National Marine Fisheries Service Memorandum for the Record:

Management Considerations in Designating Demographically Independent Populations as Stocks under the Marine Mammal Protection Act

Memo to Record

To: The Record

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Subject: Evaluation of MMPA Stock Designation for U.S. West Coast harbor porpoise to designate a Central Oregon stock, which is currently part of the Northern California – Southern Oregon stock.

Purpose: The National Marine Fisheries Service (NMFS) process for designating stocks under the Marine Mammal Protection Act (MMPA) is described in *Reviewing and Designating Stocks and Issuing Stock Assessment Reports under the Marine Mammal Protection Act* (NMFS 2019). In most cases, if sufficient evidence exists to delineate demographically independent populations (DIPs), they should be designated as stocks and assessed as such in Stock Assessment Reports (SARs). As noted in NMFS (2019), in practice there may be some situations (anticipated to be relatively few) where it would be impractical, or there are insufficient data or analytical tools, to assess and manage a stock at the DIP level (see NMFS (2019) for examples). In addition, when Distinct Population Segments (DPSs) have been established under the Endangered Species Act (ESA), it may be pragmatic to designate a stock comprising more than one DIP of a single DPS.

The purpose of this memorandum is to document the collective consideration by NMFS' Science Centers, Regional Offices, Office of Protected Resources (OPR), and Office of Science and

Technology (OST) staff of how to designate West Coast harbor porpoise stocks relative to identified DIPs within the current "Northern California – Southern Oregon' (NCSO) stock. In some cases, this may involve considering stock designation of "units" that have not been definitively delineated as DIPs. For example, when a newly delineated DIP from within an existing stock is being considered for stock designation, the remaining marine mammals in the stock may or may not be understood to constitute one or more DIPs depending on the available data and analyses. Here, a new 'Central Oregon' stock is being considered within the northern range of the NCSO stock.

Current Stock Designation(s): Under the MMPA, the NCSO harbor porpoise stock currently extends from just north of Pt. Arena, CA (39°12.7' N) to Lincoln City, OR (45° N) .

Demographically Independent Populations/Units Under Consideration: A recent genetic analysis of population structure of harbor porpoise along the U.S. West Coast (Morin et al. 2021), which represents a strong line of evidence as defined by Martien et al. (2019), supports a finding that harbor porpoises north of about 43°12' N are a DIP and therefore could be treated as an individual stock rather than part of the NCSO stock. This latitude corresponds to an area with lower harbor porpoise densities during past aerial surveys, similar to other stock boundaries along the U.S. West Coast. Animals within the remaining range of the NCSO stock are genetically distinct from animals farther south and north (Morin et al. 2021) and would also be a DIP.

Relevant Regional Office(s), Science Center(s), and Headquarters Office(s): West Coast Regional Office (WCRO), Southwest Fisheries Science Center (SWFSC), OPR, and OST.

Process by which stock designation was considered:

- March 2021 Pacific Scientific Review Group (SRG) Meeting: Peer-reviewed paper by Morin et al. (2020), with a genetic analysis of harbor porpoise population structure through the full range from southern California to southern British Columbia, was presented to the Pacific SRG at the 2021 meeting. Results confirm existing population stocks, but suggest splitting of the largest stock (Northern California/Southern Oregon) into two stocks. Seascape genetic analysis suggests evidence of local adaptation, further supporting management of local stocks.
- 25 Aug 2021: Web meeting with Karin Forney (SWFSC), Jim Carretta (SWFSC), Eric Patterson (OPR), Zac Shakner (OST) and Jeff Moore (SWFSC) to discuss CA/OR porpoise stock structure and process moving forward.
- 6 Oct 2021: Web meeting with broader NMFS staff (SWFSC, WCRO, OST, OPR) to discuss CA/OR porpoise stock designation. There was general agreement that this is a straightforward stock designation, consistent with past stock designations. Karin Forney will develop new abundance estimates beginning in October 2022, based on

August-September 2021-2022 aerial survey data collected off Oregon and Washington by SWFSC's Marine Mammal and Turtle Division.

Questions to Consider for Stock Designation (from NMFS 2019, Section B):

1. Is it feasible to manage each DIP/unit being considered as a single stock? For example:
    a. Is there an abundance estimate for each DIP/unit that could be used for calculating the PBR level?
    b. Is there a way to attribute takes to each DIP/unit other than allocating each take to all possible DIPs in the area?
    c. Are there any other potential analytical or practical barriers that would limit our ability to manage each DIP/unit?

Along the West Coast, there are already multiple harbor porpoise stocks that are separated by latitudinal boundaries in areas of low porpoise density, and the new DIP would follow this same pattern, with a boundary at 43°12' N, separating it from the remaining NCSO stock which is also a DIP. Abundance and any potential human-caused mortality can be estimated for each DIP based on their non-overlapping ranges. Although there may be some uncertainty in DIP identity near the DIP boundary (e.g. because a stranded animal with human-related cause of death may have drifted), this is the same as currently exists for all other West Coast harbor porpoise stocks, which have successfully been assessed and managed for decades under the MMPA. There are no potential analytical or practical barriers that limit our ability to manage each of the DIPs.

2. Is there a reason to believe that human-caused serious injury/mortality or threats differ significantly between DIPs/units in the area?

There have been no recent human-caused serious injuries or deaths in harbor porpoise within the range of either of the two new DIPs (Carretta et al. 2023).

3. What are the conservation and management benefits and risks of managing each DIP/unit as individual stocks versus together as a single stock?

The benefits are that we are managing the biologically relevant unit (DIP), and there are no risks associated with separating the current stock into two stocks.

4. Have Distinct Population Segments (DPSs) for the species to which the DIPs/units belong been recognized under the ESA? (note from NMFS 2019: NMFS should align stock designations with DPSs established under the ESA unless there is compelling reason not to. For species that are listed under the ESA, only DIPs/units from the same ESA-listed DPS should be combined.)

N/A – harbor porpoise are not listed under the ESA.

5. Do members of the DIP/unit overlap in space and time with members of at least one other DIP/unit of the same species? For migratory marine mammals, the evaluation should focus on overlap in the breeding ground(s). In cases where DPSs have been established under the ESA, the same species here refers to all animals within a single DPS.

The two DIPs are geographically distinct and do not overlap in space or time.

Conclusion:
The findings of two DIPs off Oregon and northern CA is based on a comprehensive genetic study (Morin et al. 2021), which is considered a strong line of evidence (Martien et al. 2019). Designating two geographically separate stocks is consistent with other U.S. West Coast harbor porpoise stocks, and there are no barriers to managing the two stocks separately. NMFS staff all agreed that this is a straightforward stock situation, and that the stock designation process should move forward as soon as practicable. The harbor porpoise SAR author, Karin Forney, plans to provide Draft SARs, with new abundance estimates for each stock, to the Pacific SRG at their 2023 meeting. Official stock designation decisions are made by the NMFS' Assistant Administrator in final stock assessment reports, following publication of the draft stock assessment reports and consideration of public comment.

References:

Carretta, J.V., J. Greenman, K. Wilkinson, L. Saez, D. Lawson, and J. Viezbicke. 2023. Sources of Human-Related Injury and Mortality for U.S. Pacific West Coast Marine Mammal Stock Assessments, 2017-2021. Document PSRG-2023-xx, presented to the Pacific Scientific Review Group, March 2023.

Morin PA, Forester BR, Forney KA, Crossman CA, Hancock-Hanser B, Robertson KM, Barrett-Lennard LG, Baird RW, Calambokidis J, Gearin P, Hanson MB, Schumacher C, Harkins T, Fontaine M, Taylor BL, Parsons K. 2021. Population structure in a continuously distributed coastal marine species, the harbor porpoise, based on microhaplotypes derived from poor quality samples. Molecular Ecology 2021;00:1–20. https://doi.org/10.1111/mec.15827

Martien K, Lang AR, Taylor BL, Rosel PE, Simmons SE, Oleson EM, Boveng PL, Hanson MB. 2019. The DIP Delineation Handbook: A Guide to Using Multiple Lines of Evidence to Delineate Demographically Independent Populations of Marine Mammals. U.S. Department of Commerce, NOAA Technical Memorandum NMFS-SWFSC-622.

Attachments: n/a