

# Committee on Resources

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TESTIMONY OF  
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NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION  
U.S. DEPARTMENT OF COMMERCE  
BEFORE THE  
COMMITTEE ON RESOURCES  
SUBCOMMITTEE ON FISHERIES CONSERVATION, WILDLIFE, AND OCEANS  
UNITED STATES HOUSE OF REPRESENTATIVES  
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Mr. Chairman and Members of the Subcommittee, thank you for the opportunity to testify on recent efforts to introduce non-native oyster species to the Chesapeake Bay and on the National Research Council's report entitled "Non-native oysters in the Chesapeake Bay." My name is Fred Kern, and I am a Research Fishery Biologist at the NOAA Cooperative Laboratory in Oxford, Maryland, and have been associated with the laboratory for more than 35 years. My research speciality addresses shellfish diseases, and I have represented NOAA on a variety of committees and panels that address issues of introducing non-native organisms. I have chaired the Chesapeake Bay Program's (CBP) ad-hoc panels that review proposals by the Program's partners to introduce non-native oysters to the open waters of Chesapeake Bay.

Most recently the panel reviewed the findings of the National Research Council's (NRC) report, "Non-native oysters in the Chesapeake Bay," and reported to the Bay Program and the Norfolk District of the Army Corps of Engineers on how the NRC's recommendations would affect the current permit for the Virginia Seafood Council to carry out its experimental test of triploid Suminoe (*C. ariakensis*) oysters in the Chesapeake Bay. My comments today address NOAA's role in native oyster restoration and NOAA perspectives on the NRC's report.

## Native Oyster Restoration

Restoring the native oyster population in the Chesapeake Bay is a long-term venture. It is also a job of immense scope. Historic oyster grounds in the Chesapeake Bay once encompassed over 450,000 acres. Recent bottom surveys in certain parts of the Bay suggest that oyster habitat is severely degraded across all but the smallest fraction of those historic acres.

The Chesapeake 2000 Agreement sets the goal of a tenfold increase in native oysters by 2010, relative to a 1994 baseline. It has been estimated that 15,000 acres must be restored to reach this goal. Although oyster diseases and habitat degradation are the biggest impediments to oyster restoration, other factors associated with human activities and land use - such as high sedimentation rates, poor water quality, and increased frequency and severity of freshets - are involved as well.

Contemporary restoration efforts began in the 1990s with small projects that were experimental in nature. While this work provided significant advancements in our understanding of how to restore oyster habitat and

"jump start" oyster populations by seeding rehabilitated bottom with hatchery spat, the scope and geographic scale of the work was insignificant relative to the large areas of degraded oyster habitat in need of rehabilitation. In the last two to three years some large-scale efforts have been initiated that are already beginning to show signs of success, especially in areas with a moderate salinity regime.

NOAA currently supports native oyster research and restoration work totaling more than \$4M annually (Table 1). Restoration work is focused on increasing oyster substrate and rearing spat for placement on rehabilitated bottom habitat. These objectives are furthered through funding of applied research and development of cooperative partnerships among federal agencies, state agencies, research institutions, and non-profit groups. Significant funding has also been directed toward increasing the capacity and efficiency of hatchery production. Complementary oyster disease research funding continues to address disease vector mechanisms and management strategies, including the development of potentially disease-resistant strains of native oysters. Through cooperative projects, NOAA divers provide monitoring and assessment expertise to validate project results, and NOAA ship-based charting technology assists in identifying bottom substrate types and appropriate project sites.

#### Regional Policy on Non-Native Species

Most states in the U.S. require a permit to introduce a non-native species, but have no specific guidelines, procedures, or penalties associated with intentional introductions. To respond to the need for regional coordination on non-native species introductions the Chesapeake Bay Program developed the "Chesapeake Bay Policy for the Introduction of Non-Indigenous Aquatic Species" in 1993. Although this policy is non-binding, it was approved and signed by the Governors of Virginia, Maryland, Pennsylvania, Delaware, and West Virginia, the Mayor of the District of Columbia, the Administrator of EPA (representing the EPA as well as other federal agency partners) and the Commissioner of the Chesapeake Bay Commission. Under this policy, proposed introductions must be submitted for review by an ad-hoc panel comprised of representatives from the state and federal agencies as well as scientific experts. Since 1997, this ad-hoc panel has reviewed several proposals submitted by the State of Virginia (see attachment).

#### NOAA Support for Non-native Oyster Research

The NOAA National Sea Grant Office and several state Sea Grant programs have funded research on the biological and ecological characteristics of *C. gigas* and *C. ariakensis*. National Sea Grant continues to fund a long-term genetic research program to develop a more resistant *C. virginica* oyster.

Recognizing the current need for better scientific data on *C. ariakensis*, NOAA responded by directing \$1.4M toward research on this species in fiscal years 2002 and 2003 (Table 1). For example, three research projects in FY03 were funded through NOAA's Sea Grant Oyster Disease Research Program. However, this Request for Proposals has a two-year funding cycle, and the next anticipated RFP cycle would be in 2005.

#### National Research Council Report

Last year, NOAA joined several other agencies and institutions in sponsoring a study of non-native oyster issues by the National Research Council (NRC). In conducting its study, the NRC synthesized available data from research and case studies of non-native oyster introductions around the globe. This synthesis represents the most comprehensive review of non-native oyster introductions and their consequences to date (more specific conclusions attached). I would like to highlight some of the study's findings.

The NRC panel focused its study on three options:

Option 1: Prohibit introduction of non-native oysters.

Option 2: Conduct open water aquaculture of triploid non-native oysters.

Option 3: Introduce reproductive diploid oysters.

The panel recommended Option 2 as an interim measure that could provide some immediate relief for certain segments of the oyster industry, as well as a way to safely study this species' biology within Chesapeake Bay in order to obtain the scientific data required for a risk assessment. Option 1 was not recommended because of the risk of a possible rogue introduction, which might be more likely if government agencies are perceived as taking no action to address the industry's plight. Option 3 was not recommended because "the irreversibility of introducing a reproductive non-native oyster and the high level of uncertainty

with regard to potential ecological hazards make Option 3 an imprudent course of action."

The adequacy of the existing regulatory frameworks to address non-native oyster introduction also was addressed at length in Chapter 8 of the NRC report. With respect to federal authority, the applicability of federal consistency provisions of the Coastal Zone Management Act (CZMA) will not apply unless there is both an application to issue a federal license or permit and an enforceable policy concerning the introduction of non-native species into state waters included in an affected state's federally-approved Coastal Management Program.

The NRC study also calls attention to several important misconceptions regarding introduction of *C. ariakensis*: "In evaluating the scientific evidence bearing on the potential risks and benefits of introducing a non-native oyster into the Chesapeake Bay, the committee finds relatively little scientific support for many of the common assumptions that have shaped public discourse on this issue." The report identifies five such "myths".

Myth I: Declines in the oyster fishery and water quality can be quickly reversed.

Myth II: Oyster restoration, whether native or non-native, will dramatically improve water quality in Chesapeake Bay.

Myth III: Restoration of native oyster populations has been tried and will not work.

Myth IV: *Crassostrea ariakensis* will rapidly populate the Bay, increasing oyster landings and improving water quality.

Myth V: Aquaculture of triploid *Crassostrea ariakensis* will solve the economic problems of a devastated fishery and restore the ecological services once provided by the native oyster.

NOAA endorses the NRC report and its recommendations. We find the report to be of the highest scientific caliber. NOAA also concurs with the NRC's conclusion that there is not adequate scientific information about *Crassostrea ariakensis* to support a full risk assessment at this time. As the Nation's ocean and coastal science agency, NOAA is committed to supporting the research needed to better inform this important decision.

#### Next Steps

At the present time, NOAA believes the following steps are necessary and appropriate for moving forward to achieve an informed decision on *C. ariakensis*. The first three steps can be taken simultaneously; however, NOAA believes the fourth step is dependent upon completion of the first three.

Develop a highly focused, short-term research plan that will answer the key biological and ecological questions identified by the NRC panel. NOAA has recommended that the Scientific and Technical Advisory Committee (STAC) of the Bay Program develop this plan. STAC has indicated willingness to undertake this task. With adequate resources, STAC could produce the research plan over the course of a few months. NOAA stands ready to coordinate the implementation of this plan across multiple academic institutions and research facilities as soon as it is completed.

Develop biosecurity protocols for all in-water deployments of triploid *C. ariakensis*, including both research and industry aquaculture. As recommended by the NRC panel, these protocols should be patterned after the Hazard Analysis Critical Control Point (HACCP) approach currently used in the field of food safety, and should include the ten points listed in the NRC report. We have begun working with our federal agency partners and NOAA's national and state Sea Grant programs to facilitate the formation of a panel of national experts on the topic of biosecurity to accomplish this step.

Clarify the proposal by Maryland and Virginia to introduce reproductive diploid *C. ariakensis*.

Perform a full risk assessment and alternatives analysis. The federal and state agencies involved (ACOE, NOAA, EPA, USFWS, MD, and VA) have agreed to cooperate in preparing an Environmental Impact Statement (EIS) to address the States' joint proposal. NOAA looks forward to serving as a Cooperating Agency on this EIS. We suggest this effort move forward by initially addressing the alternatives, with comprehensive risk assessment to follow at a later date when sufficient scientific information becomes available.

This concludes my testimony. I would like to thank the Chairman and the Members of the Subcommittee for giving me the opportunity to testify today. I would be happy to answer any questions you may have.

Table 1. NOAA funding for oyster restoration and research in Chesapeake Bay (values are thousands of dollars).

Activity	FY92	FY93	FY94	FY95	FY96	FY97	FY98	FY99	FY00	FY01	FY02	FY03
<b>NATIVE OYSTER RESTORATION</b>												
Restoration: MD & VA												
(NOAA Chesapeake Bay Office)												
	20	26	435	396	805	1900						
	1880											
Restoration: VA												
(NOS/OCRM CZM Program)												
	220	535	500									
Community-based Restoration Projects												
(NMFS/Habitat Restoration Center)												
	40	51	51	138	261	232	320					
Baywide Stock Assessment												
(NOAA Chesapeake Bay Office CBSAC)												
	60	68	77	12	50	50	55					
Oyster Disease Research Program												
(NOAA Sea Grant, natl. prog. since FY95)												
	1500	1500	1500 <sup>1</sup>	1500 <sup>1</sup>	1500 <sup>1</sup>	1500 <sup>1</sup>	1500 <sup>1</sup>	1500 <sup>1</sup>	1500 <sup>1</sup>	2000 <sup>1</sup>	2000 <sup>1</sup>	2000 <sup>1</sup>
<b>TOTAL</b>												
	1500	1560	1568	1597	1512	1566	1771	2521	2584	3116	4187	4200
<b>NON-NATIVE OYSTER RESEARCH</b>												
National Research Council Study												
(NOAA Chesapeake Bay Office)												
	50											
C. ariakensis Pathogen Studies: VA												
(NOAA Chesapeake Bay Office: CBSAC)												
	75											
VIMS Hatchery Support: VA												
(NOAA Chesapeake Bay Office)												
	7	8										
Biosecurity & Monitoring for VSC Project: VA												
(NOAA Chesapeake Bay Office)												
	943											
C. ariakensis Research: MD & VA												
(NOAA Sea Grant: ODRP)												
	2772											

1 National program, with only a portion of funding going to Chesapeake Bay research projects.

2 This \$277,000 is part of the \$2.0M for the national Oyster Disease Research Program