



ENGINEERS, INC.

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PND No. 182045

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Project Manager  
National Marine Fisheries Service  
Office of Protected Resources  
1315 East-West Highway, Suite 13826  
Silver Spring, MD 20910

Subject: Permit Modification Request for Downtown Waterfront Improvements IHA Modification

Dear Mr. Guan,

## Introduction

On behalf of the City and Borough of Juneau (CBJ), PND Engineers, Inc. is submitting a modification request for the CBJ's Incidental Harassment Authorization (IHA) for the Downtown Waterfront Improvements project. Between November 4, 2019 and November 14, 2019 CBJ's monitoring team conducted training sessions in Gastineau Channel. During these training sessions observations revealed a higher number of seemingly resident harbor seals regularly present within the shutdown zone for impact pile driving. As the permit is written work cannot start until this zone is clear, and based on the current observations work will not be able to proceed. Due to the proximity and number of harbor seals within the shutdown zone it is requested that the shutdown zone be reduced from 130 meters to 25 meters and that Level A take numbers be increased to allow for construction to proceed and be completed within the current IHA authorization period. As we have discussed, this is an urgent matter to be addressed since the contractor has already mobilized onto the site with the intent to begin driving in January 2020.

## Harbor Seal Observations

Between November 4, 2019 and November 14, 2019 CBJ's monitoring team observed the project area, and locations of shutdown zones, for a total of 36.1 hours. Observations were performed from the Library location over 7 days during this period. No in-water construction took place during observation. Numbers below refer only to harbor seals that were observed within the area that will be the Level A shutdown zone when impact pile driving commences. While vibratory methods are the primary means of installation, final proofing with the impact hammer is required for structural reasons. Daily observations are summarized below for various distances from the sound source, and each date includes the total number of sightings and total hours observed.

Total sightings include corrections for re-sightings in the few instances that re-sightings could be confirmed. In the instances re-sightings could be confirmed only one "take" or sighting is counted. The following tables present the corrected sightings.

When the IHA application was submitted it was known that approximately 43 individuals occurred in the project vicinity. Two of these were observed within the projects Level B harassment zones and 41 at the CF10A haulout (Figure 1), located just 3 miles north of the project site. It is likely that the congregations of harbor seals at this haul out was correlated to the fall return salmon runs to the hatchery. Due to wetlands and mudflats to the north, typically the only route out of Gastineau Channel is south, from the C10A haulout through the Level B harassment zone.

Harbor seals have variable movement patterns and some harbor seals exhibit substantial localized travel but do not exhibit seasonal patterns (Kinkhart *et. al* 2008). While some seals exhibit more extensive movements, particularly during the winter, this is typically to seasonally used glacial fjords (Kinkhart *et. al* 2008), none of which are located in the project area. Due to the close proximity of the known haulout, it is likely this increase in numbers observed at the immediate project site do not represent an increase in overall harbor seal abundance in the area, but rather localized travel from the known haulout into the immediate project area.



**Figure 1 – Harbor Seal Haul-outs<sup>1</sup>**

**November 4, 2019**

On November 4, 2019 a total of 15 sightings/re-sightings were recorded over 3.8 observation hours.

**Table 1. November 4, 2019 Observations**

Level A Zone (m)	Harbor Seals Observed
25	0
50	0
65	1
75	1
85	2
100	3
130	6
<b>Total Observed</b>	<b>6</b>

<sup>1</sup> Map provided by ADF&G of CF10A and CF07A, two haul-outs recognized by the Marine Mammal Laboratory

November 5, 2019

On November 5, 2019 a total of 24 sightings/re-sightings were recorded over 3.6 observation hours.

Table 2. November 5, 2019 Observations

Level A Zone (m)	Harbor Seals Observed
25	1
50	6
65	10
75	10
85	15
100	16
130	19
<b>Total Observed</b>	<b>19</b>

November 6, 2019

On November 6, 2019 a total of 21 sightings/re-sightings were recorded over 3.3 observation hours.

Table 3. November 6, 2019 Observations

Level A Zone (m)	Harbor Seals Observed
25	0
50	4
65	5
75	8
85	8
100	8
130	8
<b>Total Observed</b>	<b>8</b>

November 7, 2019

On November 7, 2019 a total of 87 sightings/re-sightings were recorded over 9.5 observation hours.

Table 4. November 7, 2019 Observations

Level A Zone (m)	Harbor Seals Observed
25	0
50	7
65	18
75	26
85	32
100	61
130	74
<b>Total Observed</b>	<b>74</b>

November 12, 2019

On November 12, 2019 a total of 12 sightings/re-sightings were recorded over 3.8 observation hours.

Table 5. November 12, 2019 Observations

Level A Zone (m)	Harbor Seals Observed
25	1
50	4
65	4
75	4
85	6
100	6
130	9
<b>Total Observed</b>	<b>9</b>

November 13, 2019

On November 13, 2019 a total of 9 sightings/re-sightings were recorded over 5.8 observation hours.

Table 6. November 13, 2019 Observations

Level A Zone (m)	Harbor Seals Observed
25	1
50	3
65	3
75	3
85	3
100	5
130	6
<b>Total Observed</b>	<b>6</b>

November 14, 2019

On November 14, 2019 a total of 15 sightings/re-sightings were recorded over 6.4 observation hours.

Table 7. November 14, 2019 Observations

Level A Zone (m)	Harbor Seals Observed
25	1
50	2
65	2
75	2
85	3
100	3
130	4
<b>Total Observed</b>	<b>4</b>

## Reduced Shutdown Zone

As described above, harbor seals have been observed within the Level A shutdown zone for impact pile driving on a regular basis, meaning that work cannot start and likely cannot be completed as the permit is written. It is proposed to reduce the shutdown zone from 130 meters to 25 meters based on the available observations to allow for soft start procedures to begin. This reduction is needed both to allow for impact hammer soft start and pile driving to commence, and to allow for work to continue if harbor seals remain within or re-enter the 130 meter Level A harassment zone.

## Increased Level A Take Numbers

During the development of the IHA, discussions between NMFS and the Marine Mammal Commission estimated that up to 4 harbor seals could slip into the monitoring zone during each day of impact pile driving (84 FR 24490). However, in addition to those that may slip into the zone, there are a number that are regularly present preventing work from starting. Soft start procedures are anticipated to encourage the animals to move away, however it is unknown how they will actually respond. Using the same methodology from the original IHA application, the contractor will install an average of 5 piles daily over an estimated 18 days with an impact hammer.

To estimate the number of Level A takes of harbor seals, the average daily sightings, or “takes”, over the 7 days of monitoring were used.

$$\text{Average Sightings per day} = \frac{6+19+8+74+9+6+4}{7} = 18 \text{ sightings/day}$$

$$\text{Estimated Level A takes} = \text{Average Sightings} * \text{Impact Pile Driving Duration} = (18 \text{ harbor seals}) * 18 \text{ days} = 324$$

It is estimated that the project could result in Level A takes of the average daily sightings over the estimated 18 days of impact pile driving. The CBJ therefore requests a total of **324 Level A takes of harbor seals**.

## Effects

The original analysis by NMFS (84 FR 24490) for this project determined that:

“Although some individual harbor seals are estimated to experience Level A harassment in the form of PTS if they stay within the Level A harassment zone during the entire duration of impact pile driving for the day, the degree of injury is expected to be mild and is not likely to affect the reproduction or survival of the individual animals. It is expected that, if hearing impairment occurs, most likely the affected animal would lose a few dB in its hearing sensitivity, which in most cases is not likely to affect its survival and recruitment. Hearing impairment that might occur for these individual animals would be limited to the dominant frequency of the noise sources, *i.e.*, in the low-frequency region below 2 kHz. Nevertheless, as for all marine mammal species, it is known that in general these seals will avoid areas where sound levels could cause hearing impairment. Therefore it is not likely that an animal would stay in an area with intense noise that could cause severe levels of hearing damage.”

Thus, it is possible that the reduction in the shutdown zone, combined with soft start procedures, will encourage harbor seals to move out of the Level A harassment zone. However, while some harbor seals may move away from the sound source it is unknown how far they will move. Therefore, it is possible that some harbor seals may experience Level A harassment throughout the project and experience the onset of PTS. It is likely that many, or all, of the individual harbor seals exposed will be the same individuals from day to day.

The recently proposed IHA for Lutak Dock in Haines, AK (84 FR 65117) included an in-depth analysis of PTS onset for marine mammals for driving 24-inch and 36-inch piles. The application included similar sound source levels, however these levels are considered conservative for the in-water driving of 16- and 18-inch piles associated with this project. This analysis found that an animal must remain within the Level A harassment zone for a duration of 15 minutes to experience PTS. Due to the likelihood that harbor seals will move out of the injury zone, either during soft start

procedures or once work is ramped up, it is possible but unlikely that harbor seals will experience PTS. Further, it is estimated that after each pile is installed that there will be a short break while the contractor moves the equipment, typically ranging from 5-30 minutes. This will allow some time for recovery, which while not considered in the NMFS User Spreadsheet calculations, it is acknowledged in the NMFS 2016 Technical Guidance that recent studies in pinnipeds show a reduction in damage in hearing loss with intermittent exposures.

Once soft start procedures begin it is anticipated that most, or all, of the harbor seals will move away from the sound source. Further, due to the time determined for the onset of PTS to occur based on a similar project, and the relatively short duration of daily impact pile driving, it is unlikely that harbor seals will experience significant permanent loss in hearing.

## Conclusion

Based on the available information the proposed modification to reduce the shutdown zone from 130 to 25 meters and increase Level A takes to a total of 324 is unlikely to adversely affect the harbor seal on a population level.

Thank you again for your immediate attention to this matter and efforts to prioritize NMFS review.

Sincerely,

PND Engineers, Inc. | Juneau Office



Bre Lambert, E.I.T.  
Staff Engineer

Cc: Erich Shaal, P.E., CBJ D&H Port Engineer  
Carl Uchytel, P.E., CBJ Port Engineer

## Literature Cited

Kinkhart, E., K. Pitcher, G. Blundell. 2008. Harbor Seal. Alaska State Dept. of Fish and Game. Revised and reprinted 2008. Accessed from [https://www.adfg.alaska.gov/static/education/wns/harbor\\_seal.pdf](https://www.adfg.alaska.gov/static/education/wns/harbor_seal.pdf).