Nature Conservancy and Corps' Savannah District

Partner to Restore Savannah River

Do government river managers and a national environmental group working together form an unlikely marriage? Not in Georgia and South Carolina.

Working together to create a balance between man and nature along the Savannah River, the U.S. Army Corps of Engineers, Savannah District and The Nature Conservancy (TNC) developed a partnership in 2002 as part of the nationwide Sustainable Rivers Project. One of 11 projects around the United States, the project builds on the strengths of the Corps and the Conservancy. The project goal is to adjust Corps of Engineers' dam operations to improve downstream ecology while meeting human needs for water.

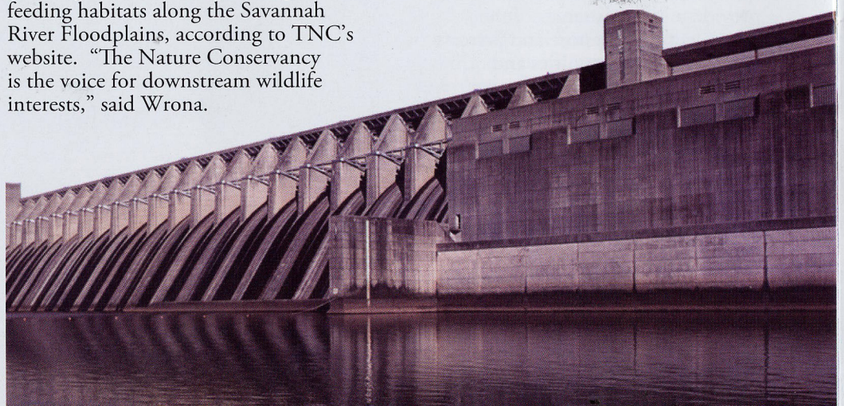
"Our goal is to provide expertise and scientific information to Corps leaders, helping them modify the way they manage dams to better mimic natural patterns of river flow to restore ecosystem health," said Amanda Wrona, aquatic scientist and Savannah River Basin project director for TNC. "The challenge is balancing the need to restore these habitats with the important human needs of the entire Savannah River Basin," said Bill Lynch, Savannah District civil works senior project manager.

The lower Savannah River spans 115 miles, from the base of Thurmond Dam to the Atlantic Ocean, and is home to more than 75 rare and endangered species. According to a study conducted through the partnership, without these natural flow patterns, including natural flooding, the river's forests, wetlands, and downstream estuary cannot maintain their habitats.

"One of the largest effects dams have on rivers is the change they create in natural ecological flows," said Wrona. The natural rise and fall of water levels in the Savannah support endangered fish, such as the shortnose sturgeon and popular sport fish such as the redbreast sunfish and striped bass. Water birds and migratory songbirds are currently suffering from shrinking nesting and feeding habitats along the Savannah River Floodplains, according to TNC's website. "The Nature Conservancy is the voice for downstream wildlife interests," said Wrona.

The Savannah District operates three dams on the Savannah River: Hartwell, Russell, and Thurmond. "J. Strom Thurmond was the first dam constructed by the Corps and was created in response to heavy annual flooding, especially in the Augusta area," said Lynch. "Dams control the river flow to prevent loss of human life and structural damage in Georgia and South Carolina border towns." As time progressed, human uses for the conservation pools continued to grow, including the need to meet hydropower demands, water supply, and water quality requirements. The three Savannah River Dam Hydropower Plants produce an average energy output of 1,922,000 megawatt hours. "This energy output is enough power to meet the electrical needs of 200,000 homes for one year," explained Lynch.

The first of the Corps' dams along the Savannah River, Thurmond dam controls flooding in the Augusta area.



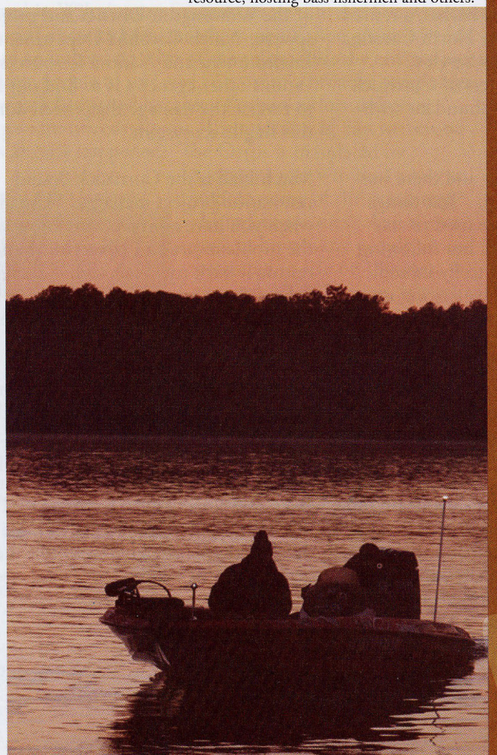
TNC and the Savannah District work in partnership to balance the needs of humans and nature. "We've learned a lot from each other," said Wrona. "The Corps is learning more about the biology of river health, and we are learning a lot about dam operations." TNC personnel from both Georgia and South Carolina as well as expert state biologists from various agencies participate by conducting scientific studies of the river, focusing on environmental restoration. TNC then gathers this information and makes dam management recommendations to the Savannah District to improve river health. The district's experts use these recommendations as guides in their comprehensive study of the river system. "We have the challenge of balancing environmental, hydropower, recreation, navigation, water supply, and water quality needs," said Lynch.

The Corps implemented a portion of the ecosystem flow recommendations so far, according to Lynch. The first includes a series of controlled water releases in the spring when there is adequate winter flood-storage; to mimic natural flooding that would have occurred before the dams were in place. In order to recreate this natural flooding, 25,000 cubic feet per second of water is released from J. Strom Thurmond Dam for a few days in both March and April. "These controlled floods return a seasonal flood pattern to the river, with the ultimate goal of protecting and restoring bottomland forests and estuaries and the species depending on them," explained Wrona.

Scientists hope that spring controlled floods bring positive, immediate and long-term ecological changes for the river, according to Wrona. Seasonal water releases are expected to revitalize a major portion of the 70,000 acres of river floodplain. The increased flow will also have an important economic effect – a flush of freshwater to the river's mouth could cause a boost to Georgia's $22.4 million blue crab, shrimp, oyster, and finfish industry. Fish habitats could be restored because fish are able to return to their historic spawning grounds. It may also aid in reducing parasites in oysters and act as a chemical cue for migratory fish to come up-river to spawn. Long-term, pulsing may support new forest growth in the floodplains and a healthy estuary by delivering nutrients to marsh habitats.

A project delivery team including representatives from TNC and other stakeholders also developed the updated Drought Management Plan that the Corps operates under today. "The new plan keeps the river and lakes fuller for a longer period of time, while conserving or pooling water in the earlier stages of a drought," said Lynch. "As pools drop during drought, we adjust trigger release flows to better meet environmental and human needs," said Lynch. In the midst of a drought in September 2006, the Corps began using the updated plan to manage its dams along the river, resulting in lake levels remaining a foot to one and a half feet higher when compared to the old drought contingency management plan, according to Lynch.

The Sustainable Rivers Project on the Savannah River and conclusions drawn by the partnership's studies act as a dam management model for the rest of the world. A meeting was recently held in China to develop similar dam management practices on the Yangtze River. Scientists from TNC and Corps personnel attended to provide information and share lessons learned with Chinese officials. "The Sustainable River Project on the Savannah is a chance for us to act locally while thinking globally," said Wrona. ▪

by Sarah McCleary
Savannah District

The Savannah River is a great recreational resource, hosting bass fishermen and others.