DEPARTMENT OF THE ARMY

COMPLETE STATEMENT OF

COLONEL DIONYSIOS ANNINOS
Commander
U.S. Army Corps of Engineers, Norfolk District

BEFORE THE

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COMMITTEE ON NATURAL RESOURCES

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ON

The Status of Eastern Oyster Restoration Efforts in the Chesapeake Bay

Chairwoman Bordallo and members of the Subcommittee, thank you for the opportunity to testify before this committee. My name is Colonel Dionysios Anninos, and I am the Commander of the U.S. Army Corps of Engineer, Norfolk District. My District, along with the Baltimore District has supported oyster restoration, non-native oyster research, aquaculture development, and new management approaches for oysters in Chesapeake Bay. I appreciate the opportunity to testify here today about the Corps activities in support of the Chesapeake Bay oyster restoration efforts and provide an update on the Comprehensive Oyster Programmatic Environmental Impact Statement.

Background:

The oyster native to the Chesapeake Bay, *Crassostrea virginica*, has been reduced to a remnant population of approximately 1% of its pre-exploitation level (approximately 100 years ago) due to over fishing (historic and current), habitat degradation/loss, increasing sedimentation rates, eutrophic water conditions, and two diseases: Dermo, *Perkinsus marinus*, and MSX, *Haplosporidium nelsoni*.

Harvests of oysters peaked in the Chesapeake Bay in the mid to late 1880's when harvests often exceeded 20 million bushels of oysters per year, peaking at 25 million bushels. Modern harvests are at less than 50,000 bushels per year Bay-wide.

In 1986, Congress provided authority to the U.S. Army Corps of Engineers to improve the Chesapeake Bay's native oyster population and has appropriated funds for this program. The authorization for the Corps' oyster restoration program comes from section 704(b) of the Water Resources Development Act (WRDA) of 1986, as amended, and includes efforts in Maryland and Virginia.

The Corps has utilized this authority to construct and restore oyster reefs and develop clean shell substrate in the Chesapeake Bay and its tributaries in an effort to restore self-sustaining native oyster populations and oyster habitat. The Corps goal is to re-establish native oyster populations sufficient to perform the important ecological functions necessary for maintaining a healthy bay. The Corps and its partners are also working to find more permanent solutions to the challenges faced by the oyster industry and waterman whose livelihoods depend on that industry.

It is true that federal, state and local efforts taken to date have not resulted in a sustainable recruitment of oysters Bay-wide. According to the 2007 Maryland Oyster Advisory Commission Interim Report "native oyster restoration has not been fully successful despite the effort by state and federal government." Achieving the recovery of native oyster species and restoration of its habitat has proven to be a difficult and challenging because of the severely depleted condition of the existing broodstock and the companion reef structure that

oysters build upon. Furthermore, accomplishing our objectives regarding oyster recovery and sustainability requires us to take certain calculated risks by trying new ideas, testing difference approaches, being open to new science and restoration techniques. The Corps strives to apply a balanced scientific approach by partnering with agencies, organizations and the public, and by using scarce resources wisely.

Although it has been widely reported that the Corps' early efforts to restore oysters in the Rappahannock River and Tangier Sound met with poor results, it is also true that these early efforts have yielded an increase in oyster stock. The projects were hampered from the beginning by the relatively small scale of the projects, selection of sites with little or no chance for recruitment, and the impacts of disease on the existing and new oyster populations.

However, building on lessons learned, the Corps' recently, in 2004, achieved historic results from its native oyster restoration efforts in the Great Wicomico River. Experience from previous projects made it clear that four issues needed to be addressed with future efforts:

1) proper scale,
2) restricting commercial harvest,
3) enhancing recruitment, and
4) reef persistence

The Great Wicomico project successfully addressed all of these concerns, has been designated a permanent sanctuary and encompasses 40 percent of the original sub-estuary oyster reef. Today, we estimate there are 183 million oysters on the restored oyster reef habitat – a 50-fold increase from the 1994 baseline used to establish the goals set forth in the 2000 Chesapeake Bay Agreement. Although it is well known that the current oyster population in Chesapeake Bay has been decimated there is hope, at least in one tributary, for some increment of oyster recovery.

The spectrum of lessons has provided us with science and solutions we believe are exportable to other trap estuaries in the Bay. However, the ongoing restoration efforts in Virginia are not only constrained by scope, but also by an increase in the impacts of diseases, sedimentation/degraded habitat, low dissolved oxygen levels, low natural recruitment/juvenile production, substrate availability, and legal and illegal harvest activity. While successful on a tributary scale, it is clear the Corps oyster restoration efforts alone will fall far short of the 2010 Bay-wide 10-fold increase target established by the 2000 Chesapeake Bay Agreement.

Comprehensive Oyster Programmatic Environmental Impact Statement:

The situation is so dire that state fishery management agencies in the Bay are considering introducing an oyster native to Asia, *Crassostrea ariakensis*, into the Chesapeake Bay. Since January 2004, federal, state, and private organization partners have pursued the development of a Programmatic Environmental Impact Statement (PEIS). The goal of the PEIS is to identify a preferred oyster restoration alternative or combination of alternatives for establishing an oyster population that reaches a level of abundance in Chesapeake Bay capable of supporting sustainable harvests comparable to harvest levels during the period 1920–1970. The PEIS effort constitutes the most comprehensive evaluation of oyster restoration efforts Bay-wide ever conducted and it addresses native and non-native species, aquaculture, reproducing and sterile oysters, and harvest moratoriums.

In addition to the proposed action of introducing a *Crassostrea ariakensis* reproducing population to the Chesapeake Bay while continuing native oyster restoration efforts, the PEIS is also evaluating eight alternatives:

Alternative #1 = Take no action; continue current native oyster restoration efforts
Alternative #2 = Expand native oyster restoration efforts
Alternative #3 = Issue a harvest moratorium
Alternative #4 = Establish/expand aquaculture program of native oyster species
Alternative #5 = Establish aquaculture program of non-native, triploid oyster species
Alternative #6 = Introduce an alternative non-native oyster species
Alternative #7 = Introduce *C. ariakensis* diploid population and discontinue the native oyster restoration efforts
Alternative #8 = Implement a combination of alternatives

The PEIS is an extremely important document because it not only describes the baseline situation, but discusses the factors that are affecting oyster populations and habitat, options for addressing these impacts, and ways to monitor future activities. Additionally, the PEIS process will be used to obtain critically needed input from agencies, organizations, and the public, and the document should serve to guide strategic planning, policy development, engineering, and scientific activities pertaining to the rehabilitation of the Chesapeake Bay Oyster population. The PEIS will lay the foundation on how future strategies are implemented, coordinated and synchronized between local, state and federal partners.

The PEIS basically will discuss two interrelated subjects: Alternatives and Risk questions in the context of four major components: demographic model; an ecological risk assessment; an economic assessment; and a cultural assessment. These four components are all accompanied by extensive peer reviews. The major components are supported to varying extents by over fifty

scientific contributions. Finally, the Oyster Advisory Panel will evaluate the document, in its entirety, to ensure the interrelationships among the four components support the conclusions of the PEIS.

The Oyster Advisory Panel and Executive Committee have established October 2008 as a target for the public release of the draft PEIS document.

Closing Statement:

I would like to recommend – based on lessons learned and applied – that the committee consider the following points with regard to oyster restoration efforts:

- Economic and ecological oyster restoration should be considered as separate entities and success for each measured differently. The approach and strategies are very much different. Having said that, success in either one will have secondary benefits to the other.

- The ongoing oyster PEIS and the follow-on native oyster master plan should be used as the driver and foundation documents to execute a comprehensive oyster program and economic program in the Chesapeake Bay.

- Any future restoration efforts must include an adaptive management restoration approach that includes comprehensive monitoring which facilitates improved site determination, enhanced planting effectiveness, and validated science.

- Future short- and long-term restoration and support to industry goals and objectives should be realistic and obtainable. They should be funded at a level that will allow actionable efforts (on the ground) to be accomplished relative to the scale of the problem and the ability to meet the established restoration metric and/or economic metric.

Madam Chair, this concludes my statement. I would like to thank you for the opportunity to testify today on these important issues and I would be pleased to answer any questions you or the other members may have.