

**MARINE MAMMAL COMMISSION**  
**4340 EAST-WEST HIGHWAY, ROOM 905**  
**BETHESDA, MD 20814**

14 August 2006

Ms. Donna Darm  
National Marine Fisheries Service  
Protected Resources Division  
1201 NE Lloyd Boulevard, Suite 1100  
Portland, OR 97232-1274

Dear Ms. Darm:

The Marine Mammal Commission, in consultation with its Committee of Scientific Advisors on Marine Mammals, has reviewed the National Marine Fisheries Service's 15 June 2006 *Federal Register* notice describing proposed critical habitat for the southern resident killer whale stock. The Service has done a commendable job of describing and weighing the issues involved in the designation of the stock's critical habitat. The recommendations and comments that follow are intended to support the proposed rule and related conservation efforts.

## **RECOMMENDATIONS**

The Marine Mammal Commission recommends that the National Marine Fisheries Service establish critical habitat for the southern resident stock of killer whales as described in the *Federal Register* notice of 15 June 2006. In addition, the Commission recommends that the Service—

- recognize natural sound characteristics as an essential feature or primary constituent element of southern resident killer whale critical habitat;
- investigate all potential connections between sources of sound disturbance and actions authorized, funded, or carried out by the federal government to determine if a nexus exists, thereby allowing the Service to avail itself of all conservation tools under the Endangered Species Act, particularly section 7 consultations;
- implement a precautionary approach with regard to management of contaminants to prevent them from entering the Puget Sound environment;
- designate critical habitat for the southern resident killer whale stock up to the shoreline, rather than limit it to waters more than 20 feet deep; and
- initiate its investigation of winter habitat use by southern resident killer whales as soon as possible.

The *Federal Register* notice excludes 18 military sites from critical habitat designation based on the importance of those sites to military readiness activities in time of war. The sites comprise about four percent of the total area under consideration, and military activities in those areas are subject to the jeopardy standard under the Endangered Species Act. The Marine Mammal Commission recognizes the importance of military readiness. At the same time, the Commission encourages the Service to work with the Navy to monitor activities in the excluded areas and advise it of steps that should be taken to minimize potential destruction or adverse modification of killer whale habitat,

including but not limited to indirect effects of anthropogenic sound both within the excluded areas and more broadly. In that regard, a well-conceived monitoring program that is initiated as soon as possible—preferably before designation of critical habitat and before any activities are undertaken in those regions—would be useful. The results of such work could inform decisions concerning similar exclusions in the future.

## **RATIONALE FOR RECOMMENDATIONS**

The Marine Mammal Commission offers the following explanation and discussion of its recommendations.

### Sound as an essential feature of critical habitat

The best available scientific evidence indicates that resident killer whales use—and presumably depend on—sound for navigation, foraging, and communication. These functions are essential for physical growth, reproduction, survival, and, ultimately, population growth. It therefore seems indisputable that the whales in this stock require an environment that does not significantly interfere with their use of sound for these vital functions. The introduction of human-generated sound into the marine environment may affect killer whales by causing hearing loss or serious injury (probably an infrequent worst case involving exposure to high-intensity or high-energy sounds) or, more likely, masking or disturbance. For example, a paper by Morton and Symonds (2002) provides convincing empirical evidence that introduced noise can cause killer whales to abandon certain habitat. Those kinds of effects, although less serious in the short term, may nonetheless constitute a significant impediment to recovery of the southern resident stock if the introduced sounds persist over time, causing continuous or long-term disruption of natural habitat-use patterns and vital functions. For those reasons, the Marine Mammal Commission recommends that the National Marine Fisheries Service recognize natural sound characteristics as an essential feature or primary constituent element of southern resident killer whale critical habitat. Doing so is entirely consistent with the regulatory definition provided in the *Federal Register* notice, which states that essential features may include such things as food, water, air, or light (which, like sound, is a form of energy) and which also recognizes that such requirements include “habitats that are protected from disturbance.”

### A federal nexus for management of sound

To minimize their effects, the human activities producing sounds that may disturb killer whales should be managed in a comprehensive and precautionary manner. Vessel traffic may be the single most important source of disturbance. For example, whale-watching vessels may have significant effects because of the noise they generate and their proximity to the whales, and such vessels should be managed cautiously, even in the absence of demonstrated effects. Similarly, large commercial vessels may have significant effects because they likely introduce the most acoustic energy into Puget Sound waters. In addition, military vessels using certain types of sonar may introduce episodic, high-intensity sound into the environment. The *Federal Register* notice indicates that the Service has not identified a nexus between the federal government and many of the vessel

types that may cause sound-related disturbance. The Marine Mammal Commission recommends that the Service carefully investigate all such potential connections to determine if such a nexus exists, thereby allowing the Service to avail itself of the conservation tools under the Endangered Species Act, particularly section 7 consultations. U.S. Coast Guard licensing procedures, for example, may provide such a nexus. The conservation tools made available may prove important in addressing activities that not only generate sound but also pose other risks to killer whales. For example, large vessels also pose risks related to collisions or introduction of contaminants via fuel spills or discharge of ballast or bilge water.

#### Precautionary management of contaminants

The *Federal Register* notice identifies water quality as an essential feature of critical habitat, and the Commission concurs with that finding. Southern resident killer whales carry significant concentrations of contaminants that may be affecting their immune or reproductive systems. The *Federal Register* notice also states that the Service presently “lack[s] sufficient information about the relationships among the sources of contaminants, their movement through the food chain, and their impact on killer whales....” This statement characterizes the state of knowledge regarding the effects of contaminants on marine mammals generally, and much work remains to be done to investigate the nature and significance of such effects. The Commission encourages the Service to continue its ongoing work and initiate such new work as may be needed, including careful assessment and monitoring of contaminant sources, tracking of contaminants through the food chain, and assessment of dose-specific impacts on individual animal health. Until cause-and-effect relationships are better understood, the Marine Mammal Commission recommends a precautionary approach with regard to management of contaminants by preventing them from entering the Puget Sound environment. We recognize that there are many good reasons for taking such an approach in addition to improving the prospects for recovery of killer whales. To a considerable degree, killer whales serve as sentinels that can help draw attention to unseen health hazards for people and many other organisms. Cooperative efforts with the Environmental Protection Agency, the National Pollutant Discharge Elimination System, the new Puget Sound Partnership, and the State of Washington are an important step toward improving marine environmental health for the benefit of many forms of life. This is particularly critical in view of the projected 25 to 30 percent increase in human population in Washington State by 2025, much of which will be in coastal counties that border Puget Sound or drain into the Sound via surrounding watersheds.

#### Water depths used by killer whales

The *Federal Register* notice indicates that critical habitat will be limited to waters more than 20 feet deep because killer whales, which can reach almost 30 feet in length, may not be able to maneuver in shallow waters. The Commission does not concur with that assumption and believes that the existing evidence (including evidence cited in the *Federal Register* notice) indicates that killer whales are indeed able to use waters shallower than 20 feet. For example, killer whales use shoreline rocks and beaches for rubbing in British Columbia and beach themselves to capture pinniped prey in the Southern Hemisphere. Killer whales have been observed preying on stingrays in waters so shallow that they had to turn onto their sides to maneuver and even stranded themselves, returning

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to the water by thrashing their tails (Visser 1999). In addition, as stated in the *Federal Register* notice, killer whales foraging in Puget Sound take advantage of channels and shorelines that constrict movement and force prey to congregate. Even if killer whales could not enter waters less than 20 feet in depth, human activities in shallow waters might displace nearby whales and alter their habitat-use patterns. For example, shallow-water aquaculture facilities using acoustic harassment devices such as those used in the areas studied by Morton and Symonds (2002) could cause such disturbance. Finally, creating a requirement for mariners, managers, and enforcement personnel to parse the nearshore environment along a 20-foot isobath would unnecessarily constrain and complicate regulatory efforts. For all of those reasons, the Marine Mammal Commission recommends that the Service designate critical habitat as extending up to the shoreline.

#### Wintering areas

The *Federal Register* notice indicates that available information is not sufficient to identify areas outside of Puget Sound used by southern resident killer whales during winter months. The notice also states that the Service will increase its efforts to study habitat-use patterns outside of the Sound to identify areas that should be designated as critical habitat. Clearly it is possible, if not likely, that habitats used by killer whales in the winter will prove to be as important as summer habitats for recovery of the population. It is essential that winter habitats be identified and given appropriate protection. The Marine Mammal Commission therefore recommends that the Service initiate its investigations of winter habitat use by southern resident killer whales as soon as possible.

Please contact me if you have questions about these recommendations or wish to discuss them.

Respectfully,



Timothy J. Ragen, Ph.D.  
Acting Executive Director

cc: Frank Stone, Ph.D.  
Usha Varanasi, Ph.D.

#### References

- Morton, A. B., and H. K. Symonds. 2002. Displacement of *Orcinus orca* (L.) by high amplitude sound in British Columbia. *ICES Journal of Marine Science* 59:71–80.
- Visser, I. N. 1999. Notes: Benthic foraging on stingrays by killer whales (*Orcinus orca*) in New Zealand waters. *Marine Mammal Science* 15:220–227.