

## Eastern oyster petition fact sheet– February 2005

### Where are we now?

**Who/When:** On January 11, 2005, NOAA's National Marine Fisheries Service (NMFS) received a petition from Mr. Wolf-Dieter Busch, Ecosystem Initiatives Advisory Services, to list Eastern oyster (*Crassostrea virginica*) as endangered under the Endangered Species Act (ESA). According to section 4 of the ESA and the implementing regulations, to the maximum extent practicable, NMFS shall make a finding as to whether the petition presents substantial scientific or commercial information indicating that the action may be warranted within 90 days after receiving the petition. As such, this finding shall be made by approximately April 11, 2005.

**What:** The petitioner requests that the Eastern oyster (*Crassostrea virginica*) be listed as endangered. The petition primarily presents information regarding threats to the Chesapeake Bay stock of oysters; however, there is some limited information on the status of and threats to the species throughout its range.

### Where are we going?

By statute (section 4 of ESA) and regulation (50 CFR 424.14), NMFS is directed: to the maximum extent practicable, within 90 days after receiving a petition to add a species, the Secretary shall make a finding as to whether the petition presents substantial scientific or commercial information indicating that the petitioned action may be warranted. A summary of the regulatory explanation of substantial information is available at 50 CFR 424.14 (<http://www.gpoaccess.gov/cfr/index.html>). The Secretary shall promptly publish such findings in the Federal Register.

If such a petition is found to present substantial information (a positive 90-day finding), the Secretary shall promptly commence a review of the status of the species concerned (called a status review).

Upon completion of the status review and within 12 months of receiving the petition presenting substantial information, the Secretary shall make one of the following findings (all require publication in the FR):

- a. The petition is not warranted
- b. The petitioned action is warranted in which case the Secretary shall promptly publish a general notice and the complete text of a proposed regulation to implement the action, or
- c. The petitioned action is warranted but -
  1. Immediate proposal and timely promulgation of the final regulation implementing the petitioned action is precluded by pending proposals to determine whether species are threatened or endangered, and
  2. Expeditious progress is being made to list, delist or reclassify qualified species.

## **What is the current condition of the resource?**

- Oysters in the Chesapeake Bay have been reduced to less than 1% of their former abundance. Declines are due to overharvest, disease (e.g., MSX and Dermo), and habitat loss/degradation.
- Commercial landings in the vast majority of the species' range along the East Coast have declined significantly from historic highs.
- In the Gulf of Mexico, harvest has generally increased or remained stable in the last several years. Louisiana is now the top-producing oyster-state and has contributed an average of 42% of the total U.S. harvest.
- Many states have implemented restoration projects to restore oyster reef habitat and oyster stocks. The restoration projects face significant challenges and are showing mixed success.
- Each state manages the oyster stocks within their waters. There is no comprehensive interstate management program for the resource.

## **What have we done?**

NMFS has provided funding for oyster restoration projects as well as studies to determine the effects of the recent hurricanes off of Florida and to find solutions to diseases, which have had a significant impact on oyster abundance.

### **Restoration/Monitoring Projects:**

#### **1. Oyster restoration in several Florida bays as a result of damage from Hurricane Ivan in 2004:**

NOAA awarded the Florida Department of Agriculture and Consumer Services money to restore reefs in Escambia Bay, East Bay (Santa Rosa County), Choctawhatchee Bay, West Bay, North Bay, East Bay (Bay County) and Apalachicola Bay. Oyster cultch material will be placed on the identified reefs and monitored to assess oyster populations, settlement growth, survival rates and the stability of the restored reefs.

#### **2. NOAA Restoration Center Community-based Restoration Program in the Southeast Region:**

The NOAA Restoration Center Community-based Restoration Program has provided more than \$900,000 to local partners in the Southeast region of the United States to support 26 oyster restoration projects. In addition to 25 acres of restored oyster reef habitat, these funds have also supported community stewardship and education activities as well as research on oyster restoration techniques.

The South Carolina Oyster Restoration and Enhancement (SCORE) program is a great example of a project that entails restoration, education and stewardship as well as research. To date, more than 2,000 volunteers have spent more than 10,000 hours to construct 98 intertidal oyster reefs. Fifty teams of trained volunteers are monitoring water quality at most of these sites, and the SC Department of Marine Resources is carrying out additional research. The NOAA Restoration Center has contributed more than \$200,000 to the SCORE program; more than half of that amount has gone directly to monitoring and research efforts.

The NOAA Restoration Center also serves as grant administrator and technical advisor on the Alabama Oyster Reef Restoration Program run through the University of South Alabama. The University of South Alabama is directing and supervising the placement of oyster shell in various orientations and locations in Mobile Bay and is currently monitoring the reefs for survivability, productivity, and benefit to fisheries. The three main goals of the program are: to develop the scientific understanding necessary to direct current and future oyster restoration and enhancement in Alabama; to assist in the development of a long-term strategy for sustained productivity of Alabama's oyster resources including the other species that the reefs support; and to provide this information to state and federal management agencies, the fishing industry and the general public through outreach.

### **3. Chesapeake Bay Oyster Restoration and Monitoring:**

The NOAA Restoration Center Community-based Restoration Program has provided more than \$1.1M to local partners in the Chesapeake Bay region (Maryland and Virginia) of the United States to support 26 oyster restoration projects. In addition to 40 acres of restored oyster reef habitat, these funds have also supported community stewardship and education activities as well as research on oyster restoration techniques.

Large-scale oyster restoration implementation activities have been underway since 1999 in Chesapeake Bay with funding through the NOAA Chesapeake Bay Office. Since 1999, \$9.51M has been spent on activities to restore and re-plant historic oyster bottom habitat, resulting in 681 acres of oyster habitat. These activities in Maryland are conducted in partnership with the Oyster Recovery Partnership, Maryland Department of Natural Resources, the US Army Corps of Engineers, and the University of Maryland. The bulk of NOAA funding has gone towards the infrastructure needs and delivery of large amounts of spat-on-shell for seeding on restored bottom acreage, with a recent additional effort in mapping and characterizing bottom habitat. Restoration activities have occurred in most major tributaries, with present activities focused on the Chester and Choptank Rivers.

Oyster restoration activities in Virginia, funded by the NOAA Chesapeake Bay Office, are conducted in partnership with the Virginia Oyster Reef Heritage Foundation, the Virginia Marine Resources Commission, the Virginia Institute of Marine Science, and the US Army Corps of Engineers. NOAA funding has gone toward the purchase and placement of dredged shell and shuck-house shell, and more recently has focused on research and monitoring needed to help guide the placement of large numbers of potentially disease-resistant young oysters on restored bottom acreage. Restoration activities have occurred in virtually all major tributaries, with present activities focused on the Great Wicomico River.

Additionally, NOAA Restoration Center activities conducted under the auspices of the Damage Assessment and Restoration Program settlement funds have restored an additional 5 acres of oyster reef habitat in the Patuxent River as part of the restoration associated with the Chalk Point oil spill.

## **Research:**

### **1. Strategies for restoring and managing the Eastern oyster in Chesapeake Bay: quantitative biological analysis of management options**

A Baywide oyster assessment is currently being conducted under the Fisheries Research Program, and this project will build on this assessment to project the outcomes of a variety of possible management strategies. The principle objectives are: 1) to develop quantitative projections of the efficacy of various management options, including sanctuaries, stock enhancement, fishery and disease management measures, and habitat creation for rebuilding Chesapeake Bay oyster populations, oyster fisheries and meeting the Chesapeake 2000 oyster restoration goal; 2) to develop management recommendations based on the most biologically effective combinations of options, and; 3) to develop concise recommendations for managing commercial oyster fisheries consistent with the restoration goal and enhanced economic benefits of a sustainable harvest.

### **2. Data synthesis and analysis to support predictive modeling: Effects of changing oyster abundance on managed finfish and their prey**

The NOAA Chesapeake Bay Office is working with researchers from the University of British Columbia and regional scientists to develop an Ecopath with Ecosim model for Chesapeake Bay. The model is being developed to forecast management-relevant scenarios for Chesapeake Bay food-web interactions, including the value of the oyster population to the Bay. The multiple species model is being used to model and evaluate likely effects of the recent decline in oyster populations on recreationally and commercially important Bay fishes and members of their significant food web, as well as potential future effects of successful oyster restoration or continued oyster decline. The PIs will provide data needed to modify this and related 'baseline' models, and perform data analyses, to address important management issues of concern in the Chesapeake Bay system.

### **3. NOAA National Sea Grant - Oyster Disease Research Program (ODRP)**

ODRP was established to find solutions for oyster diseases. The problem of oyster disease began in 1956 on the East Coast, when an unknown parasite killed more than 90 percent of the oysters in Delaware Bay. Early in the 1940s, oysters in the Gulf Coast began declining. Since then, oysters on the East, West and Gulf coasts have been declining due to two types of parasitic diseases: MSX, caused by *Haplosporidium nelsoni*, and Dermo, caused by *Perkinsus marinus*. The ODRP seeks to develop optimal strategies for managing oyster disease, understand the process of parasitic infection, improve the understanding of the oyster's immune system; improve hatchery techniques for producing disease-resistant strains, and develop molecular tools to better monitor the onset and presence of disease. Annual funding for ODRP is \$2M.

### **4. NOAA National Sea Grant - Gulf Oyster Industry Program (GOIP)**

The GOIP was created in 1999 as a result of efforts by the Gulf Oyster Industry Council, a cross-section of Gulf oyster industry leaders, state resource managers, and academic researchers. The GOIP has made significant accomplishments in the areas of post-harvest treatments and evaluation of those treatments, rapid detection and quantification of human pathogens in oysters, and increased public education programs to help reduce human health risks. The goal of the GOIP is to encourage multi-disciplinary research and extension projects that contribute directly to the efficiency and profitability of oyster-related businesses and to the safety of oyster

products. Oyster businesses seek innovative solutions at all producing and processing levels, including: production (landings), oyster disease diagnostics, harvesting, post-harvest treatment, processing, distribution, marketing, consumer education, and food safety. Approximately \$1 million is available for the GOIP in FY 2005 and a similar amount is expected for FY 2006.

**NOAA partnerships:**

NOAA is a cooperating agency on the development of the Environmental Impact Statement (EIS) pertaining to the introduction of *Crassostrea ariakensis* into the Chesapeake Bay. In FY04, NOAA initiated a \$2M competitive research program to meet the information needs of an Environmental Impact Statement (EIS) being conducted by Federal and state agencies to examine the proposal put forth by the states of Maryland and Virginia to introduce *Crassostrea ariakensis* in the Chesapeake Bay. Following congressional direction, the initiative will continue with another \$2M in FY05. Funding decisions for this initiative are guided by the highest priority information needs identified in reports by the National Research Council (NRC) and the Scientific and Technical Advisory Committee of the Chesapeake Bay Program (STAC).