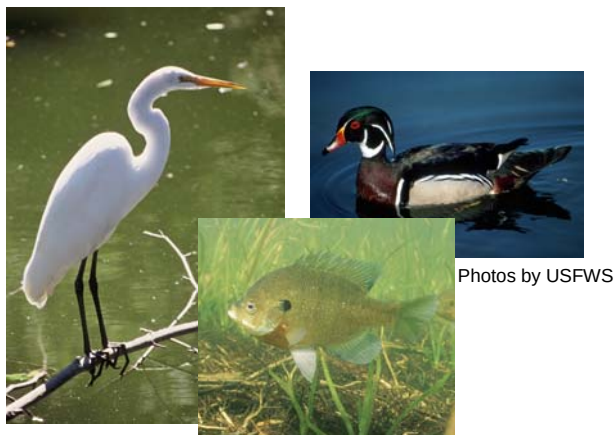
Environmental Contaminants Investigations On and Off Refuges

U.S. Fish and Wildlife Service and Partnering Agencies Complete the Mathews Brake National Wildlife Refuge Contaminants Study

Summary
The U.S. Fish and Wildlife Service, with assistance from U.S. Geological Survey and the Mississippi Department of Environmental Quality (MDEQ), recently completed the Mathews Brake National Wildlife Refuge (NWR) Contaminants Study. The Mathews Brake Study is an offshoot of the Lower Mississippi River Ecosystem Contaminants Study, which investigated chemical contamination at 26 refuges in the Lower Mississippi River ecosystem and was conducted by North Carolina State University from 1995 through 1999. A portion of the study involved collecting about 10 fish from Mathews Brake NWR and analyzing the fish for the presence of organochlorine pesticides. Approximately, 70 percent of the fish contained DDT and toxaphene concentrations that exceeded the level for protection of fish-eating birds and mammals and met the State of Mississippi criteria for posting a "limit consumption" fish advisory. During June 2001, the MDEQ and the Mississippi Department of Health issued a fish consumption advisory for Mathews Brake proper along with lakes and streams throughout the Delta region.

The Service, as a result of the elevated DDT and toxaphene concentrations in the fish samples, was concerned that organochlorine pesticides may be at unacceptable levels in other aquatic-oriented wildlife. In addition, since DDT and toxaphene are known endocrine disrupting chemicals, The Service was concerned that these chemicals were disrupting the endocrine system of fish and wildlife on the Mathews Brake NWR. A study proposal was developed in 2004 to address our concerns and received funding for a three-year study the following year. During 2005 and 2006, fish, wood ducks and great egret tissue samples were collected from the refuge by the Service and partnering agencies, and analyzed for organochlorine pesticides. Fish blood plasma was also collected and analyzed for various hormones and vitelligenin (an egg protein).



Photos by USFWS

Discussion
Surprisingly, the fish, wood ducks and great egrets tissue samples contained DDT and toxaphene concentrations below concern levels. Analyses of fish blood plasma indicated that endocrine disruption was not a problem on the refuge. Endocrine disruption was observed in only one of the 17 fish blood plasma samples. These findings indicate that organochlorine concentrations have significantly declined from the concentrations found in fish during earlier studies. The decline in pesticide concentrations is likely due to a switch to no-till farming on cropland in the watershed of the refuge. Since Mathews Brake NWR receives extremely heavy hunting and fishing pressure, this is good news for people who hunt and fish on the Refuge. The Service's final report recommended the following Measures: 1) encourage landowners in the watershed to install no-till farming practices on their crop land, 2) request that the fish consumption advisory be lifted from Mathews Brake proper, and 3) release study findings in a news release.

For more information please contact:
Lloyd Inmon
U.S. Fish and Wildlife Service
6578 Dogwood View Pkwy. Suite A
Jackson, MS 39213
601-321-1134