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Section D ★★
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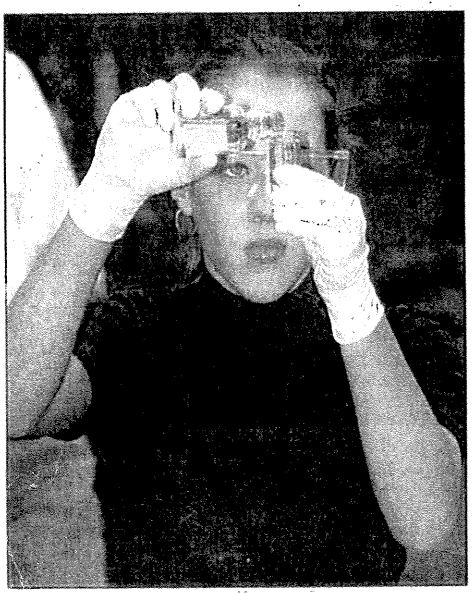
Dateline Texas, **2D**
Where to find us, **3D**

Lake of Learning

Photos by Michael McCarter / Special to the Chronicle

High school science teacher Kennith Winn and his students systematically scoop up muck from the bottom of the lake and count the number of tiny animals living there. If the only species found are those that can tolerate pollution, Winn says, "that's an indicator for a problem."



Kelly McCann, a 16-year-old Marshall High School student, came out to the lake with a team to test for dissolved oxygen, salts, alkalinity and other measurements that can help find fertilizer runoff or other problems. "When they touch it, they learn it," one teacher says.

Quiet Caddo Lake has spawned a new flurry of teaching and research about the role wetlands play in the environment

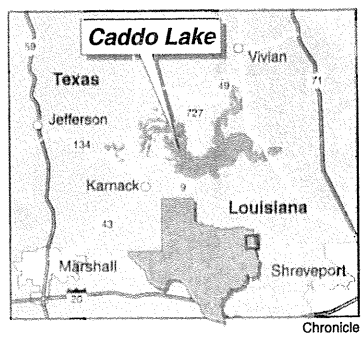
By JIM SCHUTZE
Houston Chronicle Dallas Bureau

CADDO LAKE — This is the kind of place people go to get lost, a hypnotic ghostscape of gray moss and cypress trees in still water.

Almost 30 miles long, spanning the Louisiana state line, Caddo is the only natural lake in Texas, created by ancient earthquakes and logjams in the soggy region where the Red River dips south to find the Mississippi.

To the eyes of a stranger, at least, this does not look like a place to go in order to get plugged in and wired up to the latest trends in global consciousness. But for students and teachers in this part of East Texas — and maybe even for the local business community at some point — that's just what Caddo Lake is becoming.

Public school students in the area have joined sophisticated scientific teams in a program of data collection aimed at determining precisely the status of the lake and the surrounding watershed. One reason for concern is the possibility of groundwater contamination from a defunct Cold War-era munitions plant near the lake.



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A touch of glamour is added to the campaign by the involvement of rock star Don Henley, formerly of the Eagles. A native of the area, Henley has paid for much of the student campaign, as well as for the sophisticated scientific work.

But Henley's own staff in the area insists the

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Caddo

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real romance, for young people, has to do with the discovery of something unique and valuable in their own back yard.

In a few short years, the study of the lake has spawned a wave of enthusiasm for ecological teaching and research in schools all over the Caddo watershed, all part of a sophisticated international program of research tying this region to wetland areas in Kenya, the Netherlands, Papua New Guinea, the United Kingdom and more than 80 other nations around the world.

Consider this: In a part of Texas where 10 years ago people probably looked in both directions before even using an environmentally correct term like "wetland," the school board in one small town on the edge of the lake agreed to convert a practice football field into a man-made swamp for preparing students to study the lake.

Kennith Winn, a gray-bearded science teacher who was the football coach in Karnack when that decision was made two years ago, still winces when asked to explain it.

Standing at the edge of an outdoor amphitheater in Caddo Lake State Park one recent afternoon, Winn shuffled and composed his thoughts carefully.

"Well, that field we used was under water a lot anyway," he said, "and we were hardly ever able to practice over there, so it wasn't that much of a loss to the team."

With money from the U.S. Fish and Wildlife Service, the Karnack school system was able to divert and partially dam a small stream, creating a man-made swamp on the old practice field a block away from the high school. Now when he isn't here at the lake, Winn spends much of his time at the man-made wetland teaching students to make observations and conduct experiments.

The point is to show students how nature heals itself with man's help, how plants and soil clean the water, providing a home for diverse populations of plants and animals. It's an urgent lesson not only for this region, but also for the planet, according to Dwight Shellman, president of the Caddo Lake Institute.

"We need to treat the pollution problems of this region as a glass half-empty, glass half-full," Shellman said. "If we can train people in the region in the science of decontamination, then that's a step toward bringing it up to world-class standards."

For decades the Longhorn Army Ammunition Plant, on a remote, heavily guarded bayou of the lake, cranked out shells and missiles. In the process the plant buried enough carcinogenic industrial solvents in the surrounding soggy soil that it now is a federal Superfund cleanup site. The plant is now closed, but the Army is still there, dealing with the cleanup.

A host of agencies, small institutions and individuals have roles in the awakening of interest around Caddo, many of them spurred by a desire to monitor the Superfund cleanup.

Michael McOrter / Special to the Chronicle

Student observers keep track of Caddo Lake boat traffic. One student sits at the same point on the lake for four hours every Saturday, counting every boat that goes by.

In 1994 the U.S. Fish and Wildlife Service was instrumental in getting Caddo named a wetland area of international significance under a treaty called "Ramsar" after the city in Iran where the treaty was first signed 25 years ago. The designation puts Caddo in an alliance of 775 wetland areas all over the globe, where scientists and teams of student observers share data and make personal connections with each other.

In terms of getting local communities and school systems involved with the lake, the Caddo Lake Institute probably has been the single most important catalyst. "The excitement is hard to describe," said Sara Kneipp (pronounced Kuh-NIPE), director of an institute program called the Caddo Lake Scholars.

In addition to the man-made wetland at Karnack, another teaching swamp has been built next to the high school in Marshall, and several more schools in the area are planning or beginning construction of artificial wetlands, Kneipp said. Several districts have added ecology as a new science course, using curricula developed with help from Caddo Lake group.

Wiley College, a small, historically African-American school in Marshall, has developed a new ecology curriculum in cooperation with the institute and has paired its ecology students studying Caddo with a team of African students studying a wetland area in Kenya. The two teams trade notes and data. Teachers advising the groups have met at international wetlands conferences in this country and in Europe.

The Marshall City Council is talking about launching its own program to promote the area as a center of "ecotourism."

"We want to preserve and protect the lake," Marshall City Manager Tony Williams said. "But we also want it to work for us."

Much of this dramatic turnaround in local feeling can be attributed to CLI's subtle program of recruitment. Under the Caddo scholars program, the institute has been training what it calls "master teachers" whose mission is to teach other teachers the science of ecology.

In effect, the program is able to recruit and train a cadre of ecologically aware teachers and students who then spread out and use their own school districts to spread the word even farther.

But Kneipp is quick to say that the CLI mission is not political, and she even balks at calling her students environmentalists.

"I don't see it that way," she said. "They're being taught science, not an agenda."

Winn of the Karnack schools agreed. "We teach them the science," he said, "and then we leave it up to the kids to go on and make their own decisions."

But there is much more going on at Caddo than the training of young students in high school or undergraduate science. CLI President Shellman, whose office is in Aspen, Colo., has serious scientific ambitions for the institute.

Teams of scientists sponsored by CLI are carrying sophisticated instruments into the lake itself and all over the watershed, gathering data Shellman hopes eventually will show up in scientific journals. When this information is mixed and matched with data collected all over the world at other key wetland areas, Shellman hopes patterns will emerge pointing the way toward "sustainable" uses of the planet.

"We have less than a generation to attain global sustainability before population overtakes us," he said.

Peggy Byassee, a master teacher in the Caddo scholars program, teaches biology and environmental science at Marshall High. On a recent afternoon she paused from supervising a group of students and explained why it is so useful for student to have a hands-on experience at the school's man-made wetland.

"I came to Marshall High School to teach English," she said. "I've had lots of students who chased verbs and never caught one, but they can chop a dead frog into a million pieces."

The school swamp, which looks like a quiet little woodland pond, was built on surplus land behind the school in an area of brambles and junk where the bad kids used to hide out.

"Since we created this area, there has been a diversity of birds and animals and plants that have come in here that we never dreamed of," Byassee said. "The kids recognize that and can make a connection with the birds we see out at the lake.

"When they touch it, they learn it."