



MARINE MAMMAL COMMISSION

18 December 2019

Ms. Lynne Barre, Chief
Seattle Branch, Protected Resources Division
West Coast Region
National Marine Fisheries Service
Sand Point Way NE, Building 1
Seattle, Washington 98115

Attn: SRKW Critical Habitat Proposed Rule

Dear Ms. Barre:

The Marine Mammal Commission (the Commission), in consultation with its Committee of Scientific Advisors on Marine Mammals, has reviewed the National Marine Fisheries Service's (NMFS) 19 September 2019 proposed rule (84 Fed. Reg. 49214) to revise the critical habitat designation for the Southern Resident killer whale (SRKW) distinct population segment (DPS) under the Endangered Species Act (ESA). NMFS has sufficiently described and weighed the issues involved in the designation of the SRKW critical habitat, including with regard to the geographic extent of the proposed critical habitat in coastal areas. The recommendations and comments that follow support adoption of the proposed rule, subject to either the explicit inclusion of anthropogenic sound in the proposed essential features or the recognition of sound as a fourth essential feature in the critical habitat designation.

Background

NMFS is proposing to expand the critical habitat boundaries for the SRKW based on data that have become available since the original critical habitat designation in 2006, which followed the listing of the DPS as endangered under the ESA in 2005. The original critical habitat designation included only inland waters of Washington State, totaling approximately 6,630 km² of marine habitat. The Commission provided recommendations concerning the original designation of SRKW critical habitat in its [14 August 2006 letter](#). In that letter, the Commission recommended, among other things, that natural sound characteristics be included as an essential feature of the critical habitat and urged NMFS to investigate SRKW wintering habitat for possible inclusion in the designation.

The Center for Biological Diversity (CBD) petitioned NMFS to revise the SRKW critical habitat in January 2014. In response, NMFS announced a 90-day finding that substantial scientific information indicated a revision was warranted and its intention to gather and analyze the data required to inform its review. In August 2018 CBD filed a complaint against NMFS seeking a

deadline for the revised critical habitat determination. That resulted in a settlement agreement requiring publication of a proposed rule by 6 September 2019.

The proposed rule for SRKW critical habitat would retain the original inland waters and connect them with an additional six contiguous coastal areas, extending from the Canadian border south to Point Sur, California. The proposed coastal critical habitat is bounded offshore by the 200-m isobath and nearshore by the 6.1-m isobath, relative to mean high water. In sum, the proposed rule would add 40,472.7 km² of coastal marine habitat to the designation. NMFS proposed no changes to the list of habitat features essential to the conservation of the DPS, which are: (1) water quality to support growth and development; (2) prey species of sufficient quantity, quality, and availability to support individual growth, reproduction, and development, as well as overall population growth; and (3) passage conditions to allow for migration, resting, and foraging. NMFS considered including sound as a fourth essential feature but opted not to do so.

Critical habitat boundaries and exclusions

The analysis of data from opportunistic sightings, satellite-linked tracking, and acoustic detections was used to determine range, habitat preferences, and prey availability for SRKWs. The Commission agrees with NMFS that the six areas of coastal habitat proposed for inclusion in the designation exhibit all three of the identified essential features, although each region has a dominant feature. For coastal areas 1, 2, 4, and 6 the dominant feature is prey, while for areas 3 and 5 the dominant feature is passage. The Commission commends NMFS for recognizing the importance of passage between foraging areas, especially given that SRKWs presumably search for prey almost constantly and the timing and abundance of salmon runs along the west coast of North America is highly variable. The Commission recognizes that the designation of six separate, yet contiguous coastal areas may facilitate more focused consultations under section 7 of the ESA and more closely align with salmon management units. As such, they should be identified in the designation as six discrete areas rather than as one large area. On the basis of the analyses presented in the proposed rule, the Commission recommends that NMFS adopt all areas proposed for critical habitat designation.

The Commission concurs with the initial determination in the economic analysis prepared by Industrial Economics, Inc. (2019) that the incremental economic impact of the revised critical habitat designation does not outweigh the conservation benefit of the habitat in any of the six coastal areas. The Commission also recognizes the requirement to balance military readiness needs when designating critical habitat. The proposed exclusion of the Navy's Quinault Range Site accounts for about 25 percent of coastal areas 1 and 2, the areas that NMFS indicated have the highest conservation value among all coastal areas. However, the Navy reported that a low number of training and testing events would occur annually within the QRS (Tables 2.5-1 and 2.5-2, Department of the Navy 2019). Those activities would be subject to review under section 101(a)(5)(A) of the Marine Mammal Protection Act (MMPA) and section 7 of the ESA. NMFS may issue an incidental take authorization under the MMPA only if it determines that the planned military activities will (1) have a negligible impact on the species or stock, (2) be monitored and reported on, and (3) have the least practicable adverse impact on marine mammal species and stocks and their habitat, after considering personnel safety, practicality of implementation, and impact on the effectiveness of the military readiness activities.

Prey, passage, and water quality essential features

NMFS identified prey quantity, quality, and *availability* to support individual growth, reproduction, and development, as well as overall population increase, as essential features of the critical habitat. Prey limitation is believed to be the most important factor affecting SRKW population growth (Ayres et al. 2012, Lacy et al. 2017), and the Commission asserts that salmon recovery should be NMFS's primary focus in pursuing the goal of SRKW recovery. Prey quality and the energy required to capture prey dictate the quantity of prey required to sustain individual whales and the SRKW DPS. For example, based on age, length, mass, and daily consumption by male and female SRKWs, Williams et al. (2011) estimated that the 2009 SRKW population of 87 individuals¹ required either 52,000 "calorie-rich" Chinook salmon per year or 90,000 "lean" Chinook salmon per year. However, even if enough calorie-rich salmon exist to sustain and support recovery of the DPS, those fish must be *available* to the whales. Availability entails that both (1) the spatial and temporal distribution of the Chinook salmon aligns with that of the whales and (2) the whales have access to those fish (i.e., foraging is not obstructed in some way, including by excessive sound).

To support spatial and temporal availability of prey, the Commission believes NMFS should extend special management attention to the rivers delivering key salmon runs to the inland and coastal critical habitat, including the Skagit, Columbia, Klamath, and Sacramento Rivers. Wherever possible, NMFS should work to support restoration of salmon habitat, recovery of salmon runs, and diversification of hatchery release times to improve prey quantity, quality, and availability for SRKWs. Efforts should focus on Chinook salmon, the species that is the preferred prey of SRKWs, as well as coho and chum salmon, which are important components of the whales' fall and winter diet and which often are recorded in the more diverse diet of whales feeding in coastal waters of Washington, Oregon, and California (NMFS 2019). Furthermore, since efforts to increase prey quantity, quality, and availability after the ESA listing of the SRKW DPS have proven insufficient for species recovery, the Commission urges NMFS to be more rigorous and thorough when conducting section 7 consultations for activities that may adversely affect the prey essential feature of the critical habitat. A recent review found that the elimination of ocean fishing would result in a 20 percent increase in the availability of Chinook salmon to SRKWs (Hilborn et al. 2012). While such elimination may appear to be impractical and, even if it were achieved, the same review showed that it would be insufficient by itself to ensure the full recovery of SRKWs, this example illustrates the relationship between the removal of juvenile, and presumably adult, Chinook salmon by at-sea fishing and the availability of this primary prey to SRKWs. Further, it indicates that significant reductions in fishing mortality of Chinook salmon could contribute significantly to reversing the decline in SRKW numbers.

The passage essential feature supports access to prey, as it recognizes that SRKWs move extensively in search of prey. SRKWs must be able to forage successfully if the population is to recover. For the proposed coastal critical habitat, NMFS should evaluate whether the adoption of mitigation measures is needed in areas where shipping routes overlap with corridors heavily used by SRKWs as they move between foraging hotspots (particularly in coastal areas 3 and 5, as noted in NMFS (2019)). In addition to protecting movement corridors between foraging sites, the passage feature would minimize disturbance during foraging. Studies in inland waters have shown that vessel presence can alter SRKW behavior and can result in more time spent traveling and less time spent

¹ Consisting of 23 adult males, 29 adult females without calves, 15 juveniles, and 10 mother-calf pairs.

foraging (Lusseau et al. 2009). Specifically, small boats, such as whale-watching vessels, are more likely to aggregate in larger numbers and in closer proximity to the whales (Seely et al. 2017) than large vessels. Similar effects should be expected in coastal waters, particularly in shallower areas near river mouths where whales aggregate to forage (NMFS 2019). The Commission therefore recommends that NMFS work with the U.S. Coast Guard, states, and others, to evaluate, based on data from whales foraging in coastal waters and location data on both large and small vessel traffic, whether additional management is needed to reduce vessel disturbance to SRKWs in critical habitat areas where prey is the dominant essential feature.

Water quality is the final habitat feature identified by NMFS as essential for the conservation of the SRKW DPS. Some contaminants, including persistent organic pollutants (POPs), biomagnify at higher trophic levels, ultimately leading to high contaminant concentrations in the blubber of killer whales. This becomes particularly concerning when malnourished whales metabolize their blubber stores to meet caloric demand, releasing otherwise sequestered contaminants into their bodies. POPs are known to suppress immune system function, reduce fecundity, and increase calf mortality (84 Fed. Reg. 49216). Since contaminants can significantly affect a whale's habitat (through its prey) and individual whale health, the Commission urges NMFS to work with relevant federal and state agencies to adopt stronger measures to prevent contaminants from reaching both inland and coastal critical habitat areas, especially through rivers that support key salmon runs.

Consideration of sound as an essential feature

NMFS did not include sound as a separate feature essential for the conservation of SRKWs. The Commission is concerned that NMFS did not adequately consider sound in determining what constitutes critical habitat for SRKWs. If sound is not included as a fourth essential feature in the final rule, the Commission strongly urges NMFS to examine and explicitly include anthropogenic sound as part of the prey and passage essential features, with special consideration given to its effect on communication for purposes other than finding and capturing prey or navigating passage areas.

In responding to public comments on the 2006 proposed SRKW critical habitat, NMFS “acknowledge[d] the many observations about the potential for sound to startle or even physically injure killer whales,” but concluded that these effects “are direct effects to the animal itself and not to its habitat.” While it is true that anthropogenic sound can have a direct impact on a killer whale, sound also affects the habitat. This is similar to the effect of an oil spill (included as part of the water quality essential feature), which would harm the killer whales directly, but also degrade the critical habitat (84 Fed. Reg. 49216).

In the final 2006 SRKW critical habitat designation, NMFS pointed to a lack of scientific information to support including sound as an essential feature. That lack of information no longer exists. Small motorized vessels dominate anthropogenic sound in shallow waters (Hermannsen et al. 2019), and the frequencies of sound produced by those vessels and their echosounders overlap the frequency bands used by SRKWs for communication and foraging (Wladichuk et al. 2019). Although low-frequency, broadband sound, such as that created by large vessels, does not generally affect SRKW foraging, Holt et al. (2011) noted that sufficiently high-amplitude broadband sound could force the whales to produce louder calls and could result in communication masking.

NMFS has acknowledged that a qualitative threshold could be used to define the sound essential feature, similar to how it has structured critical habitat designations for Cook Inlet beluga whales and Main Hawaiian Islands false killer whales (84 Fed. Reg. 49219). Canada has included acoustic attributes in its critical habitat designation for resident killer whales, referring to the need to “maintain *communication*, and detect and capture prey while in the area” (Fisheries and Oceans Canada 2011, Williams et al. 2014). It would be prudent for NMFS to include a similar attribute in its critical habitat designation.

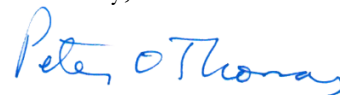
NMFS indicated that the effects of sound can be evaluated through the prey and passage essential features, thereby providing protection consistent with what would be afforded by a separate sound-related essential feature (84 Fed. Reg. 49219). The Commission agrees that the effects of sound on prey and passage must be assessed as components of those essential features. NMFS acknowledges that the availability of prey “may be impacted by [anthropogenic] sound[s]... if they raise average background noise within the animal’s critical bandwidth to a level that is expected to chronically or regularly reduce echolocation space” (84 Fed. Reg. 49218) and that the passage essential feature provides open waterways free from physical and acoustic obstruction for SRKWs “to move within and migrate between important habitat areas throughout their range, find prey, and fulfill other life history requirements” (84 Fed. Reg. 49219). However, these two essential features do not specifically consider communication space for social behavior, including, among other things, mother-offspring bonding and pod cohesion, which are vital to the health and recovery potential of SRKWs. The ability to engage in social behavior is essential to the conservation of SRKWs (Ellis et al. 2017) and the communication space to allow for such behavior should be protected as part of critical habitat designation.

Therefore, the Commission recommends that NMFS either (1) describe more explicitly how communication space essential to all aspects of SRKW life history is encompassed within the prey and passage essential features or (2) if it determines that such communication space is not adequately addressed as part of the prey and passage features, include sound as a separate essential feature and identify additional areas that possess that feature and warrant designation as critical habitat in the final rule.

Conclusion

The Commission emphasizes its support for the geographic boundaries proposed by NMFS for the six coastal critical habitat areas and reiterates that prey quantity, quality, and availability remain the highest priority for conservation of SRKWs. Please contact me if you would like to discuss any the Commission’s comments and recommendations.

Sincerely,



Peter O. Thomas, Ph.D.,
Executive Director

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