yielding the greatest reduction for the least cost. Similarly, managers of pollution sources facing more stringent discharge limits can choose the most appropriate reduction strategy for their facilities.

"Giving farmers the flexibility to choose the mitigation option best suited to their operations not only increases cost-effectiveness but may also increase the likelihood of acceptance and adoption of these programs," said Dr. Suzie Greenhalgh, author of the study. "Trading can be a cheaper answer to solving water quality problems in the United States in general and the Mississippi River Basin in particular," said Paul Faeth, managing director of WRI and author of another WRI report entitled, *Fertile Ground*. "This only works, however, if federal and state agencies establish and implement a nutrient cap for the Gulf or the basin."

According to Dr. Greenhalgh, an upper limit on the amount of nitrogen entering a watershed could be defined using the assimilative capacity of the aquatic ecosystem and the reductions required to address local water quality concerns, such as drinking water quality, or coastal water quality problems. This nitrogen cap could be established for the Gulf of Mexico, the entire Mississippi River Basin, or divided between smaller sub-basins with all nutrient sources, both point and non-point sources, included in the cap. If a cap were adopted for the Gulf of Mexico, the adoption of nutrient criteria by upriver states as far north as Minnesota would be required to ensure action within the Mississippi River Basin as a whole.

"The Basin extends from Minnesota to Texas and Louisiana with nitrogen contributions from 32 states that drain into the Mississippi River," said Mark Muller, director of the Environment and Agriculture Program at the *Institute for Agriculture and Trade Policy*, in Minneapolis. "State and federal agencies need to work with the agricultural community to address this national crisis."

The Dead Zone in the Gulf of Mexico is a seasonal phenomenon in which depletion of oxygen in the water column kills bottom-dwelling organisms and drives mobile marine life from the area. In the summer of 2002, the affected area was the size of Massachusetts. This hypoxia, or seasonal reduction of oxygen in the waters of the Gulf, is caused by nutrient pollution, primarily nitrogen, which is believed to come mostly from agricultural sources. Decreasing the size of the Dead Zone and its negative effects on marine organisms will require reducing the amount of nitrogen reaching the Gulf by 20-30%.

The new WRI analysis comes on the heels of the government's adoption of a *National Water Quality Trading Policy*, which calls for the use of economic incentives in the enforcement of water quality regulation. It allows pollution sources, such as industrial and wastewater management facilities, to meet more stringent regulatory obligations by purchasing offsets or credits from facilities exceeding their mandated water quality standards or from non-regulated sources, like family-owned farms.

The WRI analysis specifically included other associated environmental benefits, such as climate change mitigation and improved local water quality, resulting from different policy approaches. Although very different environmental issues, climate change mitigation and water quality improvements are interrelated, since any decrease in nitrogen reaching waterways from agricultural land has implications for nitrous oxide emissions, a potent greenhouse gas (GHG). For instance, lower nitrogen fertilizer use reduces both the nitrogen that is leached into waterways and the amount that is volatilized as GHG. Moreover, agricultural practices and management decisions that slow the rate of nutrient loss to waterways frequently improve carbon sequestration and storage in the soil. Agriculture has an important role to play in climate change mitigation because the sector is a large emitter of nitrous oxide in the U.S. and also captures and stores carbon from the atmosphere. Thus, a single environmental strategy has the potential to address multiple problems simultaneously.

The WRI analysis also shows that the use of market mechanisms like nutrient trading provides not only the greatest overall environmental benefits, but also is the most cost-effective strategy. Nutrient trading allows sources with high mitigation costs to obtain credits from sources that can reduce their contribution of pollutants to waterways at a lower cost. Trading focuses on reducing the cause of the environmental concern at hand rather than promoting a specific practice or set of practices. For instance, under a nutrient trading program, farmers would be paid according to size of the reductions they achieve in nitrogen or phosphorus loss — not on the number of acres placed in conservation tillage or the buffer strips they plant. This approach provides greater flexibility for local policymakers and farmers to identify and implement the most appropriate solutions in their region.

Other potential policies examined in the WRI study did not perform as well as nutrient trading in reducing the amount of nitrogen delivered to the Gulf, or in providing any associated environmental benefits:

- GHG trading at $14 per metric ton of carbon provided reductions in GHG emissions and nitrogen delivered to the Gulf as well as improvements to local water quality and farm income. However, at the current world price of around $5 per ton for carbon, incentives are insufficient to attract widespread participation by farmers in trading. Consequently, this policy option produces fewer GHG reductions, significantly lower water quality improvements, and smaller increases in farm income.
- Combining nitrogen trading with payments for reducing GHG emissions provides similar benefits to the Gulf and local water quality as nitrogen trading alone, but offers only slightly greater climate benefits.
- Other policy options examined, such as a tax on nitrogen fertilizer or a subsidy to farmers converting from conventional tillage practices to conservation tillage, provided some water quality and climate change benefits, but also led to declines in farm income. The latter effect makes taxes on nitrogen fertilizer or subsidies for conservation tillage less appealing options.
- The final policy tested, an expansion of the Conservation Reserve Program to 40 million acres, produces all around positive benefits, but the magnitude is typically lower than those achieved under nutrient trading and thus does not provide an adequate solution to the problem.

According to the WRI report, the problem could be effectively addressed by the *Mississippi River/Gulf of Mexico Watershed Nutrient Task Force* (the federal, state, and tribal taskforce dealing with hypoxia in the Gulf) or its constituent agencies by setting a target and providing a mechanism to reduce the size of the Dead Zone. This can be achieved by introducing a reduction goal to support the Task Force's Action Plan and endorsing programs that embrace performance-based nutrient reduction opportunities, such as nutrient trading. Also, federal and state agricultural policy can provide further motivation for farmers to reduce their nutrient losses by focusing incentive mechanisms, like nutrient trading, in those areas that contribute the greatest amount of nutrients to waterways and the Dead Zone.

The specific WRI recommendations follow:

- The federal and state agencies in the Gulf Hypoxia Task Force should establish and implement a nitrogen cap for the Gulf of Mexico or Mississippi River Basin.
- Federal and state agencies should do more to promote nutrient trading programs.
- Federal and state agencies should develop a coordinated and collaborative approach to planning and implementing watershed conservation measures.
- Agencies should establish coordinated monitoring strategies to determine if watershed and conservation efforts have made a difference.
- Farm conservation spending should be targeted.
- Government agencies and private organizations should explore other opportunities to reduce GHG emissions in the agricultural sector beyond activities associated solely with carbon sequestration.
- A strategy should be developed to tackle a suite of environmental problems rather than focusing on individual problems as they arise.

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Lawsuits Filed Over Livestock Waste Regulations

Both environmentalists and farmers have filed suit under a provision of the Clean Water Act (CWA) saying that Concentrated Animal Feedlot (CAFO) regulations are both too weak and too strong, respectively. Seven different "petitions for review" were filed in the 2nd, 4th, 5th, 8th, 9th, 11th and D.C. appeals courts. Once the petitions have been reviewed, they will be consolidated and sent to one of the courts, chosen at random, where a three-judge panel will determine whether USEPA's new CAFO regulations violate the CWA, according to attorneys for the plaintiffs.

If the court finds inconsistencies between the CAFO regulations and the CWA, the rules will be invalidated and EPA will be forced to withdraw them. Although such an action would not normally lead to new rules, EPA is required to revise its CAFO rules under a 1992 consent decree with the *Natural Resources Defense Council* (NRDC). EPA Administrator Christie Whitman announced the new rules on Dec. 16, 2002, a deadline imposed by a 1992 legal settlement between EPA and the NRDC.

EPA officials said the CAFO rules would force an additional 11,000 concentrated animal farms to acquire point-source pollution permits under the National Pollutant Discharge Elimination System (NPDES) — more than tripling the number of currently permitted facilities. The rules, which require CAFOs to develop comprehensive plans to manage manure runoff, will reduce annual phosphorous discharges into U.S. waterways by 56 million pounds and nitrogen discharges by 100 million pounds per year, EPA officials said. Still, the rule represents a significantly relaxed version of the one proposed by the Clinton administration in 2000 by:

- reducing the number of facilities that would fall under the regulatory scheme,
- scrapping a "zero-discharge" requirement for stormwater and
- eliminating liability for companies that use contractors to raise their animals.

Environmentalists say that these changes render the regulation worthless, adding that its implementation would be a step backward. Agriculture groups, on the other hand, applaud the changes made to the Clinton-era rule, but still question EPA's authority to regulate manure runoff.

On March 7, the *Sierra Club*, *Natural Resources Defense Council*, *Waterkeeper Alliance* and the *American Littorial Society* filed suit in the 9th, 2nd and 5th courts of appeal, claiming that the CAFO rule violates the CWA by allowing unacceptable levels of animal waste to enter the nation's waterways. "The Bush administration has once again put corporate profits ahead of environmental protection," said Robert F. Kennedy, president of the *Waterkeeper Alliance.* "These new regulations maintain business as usual for corporate agriculture and leave thousands of American communities unprotected against pollution from livestock factories."

According to *Sierra Club* attorney Eric Huber, the new CAFO rule weakens current law and violates the CWA in several ways. First, he says, the rule allows CAFO pollution to leak into waterways if it fits under the category of agricultural stormwater — manure that has been liquefied and sprayed onto crops as a fertilizer. The problem, he says, is that farmers are allowed to determine how much fertilizer they can spray and are not required to make that number public. "They can apply the liquid waste to fields as fertilizers where it runs off into rivers and streams," he said. "The only limit is the ergonomic level which is determined by the company itself, and they don't have to tell anyone what it is or have it approved by EPA...What they couldn't dump into the river through a pipe, they can now spread over a field and dump it into the river in the form of agricultural stormwater."

Other problems, according to Huber, are that the rules do not require monitoring of groundwater to ensure that pollutants are not seeping into the ground where they could leak into surface waters, and there are no limits on antibiotics, metals and other types of pollutants that might find their way into animal waste. Moreover, said Melanie Richardson of the *Sierra Club*, the rules eliminate the "co-permitting" provision of the Clinton-era proposal that would have held livestock owners responsible for pollution created by their animals even if the livestock are raised by a contract grower. "The livestock owners determine the conditions of the animals being raised and they have the financial wherewithal to pay for cleanup," she said. "They should make sure the animals are raised in a way that complies with the law."

Meanwhile, when the rule was released three months ago, most farmers commended the Bush administration for relaxing a proposal they said would be too intrusive and difficult to comply with. Still, the groups say even a relaxed version of the rule might exceed EPA's authority under the CWA. Early in March, four groups representing agricultural interests filed suit in four different appeals courts hoping to narrow the scope of the CAFO rule even further. The *American Farm Bureau Federation* (AFBF) filed suit in the 8th Circuit Court of Appeals in St. Louis, *the National Turkey Federation* filed in the 11th Circuit Court in Atlanta, the *National Chicken Council* (NCC) filed in the D.C. Circuit Court and the *American Farm Bureau Federation* (AFBF) filed in the 4th Circuit Court in Richmond, VA.

According to Richard Lobb of NCC, the groups are not required to submit specific arguments at this point. Only later, when the cases are consolidated and delivered to one appeals court will they make their arguments. "We did not state specific grounds, we just said it was being done to protect our legal rights in what is expected to be a multifaceted, multiparty litigation." Nevertheless, a representative of the AFBF — the United States' largest farm organization — released a statement spelling out the group's concerns with the rule: "We have characterized the final CAFO regulations as much better than they could have been, primarily because the final rule and effluent guidelines represent a much more narrow and targeted approach than EPA's previous proposals," said Don Lipton of AFBF. "This administration is to be commended for its tireless efforts. While the rules represent an improvement over previous versions, they raise several legal issues that we believe should be resolved." AFBF says the regulations exceed EPA's CWA authority in several ways. One is that they require all farms falling into the definition of a CAFO to obtain permits regardless of whether or not there is evidence they have polluted groundwater. "It is our belief that the CWA does not require anyone to obtain an NPDES permit, except to avoid liability for an unpermitted discharge," Lipton said.

While environmentalists complained that the exemption of agricultural stormwater — waste sprayed on crops as fertilizer — is too lax, farmers say any regulation of stormwater from fields is too strict. Even requiring farmers to include agricultural stormwater in its nutrient management plan could violate the CWA, the group says. "This limitation raises questions of how open-ended are the nutrient management requirements and whether over-application of nutrients alone triggers the requirement to apply for an NPDES permits," Lipton said.

Meanwhile, on 3/18/03 EPA officially withdrew the Clinton administration's revision of the Total Maximum Daily Load (TMDL) program advanced in August 2000, possibly clearing the way for the agency to move forward with another new rule that would put more control of that program in the hands of the states. The TMDL program is one of the main avenues of pollution control included in the 1972 CWA. It is a backstop measure meant to control nonpoint source pollution by targeting waters that remain polluted after technological remedies have been applied to known sources. Although the program is intended to be carried out by the states, the Clinton administration considered state governments too lax in their implementation. The 2000 rule would have imposed tough standards, deadlines and penalties on states that failed to develop and enforce TMDLs.

By withdrawing that rule, the Bush administration is free to move forward with its own revision of the program — one likely to take the approach opposite from that of the Clinton administration: reducing oversight and giving states more flexibility in how they carry out the program. EPA officials said last summer they would move forward with such a proposal, known as the "watershed rule," although an EPA spokesman said the agency has no time frame for when such a rule might be released.

Source: Damon Franz, *Greenwire,* 3/11/03 and 3/16/03

Mountaintop Removal Decision Overturned

Appalachian coal companies are rapidly moving forward with new mountaintop-removal mining projects following a 2/1/03 court ruling reversing a May 2002 decision of Judge Charles Haden. Haden had ruled that coal companies could not legally dump rocks and dirt from mountaintop mining into mountain streams. Although the Army Corps of Engineers (Corps) has issued Clean Water Act (CWA) Section 404 permits for activities that categorize the waste as "fill material," Haden ruled that "Sec. 404 of the Clean Water Act does not allow filling the waters of the United States solely for waste disposal."

Bill Caylor, President of the *Kentucky Coal Association* says he expects the Corps to be slow getting through the flurry of permits it will be receiving. Carol Raulston of the *National Mining Association* (NMA) said there are about 100 projects that have permits waiting to be processed — either permits for new projects or projects waiting for their permits to be renewed. "I only know of a handful of projects that have had to be shut down in the past eight months because their permits expired," she said. "Because of the slowed economy, there had been other announcements of curtailed production, but some projects were caught in no man's land" when Haden's ruling came down. "We are deeply gratified by today's decision," said NMA President Jack Gerard. "The livelihoods of thousands of hard-working people throughout Central Appalachian have been safeguarded by today's decision and millions of homes and businesses that rely on coal-based electricity are once again assured of reliable and affordable energy"

But the group *Kentuckians for the Commonwealth* (KFTC) — which sued the Corps to halt the practice, says mountaintop removal practices permanently deface the land, destroy water quality and devastate property values. The group has not yet decided whether it will appeal the ruling. "I'm not sure what we're going to do, but we're not giving up," said Patty Wallace group spokesperson. "They decided to let the coal industry destroy the mountains, and we're not going to sit back and take that." "It is sad and scary that the court could have such callous disregard for the lives and well-being of people in the coalfields," Wallace said. "While the judges and lawyers argue the technicalities and interpretations of the law, strip mining is destroying our mountains and streams and taking away a future for our children."

National environmental organizations also expressed dismay at the appeals court ruling. "There is nothing more inconsistent with the goal of the Clean Water Act — to preserve the integrity of the nation's waters — than allowing coal mining companies or any other industry to bury and destroy streams with their waste," said Joan Mulhern of *Earthjustice*. As for the possibility of an appeal to the Supreme Court, Raulston predicted the high court might not be interested in taking such a case. "Precedent has shown they're not interested in hearing cases that don't have a jurisdictional interest, and no other appeals court has ruled on a similar case," she said.

In overturning Haden's ruling the three-judge panel of the 4th Circuit Court of Appeals found that Haden's injunction was much more extensive than necessary to remedy the KFTC complaint. Because KFTC sued the Corps over the permit for one project in Martin County, KY, Haden's decision to halt all permits for similar projects went beyond the scope of the case, the appeals court ruled. "Because we conclude that the injunction issued by the district court was broader in scope than 'necessary to provide complete relief to the plaintiff' and that the injunction did not carefully address only the circumstances of the case, we find it overbroad," the court said.

In fact the court said, because the permit holder, *Beech Fork Processing*, amended the permit so the waste would not be dumped in U.S. waters, a ruling in the plaintiffs favor was unnecessary. "The court determined that in the absence of injury, KFTC's application for injunctive relief with regard to the *Martin Coal* authorization must be denied," the judges wrote in their opinion. Finally, the appeals court said that even if the case required a decision on the legality of depositing mining overburden in U.S. waterways, Haden erred in declaring the practice illegal. Because the CWA does not specify a definition of "fill material," it is up to the agencies to decide what may or may not fit in that category.

Source: Damon Franz, *Greenwire*, 2/3/03

Golden Algae Fish Kills in Texas

An outbreak of golden algae, (*Prymnesium parvum*) has killed several million fish in TX reservoirs this winter, and at no time in the state's history have blooms been so deadly. The golden algae — a floating plant that gets its name from the yellow-tinted water it causes — is deadly to fish. Aquatic insects, mammals, birds and humans are immune to its toxic bath. However, from the Panhandle to the rivers of West Texas, the golden algae's toxin is suffocating fish and causing their cells to burst and hemorrhage. The gruesome effects have cost the recreational fishing industry and local tourist economies millions of dollars.

In mid March Joan Glass, a pollution biologist with the Texas Parks and Wildlife Department's (TPWD) Kills and Spills Team said, "We are a month and a half into the kill, and it's massive". "And in most places", she said, "it's getting worse". Fish continued to die at lakes Granbury, Red Bluff, Possum Kingdom, Spence, Colorado

City and Moss Creek, two Lubbock city lakes and in the tailrace below Lake Meredith. In all, four river systems — Pecos, Colorado, Canadian and Brazos — are affected.

Blooms of golden algae have been implicated in the deaths of millions of fish worldwide, along coasts and in bays and estuaries from Israel to Sweden to North Carolina. But in Texas, the algae attacks inland — flourishing in the salty conditions created in the reservoirs and lakes of West and Central Texas as water flows over a desertlike landscape. Since 1985, when it was first identified in a large fish kill along the Pecos River, it has killed 12 million fish. Half of them were killed at the state's Dundee Fish Hatchery on Possum Kingdom Reservoir in 2001. State biologists suspect that the algae struck Texas years earlier, but scientists just didn't know what it was. "I have people who are 80 years old in Haskill County that say they saw it all their lives," said Glass.

Golden algae an indiscriminate killer releases a toxin into the water which first strikes the filter feeders — the fish that feed on the microscopic plants and animals floating in the water. As they feed, it attaches to their gills, sometimes stopping their breathing in hours. A concentration of 10,000 algae cells in every 20 drops of water is enough to cause widespread death. Officials have detected the algae in smaller concentrations without causing a fish kill. "I have witnessed spotted gar physically leap out of the water to get on the bank, and only go back in when they couldn't breathe anymore," said Jack Ralph, of the TPWD. In the later stages of the outbreak, it reaches valuable game fish. In 1986, during a bloom on the Pecos River, it wiped out more than 200 blue suckers and 3,600 Rio Grande darters — both threatened species.

Golden algae outbreaks were first reported in the U.S. in the 1980s at Red Bluff Reservoir and its Pecos River watershed in far West Texas and New Mexico. In 2001, major fish kills caused by golden algae occurred at lakes Possum Kingdom, Granbury and Whitney, and in a hatchery near Wichita Falls where it wiped out the state's entire supply of striped bass used for stockings. Last year, golden algae kills occurred in New Mexico, Colorado, Nebraska, Kansas, Wyoming, North Carolina and South Carolina. Outbreaks have occurred in other countries for decades, though major damage done by the algae there has been limited to the fishpond culture industry.

While anglers, scientists and water-control authorities search for an answer, none of any significance has surfaced. Estimates of the number of fish lost at Granbury Reservoir on the Brazos River since this year's outbreak began in mid February are more than 4.4 million. Biologists say the fish killed are mostly shad, but also include largemouth bass, striped bass, crappie, sand bass and catfish. Most of the fishing guides and outfitters have left the Granbury area. Those who stayed went broke, said Steve McKay, who owns a local fishing guide service. Part of the problem is that the state won't restock lakes until officials are sure the algae is gone.

Unfortunately, state biologists don't know much about the organism, including what environmental conditions lead to population explosions. And although researchers know it doesn't like acidic water and tends to bloom during winter months, they don't know what prompts it to erupt from the cyst it hibernates in on the muddy bottoms of reservoirs and rivers. They are only somewhat certain it is native to Texas.

An aggressive treatment of ammonia is used in Israeli fish ponds to kill the algae. Other chemicals, including one commonly used in the U.S. and elsewhere at drinking-water treatment plants, also works. Draining a pond has been tried, but doesn't work because the algae can lay dormant in the mud for a long time and bloom when the pond is refilled. Chemicals not only kill golden algae but everything else in the pond, so their use in a large body of water, such as lakes Granbury or Possum Kingdom, would be neither cost-effective nor practical because it would have an adverse impact on other organisms in those lakes' ecosystems. The cure then would be worse than the problem.

The golden algae seems to favor, but is not confined to, water from river systems with naturally high salinity levels. Scientists say other contributors could include brine contamination from oil and gas production, some irrigation practices, and periods of little to no rainfall. The rains that fell in parts of Texas in mid March could thus be good or bad, depending upon how much runoff occurs. Too little runoff would add nutrients to the lakes, and help the algae thrive. Heavy rains, on the other hand, could kill the algae; researchers have discovered golden algae can't thrive when it is forced to stay in flows of fresh water for several days. The cell begins to swell, loses its capability to function then dies. Heavy rains just weeks after a golden algae outbreak at Granbury in 2001 helped stop the bloom.

Although a long shot, researchers also have discovered that some cells of golden algae were killed by bacteria. Unfortunately, they have not been able to identify the bacteria. With no answers, it appears that whether the fish kills continue or subside remains in the hands of Mother Nature.

Source: Bob Hood, *Ft. Worth Star Telegram*, 2/23/03; and Dina Cappiello, *Houston Chronicle*, 3/12/03

Drought Pattern Seen

The devastating four-year drought that has gripped much of the U.S., southern Europe, the Mediterranean, and central and southwest Asia may be the harbinger of prolonged globe-spanning droughts in the future. Although the immediate trigger for the drought in North America was a recurring climatic pattern called La Niña, researchers, reporting in the 1/31/03 edition of the journal *Science*, say the global reach of the latest drying, its persistence and its severity, may also reflect the effects from 30 years of gradual global warming.

Shifting regions of hot and cold water in the Pacific Ocean have set the stage for droughts and other climatic perturbations before. But Martin Hoerling and Arun Kumar of the National Oceanic and Atmospheric Administration (NOAA) say the last episode was unlike anything in recorded history. "The state of the tropical ocean during 1998 to 2000 combined a naturally occurring cooling of the eastern Pacific with a less frequent, possibly inexorable warming of the Indian and western Pacific oceans," Hoerling explained. The combination of La Niña cooler waters and persistently warm water to the west created the "perfect ocean" for the atmospheric circulation pattern that produced the globe-girdling drought.

"An almost unbroken zonal belt of high pressure wrapped the middle latitudes," Hoerling said. Some drought-stricken areas, which stretched from New England to Pakistan, received as little as half their normal rainfall during the four year period. The combination shifted tropical rainfall and caused the jet stream to move north of its usual location, the study said. This meant many major winter storms missed most of North America. As a result, many parts of the country grew drier, including much of the West, parts of the South and the

Eastern Seaboard. Some areas received as little as 50% of normal rainfall. Drought, which persists in several Western states, could have occurred without global warming or La Niña, but it would not have been as bad or as persistent, Hoerling says.

Although the drought may now be ebbing in some areas, climate models predict an "increased risk" of similar events in future years. The NOAA researchers say three separate climate models all suggest that the 1998 to 2002 unusually widespread and prolonged drought is exactly what the world can expect if global warming continues. Hoerling and Kumar fed the sea surface temperatures into the climate models and ran the simulations more than 50 times. The results were consistent: drier than normal conditions over much of U.S, southern Europe and southwest Asia.

The study "should make a number of people sit up and take note," says Kevin Trenberth, head of climate analysis for the *National Center for Atmospheric Research* (NCAR). The balmy western waters appear to be linked to global warming, and the unusual warm west/cool east pattern is likely to return, said Hoerling. The pattern started to change last year, when the eastern tropical Pacific warmed, creating an El Niño that eased the drought in the eastern U.S. But the Western one-third of the U.S. is still locked in one of its worst droughts of the past 100 years, a situation that doesn't fit neatly into the scenario outlined by Hoerling and Kumar, said Jim Hurrell of the NCAR in Boulder. "We're in an El Niño state right now and, as you know, in Colorado and the Southwest it's still quite dry," he said. "So there are other variables that come into play, and I think it's dangerous to conclude that if the Indian Ocean continues to warm, it's definitely going to produce drought," he said.

Mathew Barlow of Massachusetts-based *Atmospheric and Environmental Research Inc*. said Hoerling's paper "adds an important piece to the drought puzzle, lending further credence to the idea that the Pacific Ocean appears to be a strong driver of the drought." Trenberth said the results suggest that computer climate models, while far from perfect, may now be accurate enough to predict droughts months before they strike.

Meanwhile, the independent research group, *World Water Council* (WWC), blames global warming for both the unusually extreme weather in recent decades and the economic losses from storms and other catastrophes that have increased tenfold because of growing populations and migration to vulnerable areas. Between 1971 and 1995, the group reported that floods affected more than 1.5 billion people around the world. About 318,000 people died because of floods and more than 81 million were made homeless, the council said. The figures were culled from research done by scientists at the *Dialogue on Water and Climate*, as well as from papers by researchers from other groups.

While scientists could not say exactly how much the incidence of extreme weather had increased, William Cosgrove, WWC vice president, said records for storms, floods and droughts were being broken every year, killing thousands and causing serious economic disruption. Most countries aren't ready to deal adequately with the severe natural disasters that we get now, a situation that will become much worse," he said. Cosgrove blamed the difference in impacts partly on growing populations in poor countries and migration to risky or environmentally damaged areas such as floodplains or bare mountainsides at risk of mudslides. In drought-prone regions, growing populations put more pressure on food and water supplies and mean shortages happen faster when rains stop, he said. The group also said droughts were growing more severe and widespread, accounting for up to 45% of reported deaths from natural disasters between 1992 and 2001.

Source: Jim Erickson, *Rocky Mountain News*, 1/31/03; Mike Toner, *Atlanta Journal-Constitution*, 1/31/03; Patrick O'Dricoll, *USA Today*, 1/31/03; and Beth Gardiner, *AP* and *San Francisco Chronicle*, 2/27/03

Missouri River Lawsuit

Drought in the Missouri River Basin is one factor that lead a coalition of regional and national conservation organizations on 2/13/03 to sue both the U.S. Army Corps of Engineers (Corps) and the U.S. Fish and Wildlife Service (FWS) in the U.S. District Court for the District of Columbia. The petitioners are seeking new operations for six Corps dams that are causing the Missouri River's continued ecological decline and imposing economic hardships on some riverfront communities.

The suit charges that the status quo violates three federal laws: the Endangered Species Act, the Flood Control Act of 1944, and the Administrative Procedures Act. The case has been assigned to Judge Gladys Kessler, and the federal government now has 60 days to respond to the allegations. Former Deputy Interior Secretary David Hayes, now a partner at the firm of *Latham & Watkins* in Washington, DC, is representing the petitioning organizations, which include *American Rivers*, *Environmental Defense*; the *Izaak Walton League of America*; the *National Wildlife Federation*; and the North Dakota, Kansas, South Dakota, Nebraska, Montana, and Iowa chapters of *The Wildlife Federation*.

"For years, the Corps' control of the Missouri River has defied science, economics, and the rule of law," said Hayes. "The agency must now be held accountable for failing to be a good steward of the public's river." "Through this legal action we have the wonderful opportunity to save endangered species, improve the health of the Missouri River and produce more economic benefit as well," said Tim Searchinger, senior attorney with *Environmental Defense*, who helped write the complaint. The lawsuit marks a new phase in the conservation organizations' efforts to bring about a positive change for the Missouri and its riverfront communities.

It comes after years of working to build consensus for change by highlighting the ecological and economic benefits of new dam operations. During the most recent public comment period on dam operations, 55,000 Americans filed comments with the Corps, 54,000 of them urging the agency to adopt river-friendly dam operations. Those sentiments have been echoed to various degrees by six of the eight governors in the Missouri River basin, the *National Academy of Sciences*, the professional association of state fish and wildlife biologists in the Missouri River basin, and

the majority of the editorial boards of newspapers along the river.

"We regret that it has come to this, but the political climate is such that public opinion, scientific consensus, and the prospect of more jobs along the river have proven insufficient to break the Corps' stranglehold on the Missouri River," said Rebecca R. Wodder, president of *American Rivers*. "Let's hope the courts can help us move Missouri River management into the 21st century so that the river and the people that depend on it can prosper."

The Corps currently releases water from its dams on a schedule intended to maximize the length of the commercial shipping season for a tiny barge industry on the lower third of the river. These unnatural flows have driven three species — the pallid sturgeon, piping plover, and interior least tern — to the brink of extinction. The region also forgoes the economic activity associated with "nearly one million recreation-based days of hunting, fishing, sight-seeing and boating annually," according to one Corps study. "Sportsmen believed the Administration when it said it would make decisions like this one on the future management of the Missouri River based on science and good economics," said Paul Hansen, executive director of the *Izaak Walton League of America*. "We are disappointed that it has not yet done so thereby making today's action necessary. The *National Academy of Sciences* concluded that these changes in flow would 'enhance the valuable fishery resources...increase waterfowl populations... increase the abundance of largemouth bass ...attract more anglers to the region...provide enhanced recreational and aesthetic opportunities for both anglers and hunters... result in marked increases in user-days for recreational fishing, commercial fishing, and hunting.'"

According to a "biological opinion" issued by the FWS in November 2000, the Corps was required to modify operations beginning in the spring of 2003 to recreate more natural seasonal water levels. Despite this, the Corps' newly released 2003 annual operating plan calls for no change in dam operations — a violation of the Endangered Species Act. "Today's scant commercial shipping makes it clear that the Missouri River's future depends on restoring the waterway for other economic benefits," said Mark Van Putten, president of the *National Wildlife Federation*. "The Corps must cease to manage the river based on the obsolete notion that navigation is its biggest benefit and begin a new era of conserving this natural resource for people and wildlife." "The Corps' poor management of the Missouri has led to unstable and ill-timed water levels that threaten our region's prized game fish," said Dave Pavlicek, member of the *Montana Wildlife Federation*. "These lost fishing opportunities are straining local economies and sending anglers elsewhere to cast their lines."

The plaintiffs also charge that the Corps violates the Flood Control Act of 1944 by prioritizing the barge industry, worth at best $7 million annually, over the recreation industry, worth at least $90 million annually. That law stipulates that "to the extent that the several functions of water

Missouri River biologists capture a pallid sturgeon for use in artificial propagation.

control and utilization are conflicting, preference should be given to those which make the greatest contribution to the well-being of the people and to the areas of greatest need." Current operations guidance for the Missouri River was established more than 40 years ago, and the ecological, economic, and social conditions along the river have changed dramatically since then. The Corps has stalled development of modern dam operations schedule for over a decade now, leading the plaintiffs to charge that the agency is violating the prohibition against "unreasonable delay" in the Administrative Procedures Act.

The state of North Dakota has also jumped into the legal fray, taking steps to initiate its own lawsuit against the Corps in order to try and prevent the agency from draining Lake Sakakawea this summer and destroying its water quality. "North Dakota has clean water standards that must be met by not only citizens of the state, but also the federal government," said the state's attorney general, Wayne Stenahjem. "Our lawsuit is notice to the federal government that it, too, has duties to be a responsible citizen."

The 368,000 acre Lake Sakakawea is impounded by the Garrison Dam, one of six such Corps of Engineers' dams on the Missouri River's mainstem. According to North Dakota's notice of violation, the lake suffers water quality deterioration when lake levels fall below 1,825 feet above sea level, including warming of the lake's water that could destroy the reservoir's Chinook salmon fishery. State officials say that because Lake Sakakawea is the world's only remaining source of disease-free Chinook, the fishery cannot be replaced once it has been destroyed.

The Corps operating plan, however, calls for drawing Lake Sakakawea below 1,825 feet during peak summer warming months, when the water would be sent downstream to accommodate barge traffic below the dams in Iowa, Nebraska an Missouri. A North Dakota state official said the Corps could avoid the lawsuit by taking steps to stop or mitigate the water releases, but if the agency continues with its 2004 operating plan, the state will file suit in state or federal court. Corps officials say they are required by law to manage the river in such a way that barge traffic can flow year-round and that they have limited leeway in how they manage the dams. In addition to initiating legal action, Stenehjem has asked the North Dakota legislature to increase the penalty for violating the state's clean water laws from $5,000 to $25,000 per day.

Meanwhile, a coalition of barge operators, farmers and others with an economic interest in the river have filed their own notice of intent to sue if the Corps changes its operating plans. And the State of Nebraska may join them. Nebraska Attorney General Jon Bruning said, "It was inevitable that we participate in these lawsuits.". "We simply can't expect anyone but Nebraska to protect Nebraska's interests." Nebraska's position in the lawsuit will be to continue current river operations and to protect and serve all authorized purposes, including barge navigation, to the extent possible. Nebraska sued the Corps last year to protect navigation and other downstream uses, while upstream states sued to protect their recreational

interests. The water shortage will likely worsen this year with drought conditions continuing throughout most of the Basin.

Sources: Chad Smith, Director Nebraska Field Office - *American Rivers*, Mill Towne Building, 650 J Street, Suite 400, Lincoln, Nebraska 68508; Damon Franz, *Greenwire* 2/25/03; and David Hendee, *Omaha World-Herald*, 3/14/03

Mojave Desert Sinking for Lack of Water While Tribal Lawsuit Begins

The ground in the Mojave Desert settled as much as four inches between 1992 and 1997 in Lucerne Valley, El Mirage, Lockhart and Newberry Springs, according to a U.S. Geological Survey (USGS) report. The USGS study determined that the sinking was linked to groundwater-level declines in these areas and Morongo of more than 100 feet between the 1950s and the 1990s. All those areas were heavily farmed until the 1960s and 70s. The sinking can disrupt surface drainage, reduce or damage aquifers, cause fissures, and damage wells, buildings, roads, and utility infrastructure, Sneed said. "Earth fissures several feet wide and deep have been observed in Lucerne Valley," Sneed said.

The phenomenon known as subsidence confirms suspicions of High Desert water officials who said more water is being pumped out of certain areas in the southwest parts of the Mojave Desert than is being replaced. The ground level fell as much as two feet in some areas, but held steady in others, the report said. "It is not as large as a lot of places, but it is significant in that we have found it is happening," said Michelle Sneed, USGS hydrologist and lead author of the report which surveyed the southwest area of the Mojave Desert. By comparison, she said, in the north Mojave, areas at Edwards Air Force Base sank six inches in just 10 years and areas around Lancaster have dropped six feet.

Subsidence occurs when natural underground aquifers go too long without replenishment. Aquifers store water and can be damaged to the point where they cannot accept water anymore. Earthquakes can also accelerate the process, the report said. "The compaction of the aquifer systems in these areas may be permanent," Sneed said. In response, the Mojave Water Agency (MWA) board recently set aside $1 million to purchase water from the California Aqueduct project to recharge the Mojave River basin, and is making plans to buy even more.

MWA general manager Kirby Brill said, "It's (the sinking desert) not surprising and it's consistent with the types of impacts that occur in overdrafted areas". "I wouldn't call this panic time but it's another but not the only reason why we have to move toward a sustainable approach where we balance (water) supply with demand." Brill hopes the court-ordered Mojave River Adjudication, which rations water for users in the region, will help stabilize the groundwater supplies by forcing affected pumpers to buy aqueduct water to replenish groundwater supplies. Until then the MWA will start buying aqueduct water and flowing it into the ground in a process known as water banking. "It will help the water levels from declining which will in turn slow or stop the subsidence," USGS's Sneed said. "This water-banking idea is being done in Lancaster, Santa Clara Valley and they actually stopped subsidence."

But plans to replenish southwestern groundwater supplies through purchase of water from other areas such as the Colorado River, may be brought to a halt by a recent Navajo Nation lawsuit filed in federal court. The Tribe's claims to Colorado River water are at stake in a legal battle that could drag on for decades and force the courts to rethink the way Western water is managed. The Tribe did not seek a specific amount of water in its complaint, but asked a federal judge to block the Interior Department from allocating any uncommitted water from the river, a move that could unravel dozens of agreements between Arizona, Nevada, California and other Indian tribes.

Chief among potential casualties if the Navajo Tribe prevails is Arizona's interstate water banking program and a fragile deal that would allow Nevada and California to take more than their legal share of the river while they develop alternate sources. Nevada this year had counted on taking about 37,000 acre-feet of river water over its basic state allocation of 300,000 acre-feet. California, historically, has taken 800,000 acre-feet over its basic allocation of 4.4 million. Both states are counting on using the surplus water for 15 years as a buffer against growing needs and to provide time to develop alternative sources, such as groundwater sources and desalinization plants on the Pacific Ocean. The surplus water is actually unused state allotments from the Colorado River Upper Basin states of Utah, Colorado, Wyoming and New Mexico

Navajo Nation President Joe Shirley Jr. said his Tribe filed the suit in U.S. District Court in Arizona to address a basic issue of fairness. "While water from the Colorado River presently serves Phoenix, Los Angeles and Denver, Navajos who live on reservation lands next to the river are still hauling water to their homes," Shirley said. The suit alleges that the U.S. breached its trust responsibility to the Navajo Nation by failing to consider the Tribe's water rights in Interior's ongoing management of the Colorado River. Louis Denetsosie, Navajo Nation attorney general, said the unresolved claims by his Tribe on river water need to be cleared up before any user can be confident of continued access to the resource.

Interior Secretary Gale Norton and numerous other federal officials are named as defendants. Federal officials declined to comment until they could study the complaint, which was filed in mid March. Former director of the Arizona Department of Water Resources said the Tribe's case won't be easy to prove. "Their reservation does sit on the Colorado, but there's the argument that they're not historically an agrarian culture," said Rita Maguire, now president of the *Arizona Center for Public Policy*.

Source: Vince Lovato, *San Bernadino County Sun* 2/24/03; Shaun McKinnon, *The Arizona Republic*, 3/17/03; and Launce Rake, *Las Vegas Sun*, 3/17/03

Mississippi River Lock Expansion Study Continues to Draw Criticism

The U.S. Army, Corps of Engineers (Corps) released two documents in late February detailing plans to proceed with a study of lock expansion on the Upper Mississippi River. Critics both inside and outside of the agency say this is an indication that the Corps is once again skewing the research to justify the project. The Upper Mississippi/ Illinois Waterway System Navigation Study provoked public outcry in 2000, when it came to light that Corps officials were manipulating data to justify the $1.5 billion project. The revelation led to intense media scrutiny of the agency and touched off efforts within Congress and the administra-

tion to make the agency more economically and environmentally accountable.

While the previous scandal occurred behind closed doors using incorrect data, critics say that new memos, dated 2/6/03, indicate that the Corps is now attempting to manipulate the study in plain sight through flawed economic models and vague predictions of future growth. Corps officials, however, say that their decisions on how to proceed with the study are based on the best science and economic tools available to the agency. The two memos describe how the Corps will conduct economic modeling to determine benefits of the $1.5 billion project and how it will predict future rates of barge traffic on the river, years into the future.

The first memo says that although the study will lay out five scenarios for potential growth of barge traffic moving through the 29 locks in question, the Corps will not attempt to determine how likely each scenario is to occur. "That has raised eyebrows," said Jeff Ruch, executive director of *Public Employees for Environmental Responsibility*. "The assumption all along has been that the scenarios would include a range of possibility, but we thought someone would figure out which are likely and which are fantasy. If you're going to invest $1.5 billion to expand the locks to accommodate larger traffic, you want to know if there's actually going to be larger traffic."

Denny Lunberg, the navigation study project manager, said the Corps considered trying to figure out the probability of each scenario but decided it would not be technically feasible. Instead, he said the agency decided it would be better to lay out a range of possibilities and choose a course of action that is most likely to have positive results over a wide portion of that range. But an economist familiar with the project said the Corps has not described growth scenarios that are likely to occur. "Four of the five scenarios show robust growth in the barge industry, but we know this is unlikely," the economist said. Moreover, he said, the consulting firm hired to come up with the scenarios, *Sparks Companies*, is the same one the agency was using last time it was caught manipulating the study.

The second memo details the types of economic models the Corps is using to crunch numbers and determine the likely economic benefits of expanding the locks from 600 feet to 1,200 feet. That memo reaffirms that the Corps will continue to use the so-called tow-cost model for the feasibility study, even though the agency acknowledges that model to be flawed. The *National Academy of Sciences* recently determined the Corps should use a new model to evaluate the benefits of the Mississippi River proposal because the tow-cost model does not do a good job of predicting human economic behavior.

The Corps will use the ESSENCE model, which is likely to do a better job of predicting that behavior, but only to perform a sensitivity analysis that will provide an alternative economic viewpoint. Lundberg said the Corps chose to use the ESSENCE model for sensitivity analysis because that model is not in a complete form that would be suitable for the feasibility study. Still, he said, findings produced by that model will be incorporated into the decision-making process. But Ruch said the Corps only

decided to incorporate the ESSENCE model to counter criticism the agency has received from the Office of Management and Budget for continuing to use the flawed tow-cost model. The decision to use the ESSENCE model for sensitivity analysis disproves the Corps assertion that the model is not complete, he said.

The economist familiar with the process said the tow-cost model is still the one that will be used for the final decision. "The ESSENCE model is not going to be used to evaluate the process," he said. "What will be used to evaluate the project will be the tow-cost model. My view on this is that the Corps has been forced into the corner to admit what they're doing is wrong and justify why they're doing it anyway." Lundberg refutes this viewpoint, saying the agency will use a range of factors to consider its options, including environmental impacts, and will use adaptive management to change course when new information comes to light.

Paul Rhode, vice president of *MARC 2000*, which represents agricultural interests, shippers and others on the Upper Mississippi said the debate over the two economic models is moot because considering other transportation options, barge traffic would still be the least economically and environmentally expensive mode of shipping.

While that statement may be true, improving the locks still may not be justified based on good economic predictions. Why spend money for larger locks that may sit empty most of the time? Some predict that waterway navigation will be significantly impacted as our economy moves toward "value-added" products that reduce shipments of raw materials in barges. Others suggest that capacity could be improved for the often empty locks by scheduling lockages ahead of time instead of operating on the current "first come first serve basis" that can create traffic jams.

Source: Damon Franz, *Greenwire*, 2/21/03

Private Labs Caught Falsifying Tests

Private laboratories are increasingly being caught falsifying test results for water supplies, petroleum products, underground tanks and soil; hampering the government's ability to ensure Americans are protected by environmental laws, investigators say. In addition, officials making decisions at hazardous-waste cleanup sites have relied on companies that fraudulently tested air, water and soil samples.

"In recent years, what has come to our attention is that outside [nongovernment] labs are oftentimes in bed with the people who hired them, and conspired to commit environmental crime," said David Uhlmann, chief of the Justice Department's environmental-crimes section. The EPA's watchdog against fraud, inspector general Nikki Tinsley, has called the rise of lab fraud a disturbing trend. "If it was my drinking water, I'd consider it very serious," she said, declining to identify locations affected by the continuing investigation.

Private laboratories test products that are regulated by antipollution laws, and the results allow companies to certify that they are meeting the requirements of environmental-protection laws. In one instance three years ago, investigators discovered fraudulent test results by contract employees at the EPA's lab in Chicago. The head of

the laboratory was transferred and the contractor *Lockheed Martin*, was suspended from performing tests.

The Justice Department and the EPA have prosecuted dozens of employees and laboratories the last several years for fraudulent testing. The growing numbers of cases stretch from New England, where a chemist for municipal water made up test results, to TX, where the government recently prosecuted the largest tester of underground fuel tanks. Officials said they were not certain whether an increasing number of labs were falsifying tests, or whether more were simply being caught through more aggressive investigations and whistle-blowers.

Tinsley said there are numerous reasons for lab misconduct: poor training, ineffective ethics programs, and shrinking markets and efforts to cut costs. Whatever the case, lab fraud hampers an environmental-protection system that frequently relies on voluntary compliance by companies backed by test results, officials said. Faked results can mislead regulators and the public into thinking they are being protected by laws when in fact companies are not abiding by the safeguards.

Among the recent examples of fraudulent testing:

- *Intertek Testing Services* of Richardson, TX, was fined $9 million for falsifying results at its former laboratory in the Dallas suburb. The tests of air, soil, pesticides, nerve-gas agents and other hazards were used to make decisions for severely polluted areas called Superfund sites, at Department of Defense facilities, and other hazardous-waste locations.
- Terian Koester, owner of *Quality Water Analysis Laboratories* in Pittsburg, KS, was sentenced to 18 months in prison for violating the Clean Water Act and mail fraud. He was accused of fraudulent analysis of waste water, drinking water and hazardous waste.
- William McCarthy, a senior chemist for the Lawrence, MA, drinking-water filtration plant, pleaded guilty to violating the Safe Drinking Water Act. During the 1990s, McCarthy, who supervised quality testing, admitted he fabricated the results of drinking-water quality. The Lawrence filtration plant draws water from the Merrimack River and distributes it to more than 60,000 residents.
- *Caleb Brett U.S.A. Inc.* of Houston was sentenced to pay a $1 million fine and three years' probation for misleading investigators about a scheme to falsify analyses on reformulated gasoline, a blended fuel that significantly reduces pollution in populated areas. The fraud resulted in distribution of 200-300 million gallons of substandard gasoline in NY, NJ and CT.
- *Tanknology-NDE International* of Austin, TX, was ordered to pay $2.29 million in a criminal fine and restitution for false testing of underground storage tanks. The nation's largest such testing company admitted the fraud occurred at postal facilities, military bases and a NASA facility, among other sites. The tests were supposed to detect leakage of petroleum products.
- Former environmental contractor James Edward Adams of Inman, SC, was sentenced to 27 months in prison. His company, which provided testing services for underground storage tanks, directed employees to provide false test reports to owners and operators of petroleum tank facilities in SC, NC, FL, GA, VA and TN, prosecutors said.

Source: Larry Margasak, AP and *The Philadelphia Inquirer*, 1/22/03

Transgenic Fish Regulations

The California Fish and Game Commission approved regulations in early February putting tight restrictions on transgenic (genetically altered) fish, but not banning them completely. By a unanimous vote, the Commission agreed to allow the Department of Fish and Game (DFG) to issue permits for transgenic fish, thereby regulating how the fish are contained and transported. Like snakeheads and other restricted species, it would be illegal to release transgenic fish into the state's waters.

"It's really a restriction, not necessarily a permit to allow things to come into the state," said Ed Pert, head of the DFG's fisheries program branch. Pert said he had read newspaper articles that reported the state was now allowing transgenic fish. "It's more like the opposite," he said. "Before, we had no handle on it and now we do have regulatory authority." The California Legislature rejected a bill last year that would have made it illegal to import, transport, possess, or release alive any transgenic fish or eggs. In December, Washington state permanently banned transgenic fish from its waters. "This is better than legislation because it is more flexible," Pert said. "The ban was problematic because it didn't take anything into account on a case-by-case basis." The new rules are essentially an attempt to put regulations in place before transgenic fish actually enter the state. The Food and Drug Administration currently is considering a permit for a transgenic salmon that grows four to six times faster than normal.

Pert said the new regulations would theoretically allow fish farms to carry transgenic fish, but the permit would first have to be approved by the DFG, the commission and aired in a public forum. Karen Reyna, California fish program manager at the *Ocean Conservancy*, called the new regulations "proactive." She said, "The positive part of this is that these fish are now banned from all waters of the state." She cautioned that there is still more to be done. "We need to continue to stay in front of the federal government so we're acting before or with them, and we need to continue to keep our native wildlife safe," she said. The *Ocean Conservancy* along with the *Natural Resources Defense Council* and the *Pacific Coast Federation of Fishermens Association*, petitioned the Fish and Game Commission to draft the regulations.

Justin Malan, executive director of the *California Aquaculture Association*, said his group approved of the new regulations but had disapproved of a transgenic fish ban. "If the University of California would have found a cure for cancer and the actual methodology of the process for developing the cancer-curing agent was developed through the production of fish, then there was no mechanism in an outright ban for that to happen..." Malan said.

Source: Lauren Miura, *Greenwire*, 2/11/03

VA/PA Zebra Mussels Infestation – Spread by Divers?

Virginia environmental officials are studying ways to kill a colony of zebra mussels in a Prince William County quarry, even as investigators said they would try to determine whether divers introduced them there. Once established in rivers and lakes, the mussels dramatically increase water clarity and visibility, making the environment better for divers. In two similar cases in Pennsylvania, divers have been suspected in zebra mussel infestations of quarries. The one in Prince William County where the recent mussel colony was discovered is used extensively for scuba training and practice.

Maj. Mike Bise, an investigator with the Virginia Department of Game and Inland Fisheries (VDGIF), said the role of the divers would be one aspect of the investigation. "We'll have some conversations with the folks there, and I'm sure we'll ask questions," he said. A representative of the Fairfax *Dive Shop* that manages access to the quarry denied introducing the mussels or knowing of any effort to do so. John Wall, training director of the *Dive Shop*, said he was upset with state officials for implying at meetings that divers were responsible. "They've worked with a lot of innuendo," Wall said. "They talked like we were responsible." Meanwhile, a bill heading to the desk of Gov. Mark R. Warner (D) would outlaw the possession of zebra mussels and other invasive species and would set a civil penalty of up to $25,000.

The zebra mussels were discovered in Prince William by a diver who recognized the species and the problem. "In the Great Lakes, the dive community has benefited from the infestation, which has sharpened the clarity of the water," said Ann Swanson, executive director of the *Chesapeake Bay Commission*. "One of the concerns has been that the zebra mussels have been introduced [to new areas] by someone who didn't know the ecological problems."

"The further you get away from known distribution sites, the harder it is to explain that it is accidental," said Tony Shaw, zebra mussel coordinator for the Pennsylvania Department of Environmental Protection. Shaw knows of two mussel-infested quarries, one outside Allentown and another in Lebanon County. Both are used extensively by divers. "It's almost a similar situation as in Virginia," Shaw said. At one site, the Willow Springs dive park in Richland, PA, a single rock was found that was covered with mature zebra mussels. "There's no real good explanation how it got there," Shaw said. Like the Prince William location, the Richland quarry featured sunken boats and vehicles as underwater diving attractions. Wall, of the *Dive Shop* in Fairfax, said there could be other explanations for the infestation. He said juvenile zebra mussels can be transported by waterfowl or in excess water in equipment used by divers.

For months, investigators have been denied access to the quarry in a dispute over legal liability, but in early March, an agreement was worked out with the owners. The first step is to create a detailed map and depth chart of the quarry and gather samples. An accurate estimate of water volume is necessary to figure out how much poison would be needed to kill the mussels, if a chemical approach is approved, said Ray Fernald, an official with the VDGIF. Another possibility under discussion is draining the quarry. "That would reduce the amount of water that would have to be treated chemically and kill the exposed mussels," Fernald said. Further investigation also is needed to see to what extent the quarry is connected to nearby Broad Run. That is a tributary of Lake Manassas and the Occoquan Reservoir, which together provide drinking water for 600,000 people.

Source: Eric M. Weiss, *Washington Post*, 3/15/03

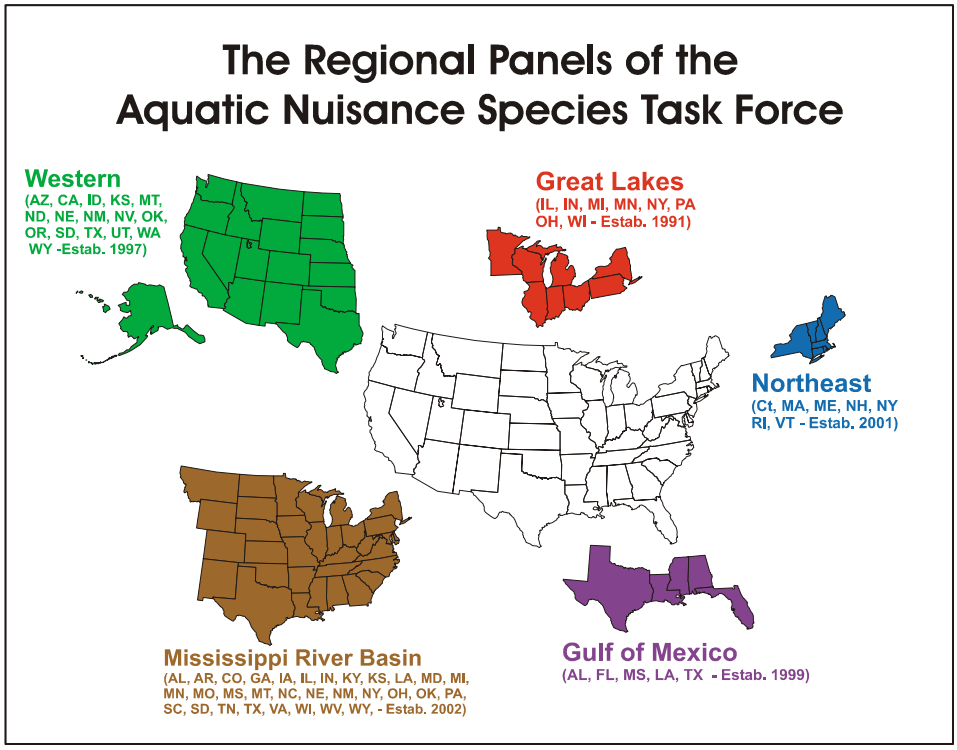
Mississippi River Basin Aquatic Nuisance Species Panel

MICRA was asked in 2002 to host an Aquatic Nuisance Species (ANS) Panel for the Mississippi River Basin (MRBP). Similar panels currently exist for the Great Lakes, Gulf of Mexico, Western states, and Northeast (See accompanying figure). Final plans for organizing the Mississippi River Basin Panel were made by MICRA's Executive Board at their February meeting in Little Rock, AR.

Members of the MRBP will include representatives from federal, state, and local agencies, Tribes, and from private environmental and commercial interests. Letters are now being mailed to prospective members, and the Panel's organizational meeting is anticipated for early summer, probably in the Twin Cities area. MICRA appointed Jay Rendall (MN Dept. of Natural Resources) to chair the MRBP during its initial year. Michael Hoff (U.S. Fish & Wildlife Service, Twin Cities, MN) was appointed as Co-Chair. After one year the Panel is expected to elect its own Chairperson and Vice Chairperson.

The MRBP will:
- identify priorities;
- make recommendations to the National ANS Task Force;
- assist the National ANS Task Force in coordinating federal programs;
- coordinate non-federal programs within the region;
- advise public and private individuals;
- submit an Annual Report to the National ANS Task Force describing the various activities underway; and
- develop emergency response strategies for use by Federal, State, and local entities in stemming the invasions of aquatic nuisance species infestations.

An important feature of the five ANS panels is that some are based on watershed boundaries while others are not. While this requires that some states belong to more than one panel, as shown in the accompanying figure, it is not looked upon as a disadvantage. To the contrary, multiple panel membership by some entities creates a built-in coordination



mechanism between panels which should enhance interpanel coordination, sharing of information, and hopefully, mutually supported projects.

The Human Body - A Toxic Dump Site

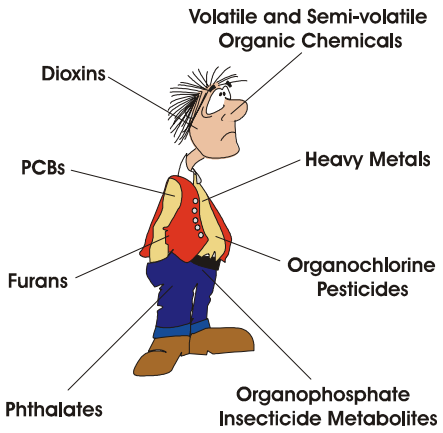
After decades of research on chemical contaminants in air, water and on land, scientists have begun to turn their attention to an important, but long neglected pollution site — **the human body!** Using sensitive new laboratory techniques to detect chemicals and assess their health effects, a growing number of researchers are testing human blood, urine and tissue for an array of environmental contaminants that find their way into the population through pollution or consumer products.

Two studies released in late January are likely to give these "body burden" studies new prominence in environmental science and policy. The first, released on 1/30/03 by the *Environmental Working Group* (EWG), in partnership with *Mt. Sinai School of Community Medicine and Commonwealth*, (MSSCMC) is the most comprehensive evaluation to date. Published in the peer-reviewed journal *Public Health Reports*, the study results offer an up-close and personal look at nine individuals whose bodies were tested for 210 chemicals – the largest suite of industrial chemicals ever surveyed. A summary of their results is shown in Table 3.

A second study, released in late January by the federal *Centers for Disease Control and Prevention* (CDC) provides statistical data relevant to Americans' body burdens for 116 chemicals. "The CDC has studied individual chemicals in a multitude of people; our study examined individual people for a multitude of chemicals," said Jane Houlihan, EWG vice president for research. She added: "Both studies are long overdue, and both reveal disturbing gaps in scientific understanding of environmental contaminants and in our system of regulatory safeguards."

A majority (55%) of Americans mistakenly believe that the government tests chemicals used in consumer products to make sure they are safe, according to recent opinion research conducted by *Washington Toxics Coalition*. However, the federal government does not safety-test industrial chemicals, nor does it require manufacturers to submit testing data. "People are loaded with chemicals," said EWG Senior Vice President Richard Wiles. "Some are known carcinogens, and many are banned. There are some about which science knows virtually nothing when it comes to potential health effects. We need a modern, common sense approach to identifying and protecting the public from possible health effects from long-term exposure to low levels of multiple chemicals."

In the EWG and MSSCMC study, an average of 91 industrial compounds, pollutants, and other chemicals were found in the blood and urine of the nine volunteers, with a total of 167 chemicals found in the group. Like most of us, the people tested did not work with chemicals on the job and did not live near an industrial facility. Scientists refer to this contamination as a person's body burden. Of the 167



chemicals found, 76 cause cancer in humans or animals, 94 are toxic to the brain and nervous system, and 79 cause birth defects or abnormal development (Table 3). The dangers of exposure to these chemicals in combination has never been studied. These results represent the most comprehensive assessment of chemical contamination in individuals ever performed. Even so, many chemicals were not included in the analysis that are known to contaminate virtually the entire U.S. population. Examples are *Scotchgard* and the related family of perfluorinated chemicals, and a group of compounds known collectively as brominated flame retardants.

A more precise picture of human contamination with industrial chemicals, pollutants and pesticides is not possible because chemical companies are not required to tell EPA how their compounds are used or monitor where their products end up in the environment. Neither does U.S. law require chemical companies to conduct basic health and safety testing of their products either before or after they are commercialized. Eighty percent of all applications to produce a new chemical are approved by the EPA with no health and safety data. Eighty percent of these are approved in three weeks. Only the chemical companies know whether their products are dangerous and whether they are likely to contaminate people. As a first step toward a public understanding of the extent of the problem, the chemical industry should be required to submit to the EPA and make public on the web, all information on human exposure to commercial chemicals, any and all studies relating to potential health risks, and comprehensive information on products that contain their chemicals.

A key to the various contaminants follows:

- **PCBs** — Industrial insulators and lubricants. Banned in the U.S. in 1976. Persist for decades in the environment. Accumulate up the food chain, to man. Cause cancer and nervous system problems.

- **Dioxins** — Pollutants, by-products of PVC production, industrial bleaching, and incineration. Cause cancer in man. Persist for decades in the environment. Very toxic to developing endocrine (hormone) system.

- **Furans** — Pollutants, by-products of plastics production, industrial bleaching and incineration. Expected to cause cancer in man. Persist for decades in the environment. Very toxic to developing endocrine (hormone) system.

- **Metals** — Lead, mercury, arsenic and cadmium. Cause lowered IQ, developmental delays, behavioral disorders and cancer at doses found in the environment. For lead, most exposures are from lead paint. For mercury, most exposures are from canned tuna. For arsenic, most exposures are from arsenic (CCA) treated lumber and contaminated drinking water. For cadmium, sources of exposure include pigments and bakeware.

- **Organochlorine insecticides** — DDT, chlordane and other pesticides. Largely banned in the U.S. Persist for decades in the environment. Accumulate up the food chain, to man. Cause cancer and numerous reproductive effects.

Table 3. Body Burden (Number of Chemicals*) Found in Nine People Tested that are Linked to the Listed Health Impact.

Health Effect or Body System Affected	Average Number of Chemicals Found	Total Number of Chemicals Found	Range Number of Chemicals Found (Lowest and Highest)
cancer [1]	53	76 [2]	36 to 65
birth defects/ developmental delays	55	79 [3]	37 to 68
vision	5	11 [4]	4 to 7
hormone system	58	86 [5]	40 to 71
stomach or intestines	59	84 [6]	41 to 72
kidney	54	80 [7]	37 to 67
brain, nervous system	62	94 [8]	46 to 73
reproductive system	55	77 [9	37 to 68
ungs/breathing	55	82 [10]	38 to 67
skin	56	84 [11]	37 to 70
liver	42	69 [12]	26 to 54
cardiovascular system or blood	55	82 [13]	37 to 68
hearing	34	50 [14]	16 to 47
immune system	53	77 [15]	35 to 65
male reproductive system	47	70 [16]	28 to 60
female reproductive system	42	61 [17]	24 to 56

* Some chemicals are associated with multiple health impacts, and appear in multiple categories in this table.

FOOTNOTES:
[1] Chemicals listed as linked to cancer are those classified by the National Toxicology Program as "known" human carcinogens, or "reasonably anticipated" to be human carcinogens; or those classified by the Environmental Protection Agency as "known" or "probable" human carcinogens.
[2] Cancer: 3 heavy metals, 1 phthalate, 9 organochlorine pesticides, 8 furans, 7 dioxins and 48 PCBs.
[3] Birth defects/developmental delays: 4 heavy metals, 2 phthalates, 7 organochlorine pesticides, 8 furans, 7 dioxins, 48 PCBs and 3 other semivolatile or volatile organic compounds.
[4] Vision: 1 heavy metal, 1 phthalate, 2 organochlorine pesticides and 7 other semivolatile or volatile organic compounds.
[5] Hormone system: 4 heavy metals, 5 phthalates, 3 organophosphate pesticides and metabolites, 9 organochlorine pesticides, 8 furans, 7 dioxins, 48 PCBs and 2 other semivolatile or volatile organic compounds.
[6] Stomach or intestines: 3 heavy metals, 3 phthalates, 2 organophosphate pesticides and metabolites, 9 organochlorine pesticides, furans, 7 dioxins, 48 PCBs and 4 other semivolatile or volatile organic compounds.
[7] Kidney: 4 heavy metals, 5 phthalates, 3 organochlorine pesticides, 8 furans, 7 dioxins, 48 PCBs and 5 other semivolatile or volatile organic compounds.
[8] Brain, nervous system: 4 heavy metals, 4 phthalates, 7 organophosphate pesticides and metabolites, 9 organochlorine pesticides, furans, 7 dioxins, 48 PCBs and 7 other semivolatile or volatile organic compounds.
[9] Reproductive system: 4 heavy metals, 2 phthalates, 8 organochlorine pesticides, 8 furans, 7 dioxins and 48 PCBs.
[10] Lungs/breathing: 4 heavy metals, 3 phthalates, 2 organophosphate pesticides and metabolites, 5 organochlorine pesticides, 8 furans, 7 dioxins, 48 PCBs and 5 other semivolatile or volatile organic compounds
[11] Skin: 3 heavy metals, 5 phthalates, 2 organophosphate pesticides and metabolites, 4 organochlorine pesticides, 8 furans, 7 dioxins, 48 PCBs and 7 other semivolatile or volatile organic compounds.
[12] Liver: 4 heavy metals, 6 phthalates, 3 organochlorine pesticides, 48 PCBs and 8 other semivolatile or volatile organic compounds.
[13] Cardiovascular system or blood: 4 heavy metals, 2 phthalates, 2 organophosphate pesticides and metabolites, 7 organochlorine pesticides, 8 furans, 7 dioxins, 48 PCBs and 4 other semivolatile or volatile organic compounds
[14] Hearing: 1 heavy metal, 48 PCBs and 1 other semivolatile or volatile organic compound.
[15] Immune system: 4 heavy metals, 1 phthalate, 6 organochlorine pesticides, 8 furans, 7 dioxins, 48 PCBs and 3 other semivolatile or volatile organic compounds.
[16] Male reproductive system: 4 heavy metals, 5 phthalates, 2 organochlorine pesticides, 7 dioxins, 48 PCBs and 4 other semivolatile or volatile organic compounds.
[17] Female reproductive system: 2 heavy metals, 2 phthalates, 1 organochlorine pesticide, 7 dioxins, 48 PCBs and 1 other semivolatile or volatile organic compoud.

Source: *Environmental Working Group*, Washington D.C., http://www.ewg.org/reports/bodyburden/es.php

• **Organophosphate insecticide metabolites** — Breakdown products of chlorpyrifos, malathion and others. Potent nervous system toxicants. Most common source of exposure is residues in food. Recently banned for indoor uses.

• **Phthalates** — Plasticizers. Cause birth defects of male reproductive organs. Found in a wide range of cosmetic and personal care products. Some phthalates recently banned in Europe.

• **Volatile and Semi-volatile organic chemicals.** — Industrial solvents and gasoline ingredients like xylene and ethyl benzene. Toxic to nervous system, some heavily used SVOCs (benzene) cause cancer.

Big River Cleanups and Educational Workshops

For six years Chad Pregracke's team from *Living Lands and Waters* has worked in cooperation with local citizens and volunteers to clean up trash from America's Big River Systems including the Mississippi, Ohio and Missouri rivers. Tremendous progress has been made, with over 800 tons of trash successfully removed. These community based cleanup efforts have also served to connect people to the national treasure these rivers represent.

This year the Missouri Department of Natural Resources (MODNR) is working in cooperation with *Living Lands and Waters* and other state agencies to develop a comprehensive river-education effort focussing on the Mississippi River. A series of one-day workshops will be offered directly on the riverfront during the month of May. Times and locations follow:

- May 7 - St. Louis, MO
- May 8 - Alton, IL
- May 9 - Grafton, IL
- May 13 - Louisiana, MO
- May 15 - Hannibal, MO
- May 16 - Quincy, IL
- May 19 - Keokuk, IA & Alexandria, MO
- May 21 - Dallas City, IL
- May 23 - New Boston & Keithsburg, IL
- May 26 - Muscatine, IA
- May 29-30 - Davenport, IA

A portion of each workshop will be aboard a floating classroom culminating in the use of smaller boats to visit various river sites. Participants can expect to expand their knowledge concerning Big Rivers as well as receive educational materials on Big Rivers to take back to their classrooms, civic groups or youth organizations.

Contact: Bryan Hopkins, Environmental Education Specialist, (573) 751-2452 or 1-800-361-4827, nrhopkb@mail.dnr.state.mo.us. Also see the MODNR web site at http://www.dnr.state.mo.us/oac/river-cleanup.htm

River Management Fact Sheets

Land & Water Australia (LWA) is a statutory research and development corporation within the Commonwealth's Agriculture, Fisheries and Forestry portfolio. LWA "provides national leadership in generating knowledge, informing debate and inspiring innovation and action in sustainable natural resource management".

As part of this effort they publish a very useful newsletter called *Riprap,* which can be accessed online as can a recently released series of eleven Fact Sheets that cover the most common river management issues faced by people living and working along Australia's rivers. These Fact Sheets, listed by title below, also have application in the U.S. and our readers may find them useful:

- Managing Riparian Land,
- Stream Stability,
- Improving Water Quality,
- Maintaining In-Stream Life,
- Riparian Habitat for Wildlife,
- Managing Stock,
- Managing Woody Debris in Rivers,
- Inland Rivers and Floodplains,
- Planning for River Restoration,
- River Flows and Blue-green Algae, and
- Managing Phosphorous in Catchments

Many other useful bits of information can also be downloaded at their Web Site: http://www.rivers.gov.au/publicat/riprap/

Reader's Survey Correction

Thanks go to everyone who responded to our 2003 Reader's Survey. Your comments are greatly appreciated, and as a result you will notice subtle changes that have been made to our format. Our apologies go to those who tried in vane to visit our Web Site at the address shown on the Survey response form. Unfortunately, during the "cut and paste" process the word "MICRA" was left out. The correct address is as follows, so you are encouraged to visit the site again: http://wwwaux.cerc.cr.usgs.gov/MICRA/.

Meetings of Interest

May 13-15: USEPA: *Using Science to Assess Environmental Vulnerabilities.* King of Prussia, PA. See www.reva-maia.org. Contact: (781) 544-0423, conference@tpmc.com.

June 1-4: *7th Annual Missouri River Natural Resources Conference*. Benedictine College, Atchison, KS. Contact: Jeanne Heuser, (573) 876-1876, jeanne_heuser@usgs.gov

July 6-11: *Ninth International Conference on River Research and Applications.* New South Wales, Australia. See http//:www.conlog.com.au/NISORS. Contact: Ms. Elizabeth Medley, conference@conlog.com.au or A/Professor Martin Thoms, thoms@scides.canberra.edu.au

June 8-11: Eighth National Watershed Conference - *Exploring Working Watersheds: Changes Since Lewis & Clark.* Harrah's Council Bluffs Casino & Hotel, Council Bluffs, IA. Contact: Tammy Sawatzky, (405) 521-4823 or NWCTammy@aol.com See: www.watershedcoalition.org

June 9-12: *12th International Conference on Aquatic Invasive Species*. Ontario Ministry of Natural Resources, Windsor, Canada. Contact: Elizabeth Muckle-Jeffs, (800) 868-8776 or profedge@renc.igs.net. Also visit: http://www.aquatic-invasive-species-conference.org

June 16-18: AFS Propagated Fishes in Resource Management Symposium. Boise, ID. See: www-heb.pac.dfompo.gc.ca/congress/pfrim/

Aug 10-14: *133rd Annual Meeting of the American Fisheries Society.* Quebec City, Quebec, Canada. Contact: Betsy Fritz, bfritz@fisheries.org, (301)897-8616 x212

Aug 21-22: *Maritime Environmental Engineering Technical Symposium **2003***. Arlington, VA. Contact David Breslin, BreslinDA@navsea.navy.mil

Oct. 22-25: 21st Wakefield Fisheries Symposium: *Assessment and Management of New and Developed Fisheries in Data-Limited Situations.* Anchorage, AK. See www.uaf.edu/seagrant/. Contact fycon@uaf.edu, (907) 474-6701

May 2-6, 2004: AFS, 4th World Fisheries Congress - *Reconciling Fisheries with Conservation: The Challenge of Managing Aquatic Ecosystems.* Vancouver, BC. See www.worldfisheries2004org. Contact fish2004@advance-group.com, (800) 555-1099.

Aug 21-26, 2004: *134th Annual Meeting of the American Fisheries Society.* Madison, WI. Contact: Betsy Fritz, bfritz@fisheries.org, (301) 897-8616

Congressional Action Pertinent to the Mississippi River Basin

FWPCA Amendments:

S. 170. Clean Water Infrastructure Financing Act of 2003. Voinovich (R/OH) and **H.R. 20.** Kelly (R/NY) and Tauscher (D/CA). Amends the Federal Water Pollution Control Act (FWPCA) to authorize appropriations for State water pollution control revolving funds, and for other purposes.

S. 473. Feingold (D/WI) and 3 Co sponsors and **H.R. 962.** Oberstar (D/MN) and 21 Co sponsors. Amends the FWPCA to clarify the jurisdiction of the United States over waters of the United States.

H. R. 738. Pallone (D/NJ) and 16 Co sponsors. Amends the FWPCA to clarify that fill material cannot be comprised of waste.

H. R. 784. Camp (R/MI) and 17 Co sponsors. Amends the FWPCA to authorize appropriations for sewer overflow control grants

Endangered Species Act (ESA) of 1973

S. 369. Thomas (R/CA). Amends the ESA to improve the processes for listing, recovery planning, and delisting, and for other purposes.

H. R. 1194. Herger (R/CA). Amends the ESA to enable Federal agencies to rescue and relocate any endangered or threatened species that would be taken in the course of certain reconstruction, maintenance, or repair of Federal or non-Federal manmade flood control levees.

H. R. 1235. Gallegly (R/CA) and Gibbons (R/NV). Provides for management of critical habitat of endangered and threatened species on military installations in a manner compatible with the demands of military readiness, and for other purposes.

Invasive Species

S. 144. Craig (R/ID) and 9 Co sponsors and **H.R. 119.** Hefley (R/CO). Requires the Interior Secretary to establish a program to provide assistance through the States to eligible weed management entities to control or eradicate harmful, nonnative weeds on public and private land.

S. 525. Levin (D/MI) and 15 Co sponsors and **H. R. 1080.** Gilchrest (R/MD) and 67 Co sponsors. Amends the Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990 to reauthorize and improve that Act.

S. 536. DeWine (R/OH) and 5 Co sponsors and **H.R. 266.** Ehlers (R/MI) and Gilchrest (R/MD). Establishes the National Invasive Species Council, and for other purposes.

H.R. 273. Gilchrest (R/MD) and Tauzin (R/LA). Provides for the eradication and control of nutria in Maryland and Louisiana.

H. R. 989. Hoekstra (R/MI). Requires the issuance of regulations pursuant to the National Invasive Species Act of 1996 to assure, to the maximum extent practicable, that vessels entering the Great Lakes do not discharge ballast water that introduces or spreads nonindigenous aquatic species and treat such ballast water and its sediments through the most effective and efficient techniques available, and for other purposes.

H. R. 1081. Ehlers (R/MI) and 67 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.

Forestry

S. 32. Kyl (R/AZ) and 4 Cosponsors and **H.R. 460.** Hayworth (R/AZ) and 7 Co sponsors. Establishes Institutes for research on the prevention of, and restoration from, wildfires in forest and woodland ecosystems of the interior West.

H. R. 750. Udall (D/CO). Provides for a study of options for protecting the open space characteristics of certain lands in and adjacent to the Arapaho and Roosevelt National Forests in Colorado, and for other purposes.

H. R. 1042. Udall (D/CO) and Udall (D/NM). Authorizes collaborative forest restoration and wildland fire hazard mitigation projects on National Forest System lands and other public and private lands, to improve the implementation of the National Fire Plan, and for other purposes.

Floodplain Management

H. R. 67. Flake (R/AZ) and Hayworth (R/AZ). Provides temporary legal exemptions for certain management activities of the Federal land management agencies undertaken in federally declared disaster areas.

H.R. 253. Two Floods and You Are Out of the Taxpayers' Pocket Act of 2003. Bereuter (R/NE) and Blumenauer (D/OR). Amends the National Flood Insurance Act of 1968 to reduce losses to properties for which repetitive flood insurance claim payments have been made.

Water Resources

S. 323. Landrieu (D/LA) and Breaux (D/LA). Establishes the Atchafalaya National Heritage Area, Louisiana.

S. 454. Harkin (D/IA) and Grassley (R/IA) and **H. R. 590.** Leach (R/IA) and Boswell (D/IA). Directs the Secretary of the Army to convey the remaining water supply storage allocation in Rathbun Lake, Iowa, to the Rathbun Regional Water Association.

S. 531. Dorgan (D/ND) and Johnson (D/SD). Directs the Interior Secretary to establish the Missouri River Monitoring and Research Program, to authorize the establishment of the Missouri River Basin Stakeholder Committee, and for other purposes.

S. 561. Crapo (R/ID) and 5 Co sponsors. Preserves the authority of States over water within their boundaries, and delegates to States the authority of Congress to regulate water, and for other purposes.

H.R. 30. Bereuter (R/NE). Amends the Water Resources Development Act of 1992 to authorize the Secretary of the Army to pay the non-Federal share for managing recreation facilities and natural resources to water resource development projects if the non-Federal interest has agreed to reimburse the Secretary, and for other purposes.

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

S. 426. Daschle (D/SD) and Johnson (D/SD). Directs the Secretary of the Interior to convey parcels of land acquired for the Blunt Reservoir and Pierre Canal features of the Oahe Unit, James Division, SD, to the Commission of Schools and Public Lands

and the Department of Game, Fish, and Parks of the State of SD for the purpose of mitigating lost wildlife habitat, on the condition that the current preferential leaseholders shall have an option to purchase the parcels from the Commission, and for other purposes.

H. R. 961. Kind (D/WI) and 5 Co sponsors. Promotes a Department of the Interior efforts to provide a scientific basis for the management of sediment and nutrient loss in the Upper Mississippi River Basin, and for other purposes.

Wild and Scenic Rivers

H. R. 987. Herger (R/CA) and Doolittle (R/CA). Amends the Wild and Scenic Rivers Act to ensure congressional involvement in the process by which a river that is designated as a wild, scenic, or recreational river by an act of the legislature of the State or States through which the river flows may be included in the National Wild and Scenic Rivers System, and for other purposes.

Mining

S. 44. Feingold (D/WI) and Cantwell (D/WA). Amends the Internal Revenue Code of 1986 to repeal the percentage depletion allowance for certain hardrock mines, and for other purposes.

H. R. 504. Udall (/CO). Provides for the reclamation of abandoned hardrock mines, and for other purposes.

Energy

H. R. 1013. Radanovich (R/CA), Hastings (R/WA), and Walden (R/OR). Amends the Federal Power Act to provide for alternative conditions and alternative fishways in hydroelectric dam licenses, and for other purposes.

Global Warming

S. 17. Daschle (D/SD) and 15 Cosponsors. Initiates responsible federal actions that will reduce global warming and climate change risks to the economy, the environment, and the quality of life and for other purposes.

S. 139. Lieberman (D/CT) and McCain (R/AZ). Provides for scientific research on abrupt climate change, to accelerate reduction of U.S. greenhouse gas (GHG) emissions by establishing a market-driven system of GHG tradeable allowances to be used interchangeably with passenger vehicle fuel economy standard credits, limit U.S. GHG emissions, and reduce dependence on foreign oil, and ensure benefits to consumers from the trading in such allowances.

Public Lands

S. 124. Roberts (R/KS). Amends the Food Security Act of 1985 to suspend the requirement that rental payments under the conservation reserve program be reduced by reason of harvesting or grazing conducted in response to a drought or other emergency.

H. R. 380. Radanovich (R/CA). Provides full funding for the payment in lieu of taxes program for the next five fiscal years, to protect local jurisdictions against the loss of property tax revenues when private lands are acquired by a Federal land management agency, and for other purposes.

H. R. 652. Andrews (D/NJ). Assures that the American people have large areas of land in healthy natural condition throughout the country to maximize wildland recreational opportunities for people, maximize habitat protection for native wildlife and natural plant communities, and to contribute to a preservation of water for use by downstream metropolitan communities and other users, through the establishment of a National Forest Ecosystem Protection Program.

H. R. 749. Udall (D/CO). Directs the Secretary of the Interior to establish the Cooperative Landscape Conservation Program.

Public Service

S. 89. Hollings (D/SC) and **H.R. 163**. Rangel (D/NY) and 5 Co sponsors. Provides for the common defense by requiring that all young persons in the U.S., including women, perform a period of military service or civilian service in furtherance of the national defense and homeland security, and for other purposes.

Source: *U.S. Congress On Line; http://www.access.gpo.gov/congress/cong009.html*

River Crossings

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