

Final Report

**Monitoring Incidental Harassment of Harbor Seals (*Phoca vitulina*) at Woodard Bay
Natural Resources Conservation Area during Derelict Creosote Piling and Structure
Removal between November 16 and December 16, 2011**

**Joshua S. Oliver
Bethany A. Diehl
Steven J. Jeffries**

**Washington Department of Fish and Wildlife
Marine Mammal Investigations
7801 Phillips Road SW
Lakewood, WA 98498**

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Executive Summary

On October 26, 2011, National Marine Fisheries Service issued an Incidental Harassment Authorization (IHA) to the Washington State Department of Natural Resources (DNR) under the authority of Section 101(a)(5)(D) of Marine Mammal Protection Act (16 U.S.C. 1361 et seq.). This IHA allowed for the incidental take of 2080 harbor seals (*Phoca vitulina*) by Level B Harassment during the derelict creosote piling and structure removal project at DNR's Woodard Bay Natural Resource Conservation Area (Woodard Bay NRCA). Harbor seals were monitored from two different land based observation sites on the north and south sides of the Woodard Bay NRCA by Protected Species Observers (PSO) from Washington Department of Fish and Wildlife. The contractor (Orion Marine Group) began work on the project on November 16, 2011 and completed work on December 16, 2011 for a total of 21 work days at the Woodard Bay NRCA. PSO began monitoring of piling and structure removal activities on November 16, 2011 and conducted daily monitoring on 15 out of 21 days of work (Tables 1 and 2). Incidental harassment takes were recorded whenever seals entered the water due to construction activity. Counts of harbor seals using haul-out sites at the Woodard Bay NRCA during permitted activities ranged from 0 to 77 animals with a daily mean of 31 seals. During PSO monitoring, a total of 172 incidental harassment takes were recorded for a mean incidental take of 11 seals per work day. The estimated incidental takes during 21 days of demolition related activities ranged from 172 takes observed by the PSO to as many as 634 seals (172 observed takes plus an additional 432 takes estimated by multiplying unobserved days (6) times the maximum seal count (77). Between November 16 and December 16, 2011, the total number of incidental takes due to demolition related activities ranged 172-634 seals.

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 with an estimated 13,000 seals in the Washington Inland Waters harbor seal stock. An estimated 1,000 – 1,500 seals occur throughout southern Puget Sound (Jeffries et al. 2003) where the Woodard Bay NRCA is located. The Woodard Bay NRCA haulout site is used year-round by harbor seals as a haulout and pupping area. Woodard Bay NRCA is one of the major haul-out sites in southern Puget Sound.

Description of Haul-out Habitat

In 1988, DNR purchased the South Bay Log Dump (now Woodard Bay NRCA) from the Weyerhaeuser Corporation. Located in Henderson Inlet in southern Puget Sound, harbor seals have used 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; and 1991). In 1970, Newby reported 10 seals on the log booms (Lambourn et al. 2007). The number of harbor seals that use this site year-round 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 two different haul-out areas used by harbor seals within the Woodard Bay NRCA (Figure 1). The South Seal Haul-out located east of the Chapman Bay trestle in the main operational area of the log dump, is composed of 3 log boom rows and 1 floating platform, which are attached to creosoted pilings. The North Seal Haul-out located adjacent to the northern tip of the Chapman Bay trestle, is composed of three rows of log booms fastened to creosoted pilings. The log 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 easily get in and out of the water (Calambokidis et al. 1991; Lambourn et al. 2007). In recent years, the log boom haul-out areas at the Woodard Bay NRCA have decreased significantly because logs have decayed, sunk or floated away (Lambourn et al. 2007). Attempts have been made by DNR and local residents to maintain existing haul-outs at the Woodard Bay NRCA as well as re-establish some of the lost haul-out areas.

Need for Incidental Harassment Authorization

The log booms at both the north and south sides of the Woodard Bay NRCA are used daily by harbor seals as a haul-out where they socialize, rest and thermoregulate. Since the log booms are dispersed throughout the Woodard Bay NRCA, 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 work skiff and barge traffic. Takes were expected to occur whenever there was construction activity in close proximity to haul-outs (<100 meters).

Construction activities were scheduled during the time of year when the number of seals utilizing haul-out areas within the Woodard Bay NRCA 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) The contractor or Protected Species Observers (PSO) shall survey the operational area for seals before initiating activities and wait until the seals are at a sufficient distance (i.e., 50ft (15m)) from the activity so as to minimize the risk of direct injury from the equipment or from piling or structure breaking free;
- (d) The DNR shall require the contractor to initiate a vibratory hammer soft start at the beginning of each day; and
- (e) The vibratory hammer power pack shall be outfitted with a muffler to reduce in-air noise levels to no higher than 80 dB re: 20uPa.

Monitoring Requirements

The IHA stipulated the following monitoring requirements:

- (a) The DNR shall employ at least one PSO at each harbor seal haul-out site for a minimum of 15 total work days, including the following items:
 - i. The first five days of project activities, when the contractors are mobilizing and starting use of the vibratory hammer;
 - ii. During five days when activities are occurring nearest to the haul-out area(s); and
 - iii. During at least five additional days, to be decided when the schedule of work is provided by the contractor.
- (b) The PSO begin monitoring 30 minutes prior to crew arrival, during and the entirety of the monitoring day's restoration activities; and 30 minutes after crew leave the site (or until darkness, whichever is sooner); and
- (c) The PSO shall keep a low profile and engaged in minimal movement during monitoring as to not disturb the seals.

Monitoring

For 21 days between November 16 and December 16, 2011, piling and structure removal related activities occurred at the Woodard Bay NRCA. Per DNR's IHA monitoring requirements at least one PSO was stationed at north and south observation sites on 15 days of derelict creosote piling and structure removal activities. Monitoring began 30 minutes prior to the contractors start time (0700) and ended 30 minutes after the contractor left the site or until darkness precluded making observations of activities. Counts were conducted every hour unless there was a disturbance in which case another count was made. Each haul-out was counted separately and added together for the total number of seals hauled out daily. If an incidental harassment event occurred, the PSO recorded construction activity, proximity to haul-out site and number of seals that entered 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, for example, if there were 23 harbor seals hauled out prior and only three were left after the disturbance the take number would have been 20.

Harbor seal disturbances were recorded and broken down into types based on cause of disturbance. Each disturbance was given a code and distance in meters from haul-outs was recorded (Table 1). Proximity in relation to haul-outs was estimated using satellite imagery from Google Earth. Incidental harassment takes related to construction activity occurred at both sites. Seals were hauled out on 13 of 15 observation days with numbers hauled out ranging from 1-77 seals. There were incidental takes associated with piling and structure removal activities on 7 of 13 days when seals were hauled out. There were no incidental takes associated with piling and structural removal activities on 6 of 13 days when seals were hauled out. The total number of incidental harassment takes recorded from construction related activities during the 15 days of PSO observation was 172 (Table 1) resulting in an average of 11 incidental harassment takes per work day.

Under the IHA, a total of 2,080 harbor seals were permitted to be taken at the Woodard Bay NRCA by Level B harassment during demolition activities. The estimated incidental takes during 21 days of demolition related activities ranged from 172 takes observed by the PSO to as many as 634 seals (172 observed takes plus an additional 432 takes estimated by multiplying unobserved days (6) times the maximum seal count (77)). Between November 16 and December 16, 2011, the number of incidental takes due to demolition related activities ranged 172-634 seals.

Discussion

Under DNR's IHA, an estimated 172-634 incidental takes of harbor seals occurred at the Woodard Bay NRCA between November 16 and December 16, 2011 during permitted activities. Harbor seals were typically hauled out prior to the start of the work day with the majority of seals using the South Seal Haul-out area. Whenever possible, the construction crew stayed at least 100 meters from hauled out seal while maneuvering back and forth from shore to their barge which was anchored offshore away from haul-outs. Seals were relatively unaffected by movement of the Barge/Crane (BC) at distances greater than 250 meters. The majority of incidental harassment takes occurred when the work skiff maneuvered back and forth in good light conditions despite the distance from the haul-outs. Once seals entered the water they did not return to the haul-out. There were never large groups of seals observed in the water after a disturbance indicating once in the water, seals dispersed away from the Woodard Bay NRCA for the day. Seals that remained on the haul-out after a disturbance showed no signs of adverse behavior.

Acknowledgements

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Table 1. Total harbor seal counts and incidental takes recorded for all haul-out sites during PSO observations.

Date	Start Time	Finish Time	Conditions	Daily Pre-Construction Count	Daily Peak Haul-out Count	Total # of Daily Takes	Disturbance Code*	Distance to haul out (in meters)
16-Nov-11	12:00	14:30	Fair	1	1	0		
17-Nov-11	6:30	16:30	Fair	25	34	8	B/C, MS	<500
18-Nov-11	6:30	16:30	Fair	26	77	4	B/C	<50
21-Nov-11	6:30	16:30	Rain	0	1	0		
22-Nov-11	6:30	16:30	Rain/Wind	0	0	0		
28-Nov-11	6:30	16:30	Fair	41	45	44	B/C, MS	<150
29-Nov-11	6:30	16:30	Fair	19	38	0		
30-Nov-11	6:30	16:30	Fair	6	6	0		
1-Dec-11	6:30	16:30	Fair	27	47	21	B/C	<100
02-Dec-11	6:30	16:30	Fair	25	51	0		
05-Dec-11	13:30	16:30	Fair	62	62	51	B/C, MS	<250
07-Dec-11	6:30	16:30	Fair	20	42	7	MS	<100
08-Dec-11	6:30	16:30	Fair	1	4	0		
09-Dec-11	6:30	11:30	Fair	0	0	0		
14-Dec-11	6:30	16:30	Fair	47	55	37	MS	<250

* MS-Motorized skiff BC-Barge/Crane

Table 2. Dates of structure and pile removal activities at the Woodard Bay NRCA.

DATE	RESTORATION ACTIVITY
11/16/2011*	Mobilization to site by crane, barge and skiffs
11/17/2011*	Prepare crane barge and material barge, prepare containment at boom pier
11/18/2011*	Remove superstructure from north end of pier (Bents 131-135), pull 18 pile with VH and cable
11/21/2011*	Remove superstructure from north end of pier (Bents 135-144), pull 40 pile with VH
11/22/2011*	Remove north pier (Bents 144-152) pull 34 Pile with VH
11/23/2011	Remove north pier (Bents 152-157) pull 16 Pile with VH
11/28/2011*	pull 13 pile with VH from west side of Chapman Pier
11/29/2011*	Habitat Area A Restoration (Bents 46-62)- remove decking and stringers
11/30/2011*	Habitat Area A Restoration- remove decking and stringers
12/01/2011*	Habitat Area A Restoration- replace stringers
12/02/2011*	Habitat Area B Restoration (Bents 9-24)-remove decking
12/05/2011*	Habitat Area B Restoration-remove decking replace flashing, pull 5 broken pile east of pier with clamshell
12/06/2011	Habitat Area B Restoration, pull 1 broken pile east of pier with clamshell
12/07/2011*	Remove north pier (Bents 113-119), pull 27 Pile with VH
12/08/2011*	Remove north pier (Bents 120-124), pull 20 Pile with VH
12/09/2011*	Remove north pier (Bents 125-130), pull 24 Pile with VH
12/12/2011	Remove 1 broken pile east of pier with clamshell
12/13/2011	Habitat Area B Restoration-install flashing, replace ties
12/14/2011*	Habitat Area B Restoration-install flashing, replace ties, Habitat Area A Restoration-replace ties
12/15/2011	Prepare for Demobilization
12/16/2011	Demobilization. Barge and crane depart Woodard Bay NRCA

*Protected Species Observers (PSO) on duty.



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



Figure 2. View of barge and crane working adjacent to North Seal Haul-out from PSO observation area.