



# MARINE MAMMAL COMMISSION

2 April 2018

Ms. Jolie Harrison, Chief  
Permits and Conservation Division  
Office of Protected Resources  
National Marine Fisheries Service  
1315 East-West Highway  
Silver Spring, MD 20910-3225

Dear Ms. Harrison:

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) 5 March 2018 notice (83 Fed. Reg. 9366) and the letter of authorization application submitted by the U.S. Navy (the Navy) seeking issuance of regulations under section 101(a)(5)(A) of the Marine Mammal Protection Act. The taking would be incidental to conducting construction activities related to marine structure maintenance and pile replacement at facilities in Washington during a five-year period.

The Navy plans to remove and install piles during construction activities at six facilities<sup>1</sup> in Washington. During the five years of activities, operators would install up to 822 concrete, timber, plastic, or steel piles up to 36in in diameter using a vibratory and impact hammer. They would remove the same number of piles using a vibratory hammer, cutting/chipping, clamshell bucket, and/or direct pull. The Navy's activities could occur on approximately 435 days during the five-year period. It would limit pile-driving and -removal activities to daylight hours<sup>2</sup>. In-water activities would occur from July 16 through January 15 at Bangor and Zelatched Point. At the remaining four facilities, in-water activities would occur from July 16 through February 15.

NMFS preliminarily has determined that, at most, the proposed activities could cause Level A and/or B harassment of small numbers of 11 marine mammal species or stocks. It also anticipates that any impact on the affected species and stocks would be negligible. NMFS does not anticipate any take of marine mammals by death or serious injury and believes that the potential for disturbance will be at the least practicable level because of the proposed mitigation measures. The mitigation, monitoring, and reporting measures include—

- using only one hammer at any given time at a facility;

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<sup>1</sup> At Naval Base Kitsap Bangor (Bangor), Naval Base Kitsap Bremerton (Bremerton), Naval Base Kitsap Keyport (Keyport), Naval Base Kitsap Manchester (Manchester), Zelatched Point, and Naval Station Everett (Everett).

<sup>2</sup> In-water activities would occur only during daylight hours (sunrise to sunset). From July 16 to September 15, impact pile-driving activities would only occur starting two hours after sunrise and ending two hours before sunset.

- using a bubble curtain<sup>3</sup> during impact pile driving of 24- to 36-in piles and implementing various performance standards measures;
- using soft-start, delay, and shut-down procedures, including ceasing activities if any marine mammal comes within 10 m of a pile;
- using delay and shut-down procedures, if a species for which authorization has not been granted or if a species for which authorization has been granted but the authorized takes have been met, approaches or is observed within the Level A and/or B harassment zone<sup>4</sup>;
- using qualified protected species observers to monitor the harassment zones for 15 minutes before, during, and for 30 minutes after pile driving and removal<sup>5</sup>;
- obtaining both marine mammal sightings and acoustic detection data from the Orca Network<sup>4</sup>;
- developing for NMFS's approval and submitting by 1 March of each year a facility-specific marine mammal monitoring plan for each year's anticipated activities;
- reporting any pinniped hauled out at unusual sites (e.g., in work boats) immediately to the local stranding network, and as soon as time allows to NMFS, and following any procedures or measures stipulated by the stranding network<sup>4</sup>;
- reporting injured and dead marine mammals to the West Coast Regional Stranding Coordinator and NMFS using NMFS's phased reporting approach and suspending activities, if appropriate;
- implementing adaptive management, as necessary; and
- submitting draft and final annual and final monitoring reports to NMFS.

### **Appropriateness of the Level A harassment zones**

The Commission supports NMFS's use of the updated permanent threshold shift (PTS) thresholds and associated weighting functions that are used to estimate the Level A harassment zones. However, there are some shortcomings that need to be addressed regarding the methodology for determining the extent of the Level A harassment zones based on the associated PTS cumulative sound exposure level ( $SEL_{cum}$ ) thresholds for the various types of sound sources, including stationary sound sources. For determining the range to the PTS  $SEL_{cum}$  thresholds, NMFS uses a baseline accumulation period of 24 hours unless an activity would occur for less time (e.g., 8 hours). The Commission supports that approach if an action proponent is able to conduct more sophisticated sound propagation and animal modeling. However, that approach is less than ideal for action proponents that either are unable, or choose not, to conduct more sophisticated modeling.

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<sup>3</sup> Bubble curtains would not be used at Bremerton and possibly Keyport due to risk of disturbing contaminated sediments at those sites. Use of the bubble curtain at Keyport would be further investigated.

<sup>4</sup> The Commission noted that these standard measures were not included in the proposed rule. NMFS has since clarified that the measures would be included in the final rule.

<sup>5</sup> Including monitoring during 100 percent of the activities and the use of survey vessels for most projects. The Navy expects marine mammal monitoring to be more extensive than previous monitoring due to the size of the harassment zones and its intent to shut down activities when cetaceans are observed in the Level B harassment zone.

As an example, for impact driving of 36-in piles with bubble curtain implementation<sup>6</sup> for the proposed rule, the Level A harassment zones for both low- and high-frequency cetaceans were estimated to be much greater (736 and 541 m, respectively) than the Level B harassment zone (398 or 541 m depending on the site). Based on the extent of those zones, it is assumed that an animal would experience permanent hearing damage via PTS at ranges that far exceed the ranges at which an animal would exhibit a behavioral response. That notion runs counter to the logic that permanent and temporary physiological effects are expected to occur closest to the sound source, with behavioral responses triggered at lower received levels, and thus at farther distances. Numerous Navy environmental impact statements<sup>7</sup>, as well as a National Research Council (NRC) report (Figure 4-1; NRC 2005), support this logic.

NMFS has yet to address this issue adequately. Specifically, it has stated that animals would not likely remain in the area with intense sound that could cause severe levels of hearing damage and that, in reality, animals avoid those areas (82 Fed. Reg. 15511). NMFS further has stated that marine mammals taken by Level B harassment would most likely exhibit overt brief disturbance and avoidance of the area (82 Fed. Reg. 15511). However, those conclusions do not comport with NMFS's proposed Level A and B harassment zones, which indicate an animal would experience PTS before behaviorally responding and avoiding the area.

The Commission does not question the Level A harassment thresholds themselves, but rather the manner in which the PTS  $SEL_{cum}$  thresholds are currently implemented. The Level A and B harassment zones do not make sense biologically or acoustically due to NMFS's unrealistic assumption that the animals remain stationary throughout the entire day of the activity.<sup>8</sup> This is particularly problematic when action proponents, including the Navy, are using a simple area x density method for take estimation. By assuming a stationary receiver, all of the energy emitted during a 24-hour period is accumulated for the PTS  $SEL_{cum}$  thresholds.

The Commission continues to believe that it would be prudent for NMFS to consult with scientists and acousticians to determine the appropriate accumulation time that action proponents should use to determine the extent of the Level A harassment zones based on the associated PTS  $SEL_{cum}$  thresholds in such situations. Those zones should incorporate more than a few hammer strikes (or acoustic pulses) but less than an entire workday's worth of strikes (or pulses). This recommendation is the same as those made in the Commission's [11 July 2017 letter](#) on NMFS's final Technical Guidance and multiple previous letters<sup>9</sup>. Other federal partners, including the Navy, have made similar recommendations. Since the Commission and other federal partners determined that this issue needs resolution, the Commission recommends that NMFS make this issue a *priority* to resolve in the near future. The Commission further recommends that NMFS consult with both

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<sup>6</sup> Level A harassment zone without a bubble curtain implemented was estimated to be 2,512 m for low- and high-frequency cetaceans, while the Level B harassment zone was estimated to be 1,359 m. Similarly, the Level A harassment zone for impact driving of 24-in concrete piles was estimated to be 216 m, while the Level B harassment zone was estimated to be 159 m.

<sup>7</sup> With which NMFS has been a cooperating agency.

<sup>8</sup> Which generally has been more of an issue for stationary sound sources. However, this also could be an issue for moving sound sources that have short distances between transect lines, in which the user spreadsheet may not be appropriate for use unless the source level could be adjusted accordingly.

<sup>9</sup> Including its 11 May 2017, 11 April 2017, and 31 August 2015 letters.

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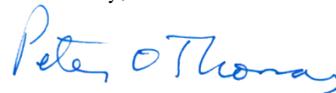
internal<sup>10</sup> and external scientists and acousticians to determine the appropriate accumulation time that action proponents should use to determine the extent of the Level A harassment zones based on the associated PTS SEL<sub>cum</sub> thresholds for the various types of sound sources, including stationary sound sources, when simple area x density methods are employed. Estimated swimming speeds of various species and behavior patterns (including residency patterns)<sup>11</sup> should be considered. Evaluating various scenarios using animat modeling should help address this issue as well.

### **Rounding of take estimates**

The method NMFS used to estimate the numbers of takes during the proposed activities, which summed fractions of takes for each species across project days, does not account for and negates the intent of NMFS's 24-hour reset policy. As the Commission has indicated in previous letters regarding this matter<sup>12</sup>, the issue at hand involves policy rather than mathematical accuracy. Although NMFS developed criteria associated with rounding quite some time ago, NMFS has indicated that the draft criteria need additional revisions before it can share them with the Commission. Therefore, the Commission recommends that NMFS promptly revise its draft rounding criteria in order to share them with the Commission in a timely manner.

Please contact me if you have questions regarding the Commission's recommendations.

Sincerely,



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

### **Reference**

NRC. 2005. Marine mammal populations and ocean noise: Determining when noise causes biologically significant effects. The National Academies Press, Washington, D.C. 126 pages

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<sup>10</sup> Including staff in the Marine Mammal and Sea Turtle Conservation Division of the Office of Protected Resources and staff in the Office of Science and Technology.

<sup>11</sup> Results from monitoring reports, including animal responses, submitted in support of incidental harassment authorizations issued by NMFS also may inform this matter.

<sup>12</sup> See the Commission's [29 November 2016 letter](#) detailing this issue.

April 2, 2018

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**Re: Taking Marine Mammals Incidental to U.S. Navy Marine Structure Maintenance and Pile Replacement in Washington (83 Fed. Reg. 9366)**

Whale and Dolphin Conservation (WDC) is the leading global charity dedicated to the conservation and protection of whales, dolphins, and their habitats worldwide. In response to the request for public comments by the National Marine Fisheries Service (NMFS) regarding the U.S. Navy's request to take marine mammals incidental to construction activities at six facilities in Washington over the course of five years (2018-2023), we respectfully submit the following comments to inform the final decision of NMFS.

Our comments are specific to the two orca populations potentially impacted by this construction activity: the Southern Resident population, listed as Endangered under the U.S. Endangered Species Act (ESA) and Canada's Species at Risk Act (SARA),<sup>1</sup> and the West Coast Transient population, designated as Threatened under SARA.<sup>2</sup> WDC would like to strongly emphasize the need for continual consultation between NMFS and the Navy over the course of this five-year period due to the ongoing decline of the endangered Southern Resident orca population and the additional stress these construction projects would add to threats already impeding their recovery.<sup>3</sup> We acknowledge and appreciate the plan to monitor and mitigate the anticipated impacts to marine mammals in Washington State waters, and the planned in-water work windows to minimize the impacts on juvenile salmon. As an important source of food for the endangered Southern Resident orca population and for many other species in the Salish Sea, efforts to avoid harm to salmon are vital to protecting the Salish Sea ecosystem. However, given the scope of the proposal, the extended time period, and the uncertainty on the specifics of construction activities, we ask that NMFS weigh this authorization request with extra caution.

If this authorization is to extend over a five-year period for currently unspecified construction activities, the Navy must consult with NMFS on the status of marine mammal populations on a yearly basis at minimum (as proposed), and with greater frequency regarding the fragile state of the Southern Resident orca population, which is currently at a 30-year low of just 76 individuals.<sup>4</sup> We also recommend the Navy communicate and coordinate with Washington State on the status of localized impacts of threats to this endangered population for each project site, during the time of each construction project. Washington recently initiated a series of immediate actions and a Task Force to oversee Southern Resident recovery, increasing the involvement of state agencies such as the Washington Departments of Fish and Wildlife, Transportation, and the Governor's Salmon Recovery Office.<sup>5</sup> With this ongoing effort to take local steps to recover Southern Resident orcas and salmon, it is vital that the Navy, and NMFS, consult with the state on the status of the Southern Residents and recovery efforts before each construction project commences.

**Impacts of Noise**

Increasing anthropogenic noise from chronic and acute sources is a threat to both populations of orcas.<sup>6</sup> Orcas depend on sound to navigate and locate prey and other objects in their habitat, communicate, maintain social

<sup>1</sup> National Marine Fisheries Service (NMFS). 2005. Endangered Status for Southern Resident Killer Whales. National Marine Fisheries Service, Northwest Region, Seattle, Washington. 70 FR 69903; Species at Risk Act (S.C. 2002)

<sup>2</sup> Fisheries and Oceans Canada. 2016. [Amended] Recovery Strategy for the Transient Killer Whale (*Orcinus orca*) in Canada. *Species at Risk Act Recovery Strategy Series*. Fisheries and Oceans Canada, Vancouver, vii + 54 pp.

<sup>3</sup> NMFS 2008. Recovery Plan for Southern Resident Killer Whales (*Orcinus orca*). National Marine Fisheries Service, Northwest Region, Seattle, Washington; NMFS 2016. Southern Resident killer whale (*Orcinus orca*) 5-year Review: Summary and Evaluation. National Marine Fisheries Service, Northwest Region, Seattle, Washington; Fisheries and Oceans Canada. 2011. Recovery strategy for the northern and southern resident killer whales (*Orcinus orca*) in Canada. In: *Species at Risk Act Recovery Strategy Series*: ix + 80 pp. Canada, F. A. O. (Ed.). Ottawa: Fisheries and Oceans Canada.

<sup>4</sup> Population data from the Center for Whale Research annual Orca Census. <http://whaleresearch.com/> Accessed 3/23/2018

<sup>5</sup> State of Washington, Office of the Governor Executive Order 18-02. [https://www.governor.wa.gov/sites/default/files/exe\\_order/eo\\_18-02\\_1.pdf](https://www.governor.wa.gov/sites/default/files/exe_order/eo_18-02_1.pdf) Accessed 3/23/2018

<sup>6</sup> NMFS 2008. Recovery Plan for Southern Resident Killer Whales (*Orcinus orca*). National Marine Fisheries Service, Northwest Region, Seattle, Washington; NMFS 2016. Southern Resident killer whale (*Orcinus orca*) 5-year Review: Summary and Evaluation. National Marine Fisheries Service, Northwest Region, Seattle, Washington;

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cohesion, and detect and avoid threats. Underwater noise can result in a number of negative impacts, including: disruption of foraging behavior, decreased foraging success, displacement of prey, displacement from preferred habitat, temporary or permanent hearing loss, auditory masking, habitat degradation, physiological and physical harm, and chronic stress that may have long-term consequences for health and fitness.<sup>7</sup> Noise reduces the echolocation range of orcas and may impair the ability of Transient orcas, who hunt by stealth, to listen for their prey. For every 1 dB increase in background noise, Southern Residents increase their call amplitude by a corresponding 1 dB.<sup>8</sup>

Anthropogenic sources are a significant contributor to underwater noise in Puget Sound, a busy urban waterway with high amounts of vessel traffic and multiple sources of noise, and the southern portion of Salish Sea critical habitat for Southern Resident orcas.<sup>9</sup> It is estimated that ambient noise in the world's oceans has increased by at least 12 dB from shipping alone since the 1960s,<sup>10</sup> significantly impacting marine mammals that rely on sound to navigate, forage, communicate, and socialize. Noise is considered one of the top threats impeding the recovery of the Southern Resident orca population. In Canada, acoustic degradation of critical habitat is recognized as a threat to orca recovery,<sup>11</sup> and the addition of sound as a primary constituent element of U.S. critical habitat is currently being considered under a modification to Southern Resident critical habitat in the U.S.<sup>12</sup> Research has shown that noise levels in Southern Resident critical habitat areas (measurements include areas in Canadian critical habitat and the San Juan Islands portion of U.S. critical habitat) are high enough to reduce communication space for orcas by 62% under typical conditions and 97% under noisy conditions.<sup>13</sup>

### Orca Presence

WDC disagrees with the classification of both the Southern Resident and West Coast Transient populations as "occurring only rarely and unpredictably" in the Puget Sound region. Puget Sound is part of the Southern Residents' federally designated critical habitat and the population is known to utilize the area in the fall through early winter – indeed, it would not be dedicated as critical habitat if the Southern Residents were only "rare and unpredictable" visitors. Sightings records from the Center for Whale Research, Orca Network, historical orca surveys, and records of live captures firmly establish Southern Resident presence in and use of Puget Sound.<sup>14</sup> The planned in-water

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Fisheries and Oceans Canada. 2011. Recovery strategy for the northern and southern resident killer whales (*Orcinus orca*) in Canada. In: *Species at Risk Act Recovery Strategy Series*: ix + 80 pp. Canada, F. A. O. (Ed.). Ottawa: Fisheries and Oceans Canada; Fisheries and Oceans Canada. 2016. [Amended] Recovery Strategy for the Transient Killer Whale (*Orcinus orca*) in Canada. *Species at Risk Act Recovery Strategy Series*. Fisheries and Oceans Canada, Vancouver, vii + 54 pp.

<sup>7</sup> Erbe, C. 2002. "Underwater noise of whale-watching boats and potential effects on killer whales (*Orcinus orca*), based on an acoustic impact model." *Marine Mammal Science*, vol. 18, pp. 394-418 (2002); Fisheries and Oceans Canada. 2016. [Amended] Recovery Strategy for the Transient Killer Whale (*Orcinus orca*) in Canada. *Species at Risk Act Recovery Strategy Series*. Fisheries and Oceans Canada, Vancouver, vii + 54 pp; Holt, M.M. 2008 Sound exposure and Southern Resident killer whales (*Orcinus orca*): A review of current knowledge and data gaps. U.S. Dept. of Commerce, NOAA Tech. Memo., NMFS-NWFSC-89, 59p.; Holt, M.M., Noren D.P., Veirs V., Emmons C.K., and Veirs S. 2009. "Speaking up: Killer whales (*Orcinus orca*) increase their call amplitude in response to vessel noise." *The Journal of the Acoustical Society of America*, vol. 125, pp. EL27-L32; Holt, M.M., Noren D.P., and Emmons, C.K. 2011. "Effects of noise levels and call types on the source levels of killer whale calls." *The Journal of the Acoustical Society of America*, vol. 130, p. 3100; ; Matkin, C. O, Moore M. J., and Gulland F.M.D. "Review of Recent Research on Southern Resident Killer Whales (SRKW) to Detect Evidence of Poor Body Condition in the Population." Independent Science Panel Report to the SeaDoc Society. 3 pp. + Appendices; Veirs, S., Veirs, V. and Wood, J.D. "Ship noise in an urban estuary extends to frequencies used for echolocation by endangered killer whales." *PeerJ*, vol. 4, p. e1657 (2015).

<sup>8</sup> Holt, M.M. 2008 Sound exposure and Southern Resident killer whales (*Orcinus orca*): A review of current knowledge and data gaps. U.S. Dept. of Commerce, NOAA Tech. Memo., NMFS-NWFSC-89, 59p; Holt, M. M et al. 2009. Speaking up: Killer whales (*Orcinus orca*) increase their call amplitude in response to vessel noise. *The Journal of the Acoustical Society of America*, 125(1):EL27-EL32.

<sup>9</sup> NMFS 2006 .Designation of Critical Habitat for the Southern Resident killer whale. 71 Fed. Reg. 69054

<sup>10</sup> Hildebrand JA. 2009. "Anthropogenic and natural sources of ambient noise in the ocean." *Mar Ecol Prog Ser* 395:5-20. <http://scrippsoscholars.ucsd.edu/jahildebrand/content/anthropogenic-and-natural-sources-ambient-noise-ocean>

<sup>11</sup> Fisheries and Oceans Canada. (2011). Recovery strategy for the northern and southern resident killer whales (*Orcinus orca*) in Canada. In: *Species at Risk Act Recovery Strategy Series*: ix + 80 pp. Canada, F. A. O. (Ed.). Ottawa: Fisheries and Oceans Canada.

<sup>12</sup> 12-Month Finding on a Petition To Revise the Critical Habitat Designation for the Southern Resident Killer Whale Distinct Population Segment. 80 Fed. Reg. 9682

<sup>13</sup> Williams, R., C.W. Clark, D. Ponirakis, and E. Ashe. 2013. "Acoustic quality of critical habitats for three threatened whale populations." *Animal Conservation* (17)2. doi:10.1111/acv.12076

<sup>14</sup> Bigg, M. 1982. An assessment of killer whale (*Orcinus orca*) stocks off Vancouver Island, British Columbia. Report of the International Whaling Commission 32:655-666. Bigg, M. A. and A. A. Wolman. 1975. Live-capture killer whale (*Orcinus orca*) fishery, British Columbia and Washington, 1962-73. *Journal of the Fisheries Research Board of*

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work periods for the four Navy sites in Puget Sound are scheduled to fall between July 16 and February 15, overlapping the time Southern Residents are most likely to be in Puget Sound. Although areas “owned or controlled by the Department of Defense” are excluded from the Southern Resident critical habitat designation, “including shoreline, nearshore areas around structures such as docks and piers, and marine areas,”<sup>15</sup> the calculated “zones of influence” for construction work in Puget Sound range from 4.9 km<sup>2</sup> to 15 km<sup>2</sup>,<sup>16</sup> therefore noise is likely to extend out of the exclusion zone and into Southern Resident orca critical habitat.

Movements of the Southern Residents are largely linked to the abundance of their preferred prey, salmon. In the summer, they typically depend on summer Chinook runs returning to the Fraser River in Canada, but in the fall they forage on Coho and chum runs in Puget Sound.<sup>17</sup> With low Fraser River Chinook returns in recent years,<sup>18</sup> the Southern Residents are likely even more dependent on these fall runs to sustain them into the winter and spring. Time spent in Puget Sound during the fall has been increasing in recent years, with 28 recorded sightings in 2017 since September alone.<sup>19</sup> J pod in particular is more likely to spend extended amounts of time in inland waters,<sup>20</sup> records from sighting networks as well as differences in biotoxin signatures between the three pods – J, K, and L – indicate that J pod spends more time feeding in urban areas, most likely within Puget Sound. J pod orcas have higher relative contents of PCBs and PBDEs, reflecting the higher concentrations of those toxins in Puget Sound.<sup>21</sup> J pod is also more likely to visit Puget Sound in the late fall through early spring, a time when K and L pods have been observed traveling the outer coasts of Washington, Oregon, and California.<sup>22</sup>

Again, we emphasize that the presence of Southern Residents in any part of their range is likely determined by the availability of salmon, and historical or predicted presence may change based on localized prey abundance. In 2008, NMFS observed that K and L pods had extended their use of inland waters until January or February of each year (beginning in 1999/2000), after several years of vacating inland waters by December.<sup>23</sup> In recent years, presence of the Southern Residents in their historic summer habitat around the San Juan Islands has been highly variable, likely due to the aforementioned declines of Fraser River summer Chinook. With this unpredictability, the increasing use of Puget Sound during the fall and winter months, and the link of orca presence to salmon abundance, the estimated take of 40 Southern Residents by Level B harassment over the course of five years is likely an underestimate of the individual orcas that might be impacted by the Navy’s activities. We urge NMFS and the Navy to reconsider the number of Southern Residents who might be impacted and update mitigation measures

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Canada 32:1213-1221. Bigg, M. A., G. M. Ellis, J. K. B. Ford, and K. C. Balcomb. 1987. Killer whales: a study of their identification, genealogy and natural history in British Columbia and Washington State. Phantom Press and Publishers, Nanaimo, British Columbia; Ford, J. K. B., G. M. Ellis, and K. C. Balcomb. 2000. Killer whales: the natural history and genealogy of *Orcinus orca* in British Columbia and Washington State. 2nd ed. UBC Press, Vancouver, British Columbia; NMFS 2006 .Designation of Critical Habitat for the Southern Resident killer whale. 71 Fed. Reg. 69054; NMFS 2008. Recovery Plan for Southern Resident Killer Whales (*Orcinus orca*). National Marine Fisheries Service, Northwest Region, Seattle, Washington; Palo, G. J. 1972. Notes on the natural history of the killer whale *Orcinus orca* in Washington State. Murrelet 53:22-24.

<sup>15</sup> NMFS 2006 .Designation of Critical Habitat for the Southern Resident killer whale. 71 Fed. Reg. 69054

<sup>16</sup> Navy 2018. Request for Letter of Authorization for the Incidental Harassment of Marine Mammals Resulting from the Marine Structure Maintenance and Pile Replacement Program (Navy Region Northwest Silverdale, Washington)

<sup>17</sup> NMFS 2008. Recovery Plan for Southern Resident Killer Whales (*Orcinus orca*). National Marine Fisheries Service, Northwest Region, Seattle, Washington; NMFS 2016. Southern Resident killer whale (*Orcinus orca*) 5-year Review: Summary and Evaluation. National Marine Fisheries Service, Northwest Region, Seattle, Washington; Fisheries and Oceans Canada. 2011. Recovery strategy for the northern and southern resident killer whales (*Orcinus orca*) in Canada. In: *Species at Risk Act Recovery Strategy Series*: ix + 80 pp. Canada, F. A. O. (Ed.). Ottawa: Fisheries and Oceans Canada

<sup>18</sup> “Fish tales: the collapse of BC’s wild salmon.” *The Peak* (October 23, 2017). <https://the-peak.ca/2017/10/fish-tales-the-collapse-of-bcs-wild-salmon/> Accessed 3/24/2018

<sup>19</sup> Orca Network sightings archive

([http://www.orcanetwork.org/Archives/index.php?categories\\_file=Sightings%20Archives%20Home](http://www.orcanetwork.org/Archives/index.php?categories_file=Sightings%20Archives%20Home)) Accessed 3/22/2018

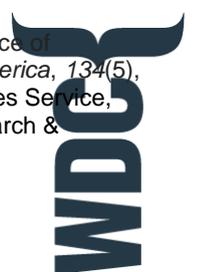
<sup>20</sup> NMFS 2008. Recovery Plan for Southern Resident Killer Whales (*Orcinus orca*). National Marine Fisheries Service, Northwest Region, Seattle, Washington; Mongillo, T.M et al. 2016. Exposure to a mixture of toxic chemicals: Implications for the health of endangered Southern Resident killer whales. U.S. Dept. Commer., NOAA Tech. Memo. NMFS-NWFSC-135, 107 p. doi:10.7289/V5/TM-NWFSC-135

<sup>21</sup> *Ibid.*

<sup>22</sup> Hanson, M. B., C.K. Emmons, E.J. Ward, J.A. Nystuen, and M.O. Lammers. 2013. Assessing the coastal occurrence of endangered killer whales using autonomous passive acoustic recorders. *The Journal of the Acoustical Society of America*, 134(5), 3486-3495; NMFS 2008. Recovery Plan for Southern Resident Killer Whales (*Orcinus orca*). National Marine Fisheries Service, Northwest Region, Seattle, Washington; NOAA Fisheries. 2014. Southern Resident Killer Whales: 10 Years of Research & Conservation.

<sup>23</sup> NMFS 2008. Recovery Plan for Southern Resident Killer Whales (*Orcinus orca*). National Marine Fisheries Service, Northwest Region, Seattle, Washington

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accordingly. Coordination and communication with state agencies tracking salmon runs and predicted returns may provide some measure of expectation for Southern Resident presence in Puget Sound on a yearly basis.

With the current status of the Southern Resident population, which has not had a surviving calf since 2015 and has lost at least nine individuals in that same period, not including stillborn calves observed in both J and K pods.<sup>24</sup> Alarmingly, seven of those nine deaths were from J pod, the group most likely to be found in Puget Sound. Any additional stress to this fragile population, including increased levels of noise in the water, has the potential to have lasting impacts.

### Estimated Take

Use of Puget Sound and Salish Sea inland waters by Transient orcas has also been increasing in recent years.<sup>25</sup> Transients were observed in the Salish Sea on 280 days in 2017, with 45 individual orcas seen on some days.<sup>26</sup> The inner coast subpopulation of West Coast Transients is increasing, and is estimated to consist of approximately 304 individuals.<sup>27</sup> Although Transient presence is usually assumed to be unpredictable and erratic, increasing populations of target prey species in Puget Sound has caused a relatively stable presence of Transient orcas in recent years, suggesting that they may be present in greater numbers than the Navy anticipates in this authorization request. We also question the difference in estimated takes for Transient orcas calculated between this request, for multiple projects at multiple locations over a five-year period, and another recently submitted by the Navy, for a one-year construction project at Naval Base Kitsap Bangor.<sup>28</sup> The one-year project estimates a take of 48 individual Transient orcas by Level B harassment, based on their calculation for a species with “rare or infrequent occurrence”

exposure estimate=probable abundance during construction (maximum expected group size) x probable duration (probable duration of animals presence at construction sites during in-water work window)

The Navy uses an estimate of 6 orcas for the expected group size and 8 days for probable duration,<sup>29</sup> for an estimated take of 48 Transient orcas during a one-year project in Hood Canal, an area Transient orcas are known to visit, though not frequent. The Navy uses the same calculation for their five-year authorization request, likewise classifying Transients as having “rare or infrequent” occurrence. For this calculation, the duration of probable occurrence was set to two days for both orca populations (Southern Resident and West Coast Transient), and a group size of 6 Transient orcas, for a total proposed take authorization of 12 individual Transient orcas. We question why the estimated duration of occurrence for Transient orcas was reduced when calculating take for a longer duration of time (five years vs. one year) and for multiple project sites (six vs. one), two of which are located in Hood Canal, for the same construction activities – vibratory and pile driving. Those two locations alone warrant at least the same take estimate per year as the Naval Base Kitsap Bangor-specific authorization request, and additional takes during construction at four more sites in Puget Sound must be considered as well. The Navy and NMFS must re-evaluate the proposed take for Transient orcas for the five-year construction period and fully consider the likelihood of increased numbers and presence of Transients in Puget Sound over the duration of these as-yet-undetermined projects.

<sup>24</sup> Population data from the Center for Whale Research annual Orca Census. <http://whaleresearch.com/> Accessed 3/23/2018; “No Child Left Behind: Evidence of a killer whale’s miscarriage”

<http://www.naturalhistorymag.com/findings/153043/no-child-left-behind> Accessed 3/23/2018

<sup>25</sup> Houghton J, RW Baird, CK Emmons, MB Hanson. 2015. Changes in the occurrence and behavior of mammal-eating killer whales in southern British Columbia and Washington State, 1987-2010. *Northwest Science* 89(2), 154-169; Orca Network sightings archive

([http://www.orcanetwork.org/Archives/index.php?categories\\_file=Sightings%20Archives%20Home](http://www.orcanetwork.org/Archives/index.php?categories_file=Sightings%20Archives%20Home)) accessed 3/22/2018; Wiles, G. J. 2016. Periodic status review for the killer whale in Washington. Washington Department of Fish and Wildlife, Olympia, Washington. 26+iii pp.

<sup>26</sup> Orca Network sightings archive

([http://www.orcanetwork.org/Archives/index.php?categories\\_file=Sightings%20Archives%20Home](http://www.orcanetwork.org/Archives/index.php?categories_file=Sightings%20Archives%20Home)) accessed 3/22/2018

<sup>27</sup> Fisheries and Oceans Canada. 2016. [Amended] Recovery Strategy for the Transient Killer Whale (*Orcinus orca*) in Canada. *Species at Risk Act* Recovery Strategy Series. Fisheries and Oceans Canada, Vancouver, vii + 54 pp; Wiles, G. J. 2016. Periodic status review for the killer whale in Washington. Washington Department of Fish and Wildlife, Olympia, Washington. 26+iii pp.

<sup>28</sup> Navy 2017. Request for Authorization for the Incidental Harassment Authorization of Marine Mammals Resulting from the Service Pier Extension on Naval Base Kitsap Bangor, Washington. Naval Facilities Engineering Command Northwest. 83 Fed. Reg. 10689

<sup>29</sup> The Navy uses estimates of average group size from their own data (Navy 2017. Request for Authorization for the Incidental Harassment Authorization of Marine Mammals Resulting from the Service Pier Extension on Naval Base Kitsap Bangor, Washington. Naval Facilities Engineering Command Northwest) and probable duration from an extended visit to Hood Canal by Transient orcas in May 2016, when a group spent 8 consecutive days in Hood Canal (Orca Network sightings records, 2016)

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## In Summary

The stealthy nature of Transient orcas, a necessity for their foraging technique, makes them difficult to detect visually and acoustically.<sup>30</sup> Their smaller group sizes also increase the difficulty of visual observations, and the likelihood of visual detection decreases rapidly at distances greater than 1km.<sup>31</sup> We urge the Navy to ensure adequate numbers and placement of marine mammal observers to detect Transient orcas in shutdown zones for all project sites, to maintain constant contact with the NMFS West Coast Regional office for updated information on orca presence, and to check citizen sightings networks, such as the one operated by Orca Network, on a daily basis for presence and activity of both types of orcas in the area before construction activities begin.

Lead observers must be familiar with the differences in appearance between Resident and Transient orcas to be able to accurately monitor and report sightings and incidents of take. We also encourage extensive use of the proposed hydroacoustic system to detect the presence of marine mammals, especially for Southern Resident orcas, which tend to be more vocally active than Transients. This system can also be used to measure localized levels of underwater noise at project sites, and we encourage the Navy to work with NMFS, the Washington Department of Transportation, and dedicated ocean noise researchers in Puget Sound to determine a threshold level for construction activities as part of the mitigation strategy – i.e. if noise levels are already at or above a certain decibel level, construction activities will not proceed until localized noise falls below that level.

The plan to authorize takes for five years of unspecified construction activities is concerning, especially given the low expected total takes for Transient and Southern Resident orcas. The requested numbers (12 Transient and 40 Southern Resident orcas) are more appropriate for one year of construction work at one site, not five years at six different locations. An extensive and thorough observer system and immediate responses to cease construction activity would be necessary to avoid surpassing the current Level B harassment authorization levels for orcas. With the large ranges of estimated “zones of influences” for Level B harassment, from 40.9 km<sup>2</sup> and 75.24 km<sup>2</sup> at the Hood Canal locations to between 4.9 km<sup>2</sup> and 15 km<sup>2</sup> in Puget Sound, these areas will be very difficult to thoroughly monitor for takes, and the Navy should ensure adequate coverage by observers or other means of detecting marine mammal presence with certainty. We encourage NMFS and the Navy to fully consider the known presence of Southern Resident and Transient orcas in Puget Sound, recent increases of observed presence for both populations, the cumulative impacts of anthropogenic noise on orcas, and the currently precarious state of the Southern Resident population. This small community simply cannot afford to lose any more individuals. Any activity that increases the impacts of recognized threats should be carefully considered. While WDC appreciates the Navy’s effort to mitigate these impacts, utilize bubble curtains and soft-starts, and dedicate marine mammal observers to monitoring the construction sites, we are concerned that these measures may not be sufficient to protect orcas from the effects of additional noise in their habitat.

Thank you for the opportunity to submit comments on this proposed construction activity, and please contact us with questions or for additional information.

Regards,



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Whale and Dolphin Conservation

<sup>30</sup> Fisheries and Oceans Canada. 2016. [Amended] Recovery Strategy for the Transient Killer Whale (*Orcinus orca*) in Canada. *Species at Risk Act* Recovery Strategy Series. Fisheries and Oceans Canada, Vancouver, vii + 54 pp.

<sup>31</sup> Wade, P.R., J.W. Durban, J.M. Waite, A.N. Zerbini, and M.W. Dahlheim. 2003. Surveying killer whale abundance and distribution in the Gulf of Alaska and Aleutian Islands. AFSC Quarterly Report Oct-Dec. Pages 1-16.