

Water-release method put to test in Texas

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MAP: Man-made flood to take place in East Texas

The water is rising in East Texas, but it isn't from recent rains.

This time, it's man-made in the name of science.

On Thursday, water started being released from the Lake O' the Pines reservoir downstream into one of Caddo Lake's main tributaries, Big Cypress Bayou. By the end of the week, flood conditions are expected in portions of Big Cypress, inundating areas that have been dry for more than a year.

Scientists hope the experiment will be a test model for just about every major river system in Texas.

Experts say the test will help establish a base line for the minimum amount of water flow that will support a stream's natural habitat.

"Caddo is the first to practice this theory, to test this," said Richard Lowerre, president of the Caddo Lake Institute, which was founded by singer Don Henley.

"If we're successful, you will see scientists doing the same thing on the Trinity and the Brazos and every other river system in Texas," Lowerre said. "We'll be asking the question: How do we protect flows for the lakes and for the bays and estuaries for shrimp, oysters and fish? It's a complex system, and it's going to be a complex answer."

Impact unknown

No one really knows what the impact will be.

This is the first time a release has been done with so much real-time monitoring in place -- there was a similar release about decade ago but with far less testing.

It won't be a massive flood that inundates homes, but it should bring higher water levels along the bayou for about 25 miles downstream from Lake O' the Pines, enough to restore water to some low-lying sloughs and channels.

At its peak, the water will be released at 1,800 cubic feet per second. All told, enough water will be released to drop Lake O' The Pines 6 inches. Scientists hope that will be enough to bring a more variable flow of water to Big Cypress, similar to a stream that hasn't been dammed.

Storing water to protect a basin's ecosystem -- called environmental flows -- is being championed by environmentalists, but it could come in direct conflict with the growing thirst of the Metroplex.

"The reality is if you have environmental flows, you're going to drive the need for new reservoirs sooner," said David Marshall, engineering services director of the Tarrant Regional Water District.

"There's only so much water to go around. If it is used for environmental flows, then water has to come from someplace else to replace it."

The Texas Legislature is expected to take up the issue during this session.

'Enough water for people'

Officials hope that the test will help determine whether there's enough water for both the natural ecosystem and Texas cities.

"None of this will happen unless there is enough water for people," said Dick Bartlett, a member of the governor-appointed Environmental Flows Advisory Committee and an honorary trustee of The Nature Conservancy. "It's about having local stakeholders involved and basing your conclusions on science."

The experiment originated at a series of conferences about Caddo Lake in 2004. The U.S. Army Corps of Engineers agreed to it in 2005, but the ongoing drought prevented any releases until now.

"I think we're going to learn a lot of things," said Paul Rodman, chief of the reservoir control section for the corps' Fort Worth district.

"We'll learn what kind of flow it takes to get out of the banks."

Last week, scientists placed pressure transducers along Big Cypress Bayou to measure the height of the rising water.

Though the water won't be noticeable downstream in Caddo Lake, which straddles the Texas-Louisiana line, scientists believe that the flow will affect the entire watershed.

Vital wetland

Caddo Lake, which consists of bottomland hardwood forest and shallow bald-cypress swamp, is considered "a wetland of international importance" by the Ramsar Convention, a treaty that more than 150 nations signed to protect certain wetlands.

Its mazelike corridors of channels and cypress swamps support more than 90 species of fish.

For aquatic biologist Bruce Moring of the U.S. Geological Survey, the floodwater should bring some areas of the bayou back to life.

"There's a low-lying dry oxbow lake that's now cut off from the main channel," Moring said. "These pulses of water should flood this area pretty extensively. We'll be doing a fish survey to see if fish are using this backwater area. We think a lot of juvenile fish will move to this area to mature and feed."

Vegetation invasion

Another goal will be to see the impact on Caddo Lake's baldcypress backwaters. Much of the lake has been invaded by non-native vegetation, and there is hope that the higher flows will flush out some of the unwanted vegetation.

"We'll be trying to get as close as possible to a natural flow regime, like this creek had before there was a dam upstream," Moring said.

Lowerre hopes the research will benefit the entire state, preventing more water fights like the ones brewing between East Texas and Dallas and in Oklahoma with the Tarrant Regional Water District.

"We had a big fight over water in the '60s and '70s," Lowerre said. "Then we had sort of 20 years of it really being quiet. Now it's become frenzied again. Everybody understands we've got limited resources."

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What is happening? The U.S. Army Corps of Engineers started releasing water from Lake O' the Pines on Thursday. The releases are scheduled to increase through Wednesday. The greatest impact will be on Big Cypress Bayou, one of the main tributaries to Caddo Lake.

What do they hope to accomplish? Scientists will study where the water goes and how it affects the ecosystem. They will count fish and monitor vegetation.

Why is this important? It could change the way water is released from all Texas lakes.

What is an environmental flow? It is the amount of water needed to sustain the ecosystem of a stream from its headwaters to the Gulf of Mexico. Scientists say it is crucial to know the minimum amount of water needed for fish and wildlife to survive in a stream.

Could it affect water use? If some water is set aside for environmental flows, then it could mean less water for cities, requiring more conservation or finding more sources of water. Advocates say it can be done without jeopardizing the water needs of Texas cities.

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