



THE WOODS HOLE RESEARCH CENTER

149 Woods Hole Road · Falmouth, MA 02540-1644 USA
Telephone 508.540.9900 · Fax: 508.540-9700 · www.wbrc.org

Collaboration Between IBM, The Nature Conservancy, and The Woods Hole Research Center to Address River Conservation

Thousands of decisions are made every day that affect the health and quality of rivers and the people and wildlife that depend upon them. A new partnership will help answer important questions such as: What impact will construction of a new dam have on the water supply of a village downstream? Will clear-cutting a forest in the upper part of a river's watershed imperil fish stocks local people depend on for food? A recently announced partnership between The Nature Conservancy and IBM to conserve the world's great rivers by meshing computing power and science-driven conservation will include collaboration with The Woods Hole Research Center. Michael T. Coe, an associate scientist at the Center, will be involved in the river modeling.

Working through The Nature Conservancy's Great Rivers Partnership, the work will build a new computer-modeling framework that will allow users to simulate the behavior of river basins around the world, helping inform policy and management decisions that conserve the natural environment and benefit the people who rely on these resources.

"Our problem is that we scientists have had many of the tools needed for analysis, but we haven't had the expertise or resources to make them user-friendly," says Coe.

The proposed system will provide access to wide-ranging data on climate, rainfall, land cover, vegetation and biodiversity and enable stakeholders to better understand how policy decisions impact water quality and ecosystem services. The partnership will create three-dimensional visualization and scenario forecasting tools to facilitate more sustainable management of the world's great rivers.

The project will initially be implemented in the Paraguay-Paraná river system in Brazil. The goal over the next two years is to replicate the decision support system in the Amazon River in South America, the Yangtze River in China, and the Mississippi River in the US and eventually other river systems throughout the world.

The Nature Conservancy created the Great Rivers Partnership in 2005 to help guide protection of the world's vanishing freshwater supply and transform the way large river systems are preserved and protected. In addition to the Paraguay-Paraná river basin in Brazil and the Yangtze River in China, the Conservancy's Great Rivers Partnership is currently working to advance conservation of the Zambezi River in Africa and the Mississippi River in the United States.

The system will help decision makers determine the costs and benefits of policies and actions affecting land use and water management. Specific outputs might include "dashboard" readings on the overall health of the river, information on key indicators such as flow levels and sediment loads. By modeling different scenarios, the system would enable users, including farmers and water district managers, to visualize the effect of changes in conditions on freshwater ecosystems and gain first-hand knowledge of how their actions impact rivers and tributaries on a regional and global scale.

IBM's expertise in managing massive amounts of data from multiple sources and providing easy access for a range of users is essential to enabling the research and analysis required to transform freshwater management and develop practical solutions. The company will also offer the raw computing power to store, manage and analyze the massive amounts of data needed to model large river systems worldwide.

"This unusual combination of scientists, conservationists, and computer programmers gives us an exciting opportunity to explore solutions to growing problems of deforestation and climate change," Coe says.

Additional collaborators include the Center for Sustainability and the Global Environment at the University of Wisconsin – Madison.

More information on the [Great Rivers Partnership](#) ».