

The end of oysters on the half-shell?

I LOVE OYSTERS. Raw with lemon, or fried. And although I'm not a political fan of his, I do love Oysters Rockefeller. We had very little in our home as I grew up, but on rare Friday dinners, my dad would bring home a dozen oysters and mom would make oyster stew. Each of the four children would get one oyster, and I thought it was a delicacy.

Actually, it was.

Oysters have been specialty items on the menu and in our homes for hundreds of years. Those sumptuous platters of foods eaten by the aristocracy of the Roman Empire always included oysters. Oysters were, and are, big business. In the mid-1800s, as we were fighting the Civil War, 120,000 workers dredged oysters in and around Great Britain.

At that time, we had huge intertidal oyster reefs all along the James River in the Chesapeake Bay.

By the end of World War II, those reefs were all but gone. Our appetite for oysters was voracious. We picked and shucked so many oysters that in some areas of the country, roads were paved with oyster shells.

Live oysters create their

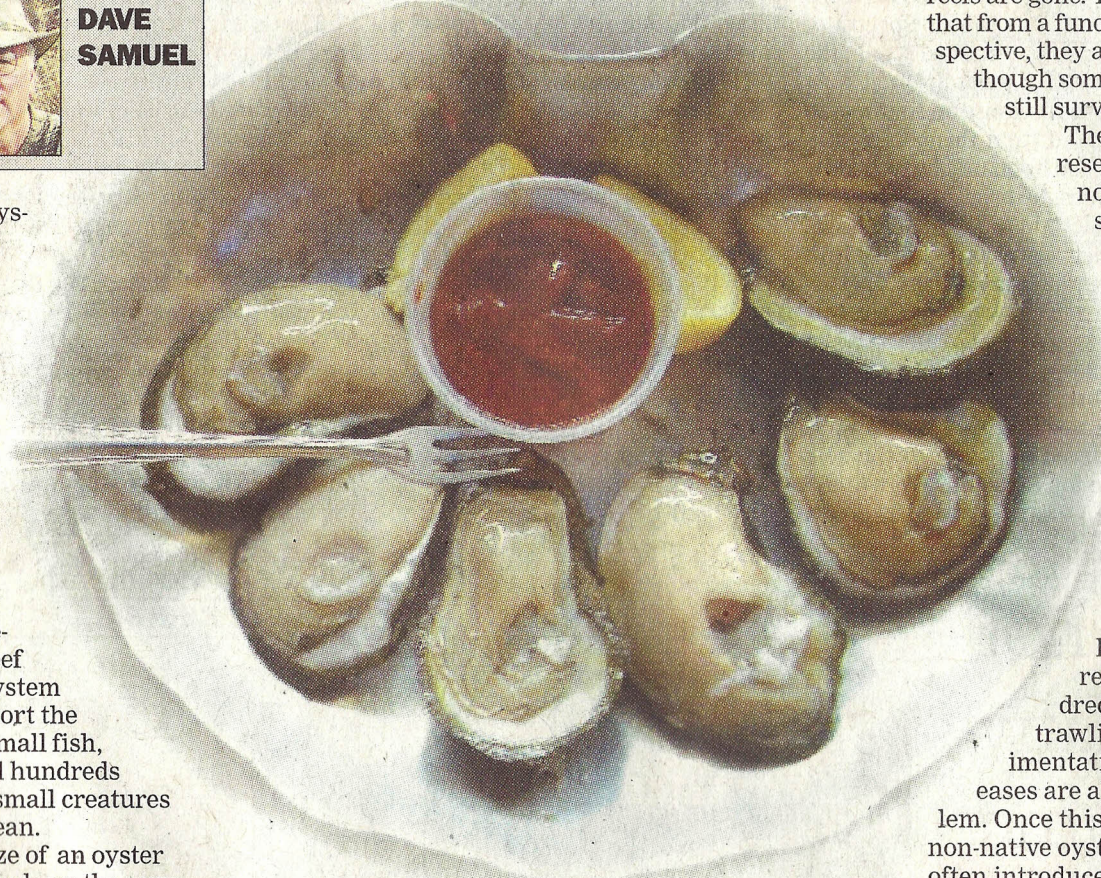
own ecosystem. New oysters grow on the beds of old oyster shells. Baby oysters settle on the old shells and grow there, creating a reef and ecosystem that support the lives of small fish, crabs and hundreds of other small creatures of the ocean.

The size of an oyster reef depends on the number of living oysters. The more oysters, the larger the reef.

But when you harvest all the oysters, you remove what would have become the growing reef, and without that reef, no wild oys-



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ters. Actually, it doesn't happen overnight. Humans over-harvest a reef, and year by year, the size of that reef decreases, sometimes to extinction.

Recently, a paper was

Web photo

published in the journal *Bioscience* in which researchers followed oyster reef data from 140 bays around the world. They looked at the condition of oyster beds and reefs globally and found

that 90 percent of all former reefs are gone. This means that from a functional perspective, they are extinct, though some oysters still survive there.

The researchers noted a sequence of events that led to this decline. First, an extensive harvest of wild oysters results in a loss of reef structure. Often this

loss is a result of dredging and trawling, but sedimentation and diseases are also a problem. Once this happens, non-native oysters are often introduced and released into the wild or escape from nearby aquaculture producers. This often leads to a big increase in disease problems for the wild oysters.

Here's a brief description of how oysters repro-

duce. When the eggs are released from an oyster and fertilized with sperm, the developing larvae settle on oyster shells to grow. These developing oyster larvae are called spat. This deposition of fertilized eggs can be done by humans. Once they become the size of spat, they are released into oyster shell beds, where they attach to artificial structures or to oyster shells and grow to maturity.

As we continue to pollute our oceans and dredge the oyster reefs, wild oysters will suffer. There are several examples where wild oyster populations increased manyfold in one area during a short period of years, only to see it plummet to extinction because of the lack of protection for the reef itself.

Put-and-take oyster farming is one thing, but protecting oyster reefs is critical to the future survival of oysters. Only then will we have a guarantee that we can continue to order oysters on the half shell.

DR. DAVE SAMUEL is a retired wildlife professor and writes the "Know Hunting" column for *Bowhunter* magazine. Visit his website, knowhunting.com.

Dear Dr. Samuel,

Your article “The end of oysters on the half shell” was of interest. We also love oysters and believe that they should be more available to your readers. Aside from the table qualities, we recognize the role that oysters play in structuring ecosystems within our estuaries throughout the world. These “ecological services” provided to our estuaries encourage support of efforts to sustain large populations of oysters in our waters. Oysters clear up the water column by filtering large quantities of bay water each day; they remove the nutrients, resulting from land run-off that is choking our estuaries, by consuming the plankton that bloom as a result of these nutrients; and they provide complex protective habitat for a wide variety of our coastal aquatic species, including many that your readers probably target as they go fishing along our coastline. It is clear that the oyster is an extremely important creature in the complex ecosystem that constitutes our bays and waterways. This is in addition to the economic importance that oysters have provided to our coastal communities as well as the enjoyment many of us get from consuming them. We need to protect and enhance oysters wherever we have the opportunity to do so.

As you mention, the current plight of wild oysters in the world is dire at best. For a wide variety of reasons, our global oyster populations are declining and with them go all of those important services that they provide to the ecosystem. As a result, we have impacted estuaries that are struggling to survive the onslaught of human-based alterations to the waters. We agree completely in the need to support efforts to reestablish oysters in our coastal waters. However, you manage to include a few common misperceptions about the plight of our oysters that need to be cleared up.

First, you suggest that a common response for depleted oyster resources is the intentional introduction of non-native oysters and/or introductions of escapees from local oyster farms. While the introduction of a non-native oyster (Suminoe oyster - *Crassostrea ariakensis*) was considered to replace our native American oyster (*Crassostrea virginica*) in Chesapeake Bay, this was a proposal that was met with intense scientific scrutiny that resulted in the rejection of the proposal after careful study. Since the 1970's, the intentional introduction of exotic organisms has been considered a serious action and one that is layered with state, federal and international requirements that need to be addressed before it can happen. Unfortunately, the introduction of the Suminoe oyster got caught up in a media hype that far exceeded the reality of whether this could happen or not. Non-native oysters are not considered to be a solution to our current loss of oyster beds.

Nor is there an issue with aquaculture producers. Actually, oyster aquaculture may be one component of a solution to our current state of estuarine degradation. Oyster aquaculture utilizes the same oyster to what is growing in our wild oyster beds, only the oyster farmers seem to be far more successful at growing oysters than Mother Nature is, at this point. So, contrary to what you suggested in your article, there is no risk of exotic oyster introductions from the oyster farmer. Furthermore, having oyster farmers growing large numbers of juvenile oysters in a body of water replaces many of the functions of wild oysters that were mentioned above. Farmed oysters filter the water, remove nutrients via consuming plankton, offer complex habitat, provide economic return, and allow our watermen to continue many of the cultural traditions of their watermen predecessors, just like the farmed oyster's wild counterparts. While oyster farming may seem to

be a new concept, it is steeped in hundreds of years (thousands, actually) of knowledge and action that allows us to be successful in replacing the services of wild oysters in our waters. At the same time, it is providing us with ample opportunities to enjoy those half-shell oysters that you fear are going away with the demise of the wild oyster beds.

We also take exception to your implication that farmed oysters “leads to a big increase in disease problems for the wild oysters.” Oyster pathogens are ubiquitous, wherever there currently are oysters you will find pathogens; similar to wherever you currently find humans you will find colds, flu, measles, mumps and a host of other afflictions. Farmed oysters harbor pathogens the same as wild oysters (none of which are harmful to humans) but the difference is that the farmer is likely to harvest the aquacultured oyster from the ecosystem before it becomes a sick and dying oyster . This practice removes the pathogen source from the environment before the oyster can succumb to a disease and subsequently release more pathogens into the waters to infect another oyster. Also, in most states, any oyster moved from one location to another requires a veterinary-certified health inspection to minimize the risk of moving pathogens from site to site. A well managed oyster farm is a minimal risk for spreading disease within a water body and less so for spreading disease across water bodies.

While we couldn't agree more with your conclusion that wild oyster beds should be protected and enhanced, we are equally as supportive of oyster aquaculture as a means to produce food for consumers, to provide a resource for the management of our coastal waters and to offer economic return and jobs for a maritime-based industry that is environmentally benign and sustainable.

Lastly, please Dr. Samuels, we encourage you and others in the media to find multiple credible sources of information before writing pieces that are critical of aquaculture activities.

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