




# Deep in the forests

Program works to protect water quality  
through forestry practices

The Texas Forest Service works with forestry professionals to implement best management practices to help protect water quality, which is critical for people and wildlife to survive.  
Photo courtesy of Texas Forest Service.



Deep in the forests of East Texas and scattered in pockets of other parts of the state are more than 12 million acres of commercial timberland. Providing protection for the water quality of the streams, rivers, and lakes throughout these forests is a successful Texas Forest Services (TFS) program.

Through TFS's Water Resources Program, forest service staff members educate forest landowners, professional foresters, harvest contractors, and others about threats to water quality, and provide technical assistance for best management practices (BMPs) that minimize erosion and nonpoint source water pollution in the forests.

"We target a wide range of forestry professionals to encourage and promote forestry BMPs," said Hughes Simpson, program coordinator. "We believe it's everyone's responsibility to protect water quality, so we try to promote these practices to the entire forest sector."

Since the beginning, the forest industry and landowners have supported the adoption of BMPs, and implementation has grown annually. As of December 2008, Simpson said, 91.5 percent of all forestry operations monitored by TFS are following BMPs, representing a 20 percent increase since a monitoring program began in the early 1990s.

The program began in 1989 after the reauthorization of the federal Clean Water Act shifted more attention to nonpoint source pollution programs, Simpson said. Nonpoint source pollution is caused by water moving over the ground, picking up natural and manmade pollutants and depositing them in lakes, rivers, wetlands, coastal waters, and underground water. BMPs offer site-specific practices to control potential nonpoint source pollution.

As part of the program, the TFS and Texas Forestry Association jointly published a 123-page guidebook, *Texas Forestry Best Management Practices*, which gives detailed specifications for more than 60 described practices. Simpson said the book is updated frequently—the latest update was in August 2010—to reflect current research and knowledge of operational methods. A task force with members from state and federal agencies, landowners, academia, foresters, and loggers meets periodically to review the program.

One of the key management practices the forest service recommends is establishing streamside management zones. This entails leaving a buffer strip of trees, preferably 50 feet wide, along both sides of the stream.

"This buffer helps to filter runoff water, to provide wildlife habitat, and to maintain bank stability," Simpson said. "It also maintains internal stream temperatures by providing shade to the stream, which helps aquatic species."

Other recommended practices include using portable or permanent bridges across streams and installing erosion control structures on forest roads, which help minimize the amount of sediment flowing into the water. An example of an erosion control structure, Simpson said, is a water bar, which is a berm of soil installed on the road to divert runoff water from the roadway back onto the forest floor. This slows runoff water and allows the removal of sediment before the water reaches the stream, he said.

For 10 years, Thom Karels, a landowner in Leon County and president of the Texas Forestry Association, has put into place some of the recommended BMPs, including streamside management zones, water bars, and wing ditches, on his 3,300 acres of forests. He follows the BMPs because he wants to keep them voluntary, but he also realizes the importance of protecting the environment and keeping water quality high. "Growing up and living in the country, you appreciate the environment a lot more," Karels said.

The program educates the various segments of the forest industry through several avenues.

The Texas Professional Logger Program, a continuing education program for loggers, includes training on forestry BMPs. Since the training program began in 1995, TFS has trained 3,000 logging contractors on BMPs, Simpson said.

Program staff members also speak to county forest landowner associations throughout the state, he said, providing information and technical assistance on these practices.

"We also install BMPs as demonstrations on some of the state forests, so people can see how BMPs are implemented in the field," he said. ⇒

Texas has more than 23 million acres of forests, most of it in East Texas. Photo courtesy of Texas Forest Service.

Other public outreach includes displays at trade shows and county fairs, highway billboards, and radio and television commercials.

Even with its success, Simpson said, the staff is focused on continually improving the program. Through monitoring, randomly selected forestry operations are evaluated to determine the level that these practices are applied. "Monitoring results provide us with a clear assessment of the effectiveness of our education, outreach, and technical assistance efforts, as well as identify areas that need improvement," said Simpson.

Because of this monitoring, they have developed two additional continuing education BMP-focused workshops on stream crossings and forest roads to address these areas. Every three years, the BMP program publishes a report, *Voluntary Implementation of Forestry Best Management Practices in East Texas*, which describes the level at which BMPs are being applied. Since 1991, the TFS has completed seven BMP implementation surveys. The 2008 survey showed the 91.5 percent level.

The program has also conducted a study designed to measure the effectiveness of the BMPs in preventing nonpoint source pollution. The project monitored and compared the chemical and biological properties of four East Texas streams before and after forestry operations.

"We were looking to see if there were any differences in stream properties before and after these operations," Simpson said. "With the use of BMPs, we found no differences in water quality. Based on these findings, we felt confident in stating that not only are these practices being implemented wide-scale, but they also are effective at protecting water quality."

For more information, visit [twri.tamu.edu/txH2O](http://twri.tamu.edu/txH2O) or visit the TFS's website at [texasforestservation.tamu.edu/](http://texasforestservation.tamu.edu/).

## Texas Forestry Facts:

Computer models predict that each year Texas Forest Service Water Resources Program prevents 91,520 tons of soil from eroding off of East Texas forests and 12,387 tons of soil from reaching East Texas streams. This is enough soil to cover a football field, end zone to end zone, over 30 feet high.

The 77th Texas Legislature passed the Texas Reforestation and Conservation Act of 1999 that provided property tax incentives for landowners protecting water quality by installing buffer strips, or streamside management zones (SMZs), on their property.

The program has won numerous awards including the 1993 EPA Region 6 Regional Administrator's Environmental Excellence Award, 1995 Texas Forestry Association's President's Citation Award, 1998 Texas Environmental Excellence Award, and the 1998 USFS Conservation Education Outstanding Achievement Award.

The new BMP guidebook is available at [texasforestservation.tamu.edu/bmp](http://texasforestservation.tamu.edu/bmp).

*From TFS materials*