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Mississippi Meets Yangtze in U.S.-China Rivers Partnership

By Charlene Porter | Staff Writer | 09 September 2013

USGS fisheries biologist Brian Ickes and biologist Xinbin Duan of the Yangtze Fishery Research Institute successfully placed research equipment in the Yangtze in 2009.

Washington — Flowing through the heartland of the United States, the Mississippi River touches many sectors of American life — history, agriculture, industry and culture. China's Yangtze River holds similar influence over its land and people. Scientists who study these vast river basins on different continents are combining their knowledge to better understand how nations can best use vital waters to meet human needs and still sustain the rivers' natural resources.

Exploration and commercial use of the Upper Mississippi began in the United States' earliest years, so geographers have produced two centuries' worth of maps showing the changing course and levels of its waters stretching from the state of Minnesota south to Illinois. Since a 1986 authorization from the U.S. Congress, scientists at the U.S. Geological Survey (USGS) have been systematically collecting detailed data about the vegetation, animal life and water quality of this 2,000-kilometer-long river system. The quantity of data, collected over a prolonged, continuous period, scientists say, exceeds that available on any other river system in the world.

"There's no match around the world I have seen," said USGS research ecologist Yao Yin, who is a member of the scientific team involved in Mississippi River data collection conducted under the Long Term Resource Monitoring Program. This research effort is an element of the U.S. Army Corps of Engineers' Upper Mississippi River Restoration–Environmental Management Program.

Yin is also the USGS scientist assigned to The Nature Conservancy's Great Rivers Partnership (GRP), an effort to share knowledge and best practices with scientists and resource managers working on China's Yangtze River and other rivers.

"There have been many exchanges back and forth and they've been extremely successful," said Michael Reuter, the director of the GRP, which the conservancy founded in 2005 with a lead gift from the Caterpillar Foundation and support from other partners.

Collecting data systematically, comparing variations in the data over time, and understanding how and why changes have occurred are among the skills the U.S. scientists have been able to share with Chinese counterparts.

USGS fish and wildlife biologist Ken Lubinski said, "The exchange is intended to help people 'work the problem,' as my colleague Brian says," quoting Brian Ickes, a USGS fisheries biologist participating in the exchange. "People are trying to fix something and need objective science to make decisions."

On one visit to China, Yao Yin said, U.S. scientists raised questions about the accuracy of a method Yangtze researchers were using to estimate fish populations. On a return visit to the United States, the Chinese scientists saw the Mississippi method of fish counts and "quickly realized," he said, that it could improve the accuracy of their data.

Excessive algal blooms in both the Yangtze and the Mississippi are a common problem that the U.S. and Chinese scientists would like to fix. Caused by excessive nutrient flow into the waters, algal blooms are a nuisance in many large river systems and even a health hazard to humans who use them. Lubinski said scientists on both sides of the exchange are working to better understand algal blooms.

Chinese scientists visit the U.S. in technical exchanges to learn water quality sampling techniques used on the Upper Mississippi River.

Both Yin and Lubinski talked about the Yangtze partnership from their offices at USGS' Upper Midwest Environmental Sciences Center.

In a separate interview, GRP's Reuter said the exchange of methods, ideas and observations is the objective of the partnership to "connect knowledge held by various organizations to help make better decisions for large river systems around the world."

The Mississippi-Yangtze partnership began in 2006 and evolved in 2012 to become an official U.S.-China EcoPartnership between the Conservancy's GRP and China's Yangtze River Basin Fishery Resource Management Committee. This enhanced relationship will lead to greater levels of cooperation among the two bodies for ecosystem protection, fisheries monitoring, resource surveys, fisheries policies, sustainable agriculture and invasive species management, according to the Nature Conservancy.

While sustaining the partnership with Chinese resource managers, Reuter said, the GRP is also reaching out to other major world river systems in South America, Africa and Southeast Asia to establish similar knowledge exchanges.

Lubinski neatly sums up the results to emerge from these partnerships: "We get smarter faster by talking to our colleagues on other river systems."

Still he and Yin say their partnership with Yangtze scientists and river managers goes beyond the science. The time they share working side by side with the same goals gives rise to trust, mutual respect and understanding.

Lubinski tells a story about hosting a dinner for visiting Chinese scientists one evening at his cabin near the Mississippi River, with entertainment by regional musicians who play the songs heard on the river since the 19th century. It was a night they "rolled up the rugs," Lubinski said, so Americans and Chinese could dance to the rhythms that have pulsed down the Mississippi for generations.

To learn more, visit the Great Rivers Partnership website.

KEYWORDS: Great Rivers Partnership, Mississippi, Yangtze, rivers, environment, science, biology, USGS, Nature Conservancy, water management

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