River Crossings

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Season's Greetings

Best wishes for the Holidays to all of our readers and to those who care about the future of our Nation's great rivers and their magnificent natural resources! May the next millennia bring a new awakening to those who don't seem to understand or care about their own connection to the environment and the importance of caring for it for themselves now, and for their children and grandchildren in the future.

Black Carp Invasion

The Mississippi Department of Agriculture and Commerce (MDAC) has approved the stocking of diploid black carp (*Mylopharyngodon piceus*) for control of snails in the production ponds of their state's catfish farms. Snails serve as intermediate hosts for a parasitic trematode that is infecting catfish fingerlings and significantly reducing production in some ponds. The MDAC has sole regulatory authority for the aquaculture industry in Mississippi, while the Mississippi Department of Wildlife, Fisheries & Parks (MDWFP) is left with the responsibility of managing the state's wild fish populations. Unfortunately, the impacts of the MDAC decision will not only effect the fisheries resources of the state of Mississippi, but far beyond to the entire Mississippi River Basin, and fisheries authorities in other states are extremely upset. Once released into pond environments it is virtually certain that the exotic black carp will eventually escape to the wild. Once in the wild, the species will find it's way to the far corners of the entire Mississippi River Basin, and likely proliferate in many areas, displacing native species. Experience has proven that to be the case with similar stockings (primarily in Arkansas) of the black carp's Asian cousins: the silver, bighead, and grass carps. The latter three species, released in the 1970s, 80s and early 90's for other aquaculture and pond applications, easily found their way to the wild.

Upper Mississippi River - Wilkinson Island fish kill - 97% Asian carp.

These three species have now achieved large population numbers in many areas, and bighead carp are piling up like "cord wood" below Gavin's Point Dam on the Missouri River, Red Rock Dam on the Des Moines River, Keokuk Dam on the Upper Mississippi, and elsewhere in their attempts to reach new upstream river reaches. Norm Stucky, Missouri's Chief of Fisheries, says that "The bighead carp has become so abundant at some locations in his state's large rivers that commercial fishermen can't even lift their nets, they are so full of bigheads." Compounding this problem is that fact that the bighead carp is a plankton feeder that competes directly for food with the native, and potentially threatened

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paddlefish and bigmouth buffalo, as well as with forage species such as the gizzard shad. Also, the bighead has no known human use, since it's flesh is not considered desirable for eating by most people. Grass carp and silver carp are fast approaching the bighead's numbers; and all three species compete directly for food with the junenille stages of native game fish. They also have the ability to capitalize on degraded habitats not preferred by native species. The later ability gives the Asian carps an even greater "edge" in out-competing native fish for survival in the "environmentally disturbed" river environments that we know today.

For example, in mid October Chuck Surprenant, U.S. Fish & Wildlife Service (USFWS) biologist in Marion, IL, investigating a fish kill in a levee borrow ditch on the Wilkinson Island Division of the Mark Twain National Wildlife Refuge, found the kill to be composed of over 97% Asian carp (see accompanying photo). This site is located approximately 2 mi. off the Mississippi River main channel, 90 mi. south of St. Louis, MO. The seasonally flooded ditch had dried up, and all that remained were a series of small pools. One pool, measuring approximately 12 ft. by 40 ft. had experienced a near total fish kill, with only a few common carp and some mosquitofish surviving. Surprenant counted all the dead fish in the pool and found 4 exotic and only 5 native species (1 individual each). The exotics were all carps: 157 silver, 18 bighead, 9 grass, and 30 common carp accounting (as noted above) for over 97% of the fish present. Surprenant said there were at least 5 other nearby locations, all with fish kills and all with similar species compositions.

Meanwhile in Indiana, state Nongame Aquatic Biologist Brant Fisher reported collecting "tons" of small (<12") bighead and grass carp, including one silver carp (the first reported for Indiana), from a nearly dried up ditch that drains directly to the Wabash River. The grass carp tested as diploid. Bighead carp had previously been collected from the Tippecoanoe River (below Oakdale Dam) and on the East Fork of the White River below Williams Dam. Fisher suspects that the bighead can be found below every major dam on every large river in the state.

Biologists believe that based on the potential adult size of these species, observed elsewhere in the wild, that the Asian carp collected in these fish kills were all young or juvenile fish, demonstrating that these species can and are reproducing in the wild. This is contrary to the earlier claims of some of the persons who originally introduced them into hatchery situations.

Clearly the black carp has the potential to follow in the footsteps of the other Asian carps, eventually becoming a permanent part of the Mississippi River Basin's fish fauna, and because of their habit of eating small shellfish and mussels, large populations of black carp could be devastating to the Basin's already suffering mussel and shellfish resources.

Despite these concerns the MDAC approved the stocking of black carp with only the following caveats:

- use of triploid black carp (thought to be sterile) is strongly recommended, but not required, and triploid certification is also not required;
- diploid black carp can be stocked for an entire year until 12/2000, if triploid fish cannot be purchased; and
- facilities must be inspected and approved prior to stocking, and only permitted facilities can legally stock black carp.

As of late November, at least 7 catfish farmers in Mississippi have applied for and received MDAC black carp stocking permits. Meanwhile, the trematode parasite has been documented from only 5 of the state's fish farms. Stocking all of the state's 50,000 acres of catfish ponds at a rate of 2 black carp/acre would require at least 100,000 fish. Meanwhile, a native species, the redear sunfish or shellcracker (*Lepomis microlophus*), is an alternative species that could be used to control the snails. But this species is not favored by the industry because it is not readily available. In

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River Crossings is a mechanism for communication, information transfer, and coordination between agencies, groups and persons responsible for and/or interested in preserving and protecting the aquatic resources of the Mississippi River Drainage Basin through improved communication and management. Information provided by the newsletter, or opinions expressed in it by contributing authors are provided in the spirit of "open communication", and do not necessarily reflect the position of MICRA or any of its member States or Entities. Any comments related to "River Crossings" should be directed to the MICRA Chairman.

Missouri, however, rather than approving the stocking of black carp, the state is supplying limited numbers of shellcracker's to catfish farmers for this purpose.

The bottom line is that the European or common carp, introduced by German immigrants for food in the late 1800's, is so widespread today that it is considered by most people to be part of our native fish fauna. The four species of Asian carps (silver, bighead, grass, and black) are poised to follow the same path, and they are potentially far more threatening than the common carp because they compete more directly with native fish and shellfish for food and habitat. All of the Asian carps will thus likely be thought of by our grandchildren as "natives"; and even worse, our grandchildren may never see or know that species such as the paddlefish, buffalo, and others ever existed – all because of selfish, self-serving decisions made for the benefit of a few people in the late 1900's!

Since the release of species such as the Asian carps produce such significant and far reaching impacts, extending beyond the geographic area under jurisdiction of the decision making authority, it is perhaps time to declare them as "species of injurious wildlife" that would come under the federal jurisdiction of the Lacey Act. The latter would make possession of black carp (without a federal permit) illegal, and allow federal authorities (USFWS) to enter private property to confiscate and destroy any stocks being held illegally. Such authority, however, would require wide public support, and is deserving of public comment. For more information and to register opinions on any or all parts of this issue, contact: Gene Robertson, MDAC, (601) 359-1120, FAX (601) 254 6001, email: gene@mdac.state.ms.us; Dennis Riecke, MDWFP, (601) 364-2205, FAX (601) 364-2209, email: dennisr @mdwfp.state.ms.us; or Hannibal Bolton, USFWS, (703) 358-1718, FAX (703) 358-2044, email: hannibal_bolton@fws.gov

International Organism Exchange

While we in the Mississippi River Basin are concerned about round goby and black carp invasions, Japanese Emperor Akihito is worried about the invasion of **bass and bluegill**! Because of their "extremely strong breeding power," the bluegill and largemouth bass account for 99% of the fish populations in 8 of the 13 moats surrounding the the Imperial Palace. Bluegill eat the eggs of the native haze, goby, and stubby, while largemouth bass feed on goby minnows. Nobuo Ichihara, deputy superintendent of the Environment Agency, called the moats a "symbol of Japan" saying, "It's scary to think what may happen if we do a survey in five years – the native species may be all gone." His agency has been collecting the foreign fish, but experts say there are no permanent solutions because they breed so fast. Some officials say Emperor Akihito may have caused the "invasion" himself when, as crown prince in 1960, he brought a bluegill to Japan from Chicago as a gift from Mayor Richard J. Daley.

Meanwhile in the U.S., concern about the spread of the round goby, addressed in the last issue of *River Crossings*, has reached new proportions as the goby invasion has spread farther and faster downstream than previously thought. In August MICRA called for poisoning of the *Cal-Sag and Sanitary and Ship Canals* to stop the goby from spreading downstream of the site where next spring the U.S. Army Corps of Engineers plans to install an electric fish barrier to stop the downstream migration. Unfortunately, MICRA's request became bogged down in "regulatory red tape", and in early November we learned that the goby had already spread downstream past the site of the electric barrier. So if you live in the Mississippi River Basin, the round goby is now on it's way to a neighborhood near you!

We also learned recently that fishermen in the southern part of Lake Michigan have discovered the *fishhook water flea*, which scientists say could "wreak havoc" on the Great Lakes food chain. Biologist Patrice Charlebois said the flea's presence "is going to cause some change in the lake, though we don't know yet what that change will be." One possible result is that the water flea could displace the lakes' natural zooplankton. The flea originated in the same regions of Russia and the Ukraine as the invasive zebra mussel. As noted in the last issue of *River Crossings* the *Cal-Sag and Sanitary and Ship Canal* connects lower Lake Michigan with the Mississippi River Basin, so the flea will most certainly find it's way into the canal, and then follow the route of the round goby and zebra mussel downstream into the rivers of the Mississippi River Basin.

In California, Dept. of Fish and Game biologists are pondering what to do about an invasion of nonnative northern pike. A "two-day electro-fishing effort" in Lake Davis this past summer recovered 28 northerns, nearly two years after the agency poisoned the lake's trout fishery to rid it of the "rapacious," nonnative pike. Fearing the pike would migrate into the Sacramento-San Joaquin Delta and threaten salmon and steelhead trout populations, officials "created a national uproar" by killing all animal life in the lake with a chemical treatment. Last summer, the agency restocked the lake with a million trout, but fishermen discovered that pike had returned to the lake in May, sparking fears that they "have reproduced and are probably entrenched again." This demonstrates the difficulty of eradicating an invading species once it is released to the wild. State officials have now installed metal grates on discharge pipes below the lake's dam. Called "sushi bars" by locals, they "shred" large fish coming out of the pipes. To eliminate smaller fish, officials may offer a bounty on pike and allow unlimited catches, hire commercial fishers to cull the population, install trap nets, or stock the lake with huge lake trout or salmon that would eat the smaller pike.

On Yellowstone Lake in Wyoming, a netting program to remove exotic lake trout "appears to be making a dent in the voracious and unwanted predator's population." Netters have removed 15,000 lake trout since the program began in 1996, after Yellowstone National Park officials estimated a population of 30,000 were preying on Yellowstone cutthroat trout. Fisheries biologist Jim Ruzycki said the practice is preventing the lake trout from spawning in large numbers, but netting may have to continue indefinitely "and at great expense" because it is unlikely it will ever completely eliminate the species. The cutthroat also faces a threat from whirling disease, a parasite-driven disease that attacks cartilage tissue and can deform the fish, making them easy prey. Yellowstone cutthroats may also be threatened by the New Zealand mudsnail that has reached numbers as high as 300,000/m^2 in the Madison River near Yellowstone's west boundary.

Scientists at Yellowstone, trying to assess the overall threat of exotic species in the Park, say that nearly every one of the grizzly bear's important food sources is threatened by outside species: whitebark pine trees are endangered by a European fungus called blister rust; and bison are condemned because officials say they carry the European disease brucellosis. Park botanist Jennifer Whipple has documented the

presence of 185 exotic plants at Yellowstone throughout the park's history. About 78% of those foreign plants remain in the park and today comprise about 15% of Yellowstone's total plant diversity.

Elsewhere, a shipment of 36,000 bur reeds, a noxious weed from Europe, eluded U.S. Dept. of Agriculture (USDA) inspectors earlier this year and made their way into *Home Depot Inc.* stores in at least 17 states. The plant, imported from the Netherlands by a New Jersey company, is on the USDA's Noxious Weed list because it can choke waterways and hinder recreation in shallow waters. Since the plant was discovered on *Home Depot* shelves in Georgia, about 10,000 of the 11,800 packages shipped into the U.S. have been recovered. USDA officials said the shipment did not raise the usual "red flags" because the plant has never been in the U.S. before.

In Virginia and Maryland, the nutria, a 30 lb. rodent from South America, is one of the region's most visible invaders. But other foreign plant and animal species have contributed to problems such as aquatic grasses clogging waterways, whelks devouring Chesapeake Bay shellfish and weeds and pests spreading across croplands. The nutria alone is eating Maryland wetlands "into extinction", and this could kill the state's tourism, hunting and fishing industries. Robert Colona of the state Dept. of Natural Resources said, "If nothing is done, in 10 yrs. there will be extensive damage [to marshes] and many areas will be beyond the point of recovery." Eliminating the nutria is expected to cost several million dollars, and Virginia has already spent about a million dollars to monitor and control exotic pests such as fire ants and the cotton boll weevil.

To keep invasive species out of the Puget Sound ecosystem, the Washington Fish and Wildlife Dept. is drafting legislation that would require ships coming from California to discharge or exchange ballast water at least 50 mi. out at sea, or report themselves if they haven't. It is thought that the zebra mussel, round goby and numerous other species entered the Great Lakes via such ballast water dumping.

Nationwide, environmentalists have called for tighter restrictions on the importation of goods that may contain invasive plants and animals. They have also appealed for changes in the *World Trade Organization* (WTO) trading rules, which ironically require a country suspecting the importation of nonnative species to prove how the imported good is going to be harmful to them. President Clinton created a task force earlier this year on preventing the spread of invasive plants and animals. But environmentalists say the Administration has refused to crack down on imported goods because of its strong support for international trade. The Administration has also resisted efforts to require ships to treat their ballast water.

Throughout the world the international exchange of organisms is threatening species diversity. Invading species are usually very successful when introduced to a new environment because they have no natural enemies, and they can usually find a niche to exploit. Unless something is done soon to address this issue, we will see nonnatives driving native species to extinction around the world, and we will eventually end up with homogenous populations of similar species worldwide. In the process we will lose a tremendous amount of genetic diversity. A situation not unlike what has already happened to small business and communities in this country. *Everytown U.S.A.* now has it's complement of the same name brand stores, and all of the local "native" businesses have been driven to extinction (bankruptcy in their case). Do we want to allow aquatic nuisance species to destroy our Nation's biodiversity and let our native flora and fauna go bankrupt! Voice concerns about this issue to the President's Aquatic Nuisance Species Task Force, 4401 North Fairfax Drive, Suite 840, Arlington, VA 22203-1622, (703) 358-2308, FAX (703) 358-2044

Sources: Peter Landers, *Wall Street Journal*, 11/1/99; Peter Kendall, *Chicago Tribune*, 11/1/99; Maria L. LaGanga, *Los Angeles Times*, 7/30/99; *AP/ Salt Lake Tribune*, 10/15/99; John Ritter, *USA Today*, 8/10/99; Dan Egan, *Salt Lake Tribune*, 9/7/99; *AP/Billings Gazette*, 9/1/99; Michael Milstein, *Billings Gazette*, 10/13/99; Erik Siemers, *Wall Street Journal*, 8/10/99; Dustin Wunderlich, *Washington Times*, 10/28/99; Janet I. Tu, *Wall Street Journal online* [Northwest edition], 10/27/99; Robert McClure, *Seattle Post-Intelligencer*, 10/28/99; *Greenwire, A National Journal Daily Briefing*, 5/5, 7/30, 8/10, 9/7, 10/13, 10/15, 10/28, 11/1/99

Mass Extinctions of Freshwater Organisms

Freshwater ecosystems are as threatened as rainforests, and the latter are considered by many to be the most imperiled ecosystems on Earth! According to a Canadian study, just released, the U.S. could lose most of its freshwater species in the next century if steps are not taken to protect them. This, the first estimate of extinction rates of North America's freshwater animals, has found that they are the most endangered species group on the continent. "A silent mass extinction is occurring in our lakes and rivers," says author Anthony Ricciardi of *Dalhousie University* in Halifax. Ricciardi's study with coauthor Joseph Rasmussen of *McGill University* in Montreal is published in the October issue of "*Conservation Biology*."

Relatively little media attention has been given to freshwater species, the authors say, but these animals are in at least as much danger as land species. Since 1900, at least 123 freshwater animal species have been recorded as extinct in North America. Common freshwater species, from snails to fish to amphibians, are dying out 5 times faster than land species, and 3 times faster than coastal marine mammals, and the researchers say these estimates are "probably conservative because there have likely been extinctions of species that we did not know existed, as suggested by the fact that several extinct fishes are known from only a few specimens."

The authors predict that about 4% of freshwater species will be lost each decade if nothing is done to conserve them. Worldwide the situation is even more perilous – the *World Wide Fund* (WWF) said in September that 51% of freshwater species, from fish and frogs to river dolphins, are declining in numbers. The 1999 *Living Planet Report*, an annual index on the state of the world's natural wealth, presents the most reliable data available on forest area and populations of marine and freshwater species worldwide. It also

examines consumption of critical resources in 151 countries and its consequences. "This report is a graphic call to reduce these negative trends as the world enters the 21st century," said Claude Martin, director general of WWF. "The observed declines in populations of freshwater species is particularly alarming as they indicate the extent of deterioration in the quality of the world's rivers, lakes and other wetlands."

To get a picture of how rapidly species extinction is accelerating, Ricciardi and Rasmussen compared current extinction rates with those from the fossil record. They calculate that the background rate of extinction for freshwater fish species is about **1 species every 3 million years**. Ricciardi and Rasmussen predict that many species considered at risk will disappear within the next century. At risk species account for 49% of the 262 remaining mussel species, 33% of the 336 crayfish species, 26% of the 243 amphibian species, and 21% of the 1,021 fish species.

As noted in the two previous *River Crossings* articles, nonnative species pose serious threats to indigenous freshwater animals. Dams that obstruct river flow are also threats. Of 5.2 million km (3.2 million mi) of stream habitat in the lower 48 states, less than 2%, or about 100,000 km, is pristine enough to be federally protected, Ricciardi and Rasmussen say. Excess sediment, toxic contaminants and organic pollutants from agriculture threaten most U.S. waterways. Only 40 rivers longer than 200 km (125 mi) remain free flowing in the lower 48 states. "Such massive habitat deterioration threatens some of the world's richest freshwater faunal assemblages," the study says. Ricciardi and Rasmussen note that hundreds of U.S. dams are coming up for federal relicensing soon, providing an opportunity to reestablish natural flows in many rivers.

On another front, scientists working under the auspices of the *Organization for Economic Cooperation and Development* (OECD) are preparing "'the equivalent of a world telephone book of life on Earth,' a project that promises to revolutionize the study of biology and influence international environmental policy." The project, scheduled to begin late this year will be called the *Global Biodiversity Information Facility*. OECD science ministers approved the plan in June, and specialists have begun setting up a secretariat and work program with $3 million in initial funding. At present, "the information is scattered in dozens of centers; in museums and universities; in journals, drawers and card files," said Thomas Lovejoy of the *Smithsonian Institution*. "The idea is to put all this together and make it available to everybody" via the Internet. The facility will not only benefit students and researchers but also poor nations that are rich in species and have no data collections of their own. However, the task of weaving together existing records is expected to be complex, and researchers will be working to complement, not duplicate, the Clearing-house Mechanism set up for recording data under the *UN Convention on Biological Diversity*. Several countries are competing to host the program, but a final decision on the location is still pending.

Meanwhile, "the latest and most ambitious" biodiversity research published in the journal *Science* finds that "An abundance of species does indeed help ecosystems work better." An international team of 36 scientists conducted studies of eight grasslands across Europe. By planting several species of plants at test plots, the researchers found "uniformly" that decreasing the number of plant species leads to decreased productivity. David Tilman of the *University of Minnesota* found similar results at test fields in the Midwest. Tilman said the most recent conclusion "provides the strongest evidence yet that losing plant and animal species significantly decreases the ability of ecosystems to function." But a debate over the benefits of biodiversity has existed for years, and some scientists insist that species quality is more important to an ecosystem's stability than quantity. A mathematical model also published in *Science* found that "biodiversity itself may be less important than the ability of a few key species to withstand environmental irritants such as pollution."

However even in farming circles, concerns have recently been raised about the extinction of species. According to a report released by the *Worldwatch Institute* in September, "Thousands of plant species are nearing extinction, and the world's farmers are losing valuable crop alternatives..." Worldwide, more than 30,000 plant species are threatened, and in the U.S., 29% of all plant varieties are threatened, more than any other country. Australia and South Africa are also ranked high on the list. "The genetic diversity of cultivated plants is essential to breeding more productive and disease resistant crop varieties. But with changes in agriculture, that diversity is slipping away," said *Worldwatch* researcher John Tuxill, who authored the report. "Biotechnology is no solution," Tuxill said, "We are increasingly skillful at moving genes around, but only nature can create them. If a plant bearing a unique genetic trait disappears, there is no way to get it back."

Until recently, gene banks, botanical gardens, and protected areas have been "the first line of defense" in maintaining plant diversity, but Tuxill notes that these need higher levels of support. As a result, governments, NGOs and citizen activists are developing innovative partnerships to foster plant diversity. While the U.N. *Convention on Biological Diversity* requires governments to develop policies for managing plant resources wisely, the report singles out the *World Trade Organization* for "dismantling protective measures in the name of liberalizing trade." According to Tuxill, the "bottom line" is balancing the economic benefit of plant diversity with the obligation to protect it: "Those who garner the benefits of plant diversity, such as agribusinesses and pharmaceutical consumers, should acknowledge and support those who maintain it, like indigenous cultures and national seed banks."

Meanwhile, a sort of doomsday effort to save endangered species involves the practice of cryptopreservation to save organisms in an embryonic form for hundreds of years. Scientists at a National Zoo research center in Front Royal, VA, are trying to amass a collection of frozen tissue samples in hopes of reviving species that are on the brink of extinction. Proponents call cryptopreservation "the future of conservation." But some critics question the practice while animal habitats are disappearing. Vicki Croke, a *Boston Globe* columnist said, "We may never be able to reproduce their culture and behavior in a petri dish... Maybe we're just playing God."

Sources: Marlise Simons, *The New York Times*, 7/27/99; *WWF release*, 9/9/99; *Reuters/PlanetArk*, 9/10/99; Michael Cannell, *Washington Post, 10*/10/99; David Briscoe, *AP/Nando Times*, 9/20/99; Laura Tangley, *U.S. News & World*, 11/15/99; Worldwatch release, 9/18/99; Alex Kirby, *BBC*, 9/20/99; and *National Journal's GREENWIRE, The Environmental News Daily*, 7/27, 9/10, 9/21, 10/12 and 11/12/99

Dead Zone Causes

A Clinton Administration report addressing the Gulf of Mexico's "dead zone" problem reportedly places most of the responsibility on farmers, who are now expected to bear the brunt of new restrictions. An area in the Gulf the size of New Jersey is void of life in large part because of farm runoff upriver on the Mississippi River, the report says. One of the most controversial recommendations is a 20% reduction in the use of nitrogen fertilizers. The runoff promotes algae growth in the gulf, consuming oxygen and choking off the marine ecosystem. The farm lobby has already criticized the recommendations as "narrowly focused science", and says its authors are biased. Farming officials say the historic channeling and diking of the Mississippi and loss of thousands of acres of Gulf Coast wetlands share the blame for the dead zone.

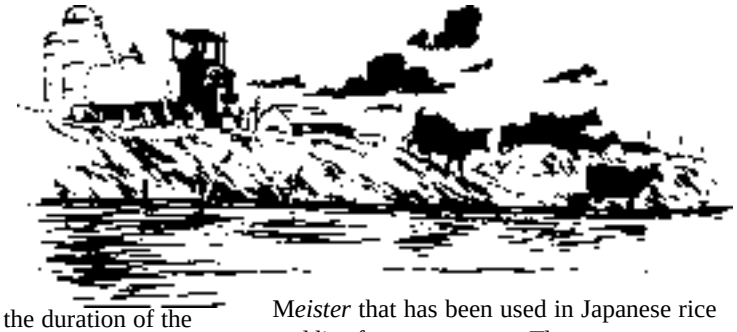
The Clinton Administration plans to use "a mix of carrots and sticks" to implement the recommendations. Large hog farms might be required to improve their manure control operations, but corn farmers may only be asked to plant prairie buffer strips between fields and streams. And tax incentives might be used to encourage farmers to remove land from production. Some environmentalists say this is the best way to accomplish what's needed. Scott Faber of *American Rivers* said, "We can't ask farmers to do more without giving them the financial assistance to help them do better."

Meanwhile, off the coast of North Carolina, "sewage-tainted" floodwaters created by Hurricane Floyd have created a growing "dead zone" in Pamlico Sound. The sludge containing human and animal waste is flowing from the Neuse and Tar rivers into Pamlico Sound, the nation's second-largest estuary, and from the Cape Fear River near Wilmington into the Atlantic Ocean. The runoff is "robbing" the waters of the oxygen and salinity necessary for aquatic life to survive. And scientists said the long-term effects of the runoff on the sound and the Atlantic may not be known until next spring or summer. Hans Paerl, a marine scientist at the *University of North Carolina* at Chapel Hill said, "What we're seeing is an ecological event on the catastrophic scale." Scientists are particularly concerned about the sound because its pollutants will not easily wash into the ocean. And the pollutants become more concentrated as water evaporates. Off the coast of Cape Fear, the runoff is at least 40 ft. deep and covers 300 mi.[2]

Sources: Peter Annin, *Newsweek*, 10/18/99; Estes Thompson, *Philadelphia Inquirer/ others*, 10/9/00; and *Greenwire, A National Journal Daily Briefing*, 10/12 and 10/14/99

New Fertilizer Reduces Nutrient Loss

Bedhel Farms, a leading agricultural grower in central Florida, along with *Helena Chemical Company* in Memphis, TN, has developed new temperature-release fertilizers that reduce nutrient leaching and runoff into waters along the coasts of AL, FL, GA, LA, MS, SC, and TX. The new fertilizers; made of small resin-coated prills of nitrogen, phosphorus, and potassium; release nutrients only when the soil begins to warm, when plants are most likely to absorb it, unlike conventional water-soluble fertilizers that are released upon contact with moisture. The new fertilizers are currently formulated only for soils in the southeastern U.S., but are available in there to homeowners as well as some large-scale farmers.



The small biodegradable granules or prills of nitrogen, phosphorus, and potassium are individually coated with polyolefin. The amount of coating on each prill is exactly the same, but the duration of the nutrient release depends on the ratio of the resins used to coat the prills. As soil temperatures increase, the prills begin to release nutrients; as the soils cool, the release of nutrients declines. This controlled release can last from 2 mo. to 1 yr., with little to no leaching. Due to their elastic nature, the prills are less vulnerable to mechanical wear and tear, than conventional fertilizers. This also prevents nutrient leaching, thereby reducing nutrient runoff at the edge of the field.

In one study, *Helena Chemical Company* found that temperature-release fertilizer is 4 times more efficient than liquid fertilizer and that when applied at only 25% of the liquid fertilizer rate, they supply an equal amount of nitrogen to the plant with minimal nitrate runoff. In another study conducted by the *University of Minnesota*, nitrate mobility in soils began earlier with conventional liquid fertilizer than it did with temperature-release fertilizer.

Temperature-release fertilizers are, however, slightly more expensive than water-soluble forms. Conventional brands cost between $3 to $4 for a 1.5 lb. bag, while *Bethel Farms'* temperature-release fertilizer costs between $5 and $6 for the same amount. Although this added expense may limit its use to high-value crops and certain nonagricultural sectors such as horticulture, golf courses, and gardens, Kenny Waters, a nutritional product specialist at *Helena*, contends that, "the temperature-release fertilizers use about 35% less total fertilizer by the end of the growing season than do conventional fertilizers, while increasing productivity and efficiency." In fact, *Bethel Farms' Bloom Grow* temperature-release fertilizer for annuals need only be reapplied every 6 mo. Its conventional competitor must be reapplied every 7 days to achieve the same results.

First developed in 1966 by the *Chisso* and *Chisso-Asahi Corporations* in Japan, the technology for the new fertilizer is based on a programmed-release fertilizer called M*eister* that has been used in Japanese rice paddies for many years. The two corporations were looking for a fertilizer that would not be significantly affected by factors such as pH, soil water content, and microbial activity. Since 1966, the Japanese have developed several temperature-release fertilizers that are used with rice, soybeans, vegetables, turf grass, and trees.

Currently, *Bethel Farms* offers six types of plant-specific fertilizers: *Acid Grow* for acid-loving plan such as ixoras, azaleas, camellias, and gardenias; *Bloom Grow* for all annuals; *Citrus Grow* for citrus and avocado trees; *Palm Grow* for palm trees; *Plug Grow* to establish grass plugs; and *Rose Grow* for roses and other perennials. Several other types will be available in 2000. For more information, contact Jennifer Kamberg, Advertising Coordinator, *Bethel Farms*, 8778 NW Bethel Farms Road, Arcadia, FL 34266; (800) 547-5847; fax: (941) 494-7052; email: bethelf@desoto.net; web site: www.bethelfarms.com or Kenny Waters, Nutritional Product

Specialist *Helena Chemical Company* P.O. Box 587, Brooklet, GA 30415; (912) 489-5150; fax: (912) 489-6403; email: helena@helenachemical.com; web site: www.helenachemical.com.

Source: *Nonpoint Source News Notes*, 11/99, Issue #59

Wetlands Protections Failing

U.S. Army Corps of Engineers' enforcement actions, wetland restorations and inspections have dropped dramatically, according to a comprehensive, multi-year tabulation of Corps permit and enforcement data issued in August by *Public Employees for Environmental Responsibility* (PEER). The Corps has reportedly told its districts that funding and staffing will be based solely on the issuance of development permits and has made enforcement of laws protecting the nation's wetlands its lowest priority.

Through Freedom of Information Act requests to every Corps district PEER compiled a *"Corps Report Card"* showing that the Corps:

• is granting more development permits than ever and denying almost none;
• is doubling its reliance on Nationwide and Regional Permits, issuing more than 60,000 in 1998, while individual permits which require environmental evaluations have fallen by more than half;
• has reduced the number of wetlands restored under Corps auspices by almost two-thirds since 1992;
• has reduced the number of permit inspections by nearly 40% nationwide; and
• has reduced the number of violators taken to court – litigation to remedy unauthorized wetland destruction nose-dived by nearly 80% between 1992 and 1998.

"The steadily increasing dependence on Nationwide and Regional Permits, 'office determinations' of Corps jurisdiction versus field visits, and most significantly, the complete disappearance of enforcement signifies that the public interest has been discarded in favor of one factor – economics," stated PEER Board member Magi Shapiro, a former longtime Corps project manager. "A program without enforcement is an invitation to break the law without consequences."

According to a recent Corps internal memorandum, titled "*Workload Policy Initiatives*", released by PEER, permit violators and illegal developers can expect minimal repercussions from the Corps:
• For significant violations, where no permit exists, the Corps will either refer the matter to EPA, or "If the Corps is still lead agency at this point, the Corps will usually choose to take no enforcement action and end its involvement with the case;" and
• If the significance of the wetland destruction "cannot be determined, the Corps will normally do nothing further;"

Noting that President George Bush declared a "no net wetland loss" goal for the Corps and that President Bill Clinton has unveiled a "Clean Water Initiative" with the goal of restoring an additional 200,000 acres of wetlands, Shapiro commented that "There is a growing disconnect between our national goals and the Corps' program. The Corps is left, ultimately, with only a program facade in which staff must make complex environmental decisions based on no more than a glance at paperwork." The *"Corps Report Card"*, nationally and for each of the 38 Corps districts (for the fiscal years 1982, 1987 and 1992-98) and related documents can be found on the web at http://www.peer.org/corps.

Source: *PEER Release*, 8/9/99. Contact: Amanda Carufel, (202) 265-7337

Dam Update

Atlantic salmon and striped bass have returned to the upper Kennebec River since the 162 yr. old Edwards dam was torn down this fall. The removal of the 24 ft. high, 917 ft. long dam has sparked a "rebirth" of the once-rich fishery, permitting salmon, shad, herring and other fish to reach upstream spawning grounds. It was the first hydroelectric dam in the country removed by the federal government against the owners' wishes.

In the State of Washington, *PacifiCorp* agreed to a deal on 9/22/99 among environmentalists, private industry and the federal government to demolish the Condit Dam on the White Salmon River, starting in 2006. The Condit's removal will make way for 5,000 to 10,000 fish to spawn; including the bull trout, coastal cutthroat trout and Pacific lamprey. The 125 ft. high dam, which has blocked salmon and trout from their historic breeding grounds, produces 15 MW of electricity. Portland, OR-based *PacifiCorp* agreed to contribute $17 million for its removal and for projects to improve the fishery. In return, the utility will be allowed to operate the dam as it is until 2006, rather than spend $28 million on ways to help fish over the dam. Interior Secretary Bruce Babbitt called the Condit an example of a dam that has outlived its purpose. He added, "This is yet another example that river restoration is on the national agenda."

In California, federal, state and utility officials announced on 11/7/99 the largest dam removal effort in the state's history as *Pacific Gas & Electric Co.* agreed to demolish 5 dams on Battle Creek. The $50.7 million project will restore 42 mi. of Battle Creek, a premier habitat for chinook salmon and steelhead trout. Utility officials said the dams will come down in 2001 after environmental studies. Three other dams that make up the *Battle Creek Hydroelectric Project* will remain, but will be fitted with fish ladders and screens, and will allow more water to flow downstream. As part of the CalFed program, state and federal officials will pay $27 million in removal costs while PG&E voluntarily will give up $20 million in lost electrical power revenue. The *David and Lucile Packard Foundation* will contribute $3 million to the project. Interior Secretary Bruce Babbitt called the agreement a model for future environmental efforts involving government and the private sector.

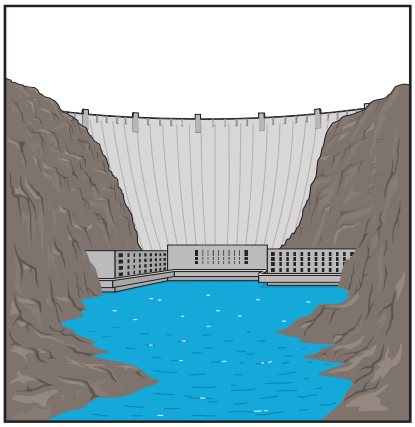
On the Clark Fork River in Montana and Idaho, the *Avista Corp.* has found a "middle ground" in the controversy over dam licensing by striking a compromise with environmentalists, sports fishermen, Indian tribes, federal and state agencies. The 45-yr agreement calls for an extensive, $225 million restoration program for fish and wildlife in exchange for relicensing of the Noxon Rapids and the Cabinet George dams *Avista* expects approval by the Federal Energy Regulatory Commission (FERC) by early next year. FERC has encouraged "alternative licensing" to speed up the relicensing process and the collaborative effort by *Avista* is "one of the largest and most ambitious so far." About 40% of the cases now before FERC used forms of alternative licensing, and the agency has issued about five new licenses to utilities that have chosen this method.

On the lower Snake River both potential winners and losers in the bid to breach dams are "busy cranking out" impact and economic studies that show mixed findings. The Bonneville Power Administration (BPA) says without the dams it would lose

11% of its total power supply, or about 1,231 MW. BPA economist Audrey Perino says it will cost about $250 million annually to replace the power. And the agency still owes $864 million for the dams' construction. Breaching the dams also would remove 35,000 acres of irrigated farmland, costing about $10 million, because alternative water-delivery systems aren't cost-effective. Environmentalists concede that the breaching would cause financial stress in the near term, but that it would help in the long-term. Increased tourism from sport fishers and increased commercial fishing activity would add about $390 million annually to the Northwest's economy, says Scott Faber of DC-based *American Rivers*. But some groups question whether salmon will even return to the river. The Portland, OR-based *Columbia River Alliance* estimates only 2,000 fish would make it back upstream, too small a number to justify the "economic pain". Meanwhile, *American Rivers* recently released a salmon mitigation report showing that federal dam managers failed to meet salmon recovery goals for water quantity and temperature in both the Snake and Columbia rivers.

Meanwhile, after recommending 7 mos. ago that breaching the four Snake River dams is the best way to restore endangered salmon populations, the National Marine Fisheries Service (NMFS) has now shifted its stance to advocate habitat restoration. In a new report called the "*4H Paper,*" the NMFS and other federal agencies list four factors that determine salmon survival – *harvest, hatcheries, habitat* and *hydropower production* – and describe alternatives for saving salmon. The option with the most federal support calls for habitat restoration through the release of more water from reserves in Idaho, limiting salmon harvests to current levels for 10 yrs., expanding hatcheries, and enforcing state and local protection rules. Federal officials say the new push toward habitat restoration would likely be no less costly than the estimated $1 billion price of dam removal. Implementation of the plan would also mean further restrictions for the timber and ranching industries, and residents of Idaho and the eastern parts of Oregon and Washington "are bracing for a fight." Idaho state representative Lenore Hardy Barrett (R) said residents would likely reject any proposal that limits grazing or mining. The agencies presented the *4H Paper* to President Clinton in early November.

Then on 11/5, "In light of congressional inaction on legislation" to protect Columbia River salmon, President Clinton ordered federal protection of 57,000 acres of land near the Hanford Reach, barring farming on the Wahluke Slope. The area is the most productive salmon run in the United States, outside of Alaska. Clinton's action nearly triples the size of the existing 30,000-acre Saddle Mountain National Wildlife Refuge. Clinton's order also transfers responsibility of the lands and salmon protection from the Energy Department to the U.S. Fish and Wildlife Service. The order is not immune to reversal because it is not congressionally-backed legislation. But Clinton officials said "even a Republican administration" would be unlikely to overturn the order because of political criticism over salmon protection. Sen. Slade Gorton (R/WA) slammed Clinton's action saying, "Any hopes of local input or management of these lands has been dashed today" But environmental groups praised Clinton's leadership.



Meanwhile in Idaho, the U.S. Bureau of Reclamation is negotiating the sale of the multimillion-dollar Island Park Dam and a network of related facilities for $270,000 and a number of other Western dams. The sale would give a farmer-run irrigation district control of the all the water flow on the Henry's Fork stream – "the best trout stream in the country"– and tributary streams "coveted" by fishermen, boaters and conservationists. Government budget cuts have left the bureau unable to afford the 254 dams, 347 storage reservoirs, 25,000 miles of canals and pipelines and more than 37,00 miles of distribution laterals it has built in the West since 1902. At least 65 local irrigation districts have expressed interest in taking over facilities, many of which they already run under contracts with the bureau. The shift of power from the federal government to local landowners worries "those who see preservation of the status quo as one way to protect the environment." Landowners are not allowed to harm wildlife, but, unlike the government, they are not obligated to take aggressive measures to restore a species. And while bureau officials say the transfer contract will require the irrigators to provide protections for fish and wildlife, many landowners are trying to negotiate deals directly with Congress instead.

On that front, *WaterPower: The Clean Energy Coalition* wants Congress to mandate that federal agencies balance their approach to dam licensing, weighing environmental concerns on equal footing with the economic, leisure and flood control aspects of dams. *Water Power* says Congress should act soon on reforming the way dams are licensed or risk losing the consumer and electricity benefits from their use. In the next 15 yrs., dams in 39 states will be due for relicensing, amounting to 29,000 MW of power production, more than half the U.S. federally-licensed hydropower capacity. The *Edison Electric Institute* (EEI) said reforming licensing procedures could pose a risk to the future of the hydropower industry. The trade group said that FERC has renewed licenses for more than 160 projects over the past 10 yrs. According to EEI "...two-thirds of these projects have lost generation capacity due to rigorous new operating restrictions imposed by other federal agencies." Sen. Larry Craig (R/ID) said, "I look forward to working with *WaterPower* and with all my colleagues to enact meaningful improvements to the licensing process." And *National Hydropower Association* (NHA) President Michael A. Murphy said, "We look forward to working with our new partners, the *WaterPower* coalition, to educate members of Congress and the administration on the need to preserve this nation's investment in clean, reliable, renewable power."

Paul Rogers, *San Jose Mercury News*, 11/9/99; Glen Martin, *San Francisco Chronicle*, 11/9/99; *DOI release*, 11/8/99; AP/ *New York Times/others*, 11/7/99; Traci Watson, USA Today, 10/23/99; Michael Paulson, *Seattle Post-Intelligencer,* 10/23/99; Agis Salpukas, *New York Times*, 10/10/99; *White House release*, 11/5/99; Paulson/Connelly, *Seattle Post-Intelligencer*, 11/6/99; Bill Richards, *Wall Street Journal*, 10/11/99; *American Rivers release*, 10/6 and 11/5/99; Kim Murphy, *Los Angeles Times*, 10/12/99; Brinckman/Barnett, *Portland Oregonian*, 11/7/99; *Reuters/PlanetArk*, 10/14/99; *WaterPower release*, 10/13/99; *NHA release*, 10/13/99; *NAS release*, 11/5/99; *Greenwire, A National Journal Daily Briefing*, 10/12, 10/15, 11/8, and 11/9/99

Grazing Subsidies Promote Environmental Degradation

"Propped up" by more than $100 million in federal subsidies, cattle grazing in the West is destroying native grassland, streams and some wildlife. But most Americans are not aware of the damage because "hoofprints in streams aren't as dramatic as oil spills," the *San Jose Mercury News* reports. Critics also point out that much of the benefit goes to "Rolex ranchers" such as *Anheuser-Busch Inc.* and *Hilton Hotels*. The top 10% of permit holders control 65% of livestock on Bureau of Land Management land and 49% of livestock on national forest land. John Horning of Santa Fe-based *Forest Guardians* said, "One very small, politically powerful industry is destroying our land. ... But the salt in the wound is that we're paying them to do it."

Many environmentalists say that cattle should be removed from public lands because of damage from overgrazing. But ranchers say most of the harm was inflicted more than 50 yrs. ago and that today the industry is doing a better job of stewardship. Don Hubbs, a rancher and chairman of the *Hilton Foundation* said, "The public has been made to believe that ranchers are anti-environmental...In a few instances, maybe that's true, but in the vast majority it's not. The true ranchers know that once you desecrate the land, you don't have the production from your cattle." Hubbs advises *Hilton Hotel* chairman Barron Hilton, whose ranch "sprawls" over 450,000 acres.

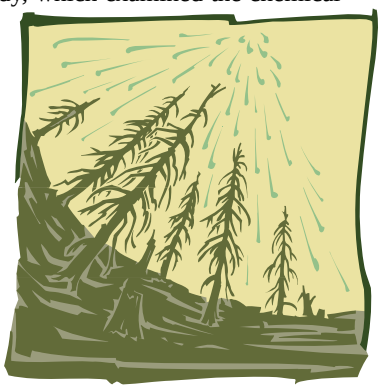
Meanwhile, a 1994 Interior Department study found that while overgrazing has declined, streams still suffer severe damage from grazing. And a report by U.S. Forest Service (USFS) biologists that same year found that grazing is the main reason species are put on the endangered species list in the Southwest. But despite all that, the 9th Circuit Court of Appeals ruled on 8/24/99 that the USFS adequately considered environmental impacts before approving cattle grazing in the Prescott National Forest in northern Arizona. The decision pleased cattle ranchers, but environmentalists counter that "The court did not look at the facts. It just deferred to the agency." The environmental groups argued the USFS classified all grassland in the forest as suitable for grazing without studying the effects on the environment. But the court said the agency considered seven alternatives before issuing its management plan, which allows grazing on 977,00 of the forest's 1.25 million acres

The bottom line is that Western lawmakers have been able to block any changes in grazing policies or increases in grazing fees because of "sympathetic" constituents and the lack of interest in the issue from most Americans. And many bankers have quietly lobbied against change because of the impact it may have on loans that use grazing permits as collateral.

Sources: Bob Egelko, *AP/San Francisco Chronicle*, 8/24/99; Rogers/LaFleur, *San Jose Mercury New*, 11/7/99; and *Greenwire, A National Journal Daily Briefing*, 8/25, 10/12 and 11/8/99

Acid Rain Concerns Linger

Environmental regulations have reduced acid rain but have not yet helped North America's damaged lakes and streams, according to a new study by the USEPA published in the journal *Nature*. The study is the first to show that reductions in sulfur dioxide emissions are directly related to reduced acidity in lakes and streams in Europe and suggests that "the payoff is probably still in the future" for the U.S., which imposed its regulations later. The study, which examined the chemical



properties of 205 lakes and streams across North America and Europe from 1980 to 1995, found that the amount of acidic sulfates entering lakes and streams has declined everywhere, but acidity only declined in Europe and one region of North America that includes eastern Maine and southern Nova Scotia.

Despite the "universal decrease" in the levels of sulfates, scientists said the lingering acidity in most of North America's lakes and streams is a sign that "the path to recovery from acid rain is not going to be as simple or as quick" as they thought. Dr. Gary Lovett, an ecosystem ecologist at the *Institute of Ecosystem Studies* said, "It's sobering news that this hasn't given us the recovery that we might have hoped for. It's going to promote rethinking of our acid rain policies." The study reported that many regions in North America may not be recovering because important compounds like calcium and magnesium, which counteract the acidifying effects of sulfates, were also declining

Despite the declining acidity in European forests (noted above), a report released on 10/7/99 by the *European Commission* and the *United Nations Economic Commission for Europe* says that Europe's forests are still deteriorating, despite measures to reduce air pollution. About 25% of the trees assessed in the survey were rated "damaged," which means they have lost more than a quarter of their leaves, and 40% were in the "warning stage." Pine forests in parts of eastern Europe have recovered gradually, but oak forests in western Europe have deteriorated in recent years. The report said, "The main causes of the vitality losses and damage are air pollution and extreme droughts." The report also found that 20% of soils in Europe are very acidic, with the greatest problem in eastern Europe. Half of the areas surveyed showed increased nitrogen deposits, particularly in western Europe, and there was an overall increase in ozone pollution. Environment ministers are debating proposals to reduce emissions of the gases that contribute to acid rain, one of the main causes of forest degradation

Meanwhile, 7 Northeastern states (CT, ME, MA, NH, NY, RI and VT) asked the USEPA on 10/26/99 to tighten emissions regulations in order to stem the flow of pollutants from the Midwest, and other regions, blamed for contributing to acid rain in the east. The states want the EPA to craft new rules that take into account the toll that acid rain takes on natural resources such as lakes and fish.

Sources: Chris Tomlinson, *AP/Philadelphia Inquirer*, 10/7/99; Carol Kaesuk Yoon, *New York Times*, 10/7/99; *Reuters/PlanetArk*, 10/8/99; *AP/Boston Globe online*, 10/27/99; and *Greenwire, A National Journal Daily Briefing*, 10/8/99

Mountaintop Removal Decision

Mountaintop removal mining operations cannot bury steams under mine wastes and fill, a federal judge in West Virginia said on 10/20/99 in a "landmark ruling." Chief U.S.

District Judge Charles H. Haden II ruled that fills in perennial or intermittent streams violate the federal Clean Water Act and federal and state mining rules. Haden ruled that fills are legal only in "smaller" streams that only flow from rain and snow melt, and ordered the state Division of Environmental Protection (DEP) to cease issuing valley fill permits.

But just a week later, obviously under intense political pressure, Judge Haden criticized the "political" interpretations of his 49-page ruling saying that the impacts of his decision had been exaggerated and that it applies only to new permits. Haden said, "I understand that people are interested in engaging in hyperbole... I do not feel I should anticipate every criticism of what has gone on by issuing a series of clarifying orders." But Ben Bailey, lead lawyer for the DEP, said the agency will not change its interpretation of Haden's ruling. The DEP has ordered active mines to halt their valley fills. According to a 10/98 U.S. Fish and Wildlife Service report, coal operators have been permitted to bury more than 460 West Virginia streams since 1986.

Earlier (9/21/99), a U.S. Office of Surface Mining (OSM) report said that environmental regulators in Kentucky have also repeatedly granted permits for mountaintop removal mining that violated federal rules. The 1977 Surface Mining Control and Reclamation Act requires companies to provide concrete post-mining development plans before flattening hills. But 12 of 13 mountaintop removal permits reviewed by federal investigators allowed post-mining land to be used for illegal fish and wildlife habitat and recreation lands. The OSM report said further that the Kentucky Department for Surface Mining and Reclamation has allowed improper permits since May 1991. The report includes findings of incorrect fill construction procedures and the "side dumping" of coal outcrop dirt. The report said that "The result of these practices is that a greater extent of the watersheds was affected than would have been necessary"

Then on 10/13/99, the OSM issued draft guidelines stating that mountaintop removal mining permits cannot be approved unless coal operators propose post-mining land uses with increased economic or public benefits. OSM regulations require mined lands to be returned to their approximate original contour, but allow for certain exceptions such as development. In its "first formal guidance on the issue in 20 yrs.," the OSM "stood by its demand" that coal companies can't simply propose "fish and wildlife habitat" as the future of mined land. OSM Director Kathy Karpan said there is "consensus" on residential and industrial uses, but that "there have been different interpretations of what qualifies" for agricultural and public use.

The OSM report says further that post-mining land should be used "for a broader range of activities than simply commercial agricultural uses." It discourages "low-maintenance agricultural activities such as grazing and pasture land" and says forestry should only be used if there is a "significant public or economic benefit." Presently, most post-mining sites in West Virginia are left as flat pastures with no development. The proposal would require coal operators to reclaim mined land with soil, and plant native hardwood trees and shrubs to attract wildlife. The goal is to build a biologically diverse forest and to "reverse years of deforestation in the southern part of the state" by requiring coal operators to hire foresters to develop long-term forest management plans. OSM accepted comments on the draft guidelines through 11/13/99.

Meanwhile, Haden has yet to rule on whether coal companies can fill areas in buffer zones within 100 ft. of streams. The *West Virginia Highlands Conservancy*, which filed the suit, praised Haden's earlier ruling, saying it was a "right and justifiable position." The *United Mine Workers* and *West Virginia Coal Association* did not comment. Dan Page, a spokesman for West Virginia Gov. Cecil Underwood (R) said an initial reading of the ruling suggests that it is devastating to the coal industry and the people who work in it, and it imperils the entire economy of West Virginia." A new coal industry study says a ban on mountaintop removal mining with large valley fills would reduce West Virginia's annual coal production by 10%

Earlier, West Virginia's new DEP director had been criticized for being cited numerous times for polluting streams when he was running his own mountaintop removal mine. From 1989-94, DEP Director Michael Castle owned *Big South Mining & Construction Co.*, a small coal contracting company. While his company was the operator for *Laurel Creek Mining* at an 840-acre mine in the southwestern part of the state, DEP records indicate that *Big South* paid more than $17,000 in environmental fines for 17 violations over a 4 yr. period. *Big South's* violations included 5 citations for improper sediment control and 4 for violating water pollution effluent limits. DEP records also show that the mine did not receive an approximate original contour reclamation variance required for mountaintop removal mines. However, Castle says the mine did receive the variance. Rod Blackstone, press secretary for Gov. Cecil Underwood (R) defended Castle saying, "These seem to be typical violations that happen to companies that regularly do mining in West Virginia, and their scope has not warranted Mr. Castle from being employed by federal regulatory agencies"

The impacts of Judge Haden's decision reached the halls of Congress in November when Sen. Robert C. Byrd (D/WV) and the rest of West Virginia's congressional delegation began pressuring the White House to overturn the decision in order to protect jobs and the state's economic health. Byrd also tried to block the decision by attaching a rider to a late-session funding bill. Chuck Fox, assistant administrator of the USEPA, said his agency opposed the rider, citing concerns that it would take away the agency's authority to monitor permits for strip mine valley fills.

Meanwhile, in Pennsylvania, a coalition of environmental and sportsmen groups filed a lawsuit on 10/14/99 in the U.S. District Court in Harrisburg, asking the court to enforce state and federal laws requiring coal companies to post adequate financial guarantees to clean up environmental damage caused by mining. The *Citizens for Pennsylvania's Future* says bonds currently being posted by mining companies only cover a fraction of the true cleanup costs. New rules instituted in early October require all new mine's bonds to cover the full cost of cleanup. But the environmental coalition wants that requirement to include all existing mine permits. The lawsuit names the Pennsylvania Department of Environmental Protection (PADEP) and the federal OSM as defendants. A state and federal review released this summer found that improved methods for evaluating and predicting the potential hydrologic impacts of new surface mining operations have resulted in few severe mine water discharges after reclamation. The review identified less than 3% of the 1,699 mining permits issued by the PADEP between 1987 and 1996 as having current or past post-mining discharge problems. In contrast, post-mining discharge problems were found on 17% of the mine permits issued from 1977 to 1983.

In Colorado, the debate over a proposed mine near Crested Butte, CO, is a battle "pitting the new West against the old," where industries such as mining, ranching and farming are being replaced by recreation and real estate. *Cyprus Amax Co.* wants to mine for molybdenum, used to strengthen steel, on nearby Mount Emmons. The company first proposed the idea 20 yrs. ago, but dropped its plans because of low market prices. However, recent estimates that Mount Emmons contains more than $10 billion worth of molybdenum have renewed the company's interests. But unlike 20 yrs. ago, when it was solely environmentalists protesting the plan, local business and real estate officials have joined the opposition; with environmentalists and local ski resort developers forming an "uneasy truce" to fight the mine. Local officials fear harm will come to the recreation and tourism industry that has taken hold in Crested Butte since the last mine closed 30 yrs. ago; and developers say a nearby mine could cause soaring property values to decline

Ken Ward Jr., *Charleston [WV] Gazette*, 7/23, 8/11, 9/22, 10/13, 10/14, 10/21, 10/28, 11/8; *OSM release*, 10/13/99; Don Hopey, *Pittsburgh Post-Gazette*, 8/10 and 10/14/99; Jim Carlton, *Wall Street Journal*, 8/17/99; *Greenwire Weekly Executive Summary*, 10/18-22/99; and *Greenwire, A National Journal Daily Briefing*, 7/27, 8/10, 8/17, 9/22, 10/13, 10/14, 10/15, 10/28, 11/8/99

Miscellaneous River Issues

Iowa Fish Restitution - Money collected from fish restitution in Iowa will now be used for environmental improvements on or as close as possible to the streams where fish kills occur. The program specifies that the funds will be targeted to the counties where fish kills occur, with the streams sustaining fish kills getting the highest priority for improvements. Streams within the watershed of the impacted stream will receive the next highest priority, followed by other county streams. The change in policy was made possible through an agreement between the Department of Natural Resources (DNR) and the Division of Soil Conservation (DSC) in the Iowa Department of Agriculture and Land Stewardship. Money will be made available to the county Soil and Water Conservation Districts, and to jump start the program, more than $110,000 from the *Iowa Fish and Wildlife Trust Fund (*representing the amount of fish restitution money collected last year*)* is already being made available to the DSC this year for use in 11 counties. Eligible stream improvement practices for which the money can be used include stream bank stabilization, riparian wetland development, fencing livestock from streams, sediment basins, buffer strip establishment, animal waste management systems and in-stream fish habitat structures. Until now, money collected for fish restitution went directly into the *Fish and Wildlife Trust Fund*, but was not specifically earmarked for use on streams where fish kills occurred. "This is a program we honestly wish we never had to use because we would prefer to have no fish kills at all," said DNR Director Paul Johnson. But Johnson said using fish restitution money in the streams that are actually affected by pollution is a common sense approach. "This program will not only seek to improve water quality where problems have happened, but also try to put structures in to prevent more damage from occurring in the future," Johnson said. The program will also avoid providing significant economic benefits to parties responsible for causing a fish kill. For example, money could not be used to help a responsible party establish buffer strips and then receive Conservation Reserve Program (CRP) payments as well. Source: Iowa DNR, Des Moines

Virginia Coal Waste Spill - Federal Judge James P. Jones ordered a Lee County, VA, coal company on 11/1/99 to pay $85,000 in fines and $1.5 million in restitution for violating the federal Clean Water Act. *Lone Mountain Processing Inc*. pleaded guilty to two "massive" coal-waste spills that blackened waterways and killed more than 11,000 fish. Sources: Rex Bowman, *Richmond Times-Dispatch*, 11/2/99; and *Greenwire, A National Journal Daily Briefing*, 11/2/99

Economics of Missouri River Navigation - Commercial shipping on the Missouri River provides little economic benefit to the region and doesn't lower rail shipping rates, according to a report released on 11/17/99 by two agricultural economists – one from Nebraska and one from Kansas. The report, commissioned by the *Environmental Defense Fund* (EDF) is based on a review of existing studies as well as a technical workshop conducted on the issue in Omaha last spring. Dale Anderson, professor emeritus of agricultural economics at the *University of Nebraska-Lincoln*, said the Missouri River is too narrow, too shallow and has too short a shipping season to be an important grain-shipping route such as the Mississippi River. "The costs vs benefits just don't add up in favor of the Missouri being either a major carrier of products up or downstream", he said, "nor do we think it's likely to change significantly in the future." The report by Anderson and Michael Babcock, an economics professor at *Kansas State University*, challenges long-held claims that competition from barge traffic on the Missouri River holds down railroad freight rates in the region. Navigators, barge terminal operators and farmers have argued that the river must be maintained to support barge navigation in order to maintain that edge. Tim Searchinger, an EDF attorney, said the Anderson and Babcock report confirms a 1998 report by Philip Baumel, an *Iowa State University* agricultural economist, that also challenged the importance of barge shipping on the Missouri. EDF also commissioned the Baumel report. Source: Julie Anderson, *Omaha World-Herald*, 11/18/99

Biodegradable Plastic - A new biodegradable plastic made primarily from soy protein could be "an environmentalist's dream." The plastic, developed by researcher Jay-Lin Jane at *Iowa State University*, is "strong enough to hold a *Big Mac* and environmentally friendly enough for U.S. Navy cooks to throw overboard." Tests have shown that the plastic breaks down in the soil within 10-14 days and will dissolve in sea water, which could help the Navy cut down on the pollution it generates. Illinois-based *Soy Works Corp*., which owns the marketing rights to the invention, is developing the plastic for the consumer market. *Soy Works* President Roy Taylor said it could replace as much as 5% of the plastics market and could have "wide-ranging implications for bulging landfills and cash-strapped grain farmers." Taylor said the plastic could be introduced to the public in the form of fast-food clamshell containers, spoons and golf tees by the end of 2000. But he said the toughest sell will be to manufacturers. Taylor said, "Yes, the product may cost them more at first, but they will be paying for a healthy environment." Sources: April Goodwin, *Des Moines Register*, 9/20/99; and *National Journal's GREENWIRE, The Environmental News Daily*, 9/21/99

Canada Water Rights - Although it has 20% of the world's fresh water supply, Canada is not likely to share it. Nothing, it seems, stirs Canada's nationalistic passions more than the prospect of exporting its precious national fluid. U.S. companies have long tried to purchase Canadian water, often invoking NAFTA, but Canadian

officials say water is not a trade-related matter, but rather an environmental one. The government plans to pass legislation this fall that would ban bulk water removal from territorial waters. A joint U.S.-Canada commission endorsed such a ban on 8/18/99. But as the Ottawa government tries to get the provinces in line, "water-rich" Newfoundland could be "the first test of Canadian hydro-nationalism." A local entrepreneur wants to fill a supertanker every 2 wks. with 130 million gallons of lake water. But Tom Osborne of the Newfoundland provincial legislature "predicts that in the coming era of global warming, Canada could become the Saudi Arabia of H_2O." Osborne said, "Water is the commodity of the next century, and those who possess it and control it could be in a position to control the world's economy." Sources: Steven Pearlstein, *Washington Post*, 9/19 and 8/22/99; and *National Journal's GREENWIRE, The Environmental News Daily*, 8/23/99

Judgement on EPA Punitive Action - In a ruling that could affect USEPA enforcement actions nationwide, a federal appeals court has ruled that the agency cannot seek penalties against a company for violating hazardous waste laws if state regulators have already taken enforcement action. The ruling by a three-judge panel of the 8th U.S. Circuit Court of Appeals in St. Louis is the first federal court ruling on the EPA's enforcement jurisdiction in states that have the authority to enforce the Resource Conservation and Recovery Act. *Harmon Industries*, a Blue Springs, MO-based railroad safety equipment manufacturer, reported in 1987 that its employees had dumped hazardous chemicals behind the company's plant. The Missouri Department of Natural Resources agreed not to impose penalties, partly as a reward for voluntarily reporting the violations. But the EPA said in 1991 it "had grown impatient" waiting for state enforcement and fined the company $2.7 million for dumping toxic solvents on the ground from 1973 to 1987. *Harmon* fought the penalty in court, saying the EPA did not have the authority to levy a fine because it had delegated authority to enforce the federal hazardous-waste law to Missouri officials. *Harmon* attorney Robert Payne said on 9/20/99 that the ruling was a "well-reasoned resolution to the question." But Justice Department spokeswoman Cristine Romano said, "The EPA is concerned that this ruling will have a negative impact on the federal enforcement program. It creates doubt whether EPA can assist states in enforcing hazardous-waste cases." And Ken Midkiff of the *Sierra Club* in Missouri said he was concerned "because of the weak enforcement decisions and settlements by the state." Some lawyers following the case speculated that the ruling could affect the way the EPA enforces federal clean air and clean water laws as well. Sources: Michael Mansur, *Kansas City Star*, 9/21/99 and *Greenwire Weekly Executive Summary*, 9/20-24/99

Virginia Wetlands - Nineteen Virginia environmental groups are calling on Gov. James S. Gilmore III (R) to limit wetlands destruction, saying a 1998 federal appeals court ruling has allowed builders to "rapidly drain" wetlands. The court ruled that developers need a permit for filling wetlands but not for draining them. The groups, including the *Chesapeake Bay Foundation*, the *Southern Environmental Law Center* and the *James River Association*, said that since the ruling, Virginia "is fast becoming the number one state in the nation in acres of wetlands drained." They say protecting wetlands is "critical" for protecting waterways, wildlife habitat and groundwater supplies. Attorney General Mark L. Earley issued an opinion in October saying current law does not allow the state to limit the draining. The action is a response to a recommendation by an advisory panel appointed by Gilmore, which says nearly half of Virginia's 1.8 million acres of wetlands have been destroyed by development, farming and natural forces over the last two centuries. The *Citizens Wetlands Advisory Committee* called on the state to spend as much as $134 million over the next 10 yrs. to protect 20,500 acres of wetlands. Sources: Rex Springston, *Richmond Times-Dispatch*, 10/31/99; *Washington Post*, 10/31/99; and *Greenwire, A National Journal Daily Briefing*, 11/1/99

Montana Environmental Ruling - Business groups "voiced alarm" on 10/27/99 over a recent Montana Supreme Court ruling that the state cannot allow activities that could damage the environment. About 50 representatives from Montana business interests gathered for a *Western Environmental Trade Association* meeting to ask state Department of Environmental Quality (DEQ) Director Mark Simonich and lead attorney John North how the ruling will affect their businesses. Tom Daubert, a Helena industry consultant said, "It seems, on its face, nothing can happen unless it's been determined it doesn't violate the right to a clean and healthful environment." Simonich said the DEQ is still examining the ruling, but he believes it could lead to more litigation over environmental permits, and opponents to projects could use it to block business activities. However, Simonich said he does not expect the ruling to require state regulators to re-examine permits already issued. Simonich said the DEQ may seek guidance from the 2001 legislature on enforcement of the ruling. The Montana Supreme Court ruled on 10/20/99 that the state's residents have a constitutional right to a clean and healthful environment. In the first-ever decision dealing with the state constitution's right to a "clean and healthful environment," the court said the provision protects not only real damages, but also anticipated pollution. Justice Terry N. Trieweiler, writing for the court said, "Our constitution does not require that dead fish float on the surface of our state's rivers and streams before its farsighted environmental protections can be invoked." Sources: Erin P. Billings, *Billings Gazette*, 10/21 and 10/28/99; and *Greenwire, A National Journal Daily Briefing*, 10/28/99

Minnesota Refinery Fined - *Koch Petroleum Group* will pay $8 million and plead guilty to violating environmental rules for discharging oil and wastewater at its Rosemont, MN, refinery in the mid-1990s, company and federal officials said on 10/28/99. The company will pay $2 million to the Dakota County park system and $6 million in criminal fines – the largest federal environmental fine in Minnesota history. And Koch said it has reached a tentative settlement with the USEPA to pay a $3.5 million civil penalty. Between 200,000 and 600,000 gallons of fuel leaked into the ground in 1997, some into a wetland near the Mississippi River. The federal government alleges that *Koch* failed to notify the Minnesota Pollution Control Agency (MPCA) in a timely manner after it discovered the leaks. Two company whistle blowers brought the pollution to light by informing the MPCA. *Koch* Executive Vice President Mark Wolff said, "We take full responsibility for our mistakes and regret that these problems ever occurred. We are committed to preventing them in the future and are confident we can." Sources: Dennis Lien, *St. Paul Pioneer-Press*, 10/29/99; and *Greenwire Weekly Executive Summary*, 9/27-10/9/99

Irrigation Ditch Screens - The House unanimously passed a bill on 11/9/99 authorizing $25 million a year to keep endangered salmon and other fish out of farmers' irrigation systems in CA, OR, WA,

ID and MT. Under the bill, sponsored by Reps. Peter DeFazio (D/OR) and Greg Walden (R/OR), the federal government would pay 65% of the cost of screens that local officials would voluntarily build along streams. Farmers and the local officials would pay the other 35%. Walden said irrigation districts must build the diversion systems to comply with the Endangered Species Act. He called the bill a "win-win proposal for the fish and the farmers." The bill authorizes funds from 2001 until 2005. Sources: *AP/Seattle Daily*, 11/10/99; *Journal of Commerce*, 11/10/99; and *Greenwire, A National Journal Daily Briefing*, 11/10/99

LA/TX Spill Crackdown - The USEPA has told 11 refineries and chemical plants in Louisiana and Texas to reduce high releases of hazardous materials that occur through accidental spills. Of the thousands of plants in the EPA's Region VI, which includes AR, LA, NM, OK and TX, the 11 facilities account for half of the releases from accidental spills. When dangerous releases of hazardous materials into the air, water or soil are accidental, the plant is not in violation of its permit. Jerry Clifford, EPA Region VI deputy administrator said, "A facility can be operating in complete compliance with its permits, but the excess emissions during these upsets could still be creating a problem at the local level." Environmental groups say the government should not exempt plants for accidental releases of harmful chemicals. Four groups issued a report in early November saying that Norco, LA-based *Shell Chemical Co.* should compensate neighbors of the plant for spills by paying to relocate them. Clifford is urging the plants to exchange technology and ideas on ways to limit the occurrence of accidental spills. Sources: John M. Biers, *New Orleans Times-Picayune*, 11/6/99; and *Greenwire, A National Journal Daily Briefing*, 11/8/99

Timber Sale Ban - A federal judge in Illinois has issued a ban on all timber sales that were approved without environmental analysis and public input during the past year. The injunction, issued in early October by U.S. District Judge J. Phil Gilbert, would block logging on more than 110,000 acres of national forests. Gilbert ruled that the U.S. Forest Service (USFS) threatened the environment through its use of the "categorical exclusion," a loophole that exempts timber sales of less than 1 million board ft. from public or environmental review. Indiana-based forest watchdog group *Heartwood* sued the USFS, saying the agency used the loophole to bypass the National Environmental Policy Act. Environmentalists said the USFS used the 1992 rule to "avoid costly and time-consuming environmental studies." Kim Davitt of Montana-based *American Wildlands* said the law has allowed "a number of egregious timber sales," including some in fragile ecosystems and areas inhabited by grizzly bears and endangered fish and birds. USFS spokesman Pete Pierce said the agency has not decided how it will respond to the injunction but has stopped work in the affected areas. He "said he was not aware of any instances in which foresters deliberately ignored [environmental] circumstances to process a timber sale." The ruling may force the USFS to conduct environmental reviews on all land exempted by the loophole since 9/16/98. It is expected to affect numerous sales nationwide, although USFS officials in the Northwest say it is not likely to have "major impacts" there because most sales in Washington and Oregon endure "at least an environmental assessment." Sources: *Salt Lake Tribune*, 10/7/99; Michael Pearson, *AP /Cleveland Plain Dealer online/others*, 10/7/99; *Portland Oregonian*, 10/6/99; and *Greenwire Weekly Executive Summary*, 10/4-8/99

Potomac River Fishway - A $2 million fishway being installed into the Potomac River's Little Falls Dam will allow shad to reach upstream spawning grounds. A "fish ladder" was added to the 1,400 ft. dam after its construction in 1959, but the shad refused to climb the "lousy" ladder, and their populations declined. But fishery biologists and river hydraulics experts say the new passageway, a 24 ft. notch in the dam that will slow the water flowing through it, "should work." The federal government is paying 75% of project cost, and Maryland is paying the rest. Environmentalists and recreational fishers are pleased with the expected return of the shad. Several other migratory species, including the rockfish and river herring, will also benefit from the fishway. Sources: David Montgomery, *Washington Post*, 10/12/99; and *Greenwire, A National Journal Daily Briefing*, 10/12/99

Property Rights Judgement - "In a significant environmental ruling," a federal appeals court has ruled that a Florida developer is not entitled to compensation because of environmental regulations that affected the value of his property. The U.S. Court of Appeals for the Federal Circuit in Washington, DC, ruled that Lloyd A. Good Jr. knew at the time of his purchase of land on Sugarloaf Key, FL, that the property would be subject to federal and state environmental protections. In 1990, Good refused to accept conditions for developing the property as laid out by the U.S. Army Corps of Engineers and sued the federal government for a taking under the Fifth Amendment. Senior Judge Edward S. Smith wrote in a court opinion that Good "lacked a reasonable, investment-backed expectation that he would obtain the regulatory approval needed to develop the property," and that "defeats his takings claim as a matter of law." Lois Schiffer, assistant attorney general for the Department of Justice's Environment and Natural Resources Division, said, "The ruling ensures that courts considering takings claims in the future will take a hard look at the reasonableness of a developer's plans in light of federal, state and local environmental protection standards." Good's attorney, Richard R. Nageotte, said the decision "wipes out the property rights guaranteed by the Constitution." He said, "Unless you got the property from the King of England you probably can never prove a reasonable investment". Sources: *Justice Department release*, 9/2/99; H. Josef Hebert, *AP/Miami Herald/ others*, 9/4/99; and *National Journal's GREENWIRE, The Environmental News Daily*, 9/7/99

Nature's Boundaries - Drivers in New Jersey are learning exactly what watershed they are traveling through thanks to new watershed awareness signs unveiled this past June by the New Jersey Dept. of Environmental Protection (DEP) and New Jersey Dept. of Transportation (DOT). The brown and white signs depict a heron in flight with a city-scape on one side of the river and a tree-lined suburb on the other. Underneath, another sign alerts drivers to the name of the watershed they are entering. DEP plans to place these educational watershed signs at all the boundaries of New Jersey's 20 watershed management areas; more than 100 should be

in place by the end of the year. Through the signs and other educational efforts, DEP is fostering a better understanding about the importance of protecting water through watershed management and providing a sense of stewardship and ownership among the public. DOT Commissioner James Weinstein said that the signs are a "new symbol of cooperation" between the two departments. DEP Commissioner Robert C. Shinn, Jr. added that "it may appear DOT and DEP are on different roads, but you find the roads are in the same watershed." Ninety-six individual watersheds and 566 municipalities existing in New Jersey are criss-crossed by some 36,000 miles of paved roads. "Watersheds are nature's boundaries. It is our responsibility as the people of New Jersey to care for and protect our clean drinking water," Shinn said. For more information about New Jerseys Watershed Awareness Sign Program and Public Relations Campaign, contact Colleen Gould, New Jersey DEP Division of Watershed Management, 31 Waldron Road, Allentown, NJ 08501, (609) 633-1179; email: cgould~dep.state.nj us. Source: *Nonpoint Sources News Notes*, 11/99, Issue #59

Rio Grande Minnow Recovery - Biologists say emergency action is needed to keep the Rio Grande silvery minnow from becoming extinct because populations took a "nosedive" this year. Though biologists have known the silvery minnow was disappearing from upstream areas, this year's dramatic decline caught them by surprise. They will consider collecting minnows and moving them upstream, building fish ladders and, as a last resort, building a minnow hatchery to keep the species alive. Compounding problems is the survey's finding that the minnow population is concentrated near the headwaters of the Elephant Butte Reservoir, where the fish are "particularly vulnerable." The minnow was once one of the most abundant fish species on the Rio Grande, but was listed as endangered in 1994. It is one of 9 native fish species still left in the 170-mile stretch of the river between Cochiti Dam and Elephant Butte. Ten other fish species have either gone extinct or are no longer found in that part of the Rio Grande. Sources: Mike Taugher, *Albuquerque Journal*, 11/11/99; and *Greenwire, A National Journal Daily Briefing*, 11/12/99

Subsidy Problems - An end to government subsidies to farming, fishing and energy industries could improve efforts to protect the environment, according to a *World Trade Organization* report released on 10/11/99. In the U.S., the *Environmental Defense Fund* (EDF) said that the 60-year old federal crop insurance program is contributing to water pollution by encouraging farming on millions of acres of the most flood-prone land. Meanwhile, Congress is working on a major expansion of the program. The House recently passed a $3 billion plan without a dissenting vote, and only the "stubborn opposition" of Senate Agriculture Chairman Richard Lugar (R/IN) has kept it from becoming law. Supporters say the federal program does not go far enough because it currently excludes livestock and "specialty crops" such as fruits and vegetables. And its 35% deductible is too high, so farmers in repeatedly hard-hit areas are often unhappy with their reimbursements. But the cheap insurance promotes overproduction of farm land, which contributes to soil erosion and sends pesticides and fertilizers into rivers, environmentalists say. Tim Searchinger an EDF attorney said, "You can't really call it insurance when the government practically gives it away, and now these bills would make it even cheaper. They would use taxpayer money to wipe out habitats the size of Virginia." Some state officials are also concerned with the program. Minnesota says the insurance contradicts the federal Conservation Reserve Program, which is supposed to help them buy up to 100,000 acres of environmentally sensitive farmland to restore wetlands. Kevin Lines of the Minnesota Department of Natural Resources said, "People say, shoot, I can get my insurance for almost nothing. I might as well farm every square inch I've got." Farmers say that until crop prices rebound, they have no choice but to till every acre so they can compensate with volume. Sources: Michael Grunwald, *Washington Post*, 11/7/99; and *Greenwire, A National Journal Daily Briefing*, 10/12 and 11/8/99

Climate Change

Tropical marine environments are likely to be the first casualties of climate change, according to a report by Australian researcher, Ove Hoege-Guldberg of *Sydney University.* Hoege-Guldberg found that most of the world's coral reefs "are doomed to perish" because of global warming. He predicted that reefs in the Central Pacific area may last until 2050, but reefs around the West Indies in the Caribbean "look as though they will be gone by 2020."

Global sea temperatures last year were the warmest in at least 1,000 yrs., according to a worldwide study of 300 reefs. The *Reef Check* study predicted that sea temperatures could increase by another 2^{o} in the next 50 yrs. The report discovered that some corals, which were about 1,000 yrs. old, died as a result of coral bleaching. Some scientists believe this is caused by the warming of sea temperatures related to the El Nino phenomenon. The reefs studied by *Reef Check* also show lower population counts of lobsters, humphead wrasse, groupers and giant clams than in 1997. Plant cells in coral are unable to cope with rising water temperatures. Once they begin to falter, the entire coral system loses its central core and fish that live there eventually starve. Australian *Greenpeace* spokesman Irwin Jackson said, "Coral reefs are now in effect the canaries in the cage, warning the world that something must be done to limit carbon emissions and slow down global warming." John Tanzer of the *Great Barrier Reef Marine Authority* said, "If we don't care about the Great Barrier Reef, we don't care about our future."

Biologists say that pollution and warming temperatures are also putting marine life at a growing risk from a range of diseases. Writing in the journal *Science*, the scientists blame El Nino for not only affecting world climate, but also for helping established diseases find new species to attack. Lead author Drew Harvell of *Cornell University* said, "The combined effects of rising temperatures, human activity and pollution are producing a volatile mix that may threaten tropical corals and temperate species alike." And a study published in the British weekly *New Scientist* found a plant virus trapped in glacial ice cores drilled from sites in Greenland. The entrapment of viruses in ice could mean that under conditions of melt-off, they "may be continually or intermittently released into the modern environment."

According to another study in the journal *Science*, oscillating currents deep in the ocean act as a "global conveyor belt" and may be responsible for the earth's 1,500-year cold cycles,. The study, led by Wallace S. Broecker, a marine geochemist at *Columbia University's Lamont-Doherty Earth Observatory*, offers a possible new explanation to what Richard Alley, a climate expert at *Pennsylvania State University*, called "a fundamental beat to the climate." Determining this beat is crucial to answering the question of whether global warming is caused by natural changes or

human-induced changes in the atmosphere like greenhouse gases. Broecker theorized that changes in the salt content of the ocean's surface drive the deep ocean current, which transports large amounts of heat around the world. No clear-cut link between the conveyor's oscillations and the 1,500-yr. recurrences of cold spells has been established, but Broecker said there is an obvious relationship between the conveyor's behavior and the last ice age, a trend that he says could have continued. Alley said, "We've been pretty lucky, the climate hasn't varied much in 8,000 years. But could the big changes come back?"

According to a study outlined in the journal *Nature*, global warming could, "paradoxically, trigger a global freeze and do it in a matter of decades." Scientists have known for years that North American glaciers melted about 8,200 yrs. ago and flooded the Earth with cold, fresh water. But until now they could not link that event to an ensuing period of atmospheric cooling that occurred for hundreds of years after the melting. In the latest study, the researchers examined evidence of a massive flood in the Hudson Bay region of Quebec and Ontario. Radioactive dating of clams in the flood sediment proved the link between the glacial melt and the temperature drop. If the Greenland Ice Sheet were to melt in the next century because of global warming, the scientists say a similar effect could result.

New computer models that combine historic patterns of the sun and human impact on the climate also suggest the planet could slip into an ice age, a *Cambridge Univeristy* physicist said on 8/10/99. Nigel Weiss told the *UK National Astronomy Meeting* that there is a risk of "catastrophic change" that is more likely to be a tilt into a sudden ice age than a runaway greenhouse effect." Weiss said geological records show that even small changes in solar activity could trigger a backlash, such as the change in ocean circulation mentioned earlier. Weiss said, "If you take a very complicated and unstable system and push it in one direction, it may flip back in the other direction." If this were to happen, Weiss adds, the gulf stream would no longer transport warm water across the Atlantic Ocean to Europe.

Jeffery P. Severinghaus of the *Scripps Institution of Oceanography* agrees. His study published in the September issue of the journal *Science* found that the earth's climate is subject to sudden change under the right conditions. Severinghaus found a new method of analyzing gases trapped in Greenland's ice showing the air temperatures warmed rapidly at the end of the last ice age about 15,000 yrs. ago. Severinghaus said the study detecteda 16° warming within "just a couple of decades." He said the study "certainly gives us pause," adding that "there is a remote possibility that we might trigger one of these abrupt climate changes." Pieter P. Tans of the National Oceanographic and Atmospheric Administration called the study's findings "surprising" and added that scientific caution demands "another piece of evidence to support it."

Australian oceanographers have conducted the world's "most comprehensive" study of rainfall over the oceans and found it had increased by 8% causing vast areas of the Earth's oceans to lose their salinity as global warming increases rainfall over the Southern Ocean and South Pacific. The research team from the *Antarctic Cooperative Research Center* and the *Commonwealth Scientific and Industrial Research Organization's* marine research division compared ocean records taken since 1930 with current records. The team concluded that deep waters in the Indian Ocean, Pacific Ocean and Tasman Sea had become fresher. The findings are consistent with the predictions of global warming computer models, said Nathan Bindoff, a senior oceanographer at the *Antarctic Research Center* at the *University of Tasmania*. But he said the increase in rainfall over the Southern Ocean was about three times greater than predicted. Bindoff said he did not expect any long-term detrimental effects on marine life. The findings are also published in the journal *Nature*.

Global warming will also likely trigger more rainfall in the Pacific Northwest, according to findings by a federally sponsored research group. Philip Mote and his collaborators in the *Northwest Climate Impacts Group* are expected to predict changes in salmon runs, forests, water resources and the coastline of the Northwest during the next 50 yrs. The research team, sponsored in part by the National Oceanic and Atmospheric Administration, is studying regional impacts of global warming. At a presentation to a Washington state Senate committee last spring, the team predicted warmer, wetter winters, flooded wetlands and shrinking forests.

In a new global warming twist, research by USGS scientist John Bratton suggests that climate change could trigger a "dramatic fall" in sea levels. Published in the journal *Geology*, Bratton's report says that with global warming, sea levels will drop because warmer temperatures cause "clathrates," crystals on the sea floor made of ice and gases, to melt. Bratton says the release of methane and other gases trapped in the crystals could cause the sea level to drop as much as 82 ft. And this could offset the sea level rises predicted for low-lying areas of the world. Bratton said, "Almost everyone agrees that hydrates melt when climate warms. The debate is now about whether hydrates may actually drive natural climate warming or whether they just go along for the ride." Although his research suggests "good news" for threatened coastal regions, Bratton warned that the release of methane, a greenhouse gas, could have a "significant effect" in driving further climate change.

On 8/1/99 VP Al Gore released a set of declassified satellite images of the Arctic Ocean that will help scientists study climate change. The images will be used by scientists participating in SHEBA, an international expedition that has documented changes in the Arctic ice pack "consistent with those expected as a result of global warming". Preliminary findings from SHEBA show that the Arctic ice sheet is roughly 5% smaller and one meter thinner than in the 1970s. Gore said, "No place on Earth is more sensitive to global warming than the Arctic, and these satellite images will provide scientists with valuable data for understanding how climate change affects this complex region." Gore criticized Congress for failing to fund programs that he said would save energy and reduce greenhouse gas emissions.

Meanwhile, the "ozone hole" that forms over Antarctica between August and October each year has reappeared and is nearly as large as ever. Observations made with the *Total Ozone Mapping Satellite* (TOMS) show that the area of depleted ozone in the upper atmosphere has reached about 10 million mi.^{2} That makes the hole larger than the U.S., Canada and Mexico combined. Historically, the worst ozone

depletion has occurred at the poles, although it has also occurred above populated areas allowing more of the sun's harmful radiation to reach the earth's surface. An American team of 11 researchers left for Antarctica in September to join teams from 15 other countries who will use the "icy continent" to study climate change. The *International Trans-Antarctic Scientific Expedition*, which is funded by the *National Science Foundation's Office of Polar Programs*, will study hundreds of years of weather patterns to try to predict hurricanes, El Ninos and temperatures. The study is estimated to cost between $1-$2 million/yr. Antarctica (like the Arctic regions) is of particular interest to environmentalists because of the possibility that some of its massive ice cap, which contains about 90% of the world's ice, could melt from global warming. Scientists do not expect this to happen "anytime soon," but there is evidence that global warming is causing glaciers to retreat.

According to a study published in the 10/8/99 issue of the journal *Science*, the West Antarctic ice sheet is melting, but not because of "human-induced" global warming. A team of scientists led by Howard Conway of the *University of Washington* (UW) said the ice sheet's future "may have been predetermined" 10,000 yrs. ago when the boundary between floating ice and ice that reaches the ocean floor began retreating. Conway said, "Collapse appears to be part of an ongoing natural cycle, probably caused by rising sea levels initiated by the melting of the Northern Hemisphere ice sheets at the end of the last ice age". The ice of West Antarctica has receded about 800 mi. during the past 7,000 to 8,000 yrs., and the edge of the ice sheet is shrinking at a rate of 400 ft./yr., according to Conway and colleagues at UW and the *University of Maine*. Two other scientific teams also published reports in *Science* with evidence of a "long-term meltdown" of the West Antarctic ice sheet. Robert Ackert Jr. of the *Massachusetts Institute of Technology* and his colleagues identified how much thicker the ice sheet was 10,000 yrs. ago by studying changes on the surface of a volcano. Conway said most of the melting appears to have taken place during periods of stable climate. Conway said, "What our findings indicate is that it might keep melting no matter what we do about global warming". But the report points out that global warming caused by humans could speed up the thawing process. The researchers' calculated that the Western Antarctic ice sheet could completely collapse in the next 7,000 yrs. Conway said, "Certainly warming up the ocean ...could help the ice sheet retreat more quickly."

Meanwhile, glaciers in the Himalayas also seem to be melting faster, another possible indication of global warming. The result could be devastating for human populations that depend on glacial runoff, experts say. The Himalayan glaciers, which constitute the largest ice field in the world apart from the two polar caps, feed the Indus and Ganges rivers, which carry water to 500 million people in northern India. Crops, drinking water, and village life would be "turned upside down" if the rivers don't flow. A study by the *International Commission for Snow and Ice* says the glaciers in the Himalayas are receding faster than any others in the world and could disappear by 2035. Scientists say there would be an initial period of flooding, which could lead to mud slides. But once the lakes are emptied, rivers would shrink. But some scientists disagree over the actual cause of the melting and what role, if any, greenhouse gases play. Skeptics say it's too early to judge, pointing to the fact that glaciers are always changing shapes and sizes.

Sulfur emitted in the exhaust of large ships may account for almost half of the total amount of sulfur entering the atmosphere, causing a "significant effect on climate" by promoting cloud formation, according to a study published in an August issue of the journal *Nature*. A team led by Spyros Pandis of *Carnegie Mellon University* said the discovery will force "a reevaluation of our present understanding of sulfur cycling and radiative forcing over the ocean." Sulfur emissions were already known to play a large role in the formation of clouds, which help regulate heat exchange in the atmosphere. But the researchers said shipping emissions seem to account for about 14% of the atmospheric effect of all sulfates from human activities. Shipping emissions can also exacerbate acid rain, the researchers said, because about 70% of ocean-going ship emissions occur within 250 miles of land.

Oceans and other carbon "sinks" may not be as effective as previously thought in absorbing carbon dioxide emissions released into the atmosphere, according to a study published the 7/23/99 issue of the journal *Science*. The study, conducted by scientists from the *Woods Hole Research Center* in Massachusetts, refutes the findings of a 1998 study that suggested trees, plants and soil in North America absorbed as much carbon dioxide as the region emitted. Researchers examined the pattern of land-use change in the U.S. from 1700 to 1945 and found that practices such as deforestation and fossil-fuel burning put about 27 million tons of carbon into the air. But since 1945, cropland abandonment, fire suppression efforts and forest growth have pulled out only about 2 billion tons from the air. During he 1980s, changes in land management practices offset only 10-30% of U.S. fossil fuel emissions.

Meanwhile, Bethesda, MD-based *Lockheed Martin* "is planning a massive bombing campaign to combat the threat of global warming" by dropping tree saplings embedded in aerodynamic cones into deforested landscapes. *Lockheed Martin* will convert C-130 aircraft to conduct the bombing raids. Newton, MA-based *Aerial Forestation Inc*. is promoting the plan and hopes to reforest parts of Scotland, Germany's Black Forest and Egypt's Sinai desert.

And finally, *Pricewaterhouse Coopers* and *EcoSecurities Ltd.* have formed a partnership to develop products and services related to climate change and greenhouse gas emissions. Because of the 1997 Kyoto Protocol requiring developed countries to limit emissions to specific levels, *Pricewaterhouse* and *EcoSecurities* anticipate "explosive growth" in the need for advisory services. The companies together will focus on providing financial advice such as the impact of emissions caps on corporations.

Sources: *AP/New York Times*, 7/22/99; Alex V. Pal, *Philippine Daily Inquirer*, 9/7/99; *Newsweek online*, 9/4-6/99; William K. Stevens, *New York Times*, 11/9/99; *BBC online*, 8/18 and 9/2/99; Penny Fannin, *Melbourne Age*, 7/30/99; Tom Paulson, *Seattle Post-Intelligencer, 10/8* and 11/9/99; Clive Cookson, *Financial Times*, 8/11/99; Paul Pecer, *AP/Philadelphia Inquirer/ others*, 10/29/99; Damian Carrington, *BBC News online*, 10/7/99; *White House release*, 8/2/99; Alex Kirby, *BBC Online*, 8/18/99; Mike Recht, *AP/Boston Globe online*, 10/25/99; David Whitehouse, *BBC*, 9/22/99; Malcolm W. Browne, *New York Times*, 10/26/99; *Washington Post*, 7/26/99; Timothy Burn, *Washington Times*, 9/4/99; *Reuters/ PlanetArk*, 9/8/99; and *Greenwire, A National Journal Daily Briefing*, 5/11, 7/22, 7/26, 8/2, 8/3, 8/11, 8/18, 8/20, 9/7,9/8, 9/24,10/14,10/26,10/29,11/5 and11/9/99

Open Access to Science

A law passed last October to make all government-funded scientific research available to the public has "delighted" the *U.S. Chamber of Commerce* because it allows companies to better scrutinize data that prompts policy makers to issue regulations. According to the *Chamber* Web site: "In the regulatory reform arena there may never be a more important issue. ... This would be the first time the business community has ever been provided with the basis for the bureaucracy imposing $700 billion in annual regulatory costs on us." But "alarmed" scientists fear the law could increase "clashes between science and industry."

Critics say Sen. Richard Shelby (R/AL) proposed the amendment to last year's budget bill after *Harvard University* researchers refused to give Congress the results of a two-decade-long pollution study that later prompted a 1997 federal regulation requiring stronger controls on sources of small particle emissions. Kevin Casey, *Harvard's* senior director of federal and state regulations, "called the Shelby amendment a back-door attack on regulations like the emissions rule." He said it will enable Republicans to attack environmental legislation and company lawyers to "harass scientists collecting data" on environmental issues.

But "industry is not uniformly in favor" of the law, fearing it might jeopardize university-industry agreements. The amendment is currently being formulated into regulations by the Office of Management and Budget and will go into effect late this year.

Sources: Philip J. Hilts, *New York Times*, 7/31/99; and *National Journal's GREENWIRE, The Environmental News Daily*, 3/1 and 8/2/99

Science For Sale

"Money, it turns out, can buy scholars as well as politicians," writes David Callahan in a *Washington Monthly* commentary on how large corporations use conservative policy groups. Corporate money has helped fuel the "explosive" growth of state-based conservative think tanks, such as the *Independent Institute*, over the last 10 yrs. For example, some corporations have invested heavily in policy groups that support their campaigns against the 1997 Kyoto global warming treaty. The *Competitive Enterprise Institute*, which has lobbied for the idea that global warming is a "theory not a fact," has seen its budget grow from less than $1 million in 1991 to more than $4 million.

And the corporations often get a "return on their investment." Donating money to think tanks helps "buy respect" for companies, legitimize their viewpoints and spread their message to the public. Think tanks can also advocate views that are not yet accepted in mainstream politics. And the "price tag for this policy work can't be beat" because corporate donations to think tanks are tax-deductible. Callahan said, "There is an urgent need for better counterweights to the corporate propaganda machines that call themselves public policy research organizations."

Sources: David Callahan, *Washington Monthly*, 11/99 issue; *Greenwire, A National Journal Daily Briefing*, 11/12/99

Meetings of Interest

Feb. 3-5: National Whirling Disease Symposium, Coeur d'Alene Resort, ID. Contact: Whirling Disease Foundation, (406) 585-0860

Feb. 8-10: International Conference on Risk Analysis in Aquatic Animal Health, Office International des Epizooties, Paris, France. Contact: K. Sugiura, 011/33-0144-151888, k.sugiura@oie.int

Mar 20-23: UMRCC/LMRCC Joint 2000 Meeting, Holiday Inn, Cape Girardeau, MO. Contact: Gordon Farabee, MO. Dept. of Conservation, (573) 751-4115 or farab@mail.conservation.state.mo.us; or Ted Crowell, KY Dept. Fish & Wildlife Resources, (502) 564-3596 or Ted.crowell@mail.state.ky.us

Mar. 24-28: North American Wildlife and Natural Resources Conference, Hyatt Regency O'Hare, Chicago, IL Contact: Richard McCabe, (202) 371-1808

Apr. 4-6: International Hazardous Material Spills Conference, Regal Riverfront Hotel, St. Louis, MO. Contact: http://www.nrt.org/hazmat2000

May 2-6: AQUA 2000, "Responsible Aquaculture in the New Millennium", Acropolis Convention Centre, Nice, France. Contact: John Cooksey, worldaqua@aol.com

May 21-24: Missouri River Management: It's Everybody's Business, Radisson Inn, Bismarck, ND. Contact: Roger Collins, (701) 250-4492, roger_collins@fws.gov, http:\\infolink.cr.usgs.gov/events/00.htm

July 17-21: EISORS (Eight Internat'l. Symposium on the Ecology of Regulated Rivers) - River Restoration, Toulouse, France. Contact: CESAC/CNRS, 29, rue Jeanne Marvig, 31055 Toulouse Cedex 04, France, Phone: 33-5 62 26 99 60, FAX: 33-5 62 26 99 99, www-cesac.cemes.fr/~eisors

July 23-26: International Congress on the Biology of Fish, Aberdeen, Scotland. Contact: Don D. MacKinlay, Fisheries & Oceans Canada, (604) 666-3520, FAX (604) 666-6894, e-Mail: MACKINLAYD@PAC.DFO-MPO.GC.CA or http://www.fishbiologycongress.org

Aug. 20-24: 130th Annual Meeting of the American Fisheries Society, Adam's Mark Hotel, St. Louis, MO. Contact: Betsy Fritz, (301) 897-8616, ext. 212; bfritz@fisheries.org

Aug. 20: MICRA Paddlefish/Sturgeon Committee Meeting, Adam's Mark Hotel, St. Louis, MO (held in conjunction with the 130th AFS Mtg.). Contact Kim Graham, MO Dept. of Conservation, (573) 882-9880, FAX (573) 882-4517, email: grahal@mail.conservation. state. mo.us

Aug. 21-24: Black Bass 2000 Symposium, Adam's Mark Hotel, St. Louis, MO (held in conjunction with the 130th AFS Mtg.). Contact: David Philipp, philipp @uiuc.edu or Mark Ridgway, ridgwama@pogov.on.ca

Endangered Species Act Amendments

H.R. 3160: D. Young R/AK and 31 cosponsors. Reauthorizes and amends the Endangered Species Act of 1973.

H.R. 3407: J. Saxton R/NJ. Assists in the conservation of keystone species throughout the world.

Environment

S. 352: State and Local Government Participation Act of 1999, C. Thomas, R/WY and H.R. 2029: G. Radanovich, R/CA. Amends the National Environmental Policy Act (NEPA) of 1969 requiring Federal agencies to consult with State, county, and local agencies and governments on environmental impact statements.

S. 481: Environmental Crimes and Enforcement Act of 1999, C.E. Schumer, D/NY. Provides for protection of government employees and the public from environmental crimes.

S. 1066: P. Roberts, R/KS. Amends the National Agricultural Research, Extension, and Teaching Policy Act of 1977 to encourage use of and research into agricultural best practices to improve the environment, and for other purposes.

S. 1090: J. Chafee, R/RI and H.R. 2956: F. Pallone D/NJ and 30 co-sponsors. Reauthorizes and amends the Comprehensive Environmental Response, Liability, and Compensation Act of 1980.

S. 1279: R. Kerrey, D/NE. Improves environmental quality, public use and appreciation of the Missouri River and provides additional authority to the Army Corps of Engineers to protect, enhance, and restore Missouri River fish and wildlife habitat.

S. 1426, T. Harkin (R/IA), T. Daschle (D/SD), P. Leahy (D/VT), R. Kerrey (D/NE), K. Conrad (D/ND), and T. Johnson (D/SD) : Amends the Food Security Act of 1985 to promote the conservation of soil and related resources, and for other purposes.

S. 1622: B. Lincoln (D/AR), B. Frist (R/TN), M. Landrieu (D/LA), T. Hutchinson (R/AR), J. Breaux (D/LA), and R. Durbin (D/IL). Provides economic, planning, and coordination assistance for the development of the lower Mississippi River region.

H.R. 408: C. Peterson, D/MN. Amends the Food Security Act of 1985 to expand the number of acres authorized for inclusion in the Conservation Reserve Program (CRP).

H.R. 525: Defense of the Environment Act of 1999, H.A. Waxman, D/CA. Requires any Congressional provision that reduces environmental protection to: (1) identify and describe the provision, (2) assess the extent of the reduction, (3) describe actions taken to avoid the reduction, and (4) recognize any statement of the Comptroller General in assessing the reduction.

H.R. 728: K. Lucas, D/KY. Amends the Watershed Protection and Flood Prevention Act providing cost share assistance for rehabilitation of structural measures constructed as part of water resource projects previously funded by the Secretary of Agriculture.

H.R. 1836: D. Bereuter, R/NE. Balances the wind and water erosion criteria and wildlife suitability criteria for the 18th CRP signup.

H.R. 3448: J. Greenwood R/PA, C. Dooley D/CA, S. Boehlert R/NY, and E. Tauscher D/CA. Improves management of environmental information and encourages innovation in the pursuit of enhanced environmental quality

Fish and Wildlife

S. 1653: J. Chafee R/RI and 12 co-sponsors. Reauthorizes and amends the National Fish and Wildlife Foundation Establishment Act.

Hydropower

S. 740: L. Craig, R/ID and E. Towns, D/NY. Amends the Federal Power Act to improve hydroelectric licensing processes by granting the FERC statutory authority to better coordinate participation of other agencies and entities, and for other purposes.

Population Growth

H. Con. Res 17: Population Growth Resolution T.C. Sawyer, D/OH. Expresses the sense of Congress that the U.S. should develop, promote, and implement, at the earliest possible time and by voluntary means consistent with human rights and individual conscience, the policies necessary to slow U.S. population growth.

Property Rights

S. 333: P. Leahy, D/VT, H.R. 598: R. Santorium, R/PA, and H.R. 1950: S. Farr, D/CA. Amends the Federal Agriculture Improvement and Reform Act of 1996 to improve the farmland protection program.

S. 1028: O. Hatch, R/UT. Simplifies and expedites access to Federal courts for parties whose rights and privileges, secured by the Constitution, have been deprived by actions of Federal agencies, entities or officials acting under color of State law.

S. 1202: B.N. Campbell, R/CO. Requires a warrant of consent before land inspections may be carried out to enforce any law administered by the Secretary of the Interior.

H.R. 1002: Declaration of Taking Act,, D. Hunter, R/CA. Amends the subject act to require that all government condemnations of property proceed under that Act.

H.R. 1142: D. Young, R/AK. Ensures that landowners receive equal treatment to the government when property must be used.

H.R. 2550: T. DeLAY (R/TX). Compensates owners of private property for the effect of certain regulatory restrictions.

Public Lands

S. 338: B.N. Campbell, R/CO; S. 568: C. Thomas, R/WY and H.R. 154: J. Hefley, R/C. Establish fee systems for commercial filming activities on public lands.

S. 446: B. Boxer, D/CA. Provides for permanent protection of U.S. resources in the year 2000 and beyond.

S. 510: B.N. Campbell, R/CO and H.R. 883: D. Young, R/AK. Preserves U.S. sovereignty over public and acquired lands, and preserves state sovereignty and private property rights in non-federal lands surrounding public and acquired lands.

S. 532: D. Feinstein, D/CA and H.R. 1118: T. Campbell, R/CA. Increases funding to resume state grant funding for the Land and Water Conservation Fund and development

of conservation and recreation facilities in urban areas under the Recreation Recovery Programs.

S. 826: C. Thomas, R/WY. Limits federal acquisition of lands located in States where 25% or more of the land in the State is owned by the U.S.

S. 1049: F. Murkowski, R/AK, and H.R. 1985: B. Cubin, R/WY. Improves administration of oil and gas leases on Federal lands, and for other purposes.

H.R. 488: Northern Rockies Ecosystem Protection Act of 1999, C. Shays R/CT. Special designation of lands in the states of ID, MT, OR, WA, and WY.

H.R. 1199. R.W. Pombo, R/CA. Prohibits expenditure of Land and Water Conservation Funds for new National Wildlife Refuges without Congressional authorization.

H.R. 1207: B.F. Vento, D/MN. Prohibits the U.S. government from entering into agreements related to public lands without Congressional approval.

H.R. 1284: Minnesota Valley Refuge Bill, D. Young, R/AK. Protects the Minnesota Valley National Wildlife Refuge and protected species to ensure that scarce refuge land in and around the Minneapolis, MN metro area are not subjected to physical and auditory impairment.

H. R. 1396: C. McKinney, D/GA. Saves taxpayers money, reduces the deficit, cuts corporate welfare, and protects and restores America's natural heritage by eliminating the fiscally wasteful and ecologically destructive commercial logging program on Federal public lands, and facilitates the economic recovery and diversification of communities dependent on the Federal logging program.

H.R. 1500: J. Hansen, R/UT. Accelerates the wilderness designation process by establishing a timetable for completion of wilderness studies on Federal lands.

H.R. 2222: G. Miller, D/CA. Establishes fair market value pricing of Federal natural assets, and for other purposes:

H.R. 3245: D, Young R/AK and G. Miller D/CA. Establishes a fund to meet the outdoor conservation and recreation needs of the American people; provide Outer Continental Shelf impact assistance to State and local governments; amend the Land and Water Conservation Fund Act of 1965, the Urban Park and Recreation Recovery Act of 1978, and the Act popularly known as the Federal Aid in Wildlife Restoration Act.

Regulations

S. 746: Regulatory Improvement Act of 1999, S.M. Leven, D/MI. Improves the ability of Federal agencies to use scientific and economic analyses to assess cost-benefits and risk assessments of regulatory programs.

H.R. 1864: J. Hansen, R/UT. Standardizes public hearing processes for Federal agencies within the Dept. of the Interior.

H.R. 1866: J. Hansen, R/UT. Provides a process for the public to appeal certain decisions made by the National Park Service and the U.S. Fish & Wildlife Service.

Tennessee Valley Authority

S. 123: TVA Funding Act, R.D. Feingold D/WI. Phases out Federal funding for the Tennessee Valley Authority.

Water Resources

S. 294: R. Wyden, D/OR. Directs the Secretary of the Army to develop and implement a comprehensive program for fish screens and passage devices.

S. 685: M. Crapo, R/ID and H.R. 2456. M. Simpson, R/ID. Preserves state authority over water within their boundaries and delegates states the authority of Congress to regulate water.

S. 1659: C. Burns R/MT and H.R. 2974: R. Hill R/MT. Conveys the Lower Yellowstone Irrigation Project, the Savage Unit of the Pick-Sloan Missouri Basin Program, and the Intake Irrigation Project to the appurtenant irrigation districts.

S. 1762: P. Coverdell R/GA and B. Lincoln AR. Amends the Watershed Protection and Flood Prevention Act authorizing the Secretary of Agriculture to provide cost share assistance for the rehabilitation of structural measures constructed as part of water resources projects previously funded by the Secretary under such Act or related laws.

H. Con. Res. 86: E. Blumenauer (D/OR). Concurrent resolution expressing the sense of Congress regarding Federal decisions, actions, and regulations affecting water.

H.R. 1444: P. DeFazio, D/OR. Authorizes the Secretary of the Army to develop and implement projects for fish screens, fish passage devices, and other similar measures to mitigate adverse impacts of irrigation system water diversions in the states of OR, WA, MT and ID.

H.R. 2984: B. Barrett R/NE. Directs the Secretary of the Interior to convey to the Loup Basin Reclamation District, the Sargent River Irrigation District, and the Farwell Irrigation District, NE, property comprising the assets of the Middle Loup Division of the Missouri River Basin Project, NE.

H.R. 3002: D. Young R/AK. Provides for the continued preparation of certain useful reports concerning public lands, Native Americans, fisheries, wildlife, insular areas, and other natural resources-related matters, and to repeal provisions of law regarding terminated reporting requirements concerning such matters.

Water Quality

S. 20: Brownfield Remediation and Environmental Cleanup, F.R. Lautenberg D/NJ. Directs EPA to establish a grant program for States and local governments to inventory and conduct site assessments of brownfield sites. Defines brownfield sites as facilities suspected of having environmental contamination that could limit their timely use and can be readily analyzed.

S. 188: R. Wyden, D/OR. Amends the Federal Water Pollution Control Act (FWPCA) to authorize use of the revolving loan funds for construction of water conservation and quality improvements.

S. 493: P. Sarbanes, D/MD. Requires the U.S. Army, Corps of Engineers to conduct pilot projects on toxic microorganisms in tidal and non-tidal waters.

S. 669: P. Coverdell, R/GA. Amends the FWPCA to ensure compliance by Federal facilities with pollution control requirements.

S. 914: B. Smith, R/NH and H.R. 828: J. Barcia, D/MI. Amends the FWPCA requiring discharges from combined storm and sanitary sewers to conform to the *Combined Sewer Overflow Control Policy* of the USEPA.

S. 968: B. Graham, D/FL. Authorizes USEPA to make grants to States for water source development to maximize the supply of water and protect the environment through development of alternative water sources, and for other purposes.

S. 1787: M. Baucus D/MT, B.N. Campbell R/CO, and T. Daschle D/SD. Amends the FWPCA to improve water quality on abandoned or inactive mined land.

H.R. 155: Municipal Biological Monitoring Use Act, J. Hefley, R/CO. Amends the Clean Water Act.

H.R. 684: Farm Sustainability and Animal Feedlot Enforcement Act, G. Miller, D/CA. Amends the Clean Water Act.

H.R. 1290: W.B. Jones, R/NC. Amends the FWPCA related to wetlands mitigation banking.

H.R. 1549: P. Visclosky, D/IN. Amends the FWPCA to establish a National Clean Water Trust Fund to carry out projects to restore and recover U.S. waters from damages resulting from FWPCA violations.

H.R. 1578: J. Hostettler, R/IN. Amends the wetland conservation provisions of the Food Security Act of 1985 and the FWPCA to permit unimpeded use of privately owned crop, range, and pasture lands that have been used for the planting of crops or the grazing of livestock in at least 5 of the preceding 10 years.

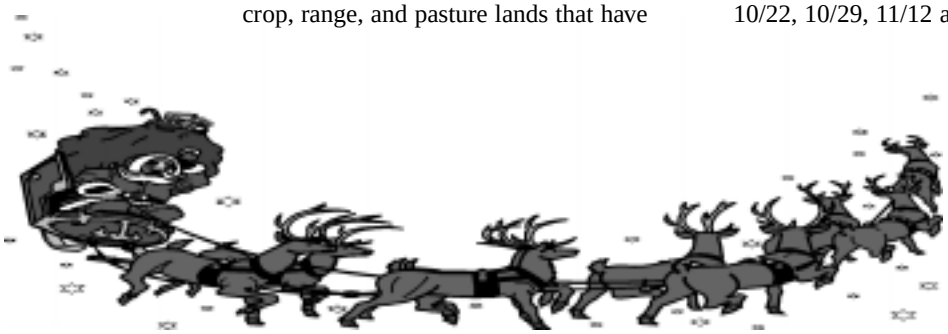
H.R. 1712: B. Stupak, D/MI. Amends FWPCA to authorize an estrogenic substances screening program.

H.R. 2328: J. Sweeney, R/NY. Amends the FWPCA to reauthorize the Clean Lakes Program.

H.R. 2449: C. Norwood, R/CA. Amends the FWPCA relating to Federal facilities pollution control.

H.R. 2957: D. Vitter R/LA and W. Jefferson D/LA. Amends the FWPCA to authorize funding to carry out certain water quality restoration projects for Lake Pontchartrain Basin, LA.

Source: Congressional Affairs Update, USFWS, 6/2, 6/25, 7/23, 9/25, 10/1, 10/8, 10/22, 10/29, 11/12 and 11/19/99



River Crossings

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