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Testimony
Before the Committee on Resources
United States House of Representatives

Hearing on the status of the eastern oyster (*Crassostrea virginica*) and the petition to list the eastern oyster as endangered or threatened under the Endangered Species Act

July 19th, 2005

As way of background information, Cowart Seafood Corp. operates one of the largest oyster shucking-packing businesses in Virginia. We have been in the oyster business since the early 1900's and I have been intimately involved in all aspects of the industry for the last three and a half decades. I have witnessed the oyster population in Virginia rise and fall with changing environmental conditions.

Through the mid 1980's, oysters were an ecologically and commercially viable species. However, after 1986 oysters were less plentiful, but not absent from the Chesapeake Bay. Drought conditions, coastal run-off and pollution have all contributed to oscillations within oyster abundance. Certainly commercial harvests have oscillated in response to oyster abundance. For example, one year thousands of bushels of oysters may be harvested but then fewer oysters may be caught in subsequent years. Despite an apparent "false commercial extinction", oysters were still present in the Bay during these less abundant years. One thing is for sure, oystermen still tried to catch oysters but environmental conditions changed the Bay's ecosystem. In the short term oysters are highly sensitive to environmental conditions, yet in the long term resilient to these changes. They have survived in the Bay for millions of years because of their ability to adapt over evolutionary time. Oysters have not gone extinct over these evolutionary time scales enduring massive changes to their environment.

More recently, say within the last half a century, the Bay has changed once again due to coastal and watershed-level development, oyster parasite proliferation and pollution. This shift in the Bay's inputs has caused the oyster population to remain at a low abundance compared with historic levels. However, oysters have not been able to adapt and will not be able to adapt to these changes that have occurred in the last half century because of deforestation, run-off, and reduced repletion of surface groundwater that eventually flows into streams feeding the Bay. Proponents of this petition may blame over-harvesting as the causative agent for this decline, however, commercial-scale oyster harvesting has not occurred in the Bay for the last twenty years. Why hasn't the Bay's population of oysters recovered? The answer is that oysters are not the problem they are the solution. The actual problem that needs to be addressed is poor water quality caused by pollution and run-off. Unfortunately, this petition targets the solution and not the problem.

I strongly oppose this petition to list the eastern oyster, *Crassostrea virginica*, as an endangered or threatened species. The following is a list of reasons, from an industry perspective, of the negative impacts if the eastern oysters were to be listed:

- Loss of irreplaceable industry infrastructure, primarily large shucking houses and aquaculture operations. Once these businesses are lost it is too expensive to re-purchase waterfront land and acquire or rebuild oyster houses and sorting operations. The Virginia oyster industry provides \$50,000,000 in annual sales and employs 1,000-1,500 workers.
- Continued degradation of oyster beds. The industry works hard at maintenance of their oyster beds by "turning over" shells to remove sediment build-up thereby allowing oyster larvae suitable substrate to settle.
- Loss of recovery/replenishment/restoration initiatives fostered by collaborations with industry, governmental agencies (state and federal), scientific institutions, special interest groups and the public. The state of Virginia is committed to oyster restoration through reef building, creation of oyster sanctuaries, and repletion efforts.
- Loss of private companies planting oyster shell and seed oysters to increase population abundance and encourage oyster larval settlement. For example, in any one-year Bevans Oyster Company and Cowart Seafood in Virginia have planted 100,000's of bushels of shells on existing oyster beds and millions of seed (juvenile) oysters struck on shell in the hopes of restoring oyster populations.
- Local and state economies would suffer because of the loss of jobs and economic multipliers such as purchasing of packing materials, fuel, ice, and transportation.

I challenge and oppose this petition based on the observations I have made in my own backyard, the Chesapeake Bay.

Virginia state regulators and scientific institutions have documented oyster settlement in the Bay for years and juvenile oysters are plentiful during this fall survey post reproduction. However, these oysters die and do not reach market size, so subsequently, the layperson assumes oysters are “going extinct”. This assumption is false. Oysters are present in this ecosystem, maybe not as abundant as other regions, but *C. virginica* certainly exist. The actual reason these juvenile oysters do not survive to market size is because of disease proliferation and pollution induced-mortality.

Due to low salinity market size oysters survived in the James River and Tangier Sound ecosystem just this past year and a limited basis fishery was opened temporarily. Although just a short commercial harvest was realized this is clear evidence that oyster populations survive when localized environmental conditions are favorable. This has been a rare event in the past. Essentially, we have not had commercial-scale harvests (~1 million bushels) in the state of Virginia for the last 20 years or more. The petition alludes to the fact that a moratorium of harvesting oysters would solve the problem, however, we have essentially been under a moratorium and oysters have not recovered. For example, in the Rappahannock River oyster beds from the Whitestone Bridge to the mouth of the River has been closed for commercial harvest since 1992 and despite extensive repletion efforts oyster abundance has not recovered. This clearly demonstrates that over-harvesting is not the reason oyster populations have not recovered and implementing a harvest moratorium is going to nothing to increase oysters in the Bay.

I would also like to address the issue of subspecies of *C. virginica*. I understand that NOAA/NMFS will be examining mitochondrial DNA sequences to determine if certain regions constitute subspecies. This seems to be very subjective. It is my understanding that mitochondrial DNA sequences can be “picked apart” to the very last individual gene and marker, however, the fact remains that oysters within the native range (Gulf of St. Lawrence to Gulf of Mexico and south through the Caribbean to the Yucatan Peninsula) are of the same genus and species. I would further challenge the determination as a subspecies because interstate transplanting had taken place for decades. I personally know of several companies in Virginia that bought thousands of bushels of mature Louisiana and Delaware Bay oysters and planted them in the Chesapeake Bay during reproductive seasons. This planting of mature oysters means that billions of sperm and egg are released into the Bay and most likely competent oyster larvae will result. The Virginia Department of Health now prohibits the planting of Gulf coast oysters but mature Delaware Bay oysters are legally planted in abundance in Virginia each year. Certainly, some hybridization and interbreeding occurred over time. In addition, breeding programs at scientific institutions in the Chesapeake Bay region have worked for years with oyster strains taken directly from Louisiana and Delaware Bay waters. These oysters were selectively bred with native Chesapeake Bay oysters in the hopes of accomplishing transfer of disease resistant genes. Several industry members in Virginia were part of studies involving the field performance of these experimental oysters, in most cases these were planted adjacent to wild stock Bay oysters. A reasonable person would have to assume that over the course of years and years of experiments and hundreds of thousands of test oysters deployed for up to three growing seasons, some degree of hybridization and interbreeding occurred.

The federal register stated “the petition expresses concern about the proposed introduction of the exotic Asian oyster, *Crassostrea ariakensis* because it could result in the extinction of the eastern oyster through competition and hybridization...” which I believe is poor use of the Endangered Species Act as this does not belong in a petition as a reason to list a completely different species. The petitioner is clearly opposed to this non-native introduction however this is not the proper forum to accomplish his objectives. In fact, the petitioner has not been complete in his research as the documented literature clearly states that *C. virginica* and *C. ariakensis* (= *C. rivularis*) only develop to 7-day larvae but do not hybridize (Allen, S.K., Jr, P.M. Gaffney, J. Scarpa, D. Bushek. 1993. Inviabile hybrids of *Crassostrea virginica* (Gmelin) with *C. rivularis* (Gould) and *C. gigas* (Thunberg). Aquaculture vol. 113. pp. 269-289).

Finally, I would point out that the petition seems to concentrate on the Chesapeake Bay region, however that is one small geographical area compared to the vast oyster ground available in the Gulf coast states and Atlantic coast states. By all accounts, the Gulf coast population is healthy, reproducing and abundant yet is completely ignored in the petition. The Gulf coast region makes up a significant portion of the eastern oyster industry and native range but ironically, this information is missing in the petition.