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Where Oysters Grew on Trees

By ROWAN JACOBSEN and MICHAEL BECK

NOT long after the first European explorers encountered the Gulf of Mexico, word filtered back to the Continent that along this warm, exotic coastline, oysters grew on trees.

This caught the European imagination. Imagine a place so abundant that the oysters grow on trees! There was even a kernel of truth to it: the trees in question were mangroves, and in Florida oysters indeed did grow on their roots in the tidal zone. More often, the oysters thrived at the margins of the seemingly limitless marshes that stretched to the horizon, perched between sea and sky.

There was also a second, more important truth underpinning this tale: the gulf really was a paradise of abundance. Where else do you have a river the size of the Mississippi draining a region as fertile as the Midwestern heartland into a well-enclosed body of water as warm as the Gulf of Mexico? This is why the gulf has continued, despite the damage we have done to it, to produce marine life at astonishing rates. With its bounteous populations of mollusks, shrimp and finfish, the gulf holds one of the best supplies of health food on the planet and has been a natural engine of prosperity.

Key to the gulf's productivity are its marshes, the nurseries of the sea. Fed by the regular supply of sediment washed over them by the Mississippi and its distributaries, the marshes have built up over 5,000 years into the vast network of estuaries we know today. Tucked safely into its marshes, sea-grass meadows, oyster reefs and other critical habitats form the base of the marine food chain.

We think of fish as living throughout the oceans, but most of the action happens close to shore where the food is. Indeed, 97 percent of the commercial catch of fish species in the gulf depends on its estuaries and their nursery habitats for survival. To take just one example, the gulf's famous shrimp — which account for 73 percent of the nation's total harvest and hundreds of millions of dollars in dockside revenue alone — lay their eggs in the open gulf, but then their hatched

larvae head for the estuaries, where they live in salt marshes until they are ready to return to the open water as adults. No salt marshes, no shrimp. No estuaries, no fish.

The animal most responsible for maintaining the integrity of these estuaries is the oyster, which provides much more than New Orleans's most delectable appetizer. Oysters occur in great abundance in the gulf's shallow coastal waters. By gluing themselves to each other's shells, they create reefs — much like coral reefs — that literally hold the coastal ecosystem together.

Oyster reefs form a living breakwater that protects the soft marsh shorelines from erosion and storm damage. They also serve as the condominiums of the sea, providing intricate habitats and hiding places for many small and juvenile creatures at the foundation of the gulf food web. Studies show that the commercial value of the gulf's oysters (more than \$60 million dollars per year, about 67 percent of the nation's total) is easily surpassed by the commercial value of the fish that need these reefs.

There are few other places on earth still like this. Worldwide, 85 percent of oyster reefs have been lost.

<<http://www.nature.org/initiatives/marine/features/art28549.html>>

They are the single most imperiled marine habitat. The oyster reefs of the gulf are not merely the best in the nation; they are the best in the world, a global treasure. Yet some 50 percent to 90 percent of the gulf's oyster reefs have been lost, and that was before BP's oil spill.

The marshes, too, are in sharp decline. The Mississippi River levee system, completed after the Great Flood of 1927, helped control flooding by shunting much of the river's water deep into the gulf, but it also robbed the marshes of the sediments they need to replenish themselves. The thousands of miles of canals dug through the wetlands by the oil industry in its search for new reservoirs further eroded the marshes. A football field of land disappears into the gulf every half hour. The fastest-shrinking area is the Barataria-Terrebonne estuary, west of the Mississippi River Delta, which has been hit hard with oil from the Deepwater Horizon.

Paradoxically, before the oil spill, scientists had come to a consensus that the only place on earth offering a realistic opportunity for oyster reef restoration on a scale that could support a truly sustainable fishery was the Gulf of Mexico. But there had never been the political will for such a project. Now that the spill has brought such attention to the Gulf Coast, perhaps we can agree to the kind of national response that has been needed for so long.

Just cleaning up the spill will not be sufficient. Federal, state and

local governments have written many plans for restoration of the gulf, beginning even before Hurricane Katrina, but none were intended to do more than slow the losses. We should get off the defensive and come up with a winning vision of coastal restoration.

The work would start in the Mississippi River Delta, where we need to re-engineer levees to divert a portion of water flow so that the valuable sediment can spill out of it. When done properly, such diversions can be carefully controlled to have little impact on shipping or flood control.

It's a tremendous undertaking, though: large-scale marsh restoration requires scores of barge and backhoe operators, as well as engineers, to create the diversions, distribute the sediment, grade the marsh banks, and maximize the inlets and channels that make a healthy, productive marsh. (What matters to estuarine creatures like shrimp is not the total area of the marsh — shrimp can't travel inland — but rather the amount of habitat on the marsh's edge.)

As for the oyster reefs, we need to think of them as an investment: rebuild the natural capital and harvest only the yearly interest, leaving the principal untouched. Crews will be needed to load and haul oyster shells and to manufacture artificial reef blocks that create the base of new reefs. Many of these workers, and the small-business owners who will support the effort, would be the same people whose jobs have been destroyed by the spill.

An example of such oyster reef restoration began April 5 off Mobile, Ala. A \$2.9 million grant that was part of the Obama administration's stimulus package is paying for the creation of 1.5 miles of oyster reefs, which will protect 30 acres of sea-grass beds and two miles of shoreline. The project has already created 35 jobs, as workers fabricated concrete and steel frameworks to serve as the foundation of the new reefs, then carried the new material by barge and put it in place, along with many tons of oyster shells, at the project site.

How much would it cost to do this on an ecosystem-wide scale? Before Hurricane Katrina, the initial price tag for restoring the Mississippi River Delta was \$17 billion, and given the damage of the storm and oil spill, it would be vastly more expensive today. But in the long run, the benefits would outweigh the tremendous outlay.

And the spill gives us some new options for financing the project. The White House and Congress are considering increasing the fees paid into the Oil Spill Liability Trust Fund [<http://www.uscg.mil/npfc/About_NPFC/osltf.asp>](http://www.uscg.mil/npfc/About_NPFC/osltf.asp) by all oil companies on each barrel of oil produced in or imported to the United States. As of

now, money from the fund is used to cover only direct damages and cleanup costs, not past damage associated with the extraction and shipping of natural resources. Any increases in the fees should also include provisions to support a long-term coastal restoration fund.

It would be the kind of smart government intervention that creates jobs, lifts the economy and improves quality of life. The long-suffering people of the Gulf Coast deserve no less.

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