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Facing Continual Challenges, Oysters Need Our Help

By Linda Walters
UCF Forum columnist
Thursday, February 14, 2013

Most of us either love to eat oysters or think that pond scum might actually taste better. While I can't stomach them raw, roasted oysters with cheese, bacon and wine are a delightful treat after a hard day at work.

In addition to humans, many species on our planet rely on oysters for food. These range from threatened/endangered wading birds such as the wood stork, to blue crabs, to the fish that help make Florida one of the world's recreational fishing capitals.

Knowing that so much of our aquatic biodiversity relies on shellfish, I am sad to report that researchers say more than 85 percent of shellfish reefs have disappeared from our planet – and they need our help. In addition to the loss of this food source, shellfish play many other important roles in nature; these roles are so essential that scientists consider oysters to be a keystone species (the most important species in a habitat), as well as ecosystem engineers (the structure built by their shells significantly alters water flow in the habitat). Juveniles of commercially important fishes and shrimp hide from their predators among the nooks and crannies within oyster reefs.

Oysters also filter water – a lot of water. Scientists estimate that each oyster filters 50 gallons of water each day. That equates to about a bathtub's worth of water filtered by each oyster each day! And if that isn't enough – oysters help attenuate waves to protect our shorelines from erosion.

There has been a stream of interesting news reports suggesting that oysters could have stopped the devastation brought on by Super Storm Sandy in 2012. While no 4-inch-tall oyster could have stopped a 10- to 20-foot wall of water associated with this hurricane, what oysters can do for shorelines is thwart day-to-day erosion that is the result of natural and anthropogenic sources.

My research lab has been quantifying how much wave energy is attenuated by fringing oyster reefs. The numbers are very impressive with shell alone reducing the wave energy created by recreational boat wakes by 19 percent, and year-old live oysters reducing the wave energy hitting the shoreline by 45 percent. And the wave energy reduction is cut well over 50 percent if you plant marsh plant and mangroves landward of the oysters, as these plants are very good at trapping and binding sediments with their root systems.

But in many areas, unfortunately, I've found that humans' love of eating oysters is much greater than their concern about the ecosystem services provided by oysters. Where this happens, overharvesting occurs and this has wiped out many oyster populations.

Oysters are also challenged by many additional variables. Scientists around the globe are urgently studying how oysters respond to changing salinity associated with freshwater diversions, water quality, invasive species, and sea-level rise. A new challenge came to our bivalve friends in July when Mosquito Lagoon on the east coast of Central Florida was hit with one of the worst-ever brown tides. Caused by the microscopic alga *Aureoumbra lagunensis*, the water became muddy brown in color, and numerous fish kills were reported. The brown tide lasted well into November.

I have been asked by dozens of people, "Did the oysters survive?" We are currently conducting our annual monitoring in these waters and I am happy to report that Mosquito Lagoon oysters survived the brown tide. Our data shows plenty of new oyster recruitment during this window as well as survival of adult oysters.

This survival is a huge relief because we have been very invested in oyster reef restoration since 2007 and we are very proud of the 58 reefs we have restored in Mosquito Lagoon. We are even more proud to state that in collaboration with Brevard Zoo and The Nature Conservancy, we have mustered the help of more than 30,000 volunteers to date. With the brown tide abated (at least for now), we are gearing up for another big season of oyster and shoreline stabilization. And, as always, we need more help. So, if you are interested in volunteering, contact me or the Oyster Restoration Coordinator at Brevard Zoo, Jody Palmer, and let's see what we can get done together this year.

Finally, I also am frequently asked: "Am I against harvesting?" My response is always: "Absolutely not." But there are right and wrong ways to do everything. For oysters in any bay or estuary, it should be possible to create a sustainable harvesting-management

plan. Since oysters do not move, we can account for them much easier than we can count swimming finfish. It also means we can remove all individuals much more easily.

What to do? We must set aside enough productive reefs as sanctuaries to make sure that there will always be oysters around to create the next generation – as well as provide human lovers of oysters with their favorite treat.

UCF Forum columnist Dr. Linda Walters is a biology professor at the University of Central Florida and director of the UCF Fellers House Field Research Station in Canaveral National Seashore. She can be reached at Linda.Walters@ucf.edu.