

Marine Mammal Monitoring Report
Sitka CBS GPIP Vessel Haul out Project
Sawmill Cove
Sitka, AK
POA-2024-00058; NMFS AKR-2024-00251

On November 20th, 2024, the U.S. Army Corps of Engineers issued a permit (LOP; USACE# POA-2024-00058) to the City and Borough of Sitka authorizing the construction of a marine vessel haul out at Gary Paxton Industrial Park (GPIP) at Sawmill Cove, Sitka, Alaska. The permit required compliance with the Endangered Species Act and implementation of National Marine Fisheries Service's (NMFS) Incidental Harassment Authorization (NMFS# AKR-2024-00251) date November 13, 2024.

Beginning in late November 2024, with in-water work taking place into January 2025, Western Marine Construction worked in Sawmill Cove to construct a vessel haul out on behalf of the City and Borough of Sitka. To prevent noise associated with pile installation and fill placement from harming marine mammals, monitoring zones were established based on the species expected to be in the area and the type of in-water work being done. This included an exclusion (shutdown) zone, and two levels of monitoring where protected species were to be considered as takes (Table 1), but work was not required to stop unless cumulative counts became excessive.

The maximum disturbance zone for this project comprised most of Silver Bay (Figure 1). The approved mitigation plan called for three observers stationed along the shoreline (Figure 2). One observed from Sawmill Cove near where construction was taking place. A second was positioned to have a good view of the mouth of Silver Bay. The third observed from Bear Cove, about midway up Silver Bay.

Protected species observers were present prior to and during pile driving and fill placement activities to monitor marine mammal presence and communicate with the construction foreman about marine mammal presence and the need for shutdowns. When a marine mammal appeared likely to enter an exclusion zone, in-water construction was paused or delayed. Some incidental take was authorized for this project (Table 2).

Monitors were present during 32 days of in-water work (31 with pile driving, one with only in-water placement of fill). These included 8 Days in November, 16 Days in December, and 8 days in January 2025 (Table 3). Observation commenced at least 30 minutes before in water work, however due to difficulty predicting when exactly in water work would begin, observers were routinely present and monitoring well before work began. Table 4 includes all observations recorded by the observers, even those well outside the pre/post monitoring periods.

While observing, 112 sighting events of individuals or groups of four species of protected mammals were recorded (Table 5). Steller's sea lions, humpback whales,

harbor seals, and killer whales. These species were primarily observed swimming, milling, or travelling, as well as some feeding/foraging behavior.

Three work delays happened due to the presence of a humpback whale in or near the 2000m shutdown zone for impact hammer pile driving. Two delays occurred on November 28th, the first for approximately 2 hours, then a second for another hour. The third took place on December 18th for an hour. (See Table 4 for details.)

A single weather delay took place on January 15th. Impact pile driving was delayed for 2 hours due to low visibility during an extended snow shower with associated fog.

Observer placements allowed for observation of the full shutdown and Level A harassment zones. However, it was not possible to observe the full Level B harassment zone specified for pile driving with the vibratory hammer.

To account in part for the lack of full coverage, Level B takes were recorded for any protected species observed in Silver Bay on a day that the vibratory hammer was operating if it was not known to be outside of the bay while pile driving took place.

In particular, if an animal was seen within Silver Bay (inside the outermost boundary at the mouth of the bay) and not seen leaving before the vibratory hammer work commenced or arriving after it ended, it was recorded as a Level B take whether or not the vibratory hammer was operating at the time of observation. Also, seals observed only in the very inner part of Bear Cove, which is outside of the ensonified area, were also counted as Level B takes on days that the vibratory hammer operated.

In addition to the conservative counting of takes, an estimate for unobserved Level B takes have been calculated for each observed species based on observed presence, the typical behaviors, and detectability. These are reported in Table 4, with details on the reasoning and calculations included below in the species notes.

Species Notes

Harbor Seal

Harbor Seals were observed on 21 out of 32 observing days. There were no observed Level A takes, and 35 reported Level B takes.

Harbor Seals were almost exclusively observed at or near the mouths of streams, most frequently in Bear Cove (20 out of 31 days). On many days, 1 or 2 seals (max 3 on one day) were observed throughout the day at the mouth of Medvejie Creek in Bear Cove. In Sawmill Cove, lone seals were briefly observed near the mouth of Sawmill Creek on 6 of the observing days. No seals were observed by the observer stationed at the mouth of Silver Bay.

The seals in Bear Cove gave no indications of a response to work activities in Sawmill Cove. In Sawmill Cove, apart from extensive periods of absence, seals observed did not show any clear signs of disturbance due to work activities. In particular, a seal present at the mouth of Sawmill Creek during vibratory hammer activity did not show any particular response to the activity.

Although no behavioral response to the activity was directly observed, given the sporadic observations (especially compared with Bear Cove seals), it seems likely the seal(s) in Sawmill Cove routinely moved further up the bay and/or into nearby Herring Cove to get away from the construction activity. Herring Cove is not in the ensonification zone, nor is it observable from observer stations.

Since most seals observed during this project tended to stay in one area for extended periods, it is likely that any seals present in the upper part of the bay on a given day would not be observed by any of the observers.

There are two streams that flow into the unobserved upper part of Silver Bay. One is the outflow from Green Lake, the other Salmon Lake. Strictly speaking, due to the shape of the bay, the mouth of each stream is outside of the Level B harassment zone (due to the shape of the shoreline). However it would be easy for a seal to move into the harassment zone, so this report will take a conservative approach and assume the entire bay is included.

Although both Sawmill Creek and Medvejie Creek have characteristics which make them difficult to directly compare with the upper creeks, due to its distance from the work site, Medvejie Creek offers a much better basis for extrapolation to make an estimate for total Level B takes.

The total number of seals observed at Bear Cove/Medvejie Creek was 32 over 31 days with an observer present. This averages to approximately 1 seal per day.

There were 22 days when the vibratory hammer was in operation, resulting in an estimate of $2 \times 22 = 44$ unobserved Level B takes and an estimated total of 79.

Humpback Whale

Humpback whales were observed on 18 out of 32 observing days. Humpback whales were in the bay most consistently in November and December, with only one day with sightings in January. There were no Level A takes and 11 Level B takes recorded for humpback whales.

All but one humpback whale sightings were of a lone whale. The sighting of two whales took place on December 9th after the lone whale had been observed leaving the bay. That whale may have been returning with a second whale, but observers could not determine one way or the other.

Through mid-December a whale was observed on all but three days. The whale was observed throughout the bay, but most commonly at Bear Cove, probably feeding on young herring which were abundant in the cove in the late fall. At times it was observed to move up near the far end of the bay (where it was difficult to observe directly). It rarely, if ever, showed its tail flukes.

After December 14th, there were only two additional days with humpback whale sightings, December 18th, and January 12th. In neither case was the whale observed in Bear Cove. On January 12th, the whale entered the bay and left two hours later.

No signs of behavior change as a result of project activities were observed for humpback whales. They moved through the bay in similar ways regardless of active pile driving or not, including approaching the shutdown zone while impact hammer pile driving was taking place.

Considering the observed movements of humpback whales and the relative ease of detecting them in the bay, it is likely that most whales present in the Level B harassment zone during vibratory hammer operation were detected and reported as Level B takes..

However, there is a chance that a whale could have remained in the far upper end of the bay throughout an observing period and in that case would have gone uncounted.

Since the whale was observed in the bay on all but three days (11/25, 12/01, and 12/02) from the start of observing on November 21st through December 14th, those three days are the most likely ones where a whale was present at the upper end of the bay and escaped detection. On two of those days (11/25 and 12/01), the vibratory hammer was operated, which would have resulted in a Level B take had a whale been present and observed at the far end of the bay.

Taking all of this into consideration, the best estimate for unobserved Level B takes of humpback whales is 2, with an estimated 13 total Level B takes.

Killer Whale

Killer whales were observed on 4 out of 32 observing days. There were no Level A takes and 5 Level B takes recorded.

Three of the days occurred during a five day span in late November. On November 23rd and 24th a single male was observed slowly swimming circuits of the bay. On November 27th two males were observed leaving the bay in the morning, then returning in the afternoon. The last sighting was a pod of 3 swimming into the bay mid-morning then back out again 2.5 hours later.

The observed behavior of Killer Whales moving throughout the bay suggest it is unlikely Killer Whales would be in Silver Bay for long without being detected. Killer Whales are only sporadically reported near Sitka, so the low frequency of observations was as expected.

Although there is a slight possibility that Killer Whales could have been present during vibratory hammer operation, given the whale's observed behavior and the conservative assignment of Level B takes, the best estimate for unobserved Killer Whale takes is 0 resulting in an estimated total of 5 Level B takes..

Steller Sea Lion

Steller Sea Lions were observed on 21 out of 32 observing days. There were 6 Level A takes, and 23 Level B takes reported.

Steller Sea Lions were most often observed as individuals near the mouth of Silver Bay or in Sawmill Cove. They were occasionally seen in groups of 2 to as many as 6. Only 5 of the 40 sighting events were by the Bear Cove observer.

Unlike other species, Steller Sea Lions showed a clear response to work activities. On more than one occasion, animals were present in Sawmill Cove (but outside of the shutdown zone) for 30 or more minutes prior to the commencement of pile driving.

Without exception, sea lions that had been observed repeatedly in Sawmill Cove prior to pile driving, left the cove when any pile driving began. When direction of departure was observed, most of these animals were seen headed towards the mouth of the bay. Others probably moved up the bay and on at least one occasion were later observed in Bear Cove.

Sea lions did occasionally show up in Sawmill Cove after pile driving had commenced. This was observed on three days when in-water fill placement was taking place well after pile driving had completed for the day. On these occasions, sea lions were observed no sooner than 90 minutes after pile driving had wrapped up. Sea lions showed no obvious response to the in-water fill placement (which was sporadic, as most fill was placed above the water line).

On two days (11/23 and 12/16) a sea lion was observed in Sawmill Cove after pile driving started. On November 23rd, a single animal was observed further out in the cove shortly before the vibratory hammer began operating. Twenty minutes after the pile driving started, what may have been the same animal was briefly observed closer to shore heading away from the cove. It was not observed again. On December 16th, the vibratory hammer was used to drive 24" fender piles. These smaller diameter, shorter pilings were driven much more quickly than the primary 36" support pilings. It took 7-8 minutes to drive each piling. Later in the day an attempt was made to use the vibratory hammer to drive a 36" support piling, but equipment issues prevented any sustained operation.

Given the sea lion's ability to swim long distances underwater and difficulty detecting them away from the mouth of Silver Bay, Sawmill Cove, and Bear Cove, it is likely that at least a few Steller Sea Lions were present but unrecorded.

Over 31 days of observing pile driving operations, 56 Steller Sea Lions were observed. This number is probably slightly inflated by individuals seen more than once in a day with a gap between sightings, but averaged approximately 1.8 animals per day.

Under simplifying assumptions of a similar rate of occupancy for the unobserved part of the Level B shutdown zone, and the unobserved area of the Level B zone is approximately 1.5 times the area covered by observers, the estimate for unobserved Level B takes is 60 animals. The estimated total Level B takes is 83.

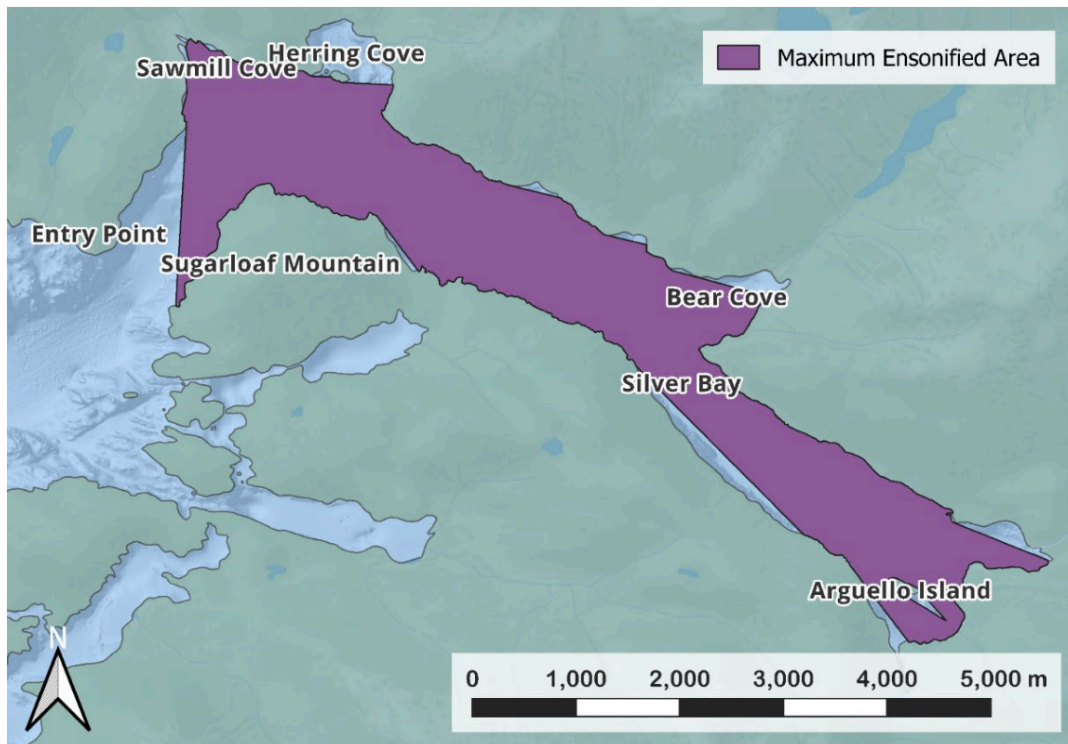


Figure 1: Maximum Area Covered by Level B Harassment

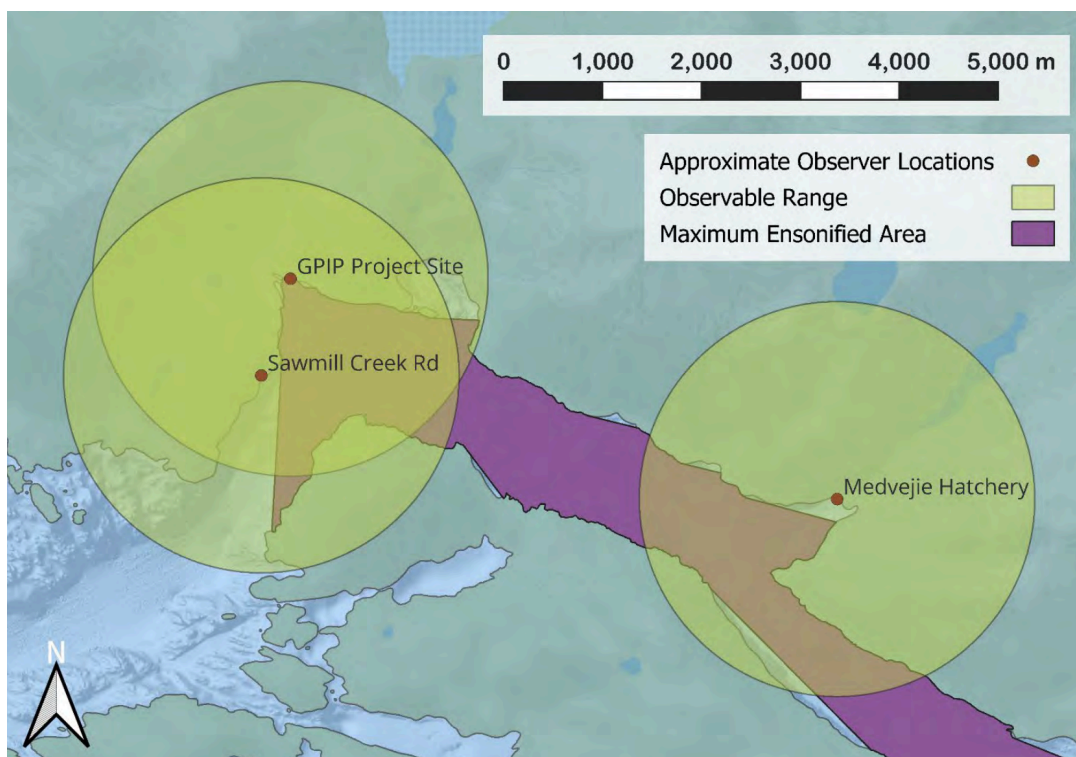


Figure 2: Placement of Protected Species Observers

Table 1: Monitoring Zones										
		Harbor Seal		Humpback Whale		Killer Whale		Steller Sea Lion		Level B Harassment (all species)
Pile Type/Size	Driving Method	Shutdown	Level A Take	Shutdown	Level A Take	Shutdown	Level A Take	Shutdown	Level A Take	
Support Pile 36" Steel	Vibratory	50m		40m		20m		20m		11659m
	Impact	130m	2278m	2000m	2507m	320m		60m	830m	1585m
Batter Pile 36" Steel	Vibratory	30m	65m	60m		20m		30m		11659m
	Impact	130m	2919m	2000m	3286m	420m		60m	1088m	1585m
Fender Pile 24" Steel	Vibratory	10m	26m	20m		10m		10m		7356m
Gravel Fill		80m								
Note: In cases where the Level A take radius was smaller than the shutdown radius or no Level A takes were permitted, the cell was left blank.										

Table 2: Authorized Incidental Take		
Species	Level B Harassment	Level A Harassment
Harbor Seal	236	12
Humpback Whale	73	0
Killer Whale	256	240
Steller Sea Lion	133	53
Note: The Incidental Harassment Authorization allowed for takes of additional species which were not observed in the project, and so not included here. The authorization also broke takes down by stock for Humpback Whale, Killer Whale, and Steller Sea Lion, however it was acknowledged observers would not be able to determine stock, so only totals across stocks are included in this table.		

Table 3 - Summary of Construction Activities		
Date	In-Water Construction Activities	Notes
11/21/2024	Vibratory Hammer	Getting equipment running, attempt to drive first piling
11/22/2024	Vibratory Hammer, Excavation	Driving Pilings D1, C1, B1, A1; excavation required to successfully drive C1
11/23/24	Vibratory Hammer	Driving pilings C1, B1, A1
11/24/24	Vibratory Hammer	Driving pilings D1, C1, B1, A1
11/25/24	Vibratory Hammer, Impact Hammer	VH on D1, C1; IH on C1 - 532 strikes; D1 - 433 strikes; A1 - 360 strikes; B1 - 345 strikes
11/27/24	Impact Hammer	Driving A1 - 1363 strikes; B1 - 1379 strikes; C1 - 1929 strikes;
11/28/24	Impact Hammer	Driving D1 - 1379 strikes; C1 - 121 strikes; B1 - 140 strikes; A1 - 140 strikes
11/30/24	Vibratory Hammer	Piling D2
12/01/24	Vibratory Hammer, Impact Hammer	VH on D2, C2; IH on D2 - 135 strikes; C2 - 252 strikes;
12/02/24	Impact Hammer	C2 - 1895 strikes; D2 - 1723 strikes
12/03/24	Vibratory Hammer	B2, A2
12/04/24	Vibratory Hammer, Impact Hammer	VH on A2 IH on A2 - 413 strikes; B2 - 321 strikes;
12/05/24	Impact Hammer	A2 - 1758 strikes; B2 - 1587 strikes
12/09/24	Vibratory Hammer	C3, D3
12/10/24	Vibratory Hammer, Impact Hammer, Placing Fill	VH on D3 IH on C3 - 2006 strikes; D3 - 202 strikes;
12/11/24	Impact Hammer, Placing Fill	D3 - 1698 strikes; B3 - 284 strikes;
12/12/24	Impact Hammer, Placing Fill	B3 - 2220 strikes
12/13/24	Vibratory Hammer, Impact Hammer, Placing Fill	VH - A3 (batter pile) IH - A3 (batter pile) - 983 strikes
12/14/24	Impact Hammer, Placing Fill	A3 (batter pile) - 2920 strikes
12/16/24	Vibratory Hammer, Impact Hammer, Placing Fill	VH on 2 24" fender pilings, D4 IH on D4 at partial power, unsuccessful with any significant driving
12/17/24	Vibratory Hammer, Placing Fill	D4, C4
12/18/24	Vibratory Hammer, Impact Hammer, Placing Fill	VH on B4 IH on D4 - 2092 strikes; C4 - 2241 strikes
12/19/24	Vibratory Hammer, Impact Hammer, Placing Fill	VH on A4 IH on A4 - 1785 strikes; B4 - 1544 strikes;
12/20/24	Placing Fill	
01/12/25	Vibratory Hammer, Dredging	Two 24" fender pilings; dredging required to remove woody debris obstructing second piling
01/13/25	Vibratory Hammer	D5, C5
01/14/25	Impact Hammer	D5 - 1798 strikes;
01/15/25	Impact Hammer	C5 - 1788 strikes
01/16/25	Vibratory Hammer, Impact Hammer	VH on B5 IH on B5 - 1486 strikes
01/17/25	Vibratory Hammer	A5 (batter pile)
01/18/25	Vibratory Hammer	A5 (batter pile)
01/19/25	Vibratory Hammer, Impact Hammer	VH on A5 (batter pile) IH on A5 (batter pile) - 599 strikes

Table 4: Takes - Observed and Estimated								
	Harbor Seal		Humpback Whale		Killer Whale		Steller Sea Lion	
	Observed	Permitted	Observed	Permitted	Observed	Permitted	Observed	Permitted
Level A	0	53	0	12	0	0	6	237
Level B	35	133	11	236	5	73	23	252
Estimate for unobserved Level B Takes	44		2		0		60	
Extrapolated Level B Takes	79		13		5		83	

Table 5: All Sightings and Delays

Date	Time	Species	Closest Distance	Maximum Count	Construction Activity	Observer	Take?	Coordinates of Closest Approach	Notes
11/21/24	13:56	Steller Sea Lion	6000m	1	pre-watch	KB	Level B	57°00'50.93" N 135° 09'09.70" W	Swimming near net pens, seen only briefly, then not again
11/21/24	14:47 15:12	Humpback Whale	1800m	1	Vibratory Hammer	TO, MG	Level B	57°01'56.67" N 135° 14'17.65" W	MG initially saw single blow towards mouth of Silver Bay, TO subsequently observed it milling in area around mouth of Silver Bay, near boundary of Level B zone
11/21/24	15:12	Steller Sea Lion	1000m	1	Vibratory Hammer	TO	No	57°02'24.01" N 135° 14'08.41" W	Close to shore, outside zone. Feeding (throwing a fish to break it up)
11/21/24	15:37	Humpback Whale	1200m	1	post-watch	TO	No	57°02'10.72" N 135° 13'30.39" W	Continuing Humpback Whale traveling back into bay
11/22/24	8:41 11:23	Harbor Seal	6000m	2	Vibratory Hammer	KB	Level B	57°00'53.61" N 135° 09'07.40" W	1-2 seals repeatedly surfacing near Medvejie Creek mouth and hatchery netpens; far enough back in cove to be out of Level B zone
11/22/24	10:39 14:07	Humpback Whale	4500m	1	Vibratory Hammer	KB, JC	Level B	57°00'47.96" N 135° 10'14.03" W	Single whale repeatedly surfacing near mouth of Bear Cove and Silver Bay out from Bear Cove. mostly surfacing to breath, possible feeding (birds attracted); breach at 12:43pm
11/22/24	14:45 14:55	Harbor Seal	180m	1	post-watch	KR	Level B	57°02'48.80" N 135° 13'34.47" W	Staying in place just looking; didn't respond to work skiff moving through area; 63m from observer
11/23/24	7:45 14:50	Harbor Seal	6000m	2	Vibratory Hammer	KB	Level B	57°00'53.67" N 135° 09'07.68" W	At mouth of Medvejie Creek, surfacing regularly, mostly one at a time, sometimes two; occasionally playing; present throughout the day
11/23/24	8:20	Harbor Seal	250m	1	no in-water work	MG	Level B	57°02'50.88" N 135° 13'27.86" W	~50m from observer, mouth of Sawmill Creek; surfaced briefly
11/23/24	9:08 9:12	Killer Whale	5000m	1	Vibratory Hammer	KB	Level B	57°00'53.76" N 135° 10'32.10" W	Adult male travelling further up into the bay near far shore across from Bear Cove; ~1400 m from observer
11/23/24	10:20	Steller Sea Lion	600m	1	no in-water work	MG	Level B	57°02'32.97" N 135° 13'33.59" W	Single sea lion milling briefly outer part of Sawmill Cove away from shore, ~500m from observer. Since VH started very soon after this was last seen, it's very likely it was still in the Level B zone during VH operation.
11/23/24	10:47 10:49	Killer Whale	6000m	1	Vibratory Hammer	KB	No	57°00'44.03" N 135° 10'08.31" W	Adult male travelling in opposite direction back towards mouth of bay, ~1000m from observer
11/23/24	10:53	Steller Sea Lion	400m	1	Vibratory Hammer	MG	Level B	57°02'43.82" N 135° 13'24.27" W	Saw briefly at surface traveling along the shoreline beyond mouth of Sawmill Creek, moving towards Herring Cove
11/23/24	12:51 13:00	Humpback Whale	4000m	1	no in-water work	KB	Level B	57°00'45.00" N 135° 10'14.43" W	Travelling west, then east; breached once; ~1400m from observer
11/23/24	13:12	Harbor Seal	250m	1	no in-water work	MG	Level B	57°02'47.61" N 135° 13'29.83" W	Surfaced briefly at mouth of Sawmill Creek; ~50m from observer. Would not have left zone by the time the hammer started shortly after sighting
11/23/24	13:55 14:06	Harbor Seal	250m	1	Vibratory Hammer	MG	Level B	57°02'47.61" N 135° 13'29.83" W	Surfaced several times at mouth of Sawmill Creek. No apparent response to VH activity, all three sightings at this location the same seal?
11/24/24	9:00 9:37	Steller Sea Lion	1200m	3	Vibratory Hammer	KR	No	57°02'18.70" N 135° 14'18.15" W	Very near shore along the Sawmill Creek road side. Stayed along shoreline, surfacing occasionally. MG watched from cove, but they didn't appear in impact zone.
11/24/24	9:20 15:15	Harbor Seal	6000m	1	Vibratory Hammer	KB	Level B	57°00'54.07" N 135° 09'07.30" W	seen periodically throughout the day at mouth of Medvejie Creek and west of the dock ramp. Outside of impact zone

Table 5 (continued): All Sightings and Delays

Date	Time	Species	Closest Distance	Maximum Count	Construction Activity	Observer	Take?	Coordinates of Closest Approach	Notes
11/24/24	9:45 9:47	Killer Whale	5000m	1	Vibratory Hammer	KB	Level B	57°00'56.86" N 135° 10'07.89" W	travelling West (towards mouth of bay)
11/24/24	10:16 11:15	Humpback Whale	1200m	1	no in-water work	KR, MG	No	57°02'11.62" N 135° 13'28.40" W	Moved into bay from Eastern Channel, turned the corner and swam up the bay 1 km or so before reversing course and heading back out
11/24/24	10:33 10:45	Killer Whale	450m	1	no in-water work	MG	No (Resighting)	57°02'42.47" N 135° 13'24.38" W	Surfaced near the shoreline about 300m from observer. Moving very slowly, traveling towards Herring Cove, same individual as observed previously
11/24/24	11:25	Harbor Seal	150m	1	no in-water work	MG	Level B	57°02'49.27" N 135° 13'34.35" W	Swimming along shoreline near Sawmill Creek mouth, swimming upside down with eyes in water and mouth out
11/24/24	12:48 12:52	Killer Whale	450m	1	no in-water work	MG	No (Resighting)	57°02'42.47" N 135° 13'24.38" W	Surfaced near the shoreline about 300m from observer. Moving very slowly, traveling towards Herring Cove, same individual as observed previously
11/25/24	8:50 15:20	Harbor Seal	6000m	1	Vibratory Hammer	KB	Level B	57°00'53.80" N 135° 09'06.49" W	Periodically seen throughout the day at the surface in inner part of Bear Cove, mostly off the mouth of Medveje Creek.
11/27/24	8:30	Harbor Seal	6000m	2	no in-water work	KB	No	57°00'52.79" N 135° 09'08.78" W	Near the net pens in Bear Cove
11/27/24	9:48	Humpback Whale	1300m	1	no in-water work	KR	No	57°02'18.46" N 135° 14'18.34" W	close along shoreline below Sawmill Creek Road, not in exposure zone; saw it surface twice heading towards Whale Park
11/27/24	10:00	Killer Whale	1600m	2	no in-water work	JC	No	57°02'05.45" N 135° 14'09.02" W	Two travelling out of the bay, around mid channel between pullout and gravel beach on the far side. Both appeared to be male
11/27/24	11:26 11:28	Steller Sea Lion	800m	2	no in-water work	KR	Level A	57°02'26.53" N 135° 13'58.15" W	Near point below SMC road west of GPII dock, seen moving towards processor dock, but not observed again; observed only two minutes before impact hammer started, so counted as a Level A take
11/27/24	13:45 13:55	Killer Whale	1000m	2	no in-water work	JC, KR	No	57°02'20.32" N 135° 13'31.30" W	Two (probably same as earlier) observed traveling into Silver Bay. Well spaced, closest approach appeared to be near the white buoy
11/28/24	7:44 10:35	Steller Sea Lion	80m	6	pre-watch and delay	MG	Level A (3)	57°02'49.96" N 135° 13'40.80" W	surface. They became active and were joined by others (max count 6), swimming around Sawmill Cove and approaching as close as 80m (just inside bow of the larger barge). They split into two groups, with one spending more time off SM Creek mouth, the other closer to the GPII dock. At least a couple seemed to depart towards mouth of Silver Bay. Three remaining animals mostly stayed together after around 9:30. Generally milling about in the vicinity of GPII dock, they may have been catching small herring (they sometimes seemed to be chewing when they surfaced, and many small herring are in the cove). Last seen at surface ~125m from pilings shortly before soft start of impact driving. They were not seen again, presumably leaving the area when driving started. Mostly remained between Sugarloaf Mountain and Herring Cove. It mostly stayed near the boundary of the 2000m shutdown zone, sometimes coming in closer, other times a little further out. From 9:35-9:45, it came into Sawmill Cove, getting as close as 250m from the pile driving site. Finally, shortly after 10:30 it was seen exiting the shutdown zone and traveling up the bay in the direction of Bear Cove. SH observed it several times closer to Bear Cove, then noted it was traveling toward the shutdown zone again at 11:14 as driving of D1 reached completion. From 11:23-12:03 it was observed in or near the shutdown zone. At 12:18, SH observed it once again traveling up the bay. SH observed it a few more times over the next 10-15 minutes well outside the
11/28/24	7:56 12:30	Humpback Whale	250m	1	pre-watch, delay (x2), and impacting (while out of zone)	SH, MG	No	57°02'45.22" N 135° 13'36.41" W	
11/28/24	7:58	Steller Sea Lion	950m	1	pre-watch	SH	No	57°02'23.55" N 135° 14'05.45" W	
11/28/24	8:10 10:33				Delay	MG			MG called for a delay to the start of impact pile driving due to presence of a humpback whale in the 2km shutdown zone. It arrived in the zone during the pre-watch period. MG gave the all-clear at 10:33 after the whale was seen clear of the zone and continuing to move up the bay. (See above for more details.)
11/28/24	11:23 12:20				Delay	MG			Humpback Whale returned to shutdown zone during transition between pilings. MG called for a delay to the resumption of impact pile driving. It was observed in or near the zone from 11:23-12:03. MG gave the all-clear at 12:20 after the whale was seen clear of the zone and continuing to move out into Eastern Channel. (See above for more details.)
11/28/24	13:05 13:15	Steller Sea Lion	6000m	4	Impact Hammer	JC	No	57°00'50.86" N 135° 09'15.66" W	Observed milling about in Bear Cove, well outside zone; seems probable that they were among those observed in Sawmill Cove earlier

Table 5 (continued): All Sightings and Delays

Date	Time	Species	Closest Distance	Maximum Count	Construction Activity	Observer	Take?	Coordinates of Closest Approach	Notes
11/28/24	13:38	Humpback Whale	3000m	1	post-watch	SH	No	57°01'37.34" N 135° 11'49.59" W	Seen up the bay in the direction of Bear Cove
11/30/24	11:58	Harbor Seal	6000m	2	Vibratory Hammer	KB	Level B	57°00'52.19" N 135° 09'05.20" W	Observed inshore of the net pens at Bear Cove. One or two seen at the surface periodically throughout the observing time.
	16:00								
11/30/24	12:30	Humpback Whale	1400m	1	no in-water work	JC	No	57°02'06.94" N 135° 13'48.00" W	traveling into Silver Bay near Sugarloaf side of bay, seen at surface twice
	12:35								
11/30/24	14:37	Steller Sea Lion	6000m	3	no in-water work	KB	Level B	57°00'50.12" N 135° 09'12.93" W	Just outside inner net pens, seen once
11/30/24	14:47	Steller Sea Lion	200m	2	no in-water work	SH	Level B	57°02'45.56" N 135° 13'42.22" W	calm, feeding; near GPIIP dock; Vibratory Hammer began soon after last sighting, so they were probably still present in the Level B harassment zone when it started
	14:56								
12/01/24	9:12	Steller Sea Lion	200m	1	Vibratory Hammer	MG	Level B	57°02'45.25" N 135° 13'43.56" W	Surfaced once briefly, off the south end of GPIIP dock swimming south
12/02/24	11:49	Harbor Seal	180m	1	no in-water work	MG	No	57°02'46.91" N 135° 13'45.61" W	Seen briefly at the surface swimming. Appeared to be heading between GPIIP dock and shoreline, but was not observed again in the area
12/03/24	11:00	Humpback Whale	6000m	1	no in-water work	JC	Level B	57°00'49.58" N 135° 09'10.57" W	Surfacing near Medveje Hatchery netpens.
	11:30								
12/03/24	13:33	Steller Sea Lion	320m	1	no in-water work	MG	Level B	57°02'45.11" N 135° 13'30.02" W	observed briefly at surface beyond mouth of Sawmill Creek. Last time appeared to be heading across SMCove. Potentially same individual observed a short time later along SMC road; Vibratory Hammer started shortly after sighting, so presumed to be still in Level B harassment zone when pile driving began
	13:35								
12/03/24	13:44	Steller Sea Lion	960m	1	Vibratory Hammer	TS	No	57°02'24.08" N 135° 14'05.15" W	Observed swimming very close to shore (outside of impact zone) and heading out of Silver Bay
	13:46								
12/04/24	9:42	Humpback Whale	1200m	1	Vibratory Hammer	TS, MG	Level B	57°02'11.53" N 135° 13'28.54" W	First observed swimming into Silver Bay ~2200m from work, moved into bay and last seen moving further up the bay towards Bear Cove
	10:45								
12/04/24	11:57	Humpback Whale	1500m	1	no in-water work	TS, JC	No	57°02'08.15" N 135° 13'27.45" W	Same whale observed again near point east of Sugarloaf, approaching the zone. Seen near the surface in that vicinity a few times, then observed travelling out of Silver Bay into Eastern Channel. Possibly a slight delay, as workers were on lunch break, and may have taken a little longer than they would have otherwise.
	12:42								
12/04/24	12:27	Steller Sea Lion	1000m	1	no in-water work	TS	No	57°02'23.77" N 135° 14'08.29" W	Observed briefly at surface near the shore below the pullout
12/05/24	8:30	Humpback Whale	6000m	1	Impact Hammer	JC, MG	No	57°00'43.00" N 135° 10'01.83" W	Well outside the 2500m radius for a Level A take. Observed surfacing many times, mostly in Bear Cove. Observed by MG surfacing further up the bay at 9:39 and 10:42, but was back in Bear Cove not long after.
	11:15								
12/09/24	8:00	Humpback Whale	6000m	1	no in-water work	KB	No	57°00'50.50" N 135° 09'06.88" W	Surfacing very close to inner net pens.
	8:04								
12/09/24	9:00	Steller Sea Lion	6000m	1	no in-water work	KB	Level B	57°00'50.50" N 135° 09'06.88" W	Swimming near inside net pens
	9:03								
12/09/24	9:14	Humpback Whale	6000m	1	no in-water work	KB	No	57°00'50.50" N 135° 09'06.88" W	In Bear Cove surfacing periodically between inner and outer net pens
	9:34								
12/09/24	9:54	Harbor Seal	6000m	1	Vibratory Hammer	KB	Level B	57°00'53.75" N 135° 09'07.56" W	Near Medveje Creek Mouth, not in zone

Table 5 (continued): All Sightings and Delays

Date	Time	Species	Closest Distance	Maximum Count	Construction Activity	Observer	Take?	Coordinates of Closest Approach	Notes
12/09/24	10:42 10:45	Steller Sea Lion	1000m	1	no in-water work	TS	No	57°02'23.71" N 135° 14'09.89" W	Seen swimming at surface not far off of shoreline, initially headed into the bay, then out towards Eastern Channel
12/09/24	12:04 12:25	Humpback Whale	6000m	1	no in-water work	KB	Level B	57°00'50.50" N 135° 09'06.88" W	In Bear Cove surfacing periodically between inner and outer net pens; probably moved further up Silver Bay between earlier sightings and this one in Bear Cove.
12/09/24	13:38 13:54	Humpback Whale	1600m	1	no in-water work	TS	No	57°02'01.94" N 135° 13'51.00" W	Swimming out of Silver Bay towards Eastern Channel, presumably the same as had been in Bear Cove earlier
12/09/24	14:17 14:37	Humpback Whale	1400m	2	Vibratory Hammer	TS, KR	Level B	57°02'10.34" N 135° 13'09.78" W	Two whales swimming into Silver Bay. Initially spotted between SMC road observer and Sugarloaf Mountain. Subsequently seen swimming near the south shoreline swimming further into the bay.
12/10/24	10:27 11:09	Steller Sea Lion	200m	2	no in-water work	MG	Level B	57°02'45.77" N 135° 13'44.32" W	Present in the same area off the south end of GPIIP dock. Surfacing every two three minutes, but otherwise not appearing to be very active. Last sighting was just before the vibratory hammer began. Presumably they left the area when it started.
12/10/24	10:35 13:28	Harbor Seal	6000m	1	Vibratory Hammer	KR	Level B	57°00'52.19" N 135° 09'05.20" W	out of zone, observed many times throughout the day. Milling in the same area seals have regularly been present.
12/10/24	10:48 11:45	Humpback Whale	5500m	1	Vibratory Hammer	KR	Level B	57°00'46.80" N 135° 09'31.69" W	mostly in Bear Cove, but its route took it out into the Level B impact zone at times. Presumably feeding.
12/10/24	12:27 12:32	Humpback Whale	5500m	1	Vibratory Hammer	KR	No	57°00'46.80" N 135° 09'31.69" W	Back in Bear Cove following similar pattern. Outside of impact zone
12/10/24	13:04 13:24	Humpback Whale	5500m	1	no in-water work	KR	No	57°00'46.80" N 135° 09'31.69" W	Back in Bear Cove following similar pattern.
12/10/24	16:01 16:07	Steller Sea Lion	110m	2	sporadic in-water fill placement	MG	No	57°02'49.48" N 135° 13'39.06" W	observed surfacing off the end of the large barge; seemed active, perhaps feeding?
12/10/24	16:35	Steller Sea Lion	80m	1	sporadic in-water fill placement	MG	No	57°02'50.71" N 135° 13'39.25" W	observed briefly alongside the large barge.
12/11/24	8:30 12:03	Humpback Whale	5500m	1	Vibratory Hammer + Impact Hammer	KR	Level B	57°00'46.80" N 135° 09'31.69" W	swimming a generally circular path in Bear Cove. Sighted repeatedly through the period, surfacing, diving, and one breach.
12/11/24	8:32 8:50	Harbor Seal	6000m	1	Impact Hammer	KR	No	57°00'53.75" N 135° 09'07.56" W	Present in the same area they have been seen repeatedly through the project. Probably present throughout the day, though observer shifted locations to better track the whale, and couldn't track the seal as easily.
12/11/24	13:17 15:32	Steller Sea Lion	90m	1	sporadic in-water fill placement	MG	No	57°02'51.25" N 135° 13'39.27" W	Regularly surfacing while actively swimming around Sawmill Cove, mostly in the area just beyond the large barge
12/12/24	8:00 8:34	Steller Sea Lion	130m	1	Impact Hammer (soft start)	MG	Level A	57°02'47.49" N 135° 13'41.68" W	observed surfacing repeatedly in vicinity of GPIIP dock. Closer approach was east of the dock 10-20m. Also surfaced south of the dock, and was last seen there heading south (away from construction work)

Table 5 (continued): All Sightings and Delays

Date	Time	Species	Closest Distance	Maximum Count	Construction Activity	Observer	Take?	Coordinates of Closest Approach	Notes
12/12/24	8:05	Harbor Seal	6000m	1	Impact Hammer	KR	No	57°00'53.76" N 135° 09'07.06" W	probably present throughout the observing period near mouth of Medveje Creek
12/12/24	8:13 12:21	Humpback Whale	5500m	1	Impact Hammer	KR	No	57°00'49.67" N 135° 09'29.00" W	present throughout the observation period. Generally swimming loops between the inner and outer net pens. Probably feeding on young herring which are abundant in the cove. Breached three times.
12/12/24	8:10 12:24	Steller Sea Lion	5800m	3	Impact Hammer	KR	No	57°00'51.05" N 135° 09'10.54" W	observed swimming in Bear Cove throughout the observing period, typically swimming back and forth among the net pens
12/12/24	14:40 15:02	Steller Sea Lion	90m	1	sporadic in-water fill placement	MG	No	57°02'50.76" N 135° 13'38.90" W	First seen between the dock and the end of the large barge. Then observed between the large barge and the east shoreline, before moving out beyond the barge.
12/13/24	10:17 12:40	Harbor Seal	6000m	2	Vibratory Hammer	TO	Level B	57°00'51.50" N 135° 09'02.63" W	along the inner shoreline of Bear Cove, near NSRAA dock; As many as 2 observed at once, showing from time to time
12/13/24	14:51	Humpback Whale	5500m	1	Impact Hammer	TO	No	57°00'49.62" N 135° 09'30.34" W	feeding in Bear Cove, well outside shutdown and Level A harassment zones
12/14/24	8:35	Humpback Whale	5500m	1	Impact Hammer (soft start)	TO	No	57°00'49.22" N 135° 09'24.85" W	blew several times then dove by the net pens; well outside any zones for impact driving
12/14/24	9:56	Humpback Whale	4500m	1	Impact Hammer	TO	No	57°00'58.88" N 135° 10'28.53" W	breached while swimming out of cove, and beginning to move up Silver Bay; well outside of harassment zones
12/14/24	8:50 8:57	Harbor Seal	6000m	2	Impact Hammer	TO	No	57°00'52.18" N 135° 09'10.37" W	Milling about in Bear Cove in the estuary area
12/14/24	10:23	Humpback Whale	1900m	1	no in-water work	TS	No	57°02'04.22" N 135° 12'33.94" W	Surfaced, unclear which direction it was heading
12/14/24	10:46	Humpback Whale	2700m	1	no in-water work	TS	No	57°01'33.46" N 135° 14'53.58" W	swimming west into Eastern Channel
12/14/24	15:24	Humpback Whale	1300m	1	sporadic in-water fill placement	TS	No	57°02'07.74" N 135° 13'43.65" W	swimming into Silver Bay.
12/16/24	8:52 14:02	Harbor Seal	6000m	2	Vibratory Hammer	TO	Level B	57°00'53.55" N 135° 09'07.63" W	Near Medveje Creek and the Bear cove estuary. Seen periodically through the observing period
12/16/24	9:22 9:32	Steller Sea Lion	900m	1	no in-water work	TS	No	57°02'26.05" N 135° 13'46.39" W	milling, and possibly feeding, along the shoreline below Sawmill Creek road
12/16/24	9:52 10:00	Steller Sea Lion	250m	1	no in-water work	MG	Level B	57°02'46.04" N 135° 13'32.66" W	throwing fish around, SW of mouth of Sawmill Creek, surfaced a few times, probably still in zone when vibratory hammer began
12/16/24	11:31 11:38	Steller Sea Lion	200m	1	Vibratory Hammer	MG	Level B	57°02'45.22" N 135° 13'42.66" W	off SE corner of GPIIP dock; surfaced three times, no obvious activity, last sighting was after vibratory had started
12/16/24	13:48 13:52	Steller Sea Lion	160m	1	no in-water work	KR	Level B	57°02'46.72" N 135° 13'41.91" W	Near GPIIP dock, swimming southwest
12/17/24	8:40 8:58	Harbor Seal	6000m	1	Vibratory Hammer	KR	Level B	57°00'51.61" N 135° 09'10.42" W	milling near netpens well inside Bear Cove
12/17/24	10:08	Steller Sea Lion	1100m	1	no in-water work	TS	No	57°02'20.59" N 135° 14'07.22" W	swimming along shoreline towards Sawmill Cove
12/17/24	11:03 11:10	Steller Sea Lion	190m	1	Vibratory Hammer	MG	Level B	57°02'45.85" N 135° 13'42.53" W	Seen at the surface 3 times over a few minutes. Not obviously travelling when at surface, but further out each time.

Table 5 (continued): All Sightings and Delays

Date	Time	Species	Closest Distance	Maximum Count	Construction Activity	Observer	Take?	Coordinates of Closest Approach	Notes
12/17/24	12:11	Steller Sea Lion	900m	1	post-watch	TS	No	57°02'21.07" N 135° 13'53.80" W	swimming southeast
12/18/24	8:38	Steller Sea Lion	1100m	1	pre-watch	TS	No	57°02'20.39" N 135° 14'13.33" W	swimming towards Eastern Channel
12/18/24	10:14 10:25	Harbor Seal	6000m	1	Impact Hammer	KR	Level B	57°00'51.78" N 135° 09'09.04" W	well inside Bear Cove, near net pens
12/18/24	10:45 11:35	Humpback Whale	1300m	1	Delay (whale in shutdown zone)	TS, MG, KB	No	57°02'10.65" N 135° 13'24.53" W	Initially seen surfacing in Eastern Channel off of Camp Coogan bay, direction unknown. Next sighting at 10:56 in mouth of Silver Bay at ~2700m and heading in. MG (in Sawmill Cove) and TS (SMC road), MG called for halt of pile driving. Observed surfacing every few minutes as it slowly moved through the zone over the next 30 minutes. It was near or possibly somewhat beyond the SE edge of the zone heading further into the bay when last seen.
12/18/24	10:57 12:05				Delay	MG			MG called for halt to impact pile driving due to approach of humpback whale to 2km shutdown zone as it enter Silver Bay from Eastern Channel. It was seen moving through the zone over the next 30 minutes, with the last sighting approaching the edge of the zone heading into the bay. After 30 additional minutes with no sightings, MG gave the go ahead to resume pile driving.
12/18/24	11:15	Harbor Seal	225m	1	on standby	MG	Level B	57°02'46.77" N 135° 13'29.02" W	surfaced briefly about 50m beyond the mouth of Sawmill Creek, during a construction delay (for humpback whale)
12/18/24	12:14 12:34	Humpback Whale	4500m	1	Impact Hammer	KR	No	57°01'00.75" N 135° 10'42.31" W	outside zone, the same whale seen earlier travelling further up the bay towards Salmon Lake end. It did not enter Bear Cove.
12/19/24	8:48	Harbor Seal	200m	1	no in-water work	MG	Level B	57°02'43.78" N 135° 13'42.80" W	Just its nose and mouth were above the surface, its snout pointing upward. Seen briefly about 75m south of the SE corner of the GPIIP dock
12/19/24	8:50 15:30	Harbor Seal	6000m	2	Vibratory Hammer	KB	Level B	57°00'53.50" N 135° 09'09.04" W	At mouth of Medvejie Creek in Bear Cove, outside of the ensonification zone. Seen throughout the day
12/19/24	9:29	Harbor Seal	250m	1	Vibratory Hammer	MG	Level B	57°02'42.16" N 135° 13'41.72" W	Presumably the same seal observed earlier. It surfaced in the same way, and similar area, though about 50m further out
01/12/25	8:15 9:15	Harbor Seal	6000m	1	no in-water work	KB	Level B	57°00'53.85" N 135° 09'08.16" W	Resident Harbor Seal at mouth of Medvejie Creek, surfacing periodically.
01/12/25	9:12 9:45	Humpback Whale	1200m	1	Vibratory Hammer (24" piling)	TO, MG	Level B	57°02'11.64" N 135° 13'28.58" W	moving into Silver Bay, closer to the Sugarloaf shoreline
01/12/25	9:24 9:40	Killer Whale	1000m	3	Vibratory Hammer (24" piling)	TO, MG	Level B	57°02'23.07" N 135° 14'08.78" W	First seen near shore by SMC road observer (~1000m, but not in zone). Next seen heading into the bay closer to the far shoreline
01/12/25	11:09 11:20	Steller Sea Lion	1000m	1	no in-water work	KR	No	57°02'22.83" N 135° 14'09.22" W	travelling near shore, observing moving west out of the bay
01/12/25	11:58	Humpback Whale	1800m	1	no in-water work	TO	No	57°01'54.94" N 135° 14'13.60" W	near far shoreline below Sugarloaf Mountain, outer part of bay, likely same whale as earlier, now heading out of the bay
01/12/25	12:09 12:13	Killer Whale	1200m	3	no in-water work	TO, KR	No	57°02'13.80" N 135° 13'29.68" W	pod heading back out of Silver Bay
01/12/25	13:55 15:30	Harbor Seal	6000m	1	Vibratory Hammer	KB	Level B	57°00'53.64" N 135° 09'07.12" W	Resident Harbor Seal at mouth of Medvejie Creek, surfacing periodically.
01/13/25	9:00 14:00	Harbor Seal	6000m	2	Vibratory Hammer	KB	Level B	57°00'53.42" N 135° 09'07.40" W	at mouth of Medvejie Creek, outside of ensonified zone

Table 5 (continued): All Sightings and Delays

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