

THE FIGHT TO RESTORE THE OYSTER

November 13, 2005

Bill Finch, Environmental Editor

Mobile Press-Register

In Mobile, oysters have always been welcomed, fried, stewed or nude. But there's a new recognition that oysters benefit the Gulf Coast long before they meet horseradish and cocktail sauce on the dinner plate.

Increasingly, scientists are describing filter-feeding oysters as the original vacuum cleaners of Gulf Coast waters, citing evidence that healthy populations may have played a major role in keeping bay water clear and clean.

Oyster reefs, once the size of small cities, with shells stacked on shells many feet deep, were the Gulf's first and perhaps most successful breakwaters, slowing the erosion that threatens marshes and bay shores.

State Marine Resources chief Vern Minton even cites research indicating that the intricate nooks and crannies of oyster reefs may be critical to healthy populations of popular sport fish such as snapper, providing young fish with clean, protective feeding habitat available virtually nowhere else in the Gulf.

Many of the Gulf's once-massive reefs - and their far-reaching benefits - were lost in the past century, wrecked by a variety of forces, human and natural.

Now, with the aid of tens of millions of federal dollars and special projects initiated by groups like The Nature Conservancy, there is a new effort to restore oysters, not just as restaurant delicacies, but as the kingpins of a healthier and more productive Mobile Bay and Mississippi Sound.

More than \$4 million in federal oyster restoration money flowed into the state in the aftermath of 2004's Hurricane Ivan. Hurricane Katrina's impact last year attracted almost \$30 million in federal funds for marine restoration projects in Alabama, with a large share of that designated for oyster restoration, according to Minton.

For Minton, the money offers an opportunity for the state to start looking at oysters as something other than a hand-to-mouth commodity. In a single year, the state hopes to expand the area of harvestable reefs by some 500 acres.

Some of the most groundbreaking work in oyster restoration is being developed in Mississippi and Alabama by the National Estuary Program; The Nature Conservancy, a nonprofit conservation group; and researchers at Dauphin Island Sea Lab and the University of South Alabama.

Rather than focusing on producing more reefs designed primarily for harvesting, Nature Conservancy Coastal Program Director Nicole Vickey said her group is capitalizing on the broader benefits of healthy oyster populations.

It's already working in Mississippi.

The Nature Conservancy, in coordination with the Mississippi Department of Wildlife, Fisheries and Parks, has laid the foundation for about 2 acres of new oyster reefs around Bay St. Louis, and 5 acres in Biloxi's Back Bay.

Little more than a stone's throw from the Alabama state line, another series of reefs was planted this fall in the Grand Bay National Estuarine Research Reserve, part of a carefully monitored research project to determine whether oysters colonize the restored reefs as quickly as they do natural ones.

The Grand Bay reefs aren't sited to maximize harvest. Instead, they are designed to imitate the patterns of natural reefs, and stretch narrowly for several hundred yards along the banks of creeks and bayous.

Eventually, Vickey hopes, they will prove useful in creating new fish habitat, improving water quality and helping stabilize shoreline erosion along Grand Bay's highly productive marshes. And because they're not now designated for harvest, Vickey points out that they should be unusually rich sources of the free-floating infant oysters that help keep harvested oyster reefs productive.

The Nature Conservancy is working to extend its efforts across the Alabama line with a grant of about \$275,000 from the Environmental Protection Agency, Vickey said. But the program faces an obstacle it hadn't met with in Mississippi: The peculiar politics of oystering in Alabama.

Something to hold on to

Restoring oysters is not a highly technical process.

It doesn't even require handling a live oyster. In many cases, oysters are exceptional reproducers. Even a small reef can launch millions of microscopic oyster babies - more appropriately called "spat" - into the open waters.

All the spat needs to mature is a hospitable and stable surface to attach to, in a stretch of water that's not too fresh and not too salty, and not excessively polluted. Ironically, in the oyster-rich Gulf of Mexico, such surfaces are few and far between. Most of the Gulf, and virtually all of Mobile Bay, is paved with soft and constantly shifting sands and muds.

In essence, the only thing a struggling young oyster can attach to is another oyster shell. So the population of adult oysters is primarily dependent on how many oyster shells, alive or dead, are lying around in the shallow bottoms of Gulf Coast waters.

Over millions of years, Gulf of Mexico oysters created their own habitat on the backs of other oysters, eventually building monolithic structures that stretched for miles along bays and bayous. Maps of oyster reefs from the 19th and early 20th centuries hint at how extensive these reefs

once were. Only a fraction of those areas remain, and an even smaller fraction is considered suitable for harvest.

Scientists still talk about the impacts of massive dredging of oysters that occurred a few decades ago, when thousands of acres of reefs, many of them probably thousands of years old, were scooped out of Mobile Bay and used for construction and road materials.

Other reefs may have been lost because pollution and siltation kept the reef from growing. Without the annual new construction of living oysters, which build the reefs up faster than they can sink into the soft bottoms, the reefs simply disappear in the muck.

Harvesting oysters for human consumption obviously takes a continuing toll on the number of shells left in the water. Oystermen who control their own reefs often go to great effort to replenish them with spent shells, but until recently, many public reefs were rarely replenished, scientists say.

That's where most oyster restoration programs start - by figuring out ways to get the bulky spent shells from the restaurants and oyster packing houses to be discarded back into the water where they originated.

Recreating larger, multi-acre reefs like the ones in Bay St. Louis and Back Bay Biloxi mostly requires a large source of easily accessible spent shells, a big barge and a lot of horsepower. In open waters, a large quantity of shells is required for even a small area, Minton and other scientists point out, since a scattering of a few shells would be quickly gobbled up by the soft bottoms, long before it could be built up by live oysters.

Smaller shoreline reef restoration projects, like the one in Grand Bay, can be handled a sack at a time in smaller boats - though it usually involves a lot of grunting from a lot of volunteers.

Vickey points out that in a matter of weeks, the dead shells can become a living reef. Less than a month after cages of oyster shells were placed at Grand Bay, the button-sized beginnings of new oyster shells were already evident.

Organizing such efforts requires significant time and money, Vickey said. And finding an appropriate spot to put them requires significant research and careful monitoring of results, so that restorers know how to design better restoration projects for the future.

Oysters established in waters that stay too salty will be wiped out by oyster drills, parasitic marine snails that attack and kill oysters; in waters too near a freshwater outlet, the oysters will be vulnerable to a host of other problems. And even though the best oyster habitat is usually in the shallow waters near to shore, waters too shallow will make them vulnerable to exposure and freezing winter temperatures.

Oyster politics

But the primary impediment to oyster restoration doesn't appear to be money or technology.

The obstacle no one likes to talk about is the dilemma posed by Alabama's regulation of oyster harvests: The state simply can't afford to police a large number of oyster reefs, particularly if they're not suitable for harvest, Minton said.

Because oysters are filter feeders, they can serve as a reservoir for some pollutants. State health laws prevent oyster harvest in areas known to be polluted. As a practical matter, state health officers and marine police, strapped for cash and personnel, have restricted oyster harvests to areas already known to be productive and clean. Until recently, Minton said, there's been little effort to determine whether there are other areas that could be suitable for harvest.

And, Minton added, if new reefs are established, state conservation officials would prefer to have them in areas where they can easily be opened for harvest rather than in areas where the primary benefits are shoreline stabilization, water improvement and fish habitat.

"We try to plant in areas where we can get good production from the reef and where people can make money off of it," Minton said. "We've not planted anything just to create habitat."

Minton said the state has also not looked favorably on attempts by other groups to establish new oyster beds in the state. The fear, said Minton, is that those habitat reefs eventually might be highly successful, producing so many oysters that oystermen can't resist harvesting them, even though the areas haven't been approved for harvest.

"We've had groups come to us who want to plant in Weeks Bay," Minton said. "Those areas are closed to harvest. If they establish a great oyster population there, then you may have an attractive nuisance. You've got people who are going to be drawn in there, harvesting them and selling them locally."

Still, Minton said, he recognizes the many benefits of expanding oyster reefs, even in non-harvestable areas, and is hopeful that the fresh infusion of federal dollars will allow the conservation department to come up with some new solutions to the old dilemma.

"We've never had enough funds where we could venture out. With this, we do have the funds," Minton said. "What I'd like to see is more of these areas sampled, then we could say, 'Hey, we've got an area that could be opened' and get a good return on more areas."

Minton said that work has already been started by a graduate student working with marine biologist Bob Shipp at the University of South Alabama, and he's hoping to expand their efforts. Sean Powell, who is coordinating Dauphin Island Sea Lab's effort to restore oyster reefs, said that the politics of oystering remain one of the toughest challenges he has faced as he has attempted to use \$2 million in federal funds designated specifically for improving oyster habitat.

The small-scale "oyster gardening" program sponsored by the Mobile Bay National Estuary Program has so far managed to steer clear of the politics by focusing on a narrow niche near the mouth of Fowl River, on reefs that are not being harvested, said director David Yeager.

But Grand Bay, where Vickey's Nature Conservancy team has been working, may provide one of the less controversial areas for launching pilot habitat restoration programs in Alabama.

Unlike Weeks Bay, which sits in the heart of south Baldwin County's development boom, Grand Bay has seen relatively little development of its shores and feeder streams. As a result, many scientists believe that the human pathogens associated with sewage discharge shouldn't be as big of a concern there.

Nevertheless, the program may not go forward unless state health officials are willing to add the area to their list of regularly tested waters, regardless of whether it supports a harvest.

Once those oysters become established and do their work, even somewhat polluted areas may once again become clean enough for harvest. In some cases, the increasingly upward expansion of the reef itself may be all that's needed to overcome some pollution problems.

Many areas, for example, can't support a harvest simply because oxygen levels are often very low near the bottom of many Gulf waters, as Minton notes. But older, taller reefs simply build a way out of that problem, lifting the newer, living oysters into the upper levels of the water column, where oxygen levels are much higher.

Vickey - having already dealt with vandalism in Mississippi - said she fully appreciates the tough job state conservation and health officers face in supervising new reefs.

But oysters may provide the most benefit in areas now marginal for harvest, she said, simply because they're such an important ingredient in maintaining healthy marine waters.

Vickey also notes that the federal and private money she spent was available only for habitat restoration, so her projects don't compete for funds that could be used for harvestable reefs.

"We're thrilled," Vickey said, "to be working so closely with the Mississippi marine resource managers, and hope to be doing the same in Alabama. It could be a great opportunity for us to work together to make sure our children and grandchildren enjoy the food, clean water and good fishing reefs provide. "