TESTIMONY OF

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MARYLAND DEPARTMENT OF NATURAL RESOURCES

BEFORE

U.S. HOUSE OF REPRESENTATIVES

COMMITTEE ON RESOURCES

SUBCOMMITTEE ON FISHERIES CONSERVATION, WILDLIFE

AND OCEANS

COMMITTEE ON RESOURCES

U.S. HOUSE OF RESPRESENTATIVES

HEARING ON:

EFFORTS TO INTRODUCE NON-NATIVE OYSTER SPECIES TO THE CHESAPEAKE BAY AND THE NATIONAL RESEARCH COUNCIL'S REPORT TITLED "NON-NATIVE OYSTERS IN THE CHESAPEAKE BAY"

ANNAPOLIS, MD

OCTOBER 14, 2003

On behalf of the Department of Natural Resources, the Governor, and the State of Maryland, thank you for the opportunity to testify today and for your interest in the Chesapeake Bay.

The Chesapeake Bay oyster is the cornerstone of the Bay's ecology and water quality, serving as the Bay's main filtration system and rich habitat for many other species. Tragically, the Bay's oyster population has been decimated by disease, which has crippled the Bay's ability to filter nutrients entering its waters through watershed runoff and waste-water treatment discharges. As a result, restoring the Bay's oyster population is an essential element of the Ehrlich Administration's plan to improve the quality of the Bay's waters. While the ecological and economic importance of oysters cannot be overstated, attempts to overcome diseases such as Dermo and MSX continue to fail. At this time an alternative, disease resistant oyster, such as the Crassostrea ariakensis, is the only viable option for scientists and policy makers to effectively and efficiently restore the Bay's oyster population.

OYSTER HISTORY SINCE THE 1900s

The history of oysters in Chesapeake Bay is closely tied to our national efforts to conserve and manage natural resources. During the decade of the 1910s, the state took action to reverse the decline in oyster harvesting: Maryland conducted experimental seed and shell plantings and took regulatory action that would eventually form the backbone of oyster management in Maryland.

During the 1920s, just as the harvest declines were being reversed, a typhoid outbreak in the major population centers of Chicago, New York, and Washington that was attributed to oysters received a lot of negative publicity and resulted in oyster sales crashing. During this period, the oyster market was also undergoing a long-term, gradual shift from a mass-market dietary staple to more of a luxury food item. Additionally, the Chesapeake Biological Laboratory was established, and two major engineering projects affecting the hydrology of the Upper Chesapeake Bay were completed: Conowingo Dam and the conversion of the Chesapeake & Delaware Canal to a water-level shipping route.

During the 1930s, oyster harvests were affected by the Great Depression and by competition from cheaper seafood brought about by improved transportation and refrigeration. As the nation emerged from the Depression, oyster harvests in Chesapeake Bay climbed to their highest point in almost 20 years.

During the 1940s and World War II, a large number of watermen left their boats for U.S. military service. Oyster harvests declined, but the Chesapeake Bay remained the dominant source of oysters in the United States.

During the 1950s, the oyster parasite Dermo was discovered in Maryland. Also, a series of hurricanes caused considerable damage that severely depressed oyster reproduction.

During the 1960s, Maryland began large-scale planting of old shell, and harvests increased to the highest since the 1930s in spite of oyster disease outbreaks.

During the 1970s, a series of natural catastrophes and changes in the industry set the stage for a tailspin from which oyster abundance and the oyster harvest have yet to recover. As a result of more than half a decade of reduced salinities, a nearly complete spat-set failure occurred during this decade. The Virginia oyster industry declined sharply as a result of disease, which in turn increased harvesting pressure in Maryland to meet the demand for oysters.

During the 1980s, several years of low rainfall allowed oyster diseases to return with a vengeance, and MSX and Dermo both became chronic infections on most oyster bars in the state. The mid-1980s were a pivotal point for the oyster. In 1987, the Maryland oyster harvest declined to below one million bushels, the lowest harvest since the mid-nineteenth century, and in 1988, harvests plummeted even further—by more than 60 percent from 1987 levels to 363,000 bushels. The dockside value fell from $16 million in 1987 to $7 million in 1988. Since 1988, oysters have continued their decline with far fewer bushels harvested in the years thereafter. An Executive Order in 1985 established the Maryland Bay Cabinet to coordinate Bay recovery programs to improve water quality and Bay health.

In the 1990s, the oyster harvest declined to a 150-year low in spite of a series of record high spat falls. The mortality of mature oysters approached 90 percent, which severely reduced the benefits that the record spat falls provided. We also saw the creation and signing of the Chesapeake 2000 Agreement, which established new goals for the reduction of nutrients and restoration of oysters and Bay grasses. The price tag for restoration of the Bay is now estimated at $18.7 billion, with Maryland's portion being $6.8 billion.

PRESENT DAY: DEFINING THE PROBLEM

It is clear that we are at a pivotal point in Bay restoration efforts, particularly the restoration of the Bay through an abundant population of self-reproducing oysters. In spite of a massive effort and expenditures of tens of millions of state and federal dollars to restore native oyster populations, populations are now one-half of what they were in 1994, a reference year for rebuilding oyster populations. The oyster diseases Dermo and MSX are a dominant influence, and unless they are substantially controlled—and no evidence suggests that they can be—the trend and the outlook for the native oyster is bleak. There is little reason for optimism and even less evidence that we are making any progress in defeating these oyster diseases.

A look at the historical data reveals a crucial trend. Oyster harvests remained between 2 million and 4 million bushels from 1920 to 1982, thereby showing the ability of the Chesapeake Bay to support an abundant population in balance with a significant fishery.

However, that is not now the case. As a result of more than 15 years of disease pressure, Maryland has a record-low oyster population estimated to be less than 1 percent of historic levels. MSX and Dermo have expanded in range and prevalence, reaching record-high levels farther up the Bay and tributaries, depending on the year. In 2002, the average oyster-mortality rate for Maryland was 58 percent, and many areas experiencing 80- to 100-percent mortality. The typical mortality rate without disease pressure is 10 percent or less. This difference is vital and critical to our restoration efforts. Oyster survival is key to establishing an abundant oyster population in the Bay.

One problem is the intense disease conditions that prevent the sporadic natural sets of young oysters from realizing their potential to sustain the population for the long term. As the spat grow to become larger oysters, diseases kill them by the ages of 3 to 4 years, thereby mitigating their ecologic and economic benefits. Unlike spat or young oysters, larger and older oysters produce more brood, filter more water, and create more valuable hard-bottom habitat critical to the growth of oyster bars. Conversely, low mortality rates allow successive year classes, or spat sets, to live many years and to develop abundant populations upon the oyster bars.

Against this background and history, the Commonwealth of Virginia began research and experimentation with the non-native species Crassostrea ariakensis, which has been raised in Oregon waters for the last 30 years but was originally from Southeast Asia. Results of the Virginia experiments to date indicate that this species of oyster is resistant to the diseases decimating the native oysters, can adapt very readily to the Chesapeake Bay, and has the potential to thrive in the Chesapeake Bay.

The decline of the oyster makes it all the more imperative to recall its ecological and economic importance:

· Ecological Importance

Oysters provide specific ecological benefits for the Bay, but these benefits have declined to insignificance due to the loss of oysters. Only by restoring an abundant population can we restore these ecological functions.

Oyster populations are a keystone species when they are in abundance, linking other species together and enriching the Bay's ecology. A healthy population of oysters is to the Chesapeake Bay as healthy trees are to a forest. Without these essential components, the respective ecosystems do not fully function, and the benefits that extend to and are critical to other living communities in the ecosystems are minimal to non-existent. The ultimate result is a fundamental change in the ecosystem. The Bay's ecosystem today is dominated by algae and bacteria rather than by oysters and SAV, resulting in degraded water quality and poor water clarity.

Oysters create hard-bottom habitat that is essential to many sessile, attached organisms such as mussels, barnacles, bryozoans, and anemones, which filter the water and provide food for larger animals. The hard, shelly habitat is also important for many small organisms, such as mud crabs, blennies, gobys, and worms, that require the niches provided by the shells and oyster clumps. These organisms attract larger organisms, such as blue crabs and commercial and recreational finfish, illustrating that oyster reefs are an important component of the Bay's food web.

Oysters and other filter feeders eat algae and sequester silt, clearing the water. They remove algae, eat it, and convert it to biomass, reducing nutrients in the water column. Nutrient enrichment and algae blooms are two of the Bay's major problems that were especially prevalent this year. By clearing the water and reducing nutrients, oysters, when in great abundance, could help Bay underwater grasses.

It has been estimated by leading oyster scientists that the once-abundant pre-1870 oyster population required only about 3 days to filter a volume of water equivalent to the Bay's volume. By 1988, that changed to 325 days; today, our remnant population requires an estimated 700 days.

Scientists generally agree that it will take decades, if it can be done at all, to increase the number of C. virginica to ecological significance.

· Economic Issues

The oyster industry is economically extinct, impacting harvesters, processors, shippers, restaurants, and family businesses. Oysters are being imported into Maryland by processors and restaurants from the Gulf Coast and the West Coast to meet the local market demand. Chesapeake Bay is no longer considered a viable source of oysters for the national market.

DNR expects the harvest to fall below last year's 53,000 bushels and oystermen to continue dropping out of the fishery. In 1999, there were 2,520 harvesters, followed by 915 in 2002 and 437 in 2003. For 2004, it is estimated that less than 200 will harvest oysters. Maryland processors have already suffered and will continue to decline. There were 58 in 1974, they fell to 20 in 1990, and only a handful are left now.

OUTLOOK FOR NATIVE OYSTERS & RESTORATION

The long-term goal of the Chesapeake Bay Program to restore an abundant and a healthy Chesapeake Bay oyster population is essential. Attaining a self-sustaining oyster population is necessary to provide ecological benefits significant enough to reach the water-quality improvement goals prescribed for the Chesapeake Bay, as well as to improve the Bay's fishery.

Restoration efforts must address the entire Bay and not just the improvement of a few sites, or even many sites. Restoration is not repeatedly restocking these sites time and time again to replenish failed efforts. None of the efforts address the disease solution because there is no cure. Maryland does not have the luxury to hope that the native oyster will recover or that they should be given more time to recover, or that even larger-scale efforts should be undertaken. The Bay's future is dependent on a robust oyster population, and the risk is too great to base the entire Bay restoration strategy on a idea that is significantly contingent on the re-emergence of the native oyster.

When considering the future of the native oyster population and the efforts to restore it, we must be realistic and base our strategy on what we know. There is no cure for the diseases MSX and Dermo that are killing the native oyster population. The areas where disease becomes entrenched never see the disease abate, and the oyster beds never improve to pre-disease levels. The best science has been applied to restoration with less than positive outcomes. Scientists generally agree that it will take decades to make progress in restoring oysters, but even they have doubts if it can be done within decades, if at all. Everyone does agree that the Bay needs an oyster that can survive and multiply. The issue is whether it is to be the native oyster or a second oyster species.

The oyster population, its ecological contributions, and the fishery are at record-low levels, and only a dramatic change can improve the situation. Oyster populations will continue to decline for at least 4 years due to recent low spat sets, continued mortality, and the expectation that mortality will occur in the future. The high rainfall in 2003 lowered salinity and will deter disease and improve survival, but stocks are so low and recent sets so poor that any large-scale significant increase in stocks will not occur. If a strong set occurs in the summer of 2004, it will take about 3 years for the set to grow, but even a strong 2004 year class may not produce any significant change because MSX and Dermo can easily impact those oysters as it did the strong year classes of 1985, 1986, 1991, and 1997.

The oyster's demise in the Bay is similar to what has happened in other East Coast areas. The Delaware Bay has experienced only a remnant oyster population and fishery since the 1940s, and MSX and Dermo have spread north and south along the Atlantic coast. Around the world where oyster diseases have impacted native stocks, there have been no cases where the situation has reversed.

NATIVE OYSTER RESTORATION EFFORTS

During the past 12 to 15 years, many restoration initiatives have been undertaken that were based upon recommendations from scientists and environmentalists. The Aquatic Reef Habitat Restoration Plan was implemented in 1993 to set aside thousands of acres of bottom habitat for rehabilitation as oyster reef sanctuaries. The Maryland Oyster Roundtable of 1993, which still exists today, recommended shell and seed plantings, hatchery development, fishery management, and sanctuary creation to reverse the decline.

The 1999 Scientific Consensus document that was written by Maryland, Virginia, and other marine scientists supported these and other recommendations. It served as the scientific voice and foundation of the 2000 Chesapeake Bay Agreement, which made a commitment to restore oysters to 10 times the 1994 levels by 2010.

Progress towards the 2010 oyster goal is measured by an oyster biomass index that is calculated by scientists using data from DNR's annual Fall Oyster Survey. Biomass is a measure of living oysters in the Bay. For Maryland, the biomass index has declined 70 percent during the last few years, and it is now below the previous all-time-low baseline of 1994. In spite of the tremendous commitment to oyster restoration, the Bi-state efforts under the Chesapeake Bay Program have not increased the number or biomass of oysters in the Chesapeake Bay.

The native restoration program costs have exceeded tens of millions of dollars. Maryland and federal dollars will total about $8 million for fiscal year 2004. A few years earlier, it ranged between $4 million and $5 million annually. Every opportunity currently known has been attempted or made available to increase the biomass of C. virginica, but so far, we have been unsuccessful.

Restoration efforts have and continue to include:

· Establishing a network of sanctuary and reserve areas where oysters are protected from harvest in order to protect brood stock, maintain ecological function, and “jumpstart” recovery,

· Planting shell for habitat and setting of young oysters,

· Cleaning silted bars,

· Planting natural seed oysters on old and new shell habitat, and

· Planting potentially resistant strains of hatchery-reared disease-free oysters.

Some of the major initiatives of the native oyster restoration include:

Sanctuaries and Reserve Areas

Sanctuaries, or non-harvest areas, are the foundation of the restoration initiative. They are designed to protect brood, deliver ecological benefits, and yield recovery in non-sanctuary areas as oysters spread through larval dispersal. Reserve areas are also designated for these purposes, but they are also opened for periodic, limited harvest; then the area is closed again to achieve the ecological benefits. Together with reserve areas, they allow scientists to monitor oysters that are free from harvesting pressure and to evaluate their experiments and the concept of controlled harvesting as a recovery method. Maryland presently has 29 sanctuary areas, ranging in size from entire tributaries, such as the Severn River, down to about 10 acres, and 4 major reserve areas.

To date, some sanctuaries have received good natural sets of spat on planted shells, indicating a strong start for the restored sites. Other sanctuaries in lower setting areas were planted with hatchery seed, and these populations too have experienced good initial growth and survival. Unfortunately, most of these sanctuaries were impacted over time by the diseases and have suffered high oyster-mortality rates in both the planted seed and natural oysters. The net total of the oyster populations have not increased under a sanctuary strategy: They have decreased.

Hatchery Seed Oysters

Hatchery seed oysters are a key component of the restoration program for sanctuaries and reserves. The seed oysters that are disease free when they leave the hatchery are planted to stock restoration sites. At times, natural spat set occurs to populate a site, but hatchery seed is the dominant source of oysters for restoration sites. Seed plantings in lower salinity areas, which are also low-disease areas, have survived and grown well, while the hatchery seed placed in higher-disease areas have been infected and essentially lost to disease. In 2003, Maryland planted more than 100 million hatchery seed compared to less than 15 million about 5 years ago. To achieve the ultimate goal of restoring the Bay, hundreds of billions of oysters are needed. This requires oysters to successfully reproduce and survive in the wild in all areas of the Bay.

Habitat

Habitat improvement has been the foundation of oyster restoration for more than 100 years. Oysters need clean habitat on which to set and grow. Habitat improves a spat set, so in an effort to increase the spat set and the overall oyster population survival, shell plantings have been made in restoration areas. However, spat-setting areas are also disease-prone areas, and we are seeing high mortality rates in the third and fourth years. The habitat strategy does not address disease; therefore, habitat initiatives are helpful but not the answer for total oyster restoration.

Currently, about 100 acres of habitat are shelled each year for restoration goals compared to less than 20 just a few years ago. Thousands of acres still need improvement.

A variation on the habitat theme was the construction of 3-D habitat in the form of large shell piles to elevate oysters in the water column, thereby encouraging a healthier stock. The theory was that such habitat would aid restoration, but thus far, the diseases also impact these oysters, showing that 3-D habitat alone is not a viable solution. Another variation was using non-shell materials. They have been planted on restoration sites, but they do not attract spat as effectively as shell. Even if they equaled or surpassed shells, disease would undermine the populations.

Harvest Control

Reducing or ceasing harvest has been recommended and reviewed as a viable method to restore Bay wide stocks. Sanctuaries are a form of harvest reduction, as are limitations on the harvesting season, the daily bushel limit, and the gear that is used. During the past 10 years, though sanctuaries have increased, we have not seen improvement in oyster abundance in closed areas that have been off limits to harvesting. In wide areas of the Bay, including most of Virginia's and Maryland's waters, there has been a de facto moratorium on harvesting due to disease impacts, yet oysters have not recovered in the absence of a fishery. One could conclude that harvesting is not the cause of the problem and therefore not the solution.

A method related to controlling harvest that was implemented and monitored was to buy back large oysters harvested by watermen and replant the oysters in sanctuaries to encourage these disease survivors to produce better progeny for the Bay. The buyback oysters that were purchased and returned to the waters were themselves highly infected, and they quickly died.

EFFORTS TO CONSIDER AND INTRODUCE A NON-NATIVE OYSTER

Due to the lack of ecologically and economically significant results and the inability of current strategies to mitigate and address the diseases, a new approach must be considered to restore the entire Bay—the solution must enable oysters not only to survive but also to reproduce successfully and thrive. Hundreds of billions of oysters are required to help restore the Bay.

Maryland is currently reviewing a proposal to introduce a second oyster species, the Oregon strain of the oyster Crassostrea ariakensis (C. ariakensis) to the Chesapeake Bay.

This oyster, also known as the Asian Oyster, has been in U.S. waters since 1957 and was imported again in 1972 to Oregon for aquaculture and has since been under evaluation in Virginia and North Carolina. The current West Coast brood stocks are in their fifth generation since the original stocks were imported. Our proposal would use only the Oregon strains of C. ariakensis. The ICES protocols have been met, and the introduction of diseases, viruses, or pathogens from outside the United States has already been addressed and minimized in accordance with the NAS recommendation. To date, no significant mortalities due to diseases or other causes were noted during the sustained commercial production on more than 100 acres of beds in Oregon.

Its environmental requirements are much like our native oyster, indicating it is a good candidate for consideration to restock the Bay. Results from Virginia show that the Crassostrea ariakensis is not infected by MSX but is by Dermo. However, it survives well even though it has Dermo. Mortality rates are extremely low, as the native oyster was before disease appeared in the Bay. The C. ariakensis filters water a little less efficiently than a same-sized native oyster, but because it grows twice as fast and given its expected longer life span, the population would still filter more water than the native population. Tests in Virginia also confirm that native spat will set upon the shells of C. ariakensis and grow, indicating that large populations of C. ariakensis could provide the needed clean, hard-bottom habitat to assist native oyster populations.

In July, 2003, the Secretaries of Virginia's and Maryland's Departments of Natural Resources submitted a request to the U.S. Army Corps of Engineers in Norfolk, Virginia, to coordinate the evaluation of an introduction of this second species of oyster to the Bay by preparing an Environmental Impact Statement (EIS). Since that time, both Departments have been working with the Corps to do the preparatory work necessary for this comprehensive and extensive public review of our proposal.

A formal planning meeting will convene October 15 and 16, 2003, with the U.S. Army Corps of Engineers, U.S. Environmental Protection Agency, U.S. Fish and Wildlife Service, National Oceanic and Atmospheric Administration, Virginia, and Maryland to begin the process of preparing an EIS for public review and comment. Preparation of this EIS will be aided by the recently issued report by the National Academy of Sciences, including the funding of specific research directed at the questions and uncertainties identified in the NAS report. DNR would like to complete the EIS in 12 to 18 months, an ambitious but doable timeframe

POTENTIAL EFFECTS OF INTRODUCING A NON-NATIVE OYSTER

A central feature of the Environmental Impact Statement to be developed is to analyze the risk of unknown or unanticipated consequences in introducing a non-native oyster in the Chesapeake Bay. Many of the potential effects are not currently known and will be addressed in the EIS, including:

· Where will the C. ariakensis grow in the Bay, and how might the oyster affect other resident species, especially the native Eastern oyster?

· Will C. ariakensis provide ecosystem services to the Bay similar to those provided by the native oyster?

· Will C. ariakensis become a nuisance species, which would result in negative impacts on the Bay ecosystem?

· What are the chances of the non-native oyster dispersing to regions outside the Bay?

· If an illegal introduction of C. ariakensis occurs, is there an increased concern that disease agents or other species that may be attached to the oysters would be introduced into the Bay?

The NAS report that will be discussed shortly includes discussion on each of these questions and on possible economic and social effects. A table included in the NAS report assesses the short-term (1-5 years) potential outcomes for biological and social factors likely to be affected by selection of three options presented in the report, a caveat being that there are uncertainties associated with each outcome.

Using ICES protocols, the NAS report identifies positive and negative factors (see chart below) associated with a large, managed diploid (reproducing) introduction of C. ariakensis. These initial assessments will be a point of reference as the EIS is prepared.

Positive Factors
Negative Factors

· Increased water quality and clarity
· Disease introduction

· Reef structures and ecological services
· Susceptibility to pathogens and parasites

· Traditional fishery
· Competition with other species

· Fishery and Aquaculture employment
· Dispersal beyond the Bay

· Tourism, recreation, and sports fishery
· Genetic interactions

· Watermen's communities & culture
· Environmental political impacts

· Fishery political impacts
· Restoration efforts

· Viability of aquaculture
· Impact of rogue introductions

REGULATORY ISSUES SURROUNDING THE INTRODUCTION OF A NON-NATIVE OYSTER

The primary concern regarding the introduction of a non-native oyster is that it could be considered an invasive species. The National Invasive Species Act of 1996, which governs the introduction of non-native species through ballast water, defines "aquatic nuisance species" as a "nonindigenous species that threatens the diversity or abundance of native species or the ecological stability of infested waters, or commercial, agricultural, aqua cultural or recreational activities dependent on such waters." 16 U.S.C. 4702 (1). Ultimately, the EIS will address this issue in detail, but evidence is not available to conclude that C. ariakensis would be an invasive species:

No harmful effects have been observed after more than 30 years of C. ariakensis being in Oregon waters. Oyster stocks have been tracked and raised from brood stock, which were imported to Oregon from Ariake

Bay, Japan, in 1969-71. No other imports have been recorded since then.
No diseases have been reported in these stocks since their importation to Oregon or in studies conducted by Virginia. No natural spawning occurs in these stocks due to high (near full sea water) salinities in the region. No setting occurs in larvae from these stocks at 35 ppt (full-strength sea water). The oyster requires moderate (15-20 ppt) salinities and high temperatures (>60°F) for successful spawning and larval survival.
From East Coast field studies and other sources, C. ariakensis eats algae, which is over abundant and a serious problem in the Chesapeake Bay. C. ariakensis provides hard-shell habitat, which the Bay has lost by the thousands of acres and which many organisms need. C. ariakensis provides habitat for native oyster spat as documented in Virginia studies.
To virtually eliminate foreign disease risks, oysters will NOT be brought from Asia but from Oregon stocks. Virginia Institute of Marine Sciences brood stock and would be the parentage for large-scale introductions to the Bay.

NATIONAL ACADEMY OF SCIENCES (NAS) REPORT

On August 14, 2003, the Committee on Non-native Oysters in the Chesapeake Bay, Ocean Studies Board, and National Research Council of the National Academy of Sciences released the prepublication version of their report on Non-native Oysters in Chesapeake Bay.

The Academy was asked to examine the ecological and socio-economic risks and benefits of open-water aquaculture and the direct introduction of the non-native oyster Crassostrea ariakensis in the Chesapeake Bay. The report reviews how C. ariakensis might affect the ecology of the Bay, including effects on native species, water quality, habitat, and the spread of human and oyster diseases and possible effects on recovery of the native oyster. The Committee assessed whether the breadth and quality of existing research on oysters and other introduced species is sufficient to support risk assessments of three management options: 1) no use of non-native oysters; 2) open water aquaculture of triploid (non-reproducing) oysters; and 3) introduction of reproductive diploid oysters. Where current knowledge was considered inadequate, the committee recommended additional research priorities.

In brief terms, the executive summary of the report states that because relatively little is known about C. ariakensis, it is difficult for scientists and resource managers to decide whether this oyster has the potential to help or hurt conditions in the Chesapeake Bay, either for the industry or the ecosystem. Hence, opinions range from the hope that this oyster will revive a threatened industry and restore some of the filtering capacity of the original oyster population to the fear that it will be an invader that outgrows the commercial demand for oysters and upsets the ecology of the Bay. The report addresses a wide range of issues and concludes, given the present state of knowledge, that they are currently unable to predict the long-term impacts of this oyster if it is introduced to the Bay.

Even though the Committee rejected the option of “no use of non-native oysters,” they warned that there is a risk of a rogue introduction. The report further concluded, “Our review of the case studies clearly indicates that greater ecological or economic harm typically arises from organisms that are inadvertently introduced with the foreign oyster.”

The NAS report sums up the situation we face: “…nevertheless, a decision must be reached about whether or not to proceed with the use of the non-native oyster despite uncertainty in the type and magnitude of the potential risks involved.” It will only be through an Environmental Impact Statement that a final decision will be made and that the risks will be weighted against the benefits.

DNR appreciates the advice and guidance offered by the NAS report and will be utilizing that guidance in determining research priorities and in preparing the Environmental Impact Statement. We have already begun, in cooperation with the University of Maryland and Virginia research institutions, to prioritize the needed research and have identified funds to begin this research.

CONGRESSIONAL ACTION NEEDED

One issue examined in the NAS report dealt with “the regulatory framework for managing proposed introductions” and local, national, and international jurisdiction. The report points out that “…EPA does not consider ‘a non-native organism’ a ‘pollutant’ for NPDES permitting purposes, and that the U.S. Army Corps of Engineers approval is required only if an introduction involves structures or fill.”

We are uncertain why jurisdiction should be a matter of concern or needs to be further debated. The states will, as indicated in the joint letter to the Norfolk District of the Corps, prepare a full EIS in accordance with federal guidelines and in cooperation with the federal agencies, including consideration of possible impacts beyond the Chesapeake Bay. We will conform to the ICES protocols regarding introductions of non-native species to minimize the introduction of any "hitchhikers." Furthermore, we will be inviting the Atlantic States Marine Fisheries Commission to be the interstate forum where interstate interests can be addressed as we proceed with the EIS.

CONCLUSION

Our priority is the restoration of the entire Chesapeake Bay. That restoration has many facets because the Chesapeake Bay is important in so many ways. Maryland's comprehensive approach to restoring the Bay includes: nutrient reduction, SAV restoration, and oyster restoration. The Oyster is the cornerstone of Maryland's restoration strategy because it is an absolutely essential element of the Bay's ecology.

While Maryland will continue native oyster restoration efforts, the catastrophic levels of this specie demand that we consider alternative efforts. Our only alternative is whether the naturalized Oregon strain of C. ariakensis should be introduced into the Chesapeake Bay. To that end, it will take full cooperation and support of the federal government to ensure that all necessary steps are taken to ensure the decision process is comprehensive and expeditious.

The key decision points we will be focusing on are:

Will an introduction cause harm to the ecology of the Bay
Are there ecological and economic benefits to be derived from an introduction
Will introduction interfere with efforts to recover the native oyster; and
If introduced in Chesapeake Bay will there be impacts on other coastal areas outside of Chesapeake Bay?

We estimate the costs of the EIS and non-native research to be approximately $3 million over the next 12 to 18 months. A longer-term research program may be required to investigate whether different strains of C.a. brought in from outside the U.S. would be a feasible alternative.

We also believe there is some urgency. While the outlook for the native oyster from both an ecological and economic perspective is bleak, it will take time to do the EIS and conduct the necessary research. Nevertheless, time is of the essence, and it is our hope that the EIS can be completed within a 12 to 18 month timeframe. The situation is urgent and we are prepared to assist in way deemed necessary – to protect the health of the Chesapeake Bay.

Thank you for the opportunity to explain our rationale and need for a decision on oysters. We look forward to a full and informative public dialogue on our proposal and a balanced decision that furthers the restoration of Chesapeake Bay.