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## Researchers link coastal survival to cordgrass

By [MIKE DUNNE](#)  
 Advocate staff writer

PORT FOURCHON — The whine of a gasoline-powered drill mixes with the throaty hum of a laboring tugboat pushing a string of barges down Bayou Lafourche.



Advocate staff photo by Bill Feig  
**Gary Fine, left, of the Natural Resources Conservation Service's Plant Materials Center, gets ready to plant a plug of smooth cordgrass in a dead area in the salt marsh along Bayou Lafourche below Leeville.**

In the distance, the stick-like stilts of jackup rigs and cranes mark the port that services most of Louisiana's offshore oil and gas activity.

After the engines die down, the only sounds are the wind blowing through marsh grass and the coots and cackles of water birds.

There is a problem just beyond the bayou bank's lush green line of plants.

About 75 yards back into the greenery lies one of many dark brown spots left when the marsh died during the summer's drought.

The 3-acre blotch has a little smooth cordgrass edging back into the dead area.

A whining plant-hole drill breaks the silence, being used by biologists from the Natural Resources Conservation Service's Plant Materials Lab.

They plant plugs of cordgrass, the dominant plant in the salt marsh that forms the first line of land along Louisiana's coastline with the Gulf of Mexico.

State wildlife officials flying over the marsh in the summer to survey nutria damage saw something much more startling: Large sections of the coastal marsh were dying. Some areas that were vibrant green months before had become black mudflats.

About 105,000 of the 390,000 acres of central Louisiana coastal salt marshes were affected; 17,000 acres were dead between the Mississippi and Atchafalaya rivers.

Some of the cordgrass is regrowing, but many of the dead areas remain

mysteriously lifeless.

Scientists still aren't sure what caused the die-off.

They initially believed the marsh turned brown because of the drought, but other possible causes include disease or fungi.

As scientists and government biologists checked the brown spots, they occasionally would find a hearty survivor, a little flag of green in the brown-and-black muck.

From 20 of the brown marsh sites across the coast, biologists collected 40 clumps of smooth cordgrass.

"They were really small and scattered," Plant Materials Center Manager Gary Fine said.

During the past year, the center reproduced those 40 clumps into more than 3,500 potted plants of smooth cordgrass.

Workers are planting the "survivors" to see if they will colonize the still-dead areas.

"Genetically, the plants may have adapted to whatever was killing these plants in the marsh. They might have some trait or characteristic that allows them to survive in these conditions," Fine said.

The plants were reproduced through their root systems.

As each stem became a clump, the stems were pulled apart and repotted five times, he said.

Each clump of the survivor stock has a number, and the materials center staff and others will track the success of each plug being replanted in 20-by-25-foot plots.

That will take at least a full growing year, Fine said.

While all the plants might look alike, the survivors represent several different genetic types, just like people.

"Some are short, and some are tall. Some have thin stems and some have thick, robust stems," Fine said.

If all the plants were genetically the same, they could easily be wiped out by disease or a single set of adverse conditions, Fine said.

"We know we have good, healthy plants to start with, and then maybe we can find cause and effect" by seeing which survive, Fine said.

The plot Fine and his staff planted last week is the fourth of nine they plan to restock.

By next spring, they should get their first hint of which genetic stocks may be able to repopulate the dead areas.

The nine sites to be planted include some along Bayou Lafourche, others on the backside of barrier islands and dead spots in Terrebonne Parish.

This winter, the researchers will take some of the 8,000 black mangrove plants grown in a greenhouse in the past year and put them in some of the brown marsh areas.

Black mangroves are hardy plants and did not seem affected by the brown marsh phenomenon.

Mangroves can help hold the mud together and prevent erosion.

The smooth cordgrass planting began in mid-September.

It should take two weeks to a month for the roots to take firm enough hold to withstand winter storms, Fine said.

Mike Materne, a plant specialist who works with Fine, said Louisiana is lucky that this hurricane season has been quiet.

Many of the dead areas would be eroded easily by a strong storm surge, and that land would perhaps be lost forever, he said.

Materne, the National Wetlands Research Center's Karen McGee and LSU researcher Irv Mendelsohn recently completed a survey of 21 sites they monitor for the brown marsh problem.

"We are seeing some positive signs," Materne said Friday.

They initially graded their research areas into three zones: dead; transitional, where plants were yellowing, browning or thinning; and healthy.

"Some of the transitional areas are making a very good comeback, ... creeping into the dead areas, Materne said.

Other areas show no signs of recovery, he said.

The survivor planting is only a small part of a \$230,000 research program looking into how the state can restore some of the brown marsh areas.

That money comes from a \$3 million special appropriation from Congress last year to the National Oceanic and Atmospheric Administration to deal with the marsh die-offs.

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