

Scientists Oppose Yazoo Backwater Pumping Plant

December 10, 2007

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Dear Administrator Johnson and Secretary Kempthorne:

We write to urge you to take all steps necessary to prevent the destruction of vital wetlands by a project currently being evaluated by the U.S. Army Corps of Engineers (Corps), the Yazoo Backwater Pumping Plant in Mississippi (Yazoo Pumps).

The undersigned are 541 wetland and aquatic scientists and professionals, including 144 Ph.D.'s, from 46 states, the District of Columbia, and seven foreign countries. We have broad knowledge and expertise in wetland ecosystems, including their physical structure, chemistry, and biology. Many of us have written extensively on the ecology, water quality, and biota of wetlands; participated on National Academy of Sciences boards; and led national and international scientific natural resource organizations, including those involved in wetlands.

In 2000, the Environmental Protection Agency concluded that the Yazoo Pumps would drain and damage **more than 200,000 acres of ecologically significant wetlands** in the heart of the Mississippi River flyway. The Corps recently announced that 26,300 acres of wetlands would be drained to the point of becoming non-jurisdictional under the Clean Water Act (FWCA Report 2006). The Corps also announced that at least 40,700 additional acres would see changes in the duration or depth of saturation or flooding. Such changes can produce potentially "massive changes in species composition and richness and in ecosystem productivity" (Mitsch and Gosselink 1993).

Wetland losses at this scale would have catastrophic implications for the ecology of the region and for the fish and wildlife resources entrusted to the care of the Department of the Interior. As noted by the Fish and Wildlife Service, the area that will be drained by the Yazoo Pumps "contains some of the richest natural resources in the nation including a highly productive floodplain fishery, one of only a few remaining examples of the bottomland hardwood forest ecosystem which once dominated the Lower Mississippi Alluvial Valley, and is one of only four remaining backwater ecosystems with a hydrological connection with the Mississippi River" (FWCA Report 2006).

The Lower Mississippi Alluvial Valley has already lost 80 percent of its original wetlands. The majority of those losses have been traced directly to the effects of federal flood control and drainage projects (Department of the Interior 1988). This pattern of abuse must end. The

natural system cannot afford the loss of an additional 26,300 to 200,000 acres of wetlands and the many services that they provide.

The wetlands that would be drained and damaged by the Yazoo Pumps:

- ***Provide vital fish and wildlife habitat.*** Wetlands are some of the most biologically productive natural ecosystems in the world, and are comparable to tropical rain forests and coral reefs in their productivity and the diversity of species they support (EPA 2001). Wetlands allow the development of organisms that form the base of the food web, produce tremendous quantities of food, and provide water and shelter for a host of species. A majority of fish species, one-third of all U.S. bird species, and many species of amphibians are dependent on wetlands. Forty-three percent of species listed as threatened or endangered under the federal Endangered Species Act rely directly or indirectly on wetlands for their survival. Wetlands are particularly important to birds and mammals when they are breeding or migrating. The wetlands that will be drained by the Yazoo Pumps help support the migration of 20 percent of the nation's duck populations. The wetlands that will be drained are also home to breeding Louisiana Black Bears, which are listed as threatened under the federal Endangered Species Act. Researchers have found that in the spring and summer, bears spend 60 percent of their time in forested wetlands and the remainder of their time moving between wetland areas (Newton 1988).
- ***Improve water quality and reduce problems caused by excess nutrient loadings.*** Wetlands help improve water quality by removing and retaining inorganic nutrients, processing organic wastes, and reducing suspended sediments from surface runoff before the runoff reaches open water. For example, wetlands have a tremendous capacity to retain or process excess nitrogen and phosphorus, which helps to reduce environmental problems that are associated with these excess nutrients, including dead zones, fish kills, and algal blooms. Riparian and forested wetlands are particularly effective at trapping pollutants and nonpoint source runoff before they reach streams, rivers, bayous, and lakes (Tiner 2005; Gilliam 1994; Brinson 1993; Walbridge 1993). In recognition of this important value, scientists have recommended substantial wetlands restoration to help reduce the size of the enormous hypoxic zone in the Gulf of Mexico.
- ***Reduce flood damages.*** By acting as natural sponges and reservoirs, wetlands soak up, store, and then slowly release rain, storm water, snowmelt, groundwater, and flood waters. This process both slows the water's momentum, reduces its erosive potential, and reduces flood heights. A single acre of wetland can store 1 to 1.5 million gallons of floodwater (EPA 2001). By contrast, when upstream wetlands and streams are destroyed, streams throughout the aquatic system experience increased flooding due to the loss of water retention upstream (Meyer 2003).
- ***Replenish groundwater and help maintain stream flow during dry periods.*** Mineral soils found at the edges of many wetlands allow surface water to infiltrate into the ground, helping to recharge groundwater (Verry and Timmons 1982). Ground water recharge through wetlands can contribute significantly to recharge of regional water resources, particularly in large floodplain areas with long retention times, and in areas where wetlands have a high perimeter to volume ratio (Weller 1981; O'Brien 1988; Hook et al. 1988; Brown and Sullivan 1988; Taylor et al. 1990; Gosselink et al. 1990; Ewel 1990; Reilly et al. 1991; Brinson 1993; Demissie and Khan 1993). A forested wetland overlaying permeable soil can

recharge 100,000 gallons of water per acre per day (Anderson and Rockel 1991), and other wetlands recharge groundwater at a rate of up to 20% of wetland volume per season (Weller 1981). This is particularly important in the Yazoo Pumps project area where rivers, streams, and bayous are experiencing significant low flow levels during the summer months.

- ***Store carbon which is important for moderating global climate change.*** Many wetlands can store carbon within their plant communities and soil instead of releasing it to the atmosphere as carbon dioxide. This storage can help moderate global climate conditions. Draining, filling, and clearing of wetlands, on the other hand, release carbon dioxide into the atmosphere. “[F]orested wetlands are unparalleled in their capability to take up the carbon-rich gases that are the primary cause of global warming, sequestering significant quantities of elemental carbon while replenishing the atmosphere with oxygen” (FWCA Report 2006).

While effective mitigation for wetland losses at this scale might theoretically be possible, in our experience effective mitigation is ***not*** possible under the typical approach to mitigation carried out by the Corps for its civil works projects. We understand that the “mitigation” plan for the Yazoo Pumps consists of the purchase of conservation easements (or possibly the fee title purchase) on far less than one acre of land for each acre of wetland drained, with no requirement to implement hydrological modifications or to otherwise ensure that the purchased lands are in fact wetlands (FWCA Report 2006). As a result, even if this plan were fully implemented, it could not replace the wetland acreage or functions lost to the Yazoo Pumps.

Even with the most advanced mitigation plan and unlimited resources to implement and monitor that plan, we believe that the Yazoo Pumps project would prevent the Administration from meeting its goal of no net loss of the nation’s wetlands. It would also prevent the Corps from meeting its statutorily mandated “interim goal of no overall net loss of the Nation’s remaining wetlands base, as defined by acreage and function” and the agency’s “long-term goal to increase the quality and quantity of the Nation’s wetlands, as defined by acreage and function” (33 U.S.C. § 2317(a)).

Ecosystems have a threshold character that can preclude predictable analyses of cause and effect. At a certain point, continued assaults or alterations will push the system to what has popularly become known as a “tipping point” which can result in sudden, exponential, or irreversible change (Gladwell 2002). In such circumstances, even a small amount of additional disturbance could lead to catastrophic consequences (Millenium Assessment 2005; Rappaport 1985). Whether the Yazoo Pumps project area is reaching a tipping point is open to debate, but it is clear that the resources in the area are too important to risk finding out.

The Environmental Protection Agency has the authority—and responsibility—under the Clean Water Act to prohibit the unacceptable adverse impacts of the Yazoo Pumps. The Department of the Interior has the authority—and responsibility—to formally refer the Yazoo Pumps to the Council on Environmental Quality. We urge each of you to use all the authorities at your

Stephen L. Johnson, Administrator
Dirk Kempthorne, Secretary
Page 4

disposal to protect the wetlands in the Yazoo Pumps project area and the fish and wildlife that depend on them by putting a stop to the Yazoo Pumps project.

Sincerely,

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Stephen L. Johnson, Administrator
Dirk Kempthorne, Secretary
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Stephen L. Johnson, Administrator
Dirk Kempthorne, Secretary
Page 11

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Dirk Kempthorne, Secretary
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