Nonnative Oysters in the Chesapeake Bay

Statement of

James L. Anderson, Ph.D.

Co-chair of the Committee on Nonnative Oysters in the Chesapeake Bay

Ocean Studies Board/National Research Council/The National Academies

and

Professor, Department of Environmental and Natural Resource Economics

University of Rhode Island, Kingston

Robert Whitlatch, Ph.D.

Member of the Committee on Nonnative Oysters in the Chesapeake Bay

Ocean Studies Board/National Research Council/The National Academies

and

Professor, Department of Marine Science

University of Connecticut, Groton

before the

Subcommittee on Fisheries, Conservation, Wildlife and Oceans

Committee on Resources

U.S. House of Representatives

October 14, 2003

Good morning Mr. Chairman and members of the Subcommittee. Thank you for this opportunity to speak to you about the proposed introduction of the nonnative oyster Crassostrea ariakensis. Our names are James Anderson from the University of Rhode Island and Robert Whitlatch from the University of Connecticut and we are members of the committee that recently released the report Nonnative Oysters in the Chesapeake Bay, the culmination of a study conducted with the oversight of the NRC's Ocean Studies Board. As you know, the National Research Council is the operating arm of the National Academy of Sciences, National Academy of Engineering, and Institute of Medicine, and was chartered by Congress in 1863 to advise the government on matters of science and technology.

The oyster stock in the Chesapeake Bay has declined dramatically. Harvest is now about one percent of what it was at the end of the 19th century. Fishing pressure and habitat degradation resulting from agricultural, industrial and residential pollution, deforestation, and oyster reef destruction have contributed to the decline. In recent decades, however, the diseases MSX and Dermo have been identified as the core reasons for further decline. It should be noted that MSX is caused by a parasite that was introduced to the East Coast from Asia. Fisheries management efforts and various restoration programs have not been successful in restoring the oyster stock to date. The loss of the oyster has been devastating to the oyster industry and its dependent communities. Those that remain in the Chesapeake oyster-processing sector

now rely on oysters that are brought in from the Gulf of Mexico region and other areas for their economic survival. Furthermore, the loss of oysters has contributed to declines in water quality and clarity.

The introduction of the non-native Suminoe oyster, or Crassostrea ariakensis, from Asia has been proposed as a solution to these difficult problems. Indications are that it may grow well in the Chesapeake and it is known to be resistant to MSX and Dermo. This proposal is not without precedent. For example, in France the indigenous European flat oyster was devastated by disease and now the French industry is based primarily on the non-native Pacific cupped oyster, or C. gigas, which was initially imported from Japan. In addition, non-native C. gigas and the eastern oyster C. virginica, are both harvested in the Pacific Northwest. In fact, C. gigas is now the dominant species harvested in Washington State.

Our committee was asked to assess the existing research on oysters and other introduced species to determine if there is sufficient information to analyze ecological and socio-economic risks associated with the following three management options: one, not introducing non-native C. ariakensis oysters at all; two, open-water aquaculture of non-native, infertile oysters; or three, the introduction of non-native reproductive, oysters.

Our study revealed that despite the positive results of some oyster introductions, some extremely negative consequences have been observed as well. A major risk of introducing a non-native oyster comes from pathogens, such as MSX, or the introduction of other animals or plants that may be attached to oysters. And in Australia and New Zealand, introduced non-native oysters displaced native oysters.

We concluded that there are shortcomings and gaps in the basic research on the biology of C. ariakensis and in the scientific community's understanding of the ecological consequences of introducing C. ariakensis into the Chesapeake Bay. Economic and cultural research is also lacking with relation to introduction of C. ariakensis, including evaluation of production and management systems. In addition, the institutional and regulatory framework is currently inadequate to monitor and oversee non-native oyster introductions. Given these limitations, a formal risk assessment is not possible.

In the judgment of the committee, option two, aquaculture of non-native sterile oysters, represents an appropriate interim step that possesses less risk to the Chesapeake Bay and its dependent communities than either options one or three. However, limits and controls on aquaculture practices must be implemented to minimize the risk of introducing pathogens or reproductive non-native oysters during this transitional phase. Option two may provide limited benefit to parts of the oyster industry and it provides decision makers with the added information required to make future decisions. Moreover, this option allows more time for innovative, science-based efforts to restore native oyster populations. On the other hand, option one, not allowing any introduction, fails to address industry concerns and will not result in improved understanding of the ramifications of non-native introductions. It may also increase the risk of rogue or uncontrolled introductions. Option three, or the direct introduction of reproductive non-native oysters, is not advised given the limited knowledge base on C. ariakensis and the potential for irreversible consequences of introducing a reproductive non-native oyster into the Chesapeake Bay.

The committee cautions decision makers and observers that it is unlikely that there exists any "quick fix" to the Chesapeake oyster situation. It is also unrealistic to expect that the oyster industry and the Chesapeake Bay water quality could ever be fully returned to conditions found in the past. It must be remembered that the many problems in the Chesapeake Bay, including the plight of the oyster, have been the result of more than a century of fishery, land use, and environmental mismanagement by both the public and private sectors. However, continued commitment to responsible management and research could ultimately yield significant benefits to the Bay economy, as well as its environment and cultural heritage.

Thank you for the opportunity to testify. We would be happy to take any questions the committee might have.