

FINAL REPORT

Monitoring Incidental Harassment of Harbor Seals (*Phoca vitulina*) at Woodard Bay Natural Resources Conservation Area during Derelict Creosote Piling and Structure Removal, 1 Nov. to 21 Dec. 2010

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Executive Summary

An Incidental Harassment Authorization (IHA) was issued to Washington Department of Natural Resources by the National Marine Fisheries Service under the authority of section 101(a)(5)(D) of the Marine Mammal Protection Act (16 U.S.C. 1361 et seq.). This Authorization allowed for the incidental take of 1539 harbor seals (*Phoca vitulina*), by level B harassment only, at the Woodard Bay Natural Resource Conservation Area (WBNRCA), during the derelict creosote piling and structure removal project. Harbor seals were monitored by personnel from Cascadia Research Collective (CRC) based in Olympia, WA, at two different land based observation sites (north and south) within the WBNRCA. Monitoring was conducted on 14 days during the restoration work period (Table 1), which occurred from 1 Nov- 30 Dec 2010 (Table 2). The mean daily count for both sites was 52. Incidental Harassment Takes were recorded whenever seals entered the water due to construction activity. A total of 356 Incidental Harassment Takes were observed during the restoration project with a mean daily take of 25 and a corrected project total of 875 takes.

Species of concern

Harbor seals were the only marine mammal anticipated to be taken during the restoration project. The harbor seal is the most abundant marine mammal in the inland waters of Washington State. Based on population assessments conducted by Washington Department of Fish and Wildlife (WDFW) and National Marine Mammal Laboratory (NMML) from 1978-1999, the harbor seal population was estimated to be over 32,000 animals in Washington waters. An estimated 13,000 of those animals compose the “Washington inland” harbor seal stock with about 1,000 animals in southern Puget Sound (Jeffries et al. 2003).

Background & description of haul out habitat

Washington Department of Natural Resources (DNR) purchased what is now WBNRCA located in Henderson Inlet in southern Puget Sound from the Weyerhaeuser Corporation in 1988. Harbor seals have used the log booms at this site to haul out since the 1930's when it was an active log dump site (Calambokidis et al. 1978, 1979, 1991). The first counts were made in 1970 when T. Newby reported 10 seals on the log booms (Lambourn et al. 2007). The increasing number of harbor seals that use this site has made it one of the most important haul-out areas for seals in Puget Sound (Calambokidis et al. 1985, Jeffries et al. 2003).

There are currently two different haul out sites within WBNRCA (Figure 1). The north site, located adjacent to the northern tip of the Chapman Bay Pier is composed of several rows of log

booms fastened to creosoted pilings; The south site, located east of the Chapman Bay Pier in the main operational area of the log dump, is composed of 6 log boom rows and 1 floating platform, which are attached to creosoted pilings. The booms are utilized year round by harbor seals of all ages and are ideal for harbor seal pupping due to easy access to water escape routes and low platform for pups to get in and out of the water (Calambokidis et al. 1991, Lambourn et al. 2007). In recent years, the log boom haul out area has decreased significantly because logs have decayed, sunk or floated away (Lambourn et al. 2007). Attempts by DNR and a local resident have been made to re-establish some of the lost haul out area.

Need for Incidental Harassment Authorization

The log booms at both the North and South ends of the WBNRCA are frequently used by harbor seals for rest and thermoregulation. Since the log booms are dispersed throughout the WBNRCA, construction activity could be as close as <10 meters and as great as >2000 meters. The type of takes expected from incidental harassment would be due to noise from construction activity (i.e. vibrating hammer) as well as the work skiff and barge traffic. Takes were expected to occur whenever there was construction activity in close proximity to the haul outs (<100 meters).

Construction occurred during the time of year when the number of seals utilizing the haul out was expected to be at a minimum, coinciding with the non-pupping/breeding season and post molt. As a result, anticipated impacts from construction activity were a temporary reduction in haul out use until the seals became acclimated to the activity.

Mitigation Requirements

The following mitigation requirements were part of the IHA:

- (a) No pile or structure removal will occur outside of the effective dates of this IHA;
- (b) The DNR will approach the action area slowly to alert seals of their presence from a distance and will begin pulling piles at the furthest location from the log booms used as harbor seal haul out areas;
- (c) No piles within 30 yards (27m) of the two main haul out locations identified in the IHA application shall be removed;
- (d) The contractor or protected species observer (PSO) will survey the operational area for seals before initiating activities and wait until the seals are at a sufficient distance (i.e., 50 feet (15m)) from the activity so as to minimize the risk of direct injury from the equipment, piling or structure breaking free or from equipment;
- (e) The DNR will require the contractor to initiate a vibratory hammer “soft start” at the beginning of each work day. The “soft start” method includes a reduced energy vibration from the hammer for the first 15 seconds and then a one minute waiting period. This method will be repeated twice before commencing with regular energy operations; and
- (f) The vibratory hammer power pack will be outfitted with a muffler to reduce in-air noise levels.

Monitoring Requirements

The IHA stipulated the following monitoring requirements:

- (a) Employ at least one PSO at each harbor seal haul out site during the following times:
 - i. The first two days of the project;

- ii. When the contractors were mobilizing to a new location;
 - iii. During two days of every week when activities were occurring within 100 yards of the haul out area;
 - iv. During five of the days of work on the Chapman Bay Pier; and
 - v. For at least six other days during the 40 day work period, which were decided when the project schedule was provided by the contractor.
- (b) The PSO began monitoring 30 minutes prior to crew arrival, during pile removing activities; and 30 minutes after the crew had left the site; and
- (c) The PSO kept a low profile and engaged in minimal movement during monitoring as to not disturb the seals.

Monitoring

Per the IHA Monitoring requirements at least one PSO was stationed at both of the observation sites on 14 of the days that construction occurred in the WBNRCA. PSO's included staff and interns from CRC. Monitoring began 30 minutes prior to the contractors start time (07:00) and ended 30 minutes after the contractor left the site. Counts were conducted every half hour unless there was a disturbance in which case another count was conducted. Each haul out was counted separately and added together for the total number of seals hauled out. In the event of Incidental Harassment, PSO's recorded construction activity, proximity to haul outs and the number of seals that escaped into the water. The Take number was calculated by subtracting the number of seals hauled out after the disturbance from the most recent count prior to the disturbance, so if there were 23 harbor seals hauled out prior and only three were left after the disturbance the take number would have been 20.

Disturbances

Harbor seal disturbances were recorded and broken down into disturbance types based on cause of disturbance. Each disturbance was given a code and proximity in meters from haul outs was recorded (Table 1). Proximity in relation to haul outs was calculated using satellite imagery from Google Earth. All incidental harassment takes related to construction activity occurred at site 1. Total Incidental Harassment Takes from construction related causes during the 14 days of observation were 356 (Table 1) resulting in an average of just over 25 seals per monitored day disturbed. Extrapolating that average take out for all 35 days of restoration activity would result in a total estimate of 890. This extrapolated estimate, however, would be biased high since monitored days were chosen in part to sample days with activities most likely to disturb seals.

Discussion

Harbor seals were generally hauled out prior to the work day with the majority of seals at the south haul out, site 1. The construction crew stayed at a distance of over 150 meters from the haul outs when maneuvering back and forth from shore to their barge anchored off shore >150 meters from the haul outs. The seals were relatively unaffected by the movement of the Barge/Crane (BC) at distances greater than 150 meters. The majority of incidental harassment takes were caused by the work skiff maneuvering back and forth in good light conditions despite the distance from the haul outs. Once the seals entered the water the majority did not return to the haul out, except on 1-Nov and 16-Nov 2010 and there were never large groups of seals observed in the water after a disturbance. Seals that remained on the haul out after a disturbance showed no signs of adverse behavior. Given that there has been no dedicated observations at the

WBNRCA during this time of year it is hard to say whether the decreased number of harbor seals hauled out was caused by construction activity or seasonal distribution.

Other

On 21-Dec 2010 divers retrieving underwater broken pilings discovered a deceased young female harbor seal entangled in a line attached to a buoy used to mark the location of broken pilings. It is uncertain how long the seal had been entangled in the line, however we do know the line was placed there sometime between 1-Nov and 3-Nov 2010 when the DNR dive team was marking the broken pilings. Gross necropsy showed the seal was in good body condition (3.1 cm sternal blubber thickness) and drowning due to entanglement was likely the cause of death for this animal. Due to its state of decomposition, tissue samples were not collected. Photographs were taken and length, weight and girth were recorded. A level-A (stranding report) form was completed and submitted to National Marine Fisheries Service along with photos of the animal and gear.

Table 1. Total counts and disturbances from both sites

Date	Start time	Finish time	Conditions	Pre Construction counts	Peak count	Disturbance code*	Proximity from haul out (in meters)	Total # of daily takes
01-Nov-10	9:30	16:30	Overcast, Rain	8	18	MS, PP	<10	5
02-Nov-10	6:30	18:00	Sunny	97	127	DB	>300	69
09-Nov-10	6:30	18:00	Overcast, Rain	71	72	MS	>160	31
12-Nov-10	6:30	17:30	Sunny	67	100	MS,MB	>150	76
15-Nov-10	6:30	17:30	Overcast, Rain	27	39	N/A	>130	0
16-Nov-10	6:30	17:00	Overcast, Rain	40	54	BC	<250	25
18-Nov-10	6:30	17:50	Partly Cloudy	8	15	BC	>130	6
19-Nov-10	6:30	17:30	Partly Cloudy	121	127	MS	>130	34
22-Nov-10	6:30	17:30	Partly Cl,Snow	35	37	MS, BC	>130	13
08-Dec-10	6:30	17:30	Overcast, Rain	1	17	N/A	>300	0
10-Dec-10	6:30	16:00	Partly Cloudy	20	34	BC	>100	30
16-Dec-10	6:30	17:30	Sunny	36	41	MS, VH	>100	38
20-Dec-10	6:30	16:00	Overcast, Rain	0	0	N/A	>130	0
21-Dec-10	6:30	17:00	Sunny	43	43	MS, DB	>75	29

* MS-Motorized skiff, BC-Barge/Crane, VH-Vibrating Hammer, PR-Pile Removal, PP-Pile Painting, MB-Mobilize Barge, DB-Dive Boat

Table 2. Structure and pile removal dates

Date	Activity
1-Nov-10	Mark (Paint) Leave Piles with Survey Boat DNR Dive Crew Locate Broken Pile, Barge/Crane (BC) MObed to Woodard Bay
2-Nov-10	(WB) preparing Woodard Bay Trestle (WBT) for removal
3-Nov-10	DNR Dive Crew Locate Broken Pile, BC Removes Superstructure from WBT
4-Nov-10	BC Removes Superstructure from WBT
5-Nov-10	BC Removes Superstructure from WBT
8-Nov-10	Prepare WBT Pile for Removal
9-Nov-10	BC at Chapman Bay Pier (CBP) and BC at WBT
10-Nov-10	Pull 45 Pile from WBT
11-Nov-10	Pull 58 Pile from WBT
12-Nov-10	Pull 43 Pile from WBT
15-Nov-10	Pull 59 Pile from WBT
16-Nov-10	NWM Saw Cut 19 Piles from WBT
17-Nov-10	BC and Excavator Removing Superstructure from CBP
18-Nov-10	BC and Excavator Removing Superstructure from CBP
19-Nov-10	BC and Excavator Removing Superstructure from CBP
22-Nov-10	Inclement Weather Crew Off
23-Nov-10	Inclement Weather Crew Off
24-Nov-10	Inclement Weather Crew Off-Minor BC Prep Work
25-Nov-10	Thanksgiving Holiday Crew Off
26-Nov-10	Thanksgiving Holiday Crew Off
29-Nov-10	Pull 58 Pile -South Pile Field Henderson Inlet (HI)
30-Nov-10	Pull 16 Pile -South Pile Field HI
1-Dec-10	Pull 25 Pile -HI
2-Dec-10	Pull 37 Pile -HI
3-Dec-10	Pull 34 Pile -HI
6-Dec-10	Pull 51 Pile -HI
7-Dec-10	Pull 36 Pile-HI
8-Dec-10	Pull 47 Pile-HI
9-Dec-10	Pull 53 Pile-HI
10-Dec-10	Pull 26 Pile-HI
13-Dec-10	Pull 36 Pile-HI
14-Dec-10	Pull 32 Pile-HI
15-Dec-10	Pull 35 Pile-HI & Remove 52 Pile CBP
16-Dec-10	Pull 34 Pile-HI & Remove 52 Pile CBP
17-Dec-10	Pull 21 Pile-HI
20-Dec-10	NWM Divers Cut Broken Pile-Install Bird Boxes and Signs
21-Dec-10	NWM Divers Cut Broken Pile-Install Bird Boxes and Signs

22-Dec-10	NWM Divers Cut Broken Pile
23-Dec-10	Crew Off Half Day-Install Bat Houses
24-Dec-10	Christmas Holiday Crew Off
27-Dec-10	Pull 1 Pile-Install Bat Boxes
28-Dec-10	BC Demobed from Site

Figure 1. Seal haul-out locations at Woodard Bay NRDA.



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