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DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

[Docket No. 050509124-5124-01; I.D. 050305B]

Listing Endangered and Threatened Wildlife and Plants; 90-Day Finding on a Petition to List Eastern **Oyster** as Threatened or Endangered under the Endangered Species Act

AGENCY: National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

ACTION: Notice of petition finding; request for information.

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SUMMARY: NMFS announces the 90-day finding for a petition to list eastern **oyster** (*Crassostrea virginica*) as endangered or threatened under the Endangered Species Act (ESA). NMFS finds that the petition presents substantial scientific information indicating the petitioned action may be warranted. NMFS will conduct a status review of eastern oysters to determine if the petitioned action is warranted. To ensure that the review is comprehensive, NMFS is soliciting information pertaining to this species from any interested party. NMFS also seeks suggestions from the public for peer reviewers to take part in the peer review process for the forthcoming status review.

DATES: Information related to this petition finding must be received by July 18, 2005.

ADDRESSES: You may submit comments by any of the following methods:

E-mail: [EasternOyster.Info@noaa.gov](mailto:EasternOyster.Info@noaa.gov). Include docket number (050509124-5124-01) in the subject line of the message.

Fax: 978-281-9394, Attention Ms. Kimberly Damon-Randall.

Mail: Information on paper, disk, or CD-ROM should be addressed to the Assistant Regional Administrator for Protected Resources, NMFS Northeast Regional Office, One Blackburn Drive, Gloucester, MA 01930

FOR FURTHER INFORMATION CONTACT: Ms. Kimberly Damon-Randall, NMFS, Northeast Regional Office, (978) 281-9300 x6535, or Marta Nammack, NMFS, HQ, (301) 713-1401 x180; or Jennifer Moore, NMFS Southeast Regional Office, (727) 824-5312.

SUPPLEMENTARY INFORMATION:

Background

On January 11, 2005, NMFS received a petition from Mr. Wolf-Dieter N. Busch,

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Ecosystem Initiatives Advisory Services, requesting that NMFS list eastern **oyster** (*Crassostrea virginica*) as endangered or threatened under the ESA. The petition contained information on the species, including the taxonomy; ecological and economic importance; distribution; physical and biological characteristics of its habitat and ecosystem relationships; population status and trends; and factors contributing to the population's decline. The petition addressed the five factors identified in section 4(a)(1) of the ESA: (1) Current or threatened habitat destruction or modification or curtailment of habitat or range; (2) over-utilization for commercial purposes; (3) disease or predation; (4) inadequacy of existing regulatory mechanisms; and (5) other natural or man-made factors affecting the species' continued existence.

#### ESA Statutory Provisions and Policy Consideration

Section 4(b)(3)(A) of the ESA (16 U.S.C. 1533(b)(3)(A)) requires that NMFS make a finding as to whether a petition to list, delist, or reclassify a species presents substantial scientific or commercial information indicating the petitioned action may be warranted. ESA implementing regulations define ``substantial information'' as the amount of information that would lead a reasonable person to believe the measure proposed in the petition may be warranted (50 CFR 424.14(b)(1)). In determining whether substantial information exists for a petition to list a species, NMFS takes into account several factors, including information submitted with, and referenced in, the petition and all other information readily available in NMFS files. To the maximum extent practicable, this finding is to be made within 90 days of the receipt of the petition (16 U.S.C. 1533(b)(3)(A)), and the finding is to be published promptly in the Federal Register. If NMFS finds that a petition presents substantial information indicating that the requested action may be warranted, section 4 (b)(3)(A) of the ESA requires the Secretary of Commerce (Secretary) to conduct a status review of the species. Section 4 (b)(3)(B) requires the Secretary to make a finding as to whether the petitioned action is warranted within 12 months of the receipt of the petition. The Secretary has delegated the authority for these actions to the NOAA Assistant Administrator for Fisheries.

Under the ESA, a listing determination can address a species, subspecies, or a distinct population segment (DPS) of a vertebrate species (16 U.S.C. 1532 (16)). Since the eastern **oyster** is an invertebrate species, the entire species would have to be listed under the ESA (or a subspecies, if information indicates that there are subspecies of the eastern **oyster**) if it is endangered or threatened. A species is endangered if it is in danger of extinction throughout all or a significant portion of its range (ESA section 3(6)). It is threatened if it is likely to become endangered within the foreseeable future throughout all or a significant portion of its range (ESA section 3(19)).

Under section 4(a)(1) of the ESA, a species shall be listed if it is determined to be threatened or endangered as a result of any one of

the following factors: (1) present or threatened destruction, modification, or curtailment of habitat or range; (2) over-utilization for commercial, recreational, scientific, or educational purposes; (3) disease or predation; (4) inadequacy of existing regulatory mechanisms; or (5) other natural or manmade factors affecting its continued existence. Listing determinations are made solely on the basis of the best scientific and commercial data available, after conducting a review of the status of the species and taking into account efforts made by any state or foreign nation to protect such species.

#### Life History of the Eastern **Oyster**

The eastern **oyster** is an estuarine bivalve, inhabiting subtidal and intertidal zones. Oysters form reefs, which are a dominant feature of many coastal estuaries. Oysters are often considered a ``keystone species,'' providing valuable shelter and habitat for many other estuarine organisms, improving water quality, and reducing bank erosion. Oysters are typically found in estuaries, sounds, bays, and tidal creeks from brackish water (5 parts per thousand [ppt] salinity) to full strength seawater (35 ppt salinity). The eastern **oyster** is distributed from the Gulf of St. Lawrence to the Gulf of Mexico and south through the Caribbean to the Yucatan Peninsula. They are very tolerant organisms, able to withstand wide variations in temperature, salinity, suspended sediments, and dissolved oxygen. Intertidal oysters typically have elongated, irregularly shaped shells. When submerged by the tide, oysters feed by filtering phytoplankton (microscopic plants) from the water column.

Adult oysters begin reproduction when water temperatures become greater than 68[deg]F (20[deg]C). Oysters are broadcast spawners, meaning they release eggs and sperm into the water column. A fertilized egg develops into a planktonic (free-swimming) trochophore larva in about 6 hours. A fully shelled veliger larva is formed within 12 to 24 hours. The larva remains planktonic for about 3 weeks. Towards the end of this period it develops a foot (hence, pediveliger) and settles to the bottom of the water column where it seeks a hard substrate. When a suitable surface (ideally adult **oyster** shell) is located, the larva cements itself and metamorphoses to the adult form. This newly attached **oyster** is known as a ``spat.'

#### Analysis of Petition

The petition asserts that the species warrants listing based on all five of the factors specified in the ESA (16 USC 1533(a)(1)). The petitioner contends that listing the eastern **oyster** is necessary because of the historic failure to protect the species' habitats from numerous documented anthropogenic stresses, resulting in a well-documented crash of the population. The petition states that while ``the living resources management agencies (LRMAs)'' had information regarding the catastrophic declines of the species off the Atlantic Coast and in the Chesapeake Bay, they did nothing other than increase the harvest restrictions. The petitioner contends that the LRMAs should have used their ``advisory authority under the Fish and Wildlife Coordination Act, the National Environmental Policy Act, and the Magnuson-Stevens Fishery Conservation and Management Act to force improvements and restoration of the quality and quantity of the degraded habitats.'

Habitat factors cited by the petitioner as leading to the decline

of this species include sediment load and dredging of shipping channels and harbors, which have changed water flow patterns. Also, overall freshwater inflow has been reduced by consumptive water withdrawal and by dams. Excessive nutrients from point and non-point sources frequently overload the estuaries, and toxic chemicals and endocrine disrupters are discharged into the watersheds.

The petitioner includes harvest data for different regions of the Atlantic coast during the period 1880 through 2003, indicating that the annual Atlantic coastal landings of eastern **oyster** have decreased to less than two percent of their recorded historic value, and harvest from the Chesapeake Bay has decreased to 0.2 percent of its recorded historic value. The petitioner states that this is near ``extinction level.''

The petition states that two protozoan diseases have stressed the eastern

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**oyster**, especially in the Chesapeake Bay. MSX is caused by *Haplosporidium nelsoni*, and Dermo is caused by *Perkinsus marinus*. In high salinity areas of both the Delaware Bay and Chesapeake Bay, *H. nelsoni* was responsible for the mortality of close to 100 percent of the adult standing stock biomass during a 3-year period in the late 1950s and early 1960s. Initially, MSX was found in coastal bays from North Carolina, Virginia, Maryland, Delaware, New Jersey, Connecticut, and New York, but associated mortalities did not occur south of Virginia or north of New Jersey. A range extension of the disease occurred in the 1980s, and MSX has now been documented from Maine to Florida. Since 1995, the range of MSX associated mortalities has expanded to include both Maine and New York. *P. marinus* is distributed along the East Coast of the United States from Maine to Florida and along the Gulf of Mexico coast. This parasite inhibits normal growth of the gonads in oysters and as such, reduces their reproductive capacity. Mortalities of up to 95 percent have occurred during the second summer following transfer to disease enzootic areas.

The petition states that harvest restrictions and enhancement efforts have not succeeded in restoring the eastern **oyster** populations. In addition, according to the petitioner, the LRMAs have not provided detailed water quality and physical habitat goals to the environmental enforcement agencies, making it difficult for them to address the needs of the living resources through enforcement under the Fish and Wildlife Coordination Act, the National Environmental Policy Act, and the Magnuson-Stevens Fishery Conservation and Management Act.

Finally, the petition expresses concern about the proposed introduction of the exotic Asian **oyster**, *Crassostrea ariakensis*, because it could result in the extinction of the eastern **oyster** through competition and hybridization, or because of its susceptibility to *polydora* (a native worm) and the introduction of diseases or activation of dormant diseases.

The petition alleges the threats to the eastern **oyster** population continue to occur and are accompanied by increased siltation and in some areas, periodic low levels of oxygen. These factors, which have led to the decreased abundance of the species, may lead to the extinction of the eastern **oyster**. While the exotic Asian **oyster** has not yet been introduced into the Chesapeake Bay, it presents a threat because there is a proposal to introduce it, and an Environmental Assessment is underway to evaluate its impacts on the environment. NMFS

concludes that the petition presents substantial information concerning some or all of the factors identified in ESA section 4(a)(1) with respect to the eastern **oyster** along the Atlantic Coast.

Because the petitioner presents substantial information on the status of and threats to the Atlantic Coast populations of eastern **oyster** but little information regarding the status or threats in other areas such as the Gulf Coast and Caribbean, he apparently seeks one of two alternatives: (1) a determination that the Atlantic coast populations constitute a separate subspecies that is in danger of extinction throughout all or a significant portion of its range (i.e., endangered) or likely to become so in the foreseeable future (i.e., threatened); or alternatively, (2) a determination that the eastern **oyster** is in danger of extinction throughout a significant portion of its range (e.g., along the Atlantic coast or in the Chesapeake Bay) or likely to become so in the foreseeable future. There is some limited information in our files to indicate that it is possible to differentiate between eastern oysters from the Gulf and Atlantic Coasts using mtDNA analyses. During the status review, we intend to analyze additional data to determine whether the best available information supports the existence of subspecies of eastern oysters. Existence of two or more subspecies may influence a listing determination. For example, if the available genetic information indicates that the Chesapeake Bay population is part of a separate subspecies, there may be evidence that this subspecies is threatened or endangered. Even if a subspecies does not coincide with the exact areas where major threats exist, a particular portion of such a subspecies' range may be more likely to constitute a significant portion of the subspecies' range than a significant portion of the entire species' range. If we determine that no subspecies exist, we will evaluate whether the Chesapeake Bay, entire Atlantic Coast, or other areas constitute a significant portion of the range of the species so that we can make a determination on whether the species is in danger of extinction throughout that portion of its range or likely to become so in the foreseeable future.

#### Petition Finding

Based on the above information and the criteria specified in 50 CFR 424.14(b)(2), NMFS finds the petition presents substantial scientific and commercial information indicating that the petitioned action concerning the eastern **oyster** may be warranted. NMFS will consider whether there is a separate subspecies that is threatened or endangered and whether the entire species is in danger of extinction throughout all or a significant portion of its range or likely to become so in the foreseeable future. Under section 4(b)(3)(A) of the ESA, this finding requires NMFS to commence a status review of the species. NMFS is now initiating this review. The eastern **oyster** is now considered to be a candidate species (69 FR 19976, April 15, 2004). Within 12 months of the receipt of the petition (January 11, 2006), a finding will be made as to whether listing the eastern **oyster** as endangered or threatened is warranted, as required by section 4(b)(3)(B) of the ESA. If warranted, NMFS will publish a proposed rule and solicit public comments before developing and publishing a final rule.

#### Information Solicited

To ensure the status review is based on the best available

scientific and commercial data, NMFS is soliciting information on whether the eastern **oyster** is endangered or threatened. Specifically, NMFS is soliciting information in the following areas: (1) historical and current distribution and abundance of this species throughout its range; (2) historic and current condition; (3) population status and trends; (4) information on any current or planned activities that may adversely impact the species, especially as related to the five factors specified in section 4(a)(1) of the ESA and listed above; (5) ongoing efforts to protect and restore the species and its habitat; (6) information indicating the existence of separate subspecies of eastern oysters based upon genetic data or other information; and (7) information on whether any particular portions of the range of the eastern **oyster** constitute significant portions of the range of the species or of any potential subspecies that may exist. NMFS requests that all information be accompanied by: (1) supporting documentation such as maps, bibliographic references, or reprints of pertinent publications; and (2) the submitter's name, address, and any association, institution, or business that the person represents.

#### Peer Review

On July 1, 1994, NMFS, jointly with the U.S. Fish and Wildlife Service, published a series of policies regarding listings under the ESA, including a policy for peer review of scientific data (59 FR 34270). The intent of the peer review policy is to ensure listings are

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based on the best scientific and commercial data available. NMFS is soliciting the names of recognized experts in the field that could take part in the peer review process for this status review. Independent peer reviewers will be selected from the academic and scientific community, tribal and other Native American groups, Federal and state agencies, the private sector, and public interest groups.

Authority: 16 U.S.C. 1531 et seq.

Dated: May 13, 2005.

William T. Hogarth,  
Assistant Administrator for Fisheries, National Marine Fisheries Service.

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