



MEMORANDUM

DATE: August 14, 2020

TO: Jaclyn Daly (NOAA), Bonnie Easley-Appleyard (NOAA) and Anne Logwood (USACE)

FROM: Paul McLarnon and Leslie Curran (PCT Project Management Office)

CC: Kevin Doyle, Shelle Cover, Anna Kohl, Suzann Speckman, Sim Brubaker, and Steve Lee (PCT Project Management Office)

Subject: Monthly Field Report for July 2020, Petroleum and Cement Terminal Construction Project, Port of Alaska.

THIS REPORT CONTAINS PRELIMINARY DATA – INFORMATION MAY CHANGE AFTER A MORE DETAILED QA/QC IS COMPLETED.



SUBMITTAL COVER SHEET

Project PCT 2020 Date Submitted: 8/10/2020
Contractor Pacific Pile & Marine Contract No. C-2019003209
Subcontractor /Supplier / Manufacturer: 61 North

Submittal No.: PCT2020-261E Revision: 00

Submittal Type: Action Informational

Submittal Title: PCT 2020 - Marine Mammal Monitoring Monthly Report – July 2020

Drawing Reference(s):

Specification Reference(s): 01 41 00 / 01.03.A.04

Standards Reference(s):

Submittal Description (inclusive of model number, style number, serial number and intended use:

Marine Mammal Monitoring Monthly Report – July 2020

Is this a deviation from Contract Documents (Yes/No)? No

CQCSM Verification:

- Review by CQCSM not performed/required
- (a) We have verified that the material or equipment contained in this submittal meets all the requirements specified or shown (no exceptions), and the submittal is required by the Contract Documents.
- (b) We have verified that the material or equipment contained in this submittal meets all the requirements specified or shown, except for the following deviations (list deviations; attach a separate sheet as necessary), and the submittal is required by the Contract Documents

CQCSM Signature: Jim Page - CQCSM 08-10-2020

Owner's Representative Review:

- No Exceptions Taken
- Exceptions Noted
- Revise and Resubmit
- Rejected
- Review Not Required

Notes (additional notes/comments may be attached):

Owner's Representative Signature: _____

Corrections or Comments made relative to submittals during this review do not relieve the Contractor from compliance with the requirements of the Drawings and Specifications. This submittal is only for review of general conformance with the design concept of the Project and general compliance with the information given in the Contract Documents. The Contractor is responsible for confirming and correlating all quantities and dimensions; selecting fabrication processes and techniques of construction; coordinating his work with that of other trades; and performing his work in a safe and satisfactory manner.

Port of Alaska Modernization Program Petroleum and Cement Terminal - 2020 Construction

Monthly Marine Mammal Monitoring Report

1 July to 31 July 2020

Prepared for

Pacific Pile and Marine
700 South Riverside Drive
Seattle, WA 98108

and

Port of Alaska
2000 Anchorage Port Road
Anchorage, AK 99501

and

National Marine Fisheries Service
Permits and Conservation Division
Office of Protected Resources
1315 East-West Highway
Silver Spring, MD 20910

and

National Marine Fisheries Service
Alaska Region Protected Resources Division
222 W. 7th Ave, #43
Anchorage, AK 99513

Prepared:

August 9, 2020

By:

61 North Environmental
1834 Rogers Park Ct.
Anchorage, AK 99508

The logo consists of the number '61' followed by a vertical bar and the letter 'N', all in a dark blue font on a white background.

Table of Contents

1	Introduction	3
2	Monitoring Effort and Environmental Conditions	4
	Monitoring Effort	5
	Environmental Conditions	6
3	In-Water Operations	10
	Other Non-PCT Activity	10
4	Pile Driving Shutdowns, Delays, and Other Mitigation Measures	11
	Other Mitigation Measures	13
5	Marine Mammal Observations	13
	Marine Mammal Sighting Summary	13
	Marine Mammal Exposures	13
6	References	16

Appendices

Appendix A – In-Water Activity Detail

Appendix B – Marine Mammal Sighting Summary

Appendix C – 7/1 – 7/5 Sighting Forms and Maps

Appendix D – Week of 7/6 – 7/12 Sighting Forms and Maps

Appendix E – Week of 7/13 – 7/19 Sighting Forms and Maps

Appendix F – Week of 7/20 – 7/26 Sighting Forms and Maps

Appendix G – 7/27 – 7/31 Sighting Forms and Maps

Appendix H – Data Field Information for Sighting Reports

Acronyms and Abbreviations

61N	61 North Environmental
ESA	Endangered Species Act
HDR	HDR, Inc.
IHA	Incidental Harassment Authorization
ITS	Incidental Take Statement
MMO	marine mammal observer
MOA	Municipality of Anchorage
NEX	North Expansion
NMFS	National Marine Fisheries Service
PAMP	Port of Alaska Modernization Program
PCT	Petroleum and Cement Terminal
POA	Port of Alaska
PPM	Pacific Pile and Marine
PW	Point Woronzof
SC	Ship Creek

1 Introduction

The National Marine Fisheries Service (NMFS) issued the Port of Alaska (POA) an Incidental Harassment Authorization (IHA) under the Marine Mammal Protection Act on 31 March 2020, effective 1 April 2020 for construction of the Petroleum and Cement Terminal (PCT) (NOAA 2020a) as described in the Federal Register, Volume 85, Number 66, page 19294 (NMFS 2020; 85 FR 19294). NMFS also completed a consultation under Section 7 of the Endangered Species Act (ESA) and issued a biological opinion of the effect the project may have to threatened and endangered species. NMFS issued an incidental take statement (ITS) under the ESA that mirrors and complements the IHA for ESA-listed species.

The PCT is a component of the Port of Alaska (POA) Modernization Program (PAMP). The Municipality of Anchorage (MOA) owns the POA and is the PCT project owner. Pacific Pile and Marine (PPM) is the prime contractor for PCT construction work in 2020 and 61 North Environmental (61N) is a subcontractor to PPM. The MOA contracted with CH2M Hill, Inc. (now a subsidiary of Jacobs Engineering Group) and HDR, Inc. (HDR) to provide permitting and compliance services for the PCT project.

The IHA and ITS require implementation of mitigation measures such as shutdowns and delays of pile installation or removal during construction of the PCT to reduce the impacts to protected marine mammal species. Beginning on 27 April 2020, 61N deployed eleven marine mammal observers (MMO) to four observation locations near the POA to monitor the waters of lower Knik Arm in Upper Cook Inlet. During the month of July 2020, the MMOs monitored for 18 days. The MMOs assist PPM in implementation of the mitigation measures by alerting the construction crew when marine mammals are within or approaching harassment zones. Typically, the MMOs communicate with PPM superintendents and foreman by radio and mobile phone. The MMOs document in-water construction activities including pile installation and removal, vessel traffic, anchor handling, and other relevant activity; sightings of marine mammals, group composition, behaviors, and location; and environmental and visibility conditions. All observation stations are equipped with laptops and high-speed data connections. All data is entered into Microsoft Access forms, and saved instantaneously to a cloud-hosted SQL server.

This report contains descriptions and summaries of the preliminary data collected including monitoring effort and environmental conditions, in-water operations and pile work completed, mitigation measures implemented, marine mammal species present and behavioral observations, and potential exposures or takes of marine mammals.

2 Monitoring Effort and Environmental Conditions

The waters of lower Knik Arm in upper Cook Inlet, Alaska near the PCT are monitored from four observation stations: near Point Woronzof (PW), at Ship Creek (SC), at the PCT, and at the North Expansion (NEX) of the POA (Figure 1).



Figure 1 - Observation Stations and the In-bound (white line) and Out-bound (green line) Pre-Pile Driving Clearance Demarcation Lines

The PCT station is staffed by two MMOs including the field lead. The PCT station monitors marine mammal activity near the PCT, pile driving and removal, other in-water activity, and the harassment and shutdown zones near the PCT. The NEX, SC, and PW stations are staffed by three MMOs each, rotating between duties including: scanning with 7X50 binoculars or unaided eye, scanning with the 25X150 “big eye” tripod mounted binoculars (NEX and PW) or 20X/40X tripod mounted binoculars (SC), and a data collection/rest shift in a data shack.

Each morning, pre-clearance monitoring begins when all three of the large binoculars are set up and active scanning has begun at all four stations. The monitoring ends approximately 10 hours after the start time unless additional time is required by construction activities. MMOs are afforded a 15-minute break (or combination of smaller breaks) in the morning and again in the afternoon. They also take an unpaid half-hour lunch break. The lunch breaks typically occur between 11:30 and 13:00 but may be taken earlier or later if there is an active sighting or planned in-water activity, or both.

Monitoring Effort

Observation hours are summarized on a project level, a per-station level, and a per-MMO level. The project-level observation hours are calculated as the duration between the beginning of pre-clearance and the observation end time each day. Observations generally end at a scheduled time (17:15), unless in-water activity occurs late in the day, and the 30-minute post pile driving monitoring period extends past the scheduled shift. The station-level hours are calculated based on the project hours multiplied by four stations. Actual station start times may be a few minutes earlier because pre-clearance does not begin until the last station reports the start of monitoring. The MMO observation duration is calculated by multiplying the project-level hours by seven “on watch” MMOs, subtracting break periods (30-minute lunch, and a 15-minute break each morning and afternoon). In practice, breaks are typically taken during the data collection rotation, and the actual total “on watch” hours may be greater than estimated.

During the month of July 2020, no in-water pile installation or removal occurred on 13 of the 31 days in the month and no marine mammal monitoring was conducted on those days. The monthly observation hours are presented in Table 1.

Table 1 - Observation Effort

Date	Begin Time	End Time	Project Observation Hours	Station Observation Hours ¹	MMO Observation Hours ²
7/1/2020	7:00	17:15	10.25	41.0	61.3
7/2/2020	7:01	19:23	12.37	49.5	76.1
7/3/2020	n/a	n/a	n/a	n/a	n/a
7/4/2020	n/a	n/a	n/a	n/a	n/a
7/5/2020	n/a	n/a	n/a	n/a	n/a
7/6/2020	7:04	17:15	10.18	40.7	60.8
7/7/2020	7:05	18:23	11.30	45.2	68.6
7/8/2020	6:59	18:03	11.07	44.3	67.0
7/9/2020	7:00	17:27	10.45	41.8	62.7
7/10/2020	7:05	18:27	11.37	45.5	69.1
7/11/2020	7:02	18:05	11.05	44.2	66.9
7/12/2020	7:03	17:15	10.20	40.8	60.9
7/13/2020	7:03	17:57	10.90	43.6	65.8

Date	Begin Time	End Time	Project Observation Hours	Station Observation Hours ¹	MMO Observation Hours ²
7/14/2020	7:03	17:39	10.60	42.4	63.7
7/15/2020	7:23	17:15	9.87	40.8 ³	60.7 ³
7/16/2020	7:00	18:24	11.40	45.6	69.3
7/17/2020	7:00	17:40	10.67	42.7	64.2
7/18/2020	6:57	17:05	10.13	40.5	60.4
7/19/2020	n/a	n/a	n/a	n/a	n/a
7/20/2020	7:00	17:15	10.25	41.0	61.3
7/21/2020	7:03	17:15	10.20	40.8	60.9
7/22/2020	n/a	n/a	n/a	n/a	n/a
7/23/2020	n/a	n/a	n/a	n/a	n/a
7/24/2020	n/a	n/a	n/a	n/a	n/a
7/25/2020	n/a	n/a	n/a	n/a	n/a
7/26/2020	n/a	n/a	n/a	n/a	n/a
7/27/2020	n/a	n/a	n/a	n/a	n/a
7/28/2020	n/a	n/a	n/a	n/a	n/a
7/29/2020	n/a	n/a	n/a	n/a	n/a
7/30/2020	n/a	n/a	n/a	n/a	n/a
7/31/2020	7:02	17:15	10.22	40.9	61.0
Total Hrs Observation:			192.47	771.20	1160.40

Notes: ¹ equals project hours X 4 Stations

² equals project hours X 7 MMOs "on watch" minus breaks

³ A scheduling mishap caused a late start at PW; the remaining three stations started watch at 07:07 and the observation calculations were adjusted accordingly

n/a = No in-water pile installation or removal was conducted, and no marine mammal monitoring occurred.

Environmental Conditions

MMOs at each station typically record the environmental conditions upon station setup and every half hour throughout the day. MMOs also make additional entries for major changes in weather and to record other relevant activity that is not related to PCT construction (i.e. dredge vessel, private

vessel, etc.). All observations are conducted during daylight hours. The environmental attributes recorded include general observation conditions (a scale of 1 to 10; 1 = poor, 5 = moderate, 10 = excellent), weather condition (cloudy, sunny, raining, etc.), light conditions (light, dark, twilight), cloud cover (percent), ice cover (percent), sea state (Beaufort scale), glare (percent), and visibility (distance at which a white beluga could be sighted with optics). During the 18 days of observation in July 2020, MMOs recorded 1,577 observations of environmental conditions.

The overall observation conditions were good to excellent for most of the reporting period. The “observation condition” was 7 or greater for 97 percent of the records entered. The average visibility was over 7,500 meters and was greater than or equal to 5,000 meters for 94 percent of the observations. On the morning of 8 July, visibility was reduced 2,000 – 3,000 meters on and off at some stations over the course of about 4 hours, but in-water work did not begin until later in the afternoon and no delay occurred.

Glare was recorded as less than or equal to 10% for 97.5 percent of observations. Wind speed, direction, and air temperature are not recorded by the MMOs as these meteorological data are available from the National Oceanic and Atmospheric Administration (NOAA) tide station 9455920 located at the POA, a few hundred meters from the PCT (NOAA 2020b). A summary of the weather conditions observed is presented in Table 2 and a summary of the Beaufort sea state observed is presented in Table 3.

Table 2. Summary of Weather Conditions

Weather Condition	Percent Occurrence ¹
Sun	15.0%
Partly Sunny	8.9%
Partly Cloudy	27.4%
Cloudy	37.7%
Fog	0.4%
Mist	0.5%
Light Rain	4.8%
Rain	5.5%

Note: ¹ percentages total to 100.2% due to rounding

Table 3. Summary of Beaufort Sea State Observations

Beaufort Sea State	Percent of Observations ¹
0	1%
1	35%
2	57%
3	8%
4	0%
>=5	0%

Note: ¹ percentages total to 101% due to rounding

The tidal stages were pre-loaded into the database and are auto-populated based on the time stamp of the observation. The definitions for the tidal stages used are presented in Table 4 and a summary of tidal stages recorded is presented in Table 5.

Table 4. Tidal Stage Definitions

Tide Stage	Definition
Low Slack	Plus or minus one hour from low tide
Low Flood	Begins at the end of low slack, ends half-way between ¹ the end of low slack and the start of high slack
High Flood	Begins half-way between ¹ the end of low slack and the start of high slack, ends at the start of high slack
High Slack	Plus or minus one hour from high tide
High Ebb	Begins at the end of high slack, ends half-way between ¹ the end of high slack and the start of low slack
Low Ebb	Begins half-way between ¹ the end of high slack and the start of low slack, ends at the start of low slack

Note: ¹ “half-way between” is time-based, and may not represent the actual, physical half-way point between high and low tide on the sinusoidal tidal graph. The time-based half-way point was used to simplify the calculation of tidal stage for over 300,000 tide prediction records.

Table 5. Summary of Tide Stages Recorded

Tide Stage	Percent of Observations ¹
Low Slack	16%
Low Flood	16%
High Flood	14%
High Slack	14%
High Ebb	19%
Low Ebb	20%

Note: ¹ percentages total to 99% due to rounding

The wind speed and direction for the 18 days worked in July were downloaded on an hourly basis from the NOAA meteorological observations page for the Anchorage, Alaska tide station 9455920 (2020b). The data for 07:00 through 18:00 were selected for each day. These data are summarized and presented in Figure 2.

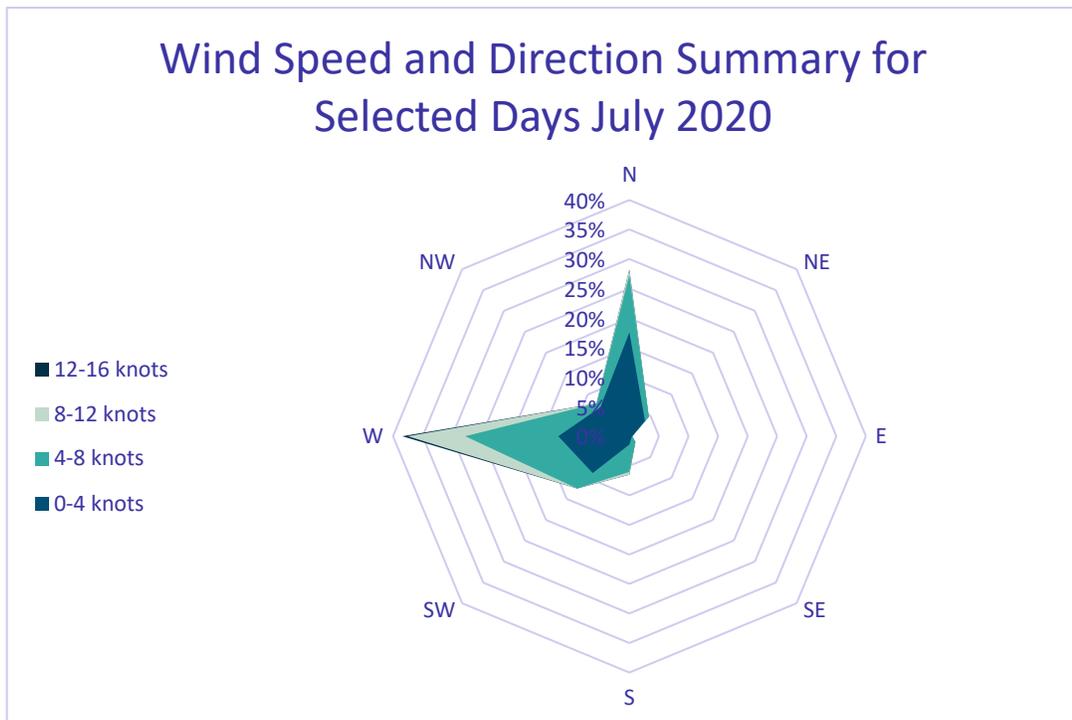


Figure 2. Wind Speed Rose, NOAA Tide Station 9455920, Anchorage Alaska, July 1, 2, 6-18, 19 – 22, and 31 (07:00 to 18:00 daily)

The wind rose presented in Figure 2 shows that wind was typically out of the west or north. It also shows that most (88 percent) of the wind speeds were at or below 8 knots, with only a small fraction between 8 and 16 knots.

3 In-Water Operations

During the month of July 2020, there were 52 in-water activity events, totaling 739.3 minutes of activity. During this time there were 41 in-water pile driving events, resulting in 597.8 minutes of in-water driving. An additional 10 instances of in-water vibratory installation of the bubble curtain occurred for a total of 33.6 minutes. One other non-pile driving, in-water activity occurred for a total of 107.9 minutes. A summary of the in-water activity is presented in Table 6. Details of the in-water activity is provided in Appendix A.

Other nearby vessel activity, dredging, and personal watercraft operations are documented in the observation effort notes or sighting notes if interactions with marine mammals occur, but the duration of these other activities is not documented if not related to PCT construction.

Table 6 Monthly Summary of In-Water Activity

Activity	Number of Instances	Total Minutes	In-Water Activity Group Totals					
			#	Mins	#	Mins	#	Mins
Impact Hammer – Attenuated	18	342.0	41	597.8	51	631.4	52	739.3
Impact Hammer – Unattenuated	0	0						
Vibratory Hammer – Attenuated	22	255.8						
Vibratory Hammer – Unattenuated	1	0.03						
Vibratory Installation of Bubble Curtain	10	33.6						
Other In-Water Activity	1	107.9						

Other Non-PCT Activity

The MMOs documented other vessel activity not related to the PCT in lower Knik Arm, but at a reduced rate compared to the two previous months. The lower reported rate may be due to less activity, or less frequent documentation, or both. Other activities documented include vessel traffic in front of SC on 13 July, multiple boats in the survey area on 16 July, including beluga research vessel, and small vessel traffic in front of PW on 20 July. No tugs, barges, dredge activity, recreational boats, jet skis, or zodiacs were documented. Given the ongoing dredging and other activities at the POA, it is likely activity occurred that was not documented.

4 Pile Driving Shutdowns, Delays, and Other Mitigation Measures

The IHA requires a delay of pile installation or removal if:

- Belugas are present within the pre-clearance zone and on a trajectory towards a Level B zone or are sighted within a Level B zone
- Any marine mammal is sighted within the 100-meter shutdown zone
- A marine mammal for which no takes have been authorized approaches or enters any harassment zone.

If pile installation or removal is already underway, then a shutdown is required if:

- Belugas are sighted within or about to enter a Level B zone
- Any marine mammal is sighted within the 100-meter shutdown zone
- A marine mammal for which no takes have been authorized approaches or enters any harassment zone.

If visibility of the applicable harassment zone is lost, then installation or removal of the next pile must be delayed until conditions improve such that the zone can be effectively monitored. If the Level B harassment zone cannot be monitored for more than 15 minutes, the entire Level B harassment zone must be cleared again for 30 minutes prior to pile driving.

During the month of July 2020, six delays of pile installation or removal were required due the presence of belugas within the pre-clearance zone or because they were approaching the Level B zone. Four of these six incidents occurred between 07:30 and 09:02 on 1 July. There were no shutdowns of active pile installation or removal and no delays due to visibility or other environmental conditions. The delays are summarized in Table 7.

Table 7 - Monthly Summary of Delay and Shutdown Mitigation Measures

Delay/Shutdown Type	Start Time	End Time	Marine Mammal Group ID	Mitigation Duration (minutes)
Delay, marine mammal	7/1/2020 07:30	7/1/2020 07:57	354	27
Delay, marine mammal	7/1/2020 07:58	7/1/2020 08:03	356	5
Delay, marine mammal	7/1/2020 08:12	7/1/2020 08:46	354	34
Delay, marine mammal	7/1/2020 08:46	7/1/2020 09:02	356	16
Delay, marine mammal	7/14/2020 8:59	7/14/2020 10:14	415/416	75
Delay, marine mammal	7/16/2020 8:30	7/16/2020 12:30	421	240

Delay/Shutdown Type	Start Time	End Time	Marine Mammal Group ID	Mitigation Duration (minutes)
Total Monthly Mitigation Duration:				397

The marine mammal delays were described as follows:

- Group 354 (beluga) and 356 (harbor seal)** – “A beluga was sighted during pre-clearance traveling SW along the nearshore, at 0730 the group was very near and traveling towards the 824m Level B zone for the proposed work. This instigated a MM delay beginning at 07:30. At 07:57, the beluga group (354) was confirmed outside the Level B zone and traveling away. At 07:58, a harbor seal (group 356), was sighted within 100 m of the pile, further extending the delay. At 08:03 the seal was confirmed beyond the 100m zone for work, and the “all clear” was given to begin. The beluga group (354) made an about face SW of Ship Creek and began traveling NE along the nearshore. At 08:12, G354 was confirmed within 100m of the 824m Level B zone and continuing towards it, a delay was started. At 08:46, the beluga group (354) was confirmed beyond the Level B zone and continuing away, but the harbor seal (group 356) was again sighted within the 100m zone of the pile, further extending the delay. At 09:02, the harbor seal was confirmed outside the 100m zone and the “all clear” was given for work to begin.”
- Groups 415 and 416** – “Belugas were first spotted while marine operations were impacting a 48" pile using a bubble curtain (824-meter zone). The leading beluga from Group 415 was 2,405 meters from the zone at 08:31 and in the same minute the impacting ceased, 08:39, the location of the leading beluga was confirmed with a fix 1,150 meters from the zone. Not all belugas proceeded along the near shore from the PW station and since some remained behind and additional beluga appeared, they were included in a split group record 416. As the marine operations were lining up to bring the impact hammer onto another pile we contacted Bo on the radio, the marine side crane operator, who indicated to start the delay at 08:58. The last beluga seen from these groups was at 09:43, and after a 30-minute period the “all clear” was given at 10:13. This was radioed to Bo and sent via text to Chris and Dan indicating that work could proceed.”
- Group 421** – “A white beluga (Group 421) was sighted at 07:59 within the pre-clearance zone. At 08:30 the beluga was still within the 7,888-meter Level B zone for vibratory installation of the bubble curtain while the marine side was prepared to begin work. A delay was initiated, and work did not begin. The delay ended at 12:30 when 30 minutes past since the last sighting of Group 421. Total delay time: 240 minutes.”

Other Mitigation Measures

In accordance with the IHA, the MMOs monitored for 30 minutes post-completion of every in-water pile installation or removal. Generally, the post-completion period is within the normally scheduled day. On days when pile driving extends beyond the normal schedule, the MMOs stay on watch for at least another 30 minutes after completion of in-water pile installation or removal.

The PPM operators have used “soft start” techniques when initiating impact pile driving for in-water installation or removal of piles.

5 Marine Mammal Observations

All marine mammal sightings are documented in the database. A parent record is entered for each marine mammal group with group-level attributes such as species, age/color class, primary and secondary behavior, distribution, formation, and pace. Once a group is identified, one or more group position “fixes” are measured and calculated.

Marine Mammal Sighting Summary

During the 18 days of observation in the month of July, 64 groups of marine mammals were sighted totaling 79 individual animals. There were 12 groups of belugas comprised of 25 individuals, and 52 harbor seal groups comprised of 54 individuals. The number of groups and individuals are presented by species in Table 8 Appendix B. Additional sighting details including group composition, locations, sighting times, behaviors, sighting notes, and location maps are provided in Appendices C through G. The data field information for the sighting reports is presented in Appendix H.

Table 8 - Number of Marine Mammal Groups and Individuals for July 2020

Species	Number of Groups	Number of Individuals
Beluga	12	25
Harbor Seal	52	54
Totals:	64	79

Marine Mammal Exposures

During the month of July, there were nine in-water pile installation or bubble curtain installation events that caused the potential exposure of eight harbor seals to underwater noise exceeding the

Level B threshold and the potential exposure of two harbor seals to underwater noise exceeding the Level A threshold. Table 9 contains a summary of the potential exposures for the month of July 2020.

Table 9 - Potential Marine Mammal Exposures from 1 July to 31 July 2020

Date	Species	Number of Marine Mammals	Group ID	Activity
7/1/20	Harbor Seal	2 ¹	356	Attenuated impact installation of a 48-inch platform loading pile
7/10/20	Harbor Seal	1	390	Vibratory installation of a 48-inch pile with a bubble curtain
7/11/20	Harbor Seal	1	393	Vibratory installation of a 24-inch pile with a bubble curtain
7/11/20	Harbor Seal	1	397	Vibratory installation of a 72-inch bubble curtain
7/11/20	Harbor Seal	1	398	Vibratory installation of a 72-inch bubble curtain
7/12/20	Harbor Seal	1	404	Vibratory installation of a 48-inch pile with a bubble curtain
7/12/20	Harbor Seal	1	406	Vibratory installation of a 48-inch pile with a bubble curtain
7/16/20	Harbor Seal	1	422	Vibratory installation of a 72-inch bubble curtain
7/17/20	Harbor Seal	1	426	Vibratory installation of a 48-inch pile with a bubble curtain

Note: ¹ The two harbor seals in Group 356 were reported as potential Level A exposures. If they are determined to have not been Level A exposures, they should be considered potential Level B exposures.

The monthly and cumulative potential Level A and Level B exposures for all marine mammal species are presented in Table 10.

Table 10. Monthly and Cumulative Level B and Level A Exposures

Species:	Beluga	Harbor Seal	Harbor Porpoise	Steller Sea Lion	Killer Whale	Humpback Whale	Pinniped Unidentified
# Level B Takes Authorized	55	711	43	13	12	6	N/A
Monthly Potential Level B Exposures	0	8	0	0	0	0	0
Cumulative Potential Level B Exposures	0	25 ¹	1	0	0	0	1
# Level A Takes Authorized	0	305	21	0	0	2	N/A
Monthly Potential Level A Exposures	0	2	0	0	0	0	1
Cumulative Potential Level A Exposures	0	2	0	0	0	0	1

Note: ¹ A potential Level B exposure of a harbor seal on 6/28 (Group 330) was reported in the June monthly report but *was omitted* in the weekly report for the week of 22 to 28 June. Consequently, the weekly reports since 28 June have reported one less than the actual cumulative potential Level B harbor seal exposure numbers.

6 References

NMFS (National Marine Fisheries Service). 2020 (March 31). *Incidental Harassment Authorization*. Issued to the Port of Alaska for the Construction of the Petroleum and Cement Terminal, by Donna S. Wieting, Director, Office of Protected Resources, National Marine Fisheries Service. Federal Register, Vol. 85, No. 66, page 19294 (85 FR 19294).

NOAA (National Oceanic and Atmospheric Administration). 2020a (April 6). *Takes of Marine Mammals Incidental to Specified Activities; Taking Marine Mammals Incidental to Construction of the Port of Alaska's Petroleum and Cement Terminal, Anchorage, Alaska*. Federal Register, Vol. 85, No. 66, page 19294 (85 FR 19294).

NOAA. 2020b (July 3). *Tides and Currents, Meteorological Obs., NOAA/NOS/CO-OPS, Winds at 9455920, Anchorage, AK*. Accessed 3 July 2020 at:
<https://tidesandcurrents.noaa.gov/met.html?id=9455920>

Appendix A – In-Water Activity Detail

In-Water Construction Activity

Port Activity ID	Record Date and Time	In-water Activity	Pile Diameter
564	7/1/2020 9:02:31 AM	Impact hammer with bubble curtain	48
Comments			Water Depth
0908- soft strike 0930 -			>3 Meters

Activity Time and Duration

Port Status ID	Activity Start Time	Activity Stop Time	Activity Minutes
948	7/1/2020 9:08:42 AM	7/1/2020 9:08:43 AM	0
949	7/1/2020 9:09:49 AM	7/1/2020 9:09:52 AM	0.1
950	7/1/2020 9:11:01 AM	7/1/2020 9:11:03 AM	0
951	7/1/2020 9:12:10 AM	7/1/2020 9:27:32 AM	15.4
Total Duration			15.5

In-Water Construction Activity

Port Activity ID	Record Date and Time	In-water Activity	Pile Diameter
566	7/1/2020 9:49:44 AM	Impact hammer with bubble curtain	48
Comments			Water Depth
MARINE-SIDE: 0949 Hammer attached			>3 Meters

Activity Time and Duration

Port Status ID	Activity Start Time	Activity Stop Time	Activity Minutes
953	7/1/2020 9:50:21 AM	7/1/2020 10:14:39 AM	24.3
Total Duration			24.3

In-Water Construction Activity

Port Activity ID	Record Date and Time	In-water Activity	Pile Diameter
570	7/2/2020 9:02:37 AM	Vibratory hammer with bubble curtain	24
Comments			Water Depth
0902 Bo radioed to PSOs to ask if they were clear to start vibing OUT a template in a bubble curtain. Pile is closest to the E row.			>3 Meters

Activity Time and Duration

Port Status ID	Activity Start Time	Activity Stop Time	Activity Minutes
958	7/2/2020 9:04:39 AM	7/2/2020 9:20:23 AM	15.7
959	7/2/2020 9:27:52 AM	7/2/2020 9:35:22 AM	7.5
Total Duration			23.2

In-Water Construction Activity

Port Activity ID	Record Date and Time	In-water Activity	Pile Diameter
572	7/2/2020 11:53:29 AM	Vibratory hammer with bubble curtain	24
Comments			Water Depth
Vibing in a 24" pile in a bubble in the E6 area			>3 Meters

Activity Time and Duration

Port Status ID	Activity Start Time	Activity Stop Time	Activity Minutes
961	7/2/2020 11:57:49 AM	7/2/2020 11:57:57 AM	0.1
962	7/2/2020 11:57:59 AM	7/2/2020 11:58:00 AM	0
963	7/2/2020 11:58:03 AM	7/2/2020 12:11:33 PM	13.5
Total Duration			13.6

In-Water Construction Activity

Port Activity ID	Record Date and Time	In-water Activity	Pile Diameter
574	7/2/2020 12:23:48 PM	Vibratory hammer, no bubble curtain	24
Comments			Water Depth
Marine side shook the green vib hammer to try to get the hammer seated on a 24" template pile that was freestanding in a pin pile. Jaw issue not seating, will be bringing hammer down.			>3 Meters

Activity Time and Duration

Port Status ID	Activity Start Time	Activity Stop Time	Activity Minutes
965	7/2/2020 12:32:04 PM	7/2/2020 12:32:06 PM	0
Total Duration			0

In-Water Construction Activity

Port Activity ID	Record Date and Time	In-water Activity	Pile Diameter
576	7/2/2020 1:14:25 PM	Vibratory hammer with bubble curtain	24
Comments			Water Depth
Vibing in a 24" template with bubble near A8.			>3 Meters

Activity Time and Duration

Port Status ID	Activity Start Time	Activity Stop Time	Activity Minutes
967	7/2/2020 1:15:20 PM	7/2/2020 1:18:19 PM	3
968	7/2/2020 1:18:26 PM	7/2/2020 1:26:10 PM	7.7
Total Duration			10.7

In-Water Construction Activity

Port Activity ID	Record Date and Time	In-water Activity	Pile Diameter
578	7/2/2020 3:11:42 PM	Vibratory hammer with bubble curtain	24
Comments			Water Depth
Vibing 24" template with bubble near A6.			>3 Meters

Activity Time and Duration

Port Status ID	Activity Start Time	Activity Stop Time	Activity Minutes
971	7/2/2020 3:25:06 PM	7/2/2020 3:25:45 PM	0.6
972	7/2/2020 3:26:22 PM	7/2/2020 3:31:59 PM	5.6
Total Duration			6.2

In-Water Construction Activity

Port Activity ID	Record Date and Time	In-water Activity	Pile Diameter
580	7/2/2020 5:08:19 PM	Vibratory hammer with bubble curtain	24
Comments			Water Depth
Marine side is vibing OUT a 24" template pile using a bubble curtain, close to the A1 permanent pile.			>3 Meters

Activity Time and Duration

Port Status ID	Activity Start Time	Activity Stop Time	Activity Minutes
974	7/2/2020 5:51:33 PM	7/2/2020 5:53:52 PM	2.3
975	7/2/2020 5:57:25 PM	7/2/2020 5:58:17 PM	0.9
976	7/2/2020 5:58:23 PM	7/2/2020 6:07:21 PM	9
977	7/2/2020 6:09:29 PM	7/2/2020 6:23:16 PM	13.8
Total Duration			26

In-Water Construction Activity

Port Activity ID	Record Date and Time	In-water Activity	Pile Diameter
582	7/2/2020 6:44:16 PM	Vibratory hammer with bubble curtain	24
Comments			Water Depth
Marine side vibing in a 24" template pile closest to position A8 using a bubble curtain.			>3 Meters

Activity Time and Duration

Port Status ID	Activity Start Time	Activity Stop Time	Activity Minutes
979	7/2/2020 6:45:12 PM	7/2/2020 6:45:27 PM	0.2
980	7/2/2020 6:46:03 PM	7/2/2020 6:52:53 PM	6.8
Total Duration			7

In-Water Construction Activity

Port Activity ID	Record Date and Time	In-water Activity	Pile Diameter
591	7/7/2020 5:02:09 PM	Vibratory hammer with bubble curtain	24
Comments			Water Depth
Barge side pulling 24" pile closest to B-3. 1656- vibe hammer attached;			>3 Meters

Activity Time and Duration

Port Status ID	Activity Start Time	Activity Stop Time	Activity Minutes
994	7/7/2020 5:02:14 PM	7/7/2020 5:08:01 PM	5.8
995	7/7/2020 5:12:06 PM	7/7/2020 5:14:04 PM	2
Total Duration			7.8

In-Water Construction Activity

Port Activity ID	Record Date and Time	In-water Activity	Pile Diameter
593	7/7/2020 5:35:44 PM	Vibratory hammer with bubble curtain	24
Comments			Water Depth
Temporary pile close to B-6. Hammer off at 1753			>3 Meters

Activity Time and Duration

Port Status ID	Activity Start Time	Activity Stop Time	Activity Minutes
998	7/7/2020 5:38:21 PM	7/7/2020 5:40:56 PM	2.6
999	7/7/2020 5:44:35 PM	7/7/2020 5:52:43 PM	8.1
Total Duration			10.7

In-Water Construction Activity

Port Activity ID	Record Date and Time	In-water Activity	Pile Diameter
597	7/8/2020 1:14:40 PM	Vibratory hammer with bubble curtain	24
Comments			Water Depth
VIBING OUT template pile using a bubble curtain. 1410 Hammer removed and rotated 90 degrees then reattached.			>3 Meters

Activity Time and Duration

Port Status ID	Activity Start Time	Activity Stop Time	Activity Minutes
1003	7/8/2020 1:44:03 PM	7/8/2020 1:55:17 PM	11.2
1004	7/8/2020 1:59:22 PM	7/8/2020 2:00:41 PM	1.3
1005	7/8/2020 2:00:45 PM	7/8/2020 2:05:08 PM	4.4
1006	7/8/2020 2:18:02 PM	7/8/2020 2:29:47 PM	11.8
1007	7/8/2020 2:30:03 PM	7/8/2020 2:31:33 PM	1.5
1008	7/8/2020 2:32:48 PM	7/8/2020 2:33:20 PM	0.5
1009	7/8/2020 2:45:08 PM	7/8/2020 2:45:59 PM	0.8
Total Duration			31.5

In-Water Construction Activity

Port Activity ID	Record Date and Time	In-water Activity	Pile Diameter
599	7/8/2020 3:42:34 PM	Vibratory hammer with bubble curtain	24
Comments			Water Depth
Marine side using green vib hammer on 24" template pile using a bubble curtain.			>3 Meters

Activity Time and Duration

Port Status ID	Activity Start Time	Activity Stop Time	Activity Minutes
1011	7/8/2020 3:46:40 PM	7/8/2020 3:48:12 PM	1.5
1012	7/8/2020 3:48:26 PM	7/8/2020 3:51:43 PM	3.3
1014	7/8/2020 4:59:23 PM	7/8/2020 5:08:12 PM	8.8
Total Duration			13.6

In-Water Construction Activity

Port Activity ID	Record Date and Time	In-water Activity	Pile Diameter
606	7/9/2020 1:20:40 PM	Impact hammer with bubble curtain	48
Comments			Water Depth
Shoreside doing PDA Test on G-T1			>3 Meters

Activity Time and Duration

Port Status ID	Activity Start Time	Activity Stop Time	Activity Minutes
1020	7/9/2020 1:37:52 PM	7/9/2020 1:38:30 PM	0.6
Total Duration			0.6

In-Water Construction Activity

Port Activity ID	Record Date and Time	In-water Activity	Pile Diameter
608	7/9/2020 4:48:07 PM	Impact hammer with bubble curtain	48
Comments			Water Depth
Marine side is preparing to do a PDA test on D5.			>3 Meters

Activity Time and Duration

Port Status ID	Activity Start Time	Activity Stop Time	Activity Minutes
1022	7/9/2020 4:54:38 PM	7/9/2020 4:56:49 PM	2.2
Total Duration			2.2

In-Water Construction Activity

Port Activity ID	Record Date and Time	In-water Activity	Pile Diameter
613	7/10/2020 9:16:30 AM	Impact hammer with bubble curtain	48
Comments			Water Depth
BARGE-SIDE: 09:16 hammer attached to the Pile for PDA testing.			>3 Meters

Activity Time and Duration

Port Status ID	Activity Start Time	Activity Stop Time	Activity Minutes
1030	7/10/2020 9:24:43 AM	7/10/2020 9:25:30 AM	0.8
Total Duration			0.8

In-Water Construction Activity

Port Activity ID	Record Date and Time	In-water Activity	Pile Diameter
614	7/10/2020 11:18:50 AM	Vibe Install bubble curtain casing	n/a
Comments			Water Depth
BARGE-SIDE: 11:20 hammer attached to bubble can; 11:42 hammer deatched from bubble curtain			>3 Meters

Activity Time and Duration

Port Status ID	Activity Start Time	Activity Stop Time	Activity Minutes
1033	7/10/2020 11:32:17 AM	7/10/2020 11:33:11 AM	0.9
1034	7/10/2020 11:33:36 AM	7/10/2020 11:33:49 AM	0.2
1035	7/10/2020 11:35:10 AM	7/10/2020 11:36:16 AM	1.1
Total Duration			2.2

In-Water Construction Activity

Port Activity ID	Record Date and Time	In-water Activity	Pile Diameter
615	7/10/2020 1:01:29 PM	Impact hammer with bubble curtain	48
Comments			Water Depth
BARGE-SIDE: 13:01 hammer attached to pile B4 for PDA testing. Waiting for tide to drop to begin; 13:31 hammer detached from pile.			>3 Meters

Activity Time and Duration

Port Status ID	Activity Start Time	Activity Stop Time	Activity Minutes
1036	7/10/2020 1:28:57 PM	7/10/2020 1:29:10 PM	0.2
Total Duration			0.2

In-Water Construction Activity

Port Activity ID	Record Date and Time	In-water Activity	Pile Diameter
616	7/10/2020 3:41:32 PM	Vibratory hammer with bubble curtain	48
Comments			Water Depth
BARGE-SIDE: 15:41 hammer attached to pile; 15:56 hammer removed from pile			>3 Meters

Activity Time and Duration

Port Status ID	Activity Start Time	Activity Stop Time	Activity Minutes
1038	7/10/2020 3:41:37 PM	7/10/2020 3:41:38 PM	0
1039	7/10/2020 3:43:06 PM	7/10/2020 3:44:34 PM	1.5
1040	7/10/2020 3:45:10 PM	7/10/2020 3:53:57 PM	8.8
1041	7/10/2020 3:55:52 PM	7/10/2020 3:55:53 PM	0
Total Duration			10.3

In-Water Construction Activity

Port Activity ID	Record Date and Time	In-water Activity	Pile Diameter
618	7/10/2020 5:25:16 PM	Vibratory hammer with bubble curtain	24
Comments			Water Depth
BARGE-SIDE: 17:25 hammer is attached to a template pile. Pile with bubble can positioned near B-9 location; 17:57 Hammer detached from pile.			>3 Meters

Activity Time and Duration

Port Status ID	Activity Start Time	Activity Stop Time	Activity Minutes
1043	7/10/2020 5:50:50 PM	7/10/2020 5:55:54 PM	5.1
Total Duration			5.1

In-Water Construction Activity

Port Activity ID	Record Date and Time	In-water Activity	Pile Diameter
622	7/11/2020 9:38:53 AM	Vibratory hammer with bubble curtain	24
Comments			Water Depth
MARINE-SIDE: 09:42 hammer attached to template pile; 09:58 hammer detached from pile			>3 Meters

Activity Time and Duration

Port Status ID	Activity Start Time	Activity Stop Time	Activity Minutes
1047	7/11/2020 9:48:41 AM	7/11/2020 9:53:46 AM	5.1
1048	7/11/2020 9:55:04 AM	7/11/2020 9:55:14 AM	0.2
Total Duration			5.3

In-Water Construction Activity

Port Activity ID	Record Date and Time	In-water Activity	Pile Diameter
623	7/11/2020 5:06:34 PM	Vibe Install bubble curtain casing	n/a
Comments			Water Depth
MARINE-SIDE: 17:07 hammer attached to bubble can. 17:14 hammer detached from casing.			>3 Meters

Activity Time and Duration

Port Status ID	Activity Start Time	Activity Stop Time	Activity Minutes
1050	7/11/2020 5:12:21 PM	7/11/2020 5:12:35 PM	0.2
1051	7/11/2020 5:13:21 PM	7/11/2020 5:14:09 PM	0.8
Total Duration			1

In-Water Construction Activity

Port Activity ID	Record Date and Time	In-water Activity	Pile Diameter
624	7/11/2020 5:22:37 PM	Vibe Install bubble curtain casing	n/a
Comments			Water Depth
MARINE-SIDE: 17:53 hammer attached to bubble casing.			>3 Meters

Activity Time and Duration

Port Status ID	Activity Start Time	Activity Stop Time	Activity Minutes
1053	7/11/2020 5:28:07 PM	7/11/2020 5:28:16 PM	0.2
1054	7/11/2020 5:30:50 PM	7/11/2020 5:32:24 PM	1.6
1055	7/11/2020 5:34:02 PM	7/11/2020 5:35:20 PM	1.3
Total Duration			3.1

In-Water Construction Activity

Port Activity ID	Record Date and Time	In-water Activity	Pile Diameter
630	7/12/2020 10:45:07 AM	Vibratory hammer with bubble curtain	48
Comments			Water Depth
First two Pile driving were quick starts and stops to shake the hammer on the pile. All occurred in >3m of water. ***IGNORE ID 1083 Bad start stop times. (ATL post-processed: deleted PS ID 1083)			>3 Meters

Activity Time and Duration

Port Status ID	Activity Start Time	Activity Stop Time	Activity Minutes
1060	7/12/2020 10:55:09 AM	7/12/2020 10:55:11 AM	0
1061	7/12/2020 10:56:59 AM	7/12/2020 10:57:02 AM	0.1
1062	7/12/2020 10:57:53 AM	7/12/2020 10:57:59 AM	0.1
1063	7/12/2020 11:03:50 AM	7/12/2020 11:07:04 AM	3.2
1064	7/12/2020 11:07:30 AM	7/12/2020 11:10:37 AM	3.1
1065	7/12/2020 11:12:57 AM	7/12/2020 11:14:29 AM	1.5
Total Duration			8

In-Water Construction Activity

Port Activity ID	Record Date and Time	In-water Activity	Pile Diameter
631	7/12/2020 1:27:55 PM	Vibratory hammer with bubble curtain	48
Comments			Water Depth
Pile driving in over 3 meters of water.***IGNORE 1082 bad start and stop time. (ATL post-processed: deleted PS ID 1082)			>3 Meters

Activity Time and Duration

Port Status ID	Activity Start Time	Activity Stop Time	Activity Minutes
1067	7/12/2020 1:34:36 PM	7/12/2020 1:35:00 PM	0.4
1069	7/12/2020 1:51:00 PM	7/12/2020 1:51:53 PM	0.9
1071	7/12/2020 1:52:41 PM	7/12/2020 1:53:23 PM	0.7
1073	7/12/2020 1:54:03 PM	7/12/2020 1:56:42 PM	2.7
1075	7/12/2020 1:57:05 PM	7/12/2020 1:59:09 PM	2.1
1077	7/12/2020 1:59:45 PM	7/12/2020 2:03:09 PM	3.4
Total Duration			10.2

In-Water Construction Activity

Port Activity ID	Record Date and Time	In-water Activity	Pile Diameter
632	7/12/2020 2:32:42 PM	Impact hammer with bubble curtain	48
Comments			Water Depth
Soft start. Impacting in over 3 meters of water. **ID 1081 actually started at 1457 but Access crashed and it wasn't started until 1459.			>3 Meters

Activity Time and Duration

Port Status ID	Activity Start Time	Activity Stop Time	Activity Minutes
1079	7/12/2020 2:35:50 PM	7/12/2020 2:56:14 PM	20.4
1081	7/12/2020 2:57:33 PM	7/12/2020 3:08:47 PM	11.2
Total Duration			31.6

In-Water Construction Activity

Port Activity ID	Record Date and Time	In-water Activity	Pile Diameter
634	7/12/2020 3:27:15 PM	Impact hammer with bubble curtain	48
Comments			Water Depth
Imapcting in >3m of water. Soft start implemented.			>3 Meters

Activity Time and Duration

Port Status ID	Activity Start Time	Activity Stop Time	Activity Minutes
1086	7/12/2020 3:32:04 PM	7/12/2020 3:32:05 PM	0
1087	7/12/2020 3:33:24 PM	7/12/2020 3:33:26 PM	0
1088	7/12/2020 3:34:52 PM	7/12/2020 4:11:52 PM	37
Total Duration			37

In-Water Construction Activity

Port Activity ID	Record Date and Time	In-water Activity	Pile Diameter
638	7/13/2020 8:57:08 AM	Impact hammer with bubble curtain	48
Comments			Water Depth
PDA Test; water depth over 3 meters, 3 dead blows, 0923:40 normal impacting			>3 Meters

Activity Time and Duration

Port Status ID	Activity Start Time	Activity Stop Time	Activity Minutes
1092	7/13/2020 9:19:54 AM	7/13/2020 9:52:39 AM	32.7
Total Duration			32.7

In-Water Construction Activity

Port Activity ID	Record Date and Time	In-water Activity	Pile Diameter
639	7/13/2020 10:33:42 AM	Vibe Install bubble curtain casing	n/a
Comments			Water Depth
Vibing in bubble casing into template position E8 using green hammer, depth greater than 3m.			>3 Meters

Activity Time and Duration

Port Status ID	Activity Start Time	Activity Stop Time	Activity Minutes
1094	7/13/2020 10:40:24 AM	7/13/2020 10:40:35 AM	0.2
1095	7/13/2020 10:42:11 AM	7/13/2020 10:43:31 AM	1.3
1096	7/13/2020 10:45:02 AM	7/13/2020 10:45:50 AM	0.8
Total Duration			2.3

In-Water Construction Activity

Port Activity ID	Record Date and Time	In-water Activity	Pile Diameter
641	7/13/2020 10:52:42 AM	Vibe Install bubble curtain casing	n/a
Comments			Water Depth
Vibing in bubble casing into template position B8 using the green hammer, depth greater than 3m.			>3 Meters

Activity Time and Duration

Port Status ID	Activity Start Time	Activity Stop Time	Activity Minutes
1098	7/13/2020 10:53:41 AM	7/13/2020 10:53:54 AM	0.2
1099	7/13/2020 10:55:27 AM	7/13/2020 10:55:33 AM	0.1
1100	7/13/2020 10:56:47 AM	7/13/2020 10:56:52 AM	0.1
1101	7/13/2020 10:59:41 AM	7/13/2020 11:01:00 AM	1.3
1102	7/13/2020 11:01:45 AM	7/13/2020 11:02:28 AM	0.7
1103	7/13/2020 11:02:32 AM	7/13/2020 11:02:46 AM	0.2
Total Duration			2.6

In-Water Construction Activity

Port Activity ID	Record Date and Time	In-water Activity	Pile Diameter
647	7/13/2020 3:58:54 PM	Vibratory hammer with bubble curtain	48
Comments			Water Depth
Barge is vibing in a A8 using a bubble curtain, depth greater than 3m.			>3 Meters

Activity Time and Duration

Port Status ID	Activity Start Time	Activity Stop Time	Activity Minutes
1109	7/13/2020 4:02:07 PM	7/13/2020 4:02:10 PM	0.1
1110	7/13/2020 4:04:00 PM	7/13/2020 4:04:06 PM	0.1
1111	7/13/2020 4:04:43 PM	7/13/2020 4:05:57 PM	1.2
1112	7/13/2020 4:07:32 PM	7/13/2020 4:09:17 PM	1.8
1113	7/13/2020 4:10:04 PM	7/13/2020 4:10:26 PM	0.4
1114	7/13/2020 4:10:40 PM	7/13/2020 4:12:15 PM	1.6
1115	7/13/2020 4:13:02 PM	7/13/2020 4:14:51 PM	1.8
1116	7/13/2020 4:15:00 PM	7/13/2020 4:16:06 PM	1.1
Total Duration			8.1

In-Water Construction Activity

Port Activity ID	Record Date and Time	In-water Activity	Pile Diameter
649	7/13/2020 5:08:51 PM	Vibratory hammer with bubble curtain	48
Comments			Water Depth
			>3 Meters

Activity Time and Duration

Port Status ID	Activity Start Time	Activity Stop Time	Activity Minutes
1118	7/13/2020 5:12:19 PM	7/13/2020 5:12:21 PM	0
1119	7/13/2020 5:14:15 PM	7/13/2020 5:14:19 PM	0.1
1120	7/13/2020 5:15:00 PM	7/13/2020 5:16:27 PM	1.5
1121	7/13/2020 5:17:10 PM	7/13/2020 5:22:57 PM	5.8
1122	7/13/2020 5:24:05 PM	7/13/2020 5:26:45 PM	2.7
Total Duration			10.1

In-Water Construction Activity

Port Activity ID	Record Date and Time	In-water Activity	Pile Diameter
653	7/14/2020 7:54:24 AM	Impact hammer with bubble curtain	48
Comments			Water Depth
Barge will be impacting E8 using a bubble curtain, depth greater than 3m. Starting with three "dead blows."			>3 Meters

Activity Time and Duration

Port Status ID	Activity Start Time	Activity Stop Time	Activity Minutes
1126	7/14/2020 8:05:54 AM	7/14/2020 8:39:34 AM	33.7
Total Duration			33.7

In-Water Construction Activity

Port Activity ID	Record Date and Time	In-water Activity	Pile Diameter
658	7/14/2020 10:19:19 AM	Impact hammer with bubble curtain	48
Comments			Water Depth
Barge is impacting A8 using a bubble curtain, three "dead blows" initiated, depth greater than 3m.			>3 Meters

Activity Time and Duration

Port Status ID	Activity Start Time	Activity Stop Time	Activity Minutes
1130	7/14/2020 10:19:32 AM	7/14/2020 10:50:44 AM	31.2
Total Duration			31.2

In-Water Construction Activity

Port Activity ID	Record Date and Time	In-water Activity	Pile Diameter
663	7/14/2020 2:22:34 PM	Vibe Install bubble curtain casing	n/a
Comments			Water Depth
Marine side is using the green vib hammer to install a bubble casing into the B8 template position, depth greater than 3m.			>3 Meters

Activity Time and Duration

Port Status ID	Activity Start Time	Activity Stop Time	Activity Minutes
1135	7/14/2020 2:24:26 PM	7/14/2020 2:24:29 PM	0
1136	7/14/2020 2:25:34 PM	7/14/2020 2:26:26 PM	0.9
1137	7/14/2020 2:26:54 PM	7/14/2020 2:28:44 PM	1.8
1138	7/14/2020 2:29:47 PM	7/14/2020 2:31:52 PM	2.1
1139	7/14/2020 2:33:49 PM	7/14/2020 2:34:45 PM	0.9
Total Duration			5.7

In-Water Construction Activity

Port Activity ID	Record Date and Time	In-water Activity	Pile Diameter
664	7/14/2020 2:49:40 PM	Vibe Install bubble curtain casing	n/a
Comments			Water Depth
Marine side is using the green vib hammer to install a bubble casing into the C9 template position, depth greater than 3m.			>3 Meters

Activity Time and Duration

Port Status ID	Activity Start Time	Activity Stop Time	Activity Minutes
1140	7/14/2020 2:53:39 PM	7/14/2020 2:54:12 PM	0.5
1141	7/14/2020 2:55:21 PM	7/14/2020 2:55:41 PM	0.3
1142	7/14/2020 2:56:17 PM	7/14/2020 2:57:19 PM	1
1143	7/14/2020 2:59:44 PM	7/14/2020 3:00:16 PM	0.5
1144	7/14/2020 3:07:22 PM	7/14/2020 3:07:41 PM	0.3
1145	7/14/2020 3:08:00 PM	7/14/2020 3:08:50 PM	0.8
1146	7/14/2020 3:09:01 PM	7/14/2020 3:09:05 PM	0.1
1147	7/14/2020 3:10:48 PM	7/14/2020 3:10:55 PM	0.1
1148	7/14/2020 3:13:18 PM	7/14/2020 3:14:04 PM	0.8
1149	7/14/2020 3:15:50 PM	7/14/2020 3:16:08 PM	0.3
1150	7/14/2020 3:19:05 PM	7/14/2020 3:19:27 PM	0.4
1151	7/14/2020 3:23:26 PM	7/14/2020 3:23:55 PM	0.5
Total Duration			5.6

In-Water Construction Activity

Port Activity ID	Record Date and Time	In-water Activity	Pile Diameter
666	7/14/2020 4:50:49 PM	Vibratory hammer with bubble curtain	48
Comments			Water Depth
Marine side is vibing in C9 using a bubble curtain, depth greater than 3m.			>3 Meters

Activity Time and Duration

Port Status ID	Activity Start Time	Activity Stop Time	Activity Minutes
1153	7/14/2020 4:52:29 PM	7/14/2020 4:52:31 PM	0
1154	7/14/2020 4:53:54 PM	7/14/2020 4:54:02 PM	0.1
1155	7/14/2020 4:55:27 PM	7/14/2020 4:56:22 PM	0.9
1156	7/14/2020 4:57:04 PM	7/14/2020 4:58:50 PM	1.8
1157	7/14/2020 4:59:08 PM	7/14/2020 5:03:40 PM	4.5
1158	7/14/2020 5:03:53 PM	7/14/2020 5:06:22 PM	2.5
1159	7/14/2020 5:08:31 PM	7/14/2020 5:08:32 PM	0
Total Duration			9.8

In-Water Construction Activity

Port Activity ID	Record Date and Time	In-water Activity	Pile Diameter
671	7/15/2020 9:24:11 AM	Vibratory hammer with bubble curtain	48
Comments			Water Depth
MARINE-SIDE: pile driving in water depth greater than 3m. 09:25 hammer attached to B8 pile. 09:43 hammer detached from pile.			>3 Meters

Activity Time and Duration

Port Status ID	Activity Start Time	Activity Stop Time	Activity Minutes
1164	7/15/2020 9:24:53 AM	7/15/2020 9:24:55 AM	0
1165	7/15/2020 9:25:00 AM	7/15/2020 9:25:02 AM	0
1166	7/15/2020 9:27:05 AM	7/15/2020 9:27:43 AM	0.6
1167	7/15/2020 9:27:53 AM	7/15/2020 9:29:28 AM	1.6
1168	7/15/2020 9:30:14 AM	7/15/2020 9:32:12 AM	2
1169	7/15/2020 9:32:47 AM	7/15/2020 9:37:41 AM	4.9
1170	7/15/2020 9:38:02 AM	7/15/2020 9:39:32 AM	1.5
Total Duration			10.6

In-Water Construction Activity

Port Activity ID	Record Date and Time	In-water Activity	Pile Diameter
672	7/15/2020 10:28:17 AM	Impact hammer with bubble curtain	48
Comments			Water Depth
MARINE-SIDE: pile driving in water depth greater than 3m. 10:27 hammer attached to B8 pile. 10:28 Soft start initiated.			>3 Meters

Activity Time and Duration

Port Status ID	Activity Start Time	Activity Stop Time	Activity Minutes
1172	7/15/2020 10:28:54 AM	7/15/2020 10:28:57 AM	0
1173	7/15/2020 10:30:12 AM	7/15/2020 10:30:14 AM	0
1174	7/15/2020 10:31:30 AM	7/15/2020 10:31:32 AM	0
1175	7/15/2020 10:32:43 AM	7/15/2020 10:52:38 AM	19.9
Total Duration			19.9

In-Water Construction Activity

Port Activity ID	Record Date and Time	In-water Activity	Pile Diameter
673	7/15/2020 11:03:08 AM	Impact hammer with bubble curtain	48
Comments			Water Depth
MARINE-SIDE: 11:09 hammer attached to C9 pile. 11:39 hammer detached from the pile.			>3 Meters

Activity Time and Duration

Port Status ID	Activity Start Time	Activity Stop Time	Activity Minutes
1176	7/15/2020 11:10:55 AM	7/15/2020 11:36:17 AM	25.4
Total Duration			25.4

In-Water Construction Activity

Port Activity ID	Record Date and Time	In-water Activity	Pile Diameter
681	7/16/2020 12:41:03 PM	Vibe Install bubble curtain casing	n/a
Comments			Water Depth
MARINE-SIDE: C-8 pocket.			>3 Meters

Activity Time and Duration

Port Status ID	Activity Start Time	Activity Stop Time	Activity Minutes
1189	7/16/2020 12:41:08 PM	7/16/2020 12:41:13 PM	0.1
1190	7/16/2020 12:42:38 PM	7/16/2020 12:45:13 PM	2.6
1191	7/16/2020 12:45:59 PM	7/16/2020 12:46:08 PM	0.2
1192	7/16/2020 12:47:43 PM	7/16/2020 12:48:44 PM	1
Total Duration			3.9

In-Water Construction Activity

Port Activity ID	Record Date and Time	In-water Activity	Pile Diameter
683	7/16/2020 2:38:42 PM	Vibratory hammer with bubble curtain	48
Comments			Water Depth
MARINE-SIDE: 16:16 hammer attached to pile. 16:32 Hammer detached from pile			>3 Meters

Activity Time and Duration

Port Status ID	Activity Start Time	Activity Stop Time	Activity Minutes
1194	7/16/2020 4:16:20 PM	7/16/2020 4:16:23 PM	0.1
1195	7/16/2020 4:17:15 PM	7/16/2020 4:17:28 PM	0.2
1196	7/16/2020 4:17:56 PM	7/16/2020 4:18:48 PM	0.9
1197	7/16/2020 4:19:09 PM	7/16/2020 4:19:14 PM	0.1
1198	7/16/2020 4:19:24 PM	7/16/2020 4:21:37 PM	2.2
1199	7/16/2020 4:22:17 PM	7/16/2020 4:25:02 PM	2.8
1200	7/16/2020 4:25:15 PM	7/16/2020 4:29:20 PM	4.1
1201	7/16/2020 4:29:38 PM	7/16/2020 4:29:43 PM	0.1
Total Duration			10.5

In-Water Construction Activity

Port Activity ID	Record Date and Time	In-water Activity	Pile Diameter
684	7/16/2020 5:43:47 PM	Vibe Install bubble curtain casing	n/a
Comments			Water Depth
MARINE-SIDE: 17:44 hammer attached to bubble casing. 17:53 hammer detached from bubble casing.			>3 Meters

Activity Time and Duration

Port Status ID	Activity Start Time	Activity Stop Time	Activity Minutes
1203	7/16/2020 5:44:41 PM	7/16/2020 5:44:50 PM	0.1
1204	7/16/2020 5:45:02 PM	7/16/2020 5:46:57 PM	1.9
1205	7/16/2020 5:48:14 PM	7/16/2020 5:48:37 PM	0.4
1206	7/16/2020 5:48:43 PM	7/16/2020 5:49:42 PM	1
1207	7/16/2020 5:50:16 PM	7/16/2020 5:51:42 PM	1.4
Total Duration			4.8

In-Water Construction Activity

Port Activity ID	Record Date and Time	In-water Activity	Pile Diameter
688	7/17/2020 8:11:14 AM	Vibratory hammer with bubble curtain	48
Comments			Water Depth
Marine side vibing in D8 using a bubble curtain. Shook to seat hammer on pile.			>3 Meters

Activity Time and Duration

Port Status ID	Activity Start Time	Activity Stop Time	Activity Minutes
1211	7/17/2020 8:12:00 AM	7/17/2020 8:12:03 AM	0.1
1212	7/17/2020 8:12:23 AM	7/17/2020 8:12:25 AM	0
1213	7/17/2020 8:13:10 AM	7/17/2020 8:13:16 AM	0.1
1214	7/17/2020 8:14:17 AM	7/17/2020 8:15:09 AM	0.9
1215	7/17/2020 8:16:04 AM	7/17/2020 8:16:52 AM	0.8
1216	7/17/2020 8:17:37 AM	7/17/2020 8:18:53 AM	1.3
1217	7/17/2020 8:20:14 AM	7/17/2020 8:21:34 AM	1.3
1218	7/17/2020 8:22:42 AM	7/17/2020 8:23:52 AM	1.2
1219	7/17/2020 8:24:13 AM	7/17/2020 8:27:06 AM	2.9
Total Duration			8.6

In-Water Construction Activity

Port Activity ID	Record Date and Time	In-water Activity	Pile Diameter
690	7/17/2020 8:50:14 AM	Impact hammer with bubble curtain	48
Comments			Water Depth
Marine side impacting D8 using a bubble curtain. Initiated "dead blows." 0926 Hammer removedc			>3 Meters

Activity Time and Duration

Port Status ID	Activity Start Time	Activity Stop Time	Activity Minutes
1221	7/17/2020 8:52:33 AM	7/17/2020 9:24:37 AM	32.1
Total Duration			32.1

In-Water Construction Activity

Port Activity ID	Record Date and Time	In-water Activity	Pile Diameter
692	7/17/2020 9:33:32 AM	Impact hammer with bubble curtain	48
Comments			Water Depth
Marine side impacting C8 using a bubble curtain.			>3 Meters

Activity Time and Duration

Port Status ID	Activity Start Time	Activity Stop Time	Activity Minutes
1223	7/17/2020 9:37:55 AM	7/17/2020 10:02:05 AM	24.2
Total Duration			24.2

In-Water Construction Activity

Port Activity ID	Record Date and Time	In-water Activity	Pile Diameter
694	7/17/2020 2:30:14 PM	Vibe Install bubble curtain casing	n/a
Comments			Water Depth
Marine side is using the green vib hammer to install a bubble casing.			>3 Meters

Activity Time and Duration

Port Status ID	Activity Start Time	Activity Stop Time	Activity Minutes
1225	7/17/2020 2:38:09 PM	7/17/2020 2:38:12 PM	0.1
1226	7/17/2020 2:39:31 PM	7/17/2020 2:40:12 PM	0.7
1227	7/17/2020 2:40:32 PM	7/17/2020 2:41:32 PM	1
1228	7/17/2020 2:42:36 PM	7/17/2020 2:43:01 PM	0.4
Total Duration			2.2

In-Water Construction Activity

Port Activity ID	Record Date and Time	In-water Activity	Pile Diameter
696	7/17/2020 3:29:56 PM	Vibratory hammer with bubble curtain	48
Comments			Water Depth
1535 shaking vibe to attach hammer to pile.			>3 Meters

Activity Time and Duration

Port Status ID	Activity Start Time	Activity Stop Time	Activity Minutes
1230	7/17/2020 3:35:49 PM	7/17/2020 3:35:51 PM	0
1231	7/17/2020 3:36:35 PM	7/17/2020 3:37:39 PM	1.1
1232	7/17/2020 3:37:47 PM	7/17/2020 3:38:52 PM	1.1
1233	7/17/2020 3:39:48 PM	7/17/2020 3:40:50 PM	1
1234	7/17/2020 3:42:04 PM	7/17/2020 3:46:19 PM	4.3
1235	7/17/2020 3:46:45 PM	7/17/2020 3:48:24 PM	1.6
Total Duration			9.1

In-Water Construction Activity

Port Activity ID	Record Date and Time	In-water Activity	Pile Diameter
698	7/17/2020 4:07:30 PM	Impact hammer with bubble curtain	48
Comments			Water Depth
Marine side is impacting D9 using a bubble curtain. Initiated 3 "dead blows." Ran out of fuel before it could finish, refueling then resuming.			>3 Meters

Activity Time and Duration

Port Status ID	Activity Start Time	Activity Stop Time	Activity Minutes
1237	7/17/2020 4:11:06 PM	7/17/2020 4:39:17 PM	28.2
1239	7/17/2020 5:09:15 PM	7/17/2020 5:09:44 PM	0.5
Total Duration			28.7

In-Water Construction Activity

Port Activity ID	Record Date and Time	In-water Activity	Pile Diameter
703	7/20/2020 7:30:46 AM	In-water activity, no pile driving	
Comments			Water Depth
0730 Barge is repositioning; small boat work; anchor handling			>3 Meters

Activity Time and Duration

Port Status ID	Activity Start Time	Activity Stop Time	Activity Minutes
1244	7/20/2020 7:30:51 AM	7/20/2020 9:18:42 AM	107.9
Total Duration			107.9

In-Water Construction Activity

Port Activity ID	Record Date and Time	In-water Activity	Pile Diameter
709	7/31/2020 9:29:52 AM	Impact hammer with bubble curtain	48
Comments			Water Depth
Barge will do a PDA Test close to pile E5 using a bubble curtain.			>3 Meters

Activity Time and Duration

Port Status ID	Activity Start Time	Activity Stop Time	Activity Minutes
1249	7/31/2020 9:36:59 AM	7/31/2020 9:38:00 AM	1
Total Duration			1

In-Water Construction Activity

Port Activity ID	Record Date and Time	In-water Activity	Pile Diameter
710	7/31/2020 10:00:07 AM	Impact hammer with bubble curtain	48
Comments			Water Depth
Barge will do a PDA TEST close to pile C8 using a bubble curtain.			>3 Meters

Activity Time and Duration

Port Status ID	Activity Start Time	Activity Stop Time	Activity Minutes
1251	7/31/2020 10:58:54 AM	7/31/2020 10:59:40 AM	0.8
Total Duration			0.8

Appendix B – Marine Mammal Sighting Summary

Marine Mammal Group Summary Report

Month of July 2020

Species	Group ID	Initial Sighting Time	Total Individuals
Beluga			
	354	7/1/2020 7:10:27 AM	2
	360	7/2/2020 7:13:09 AM	2
	370	7/6/2020 12:36:22 PM	2
	381	7/9/2020 8:52:33 AM	1
	408	7/12/2020 4:07:30 PM	1
	410	7/13/2020 10:05:59 AM	1
	411	7/13/2020 1:23:36 PM	1
	415	7/14/2020 8:25:57 AM	5
	416	7/14/2020 8:39:21 AM	7
	418	7/15/2020 7:19:34 AM	1
	421	7/16/2020 7:58:33 AM	1
	436	7/21/2020 5:08:20 PM	1
Total Groups for Species:	12	Total Individuals for Species:	25

Harbor Seal			
	355	7/1/2020 7:37:54 AM	1
	356	7/1/2020 7:53:03 AM	2
	357	7/1/2020 8:12:39 AM	1
	358	7/1/2020 3:10:19 PM	1
	361	7/2/2020 7:17:50 AM	1
	362	7/2/2020 10:57:13 AM	1
	363	7/2/2020 2:47:41 PM	1
	364	7/2/2020 2:52:07 PM	1
	365	7/2/2020 4:16:52 PM	1
	366	7/2/2020 4:34:17 PM	1
	367	7/2/2020 7:03:40 PM	1
	368	7/2/2020 7:07:03 PM	1
	372	7/7/2020 7:39:54 AM	1
	373	7/7/2020 7:55:44 AM	1
	375	7/8/2020 7:53:05 AM	1
	376	7/8/2020 10:01:48 AM	1
	377	7/8/2020 5:05:27 PM	1
	379	7/9/2020 8:25:23 AM	1
	380	7/9/2020 8:51:27 AM	1
	382	7/9/2020 9:37:39 AM	1
	383	7/9/2020 11:14:37 AM	1
	384	7/9/2020 12:56:40 PM	1

Species	Group ID	Initial Sighting Time	Total Individuals
Harbor Seal continued...	386	7/9/2020 5:19:57 PM	1
	389	7/10/2020 8:46:12 AM	1
	390	7/10/2020 3:29:14 PM	1
	392	7/11/2020 7:17:10 AM	1
	393	7/11/2020 8:22:25 AM	1
	394	7/11/2020 12:43:36 PM	1
	395	7/11/2020 1:08:45 PM	1
	396	7/11/2020 1:22:58 PM	1
	397	7/11/2020 1:29:30 PM	1
	398	7/11/2020 4:23:31 PM	1
	400	7/12/2020 7:04:34 AM	1
	401	7/12/2020 7:42:19 AM	1
	402	7/12/2020 9:56:11 AM	1
	403	7/12/2020 10:31:11 AM	1
	404	7/12/2020 12:11:06 PM	1
	406	7/12/2020 1:58:36 PM	1
	407	7/12/2020 3:49:36 PM	1
	413	7/14/2020 7:13:03 AM	1
	414	7/14/2020 7:48:42 AM	1
	422	7/16/2020 12:05:47 PM	1
	424	7/17/2020 11:07:36 AM	1
	425	7/17/2020 11:43:27 AM	1
	426	7/17/2020 3:36:56 PM	1
	428	7/18/2020 1:17:45 PM	2
	429	7/18/2020 4:06:48 PM	1
	430	7/18/2020 4:25:03 PM	1
	432	7/20/2020 7:29:05 AM	1
	433	7/20/2020 4:50:24 PM	1
	435	7/21/2020 7:31:38 AM	1
	438	7/31/2020 2:43:10 PM	1
Total Groups for Species:	52	Total Individuals for Species:	54
Total MM Groups For Period:	64	Toal MMs For Period:	79

Appendix C – 7/1 – 7/5 Sighting Forms and Maps

MM Group Report

Group ID 354	Created Date 7/1/2020 7:10:27 AM	Last Update 7/1/2020 5:09:47 PM	Species Common Name Beluga						
Spread >10	Formation Linear	Combined Group False	Pace Moderate	Primary Behavior Travelling	Secondary Behavior Milling				
Beluga Counts	White 1	Gray 1	Calf 0	Neonate 0	Unknown 0	Other MM Counts	Other Adult 0	Other Calf 0	Total Other

Comments

** NEX: Sighted whales at 0710; Fixes 1645 - 1648, 1651, 1652 show them moving south along the shoreline towards the construction site; Passed off to SC at 0728.; **SC: 0728 took over from NEX; 730 Fix1653 whales traveling southwest; 0739 passed to PCT; **PCT: 0739 takes over fixes from SC; F1654 & F1656 lead of two traveling SW along nearshore; F1657-F1659 trail beluga (grey) traveling SW along nearshore; 0745 radioed SC for handoff; **SC: 0746-0748 Fix 1660-1661 (1660 accidentally saved in MMGroup 355) whales milling around mouth of SC; 0753-0757 Fix 1663-1665 travelling southwest, white leading, gray trailing; 0804 Fix 1669 traveling northeast, bubbling observed; 0808-0811 Fix 1671-1673 milling while slowly traveling northeast; **PCT: F1674 Beluga ~160 m and heading towards proposed Level B zone; 0821 PCT takes over fixes from SC; F1679-F1682 2 beluga traveling NE along nearshore; 0827 sight lost due to barge and infrastructure, handoff back to SC; **SC: 0827-0848 Fix 1686-1688 milling while slowly traveling northeast; **NEX took group from SC at 0838; F1688-1703 Belugas travelling north and beyond outbound line: Last seen 0928.

Group ID	Fix ID	Fix Time	MM Latitude	MM Longitude	Distance To PCT
354	1645	7/1/2020 7:11:26 AM	61.253375	-149.883423	2186.76738
354	1646	7/1/2020 7:12:40 AM	61.251604	-149.882521	2013.36113
354	1647	7/1/2020 7:14:30 AM	61.248919	-149.884622	1694.75531
354	1648	7/1/2020 7:18:05 AM	61.248356	-149.885308	1623.86036
354	1651	7/1/2020 7:22:22 AM	61.247107	-149.887182	1461.87201
354	1652	7/1/2020 7:25:22 AM	61.246352	-149.888611	1361.17684
354	1653	7/1/2020 7:30:25 AM	61.241451	-149.893283	780.90997
354	1654	7/1/2020 7:39:12 AM	61.233491	-149.896951	161.93354
354	1656	7/1/2020 7:40:09 AM	61.232658	-149.897517	250.79554
354	1657	7/1/2020 7:41:17 AM	61.232923	-149.897997	245.85517
354	1658	7/1/2020 7:42:53 AM	61.232047	-149.898933	351.18765
354	1659	7/1/2020 7:44:10 AM	61.229896	-149.901681	629.9512

Group ID	Created Date	Last Update	Species Common Name						
354	7/1/2020 7:10:27 AM	7/1/2020 5:09:47 PM	Beluga						
Spread	Formation	Combined Group	Pace	Primary Behavior	Secondary Behavior				
>10	Linear	False	Moderate	Travelling	Milling				
Beluga Counts	White	Gray	Calf	Neonate	Unknown	Other MM Counts	Other Adult	Other Calf	Total Other
	1	1	0	0	0		0	0	

Comments

** NEX: Sighted whales at 0710; Fixes 1645 - 1648, 1651, 1652 show them moving south along the shoreline towards the construction site; Passed off to SC at 0728.; **SC: 0728 took over from NEX; 730 Fix1653 whales traveling southwest; 0739 passed to PCT; **PCT: 0739 takes over fixes from SC; F1654 & F1656 lead of two traveling SW along nearshore; F1657-F1659 trail beluga (grey) traveling SW along nearshore; 0745 radioed SC for handoff; **SC: 0746-0748 Fix 1660-1661 (1660 accidentally saved in MMGroup 355) whales milling around mouth of SC; 0753-0757 Fix 1663-1665 travelling southwest, white leading, gray trailing; 0804 Fix 1669 traveling northeast, bubbling observed; 0808-0811 Fix 1671-1673 milling while slowly traveling northeast; **PCT: F1674 Beluga ~160 m and heading towards proposed Level B zone; 0821 PCT takes over fixes from SC; F1679-F1682 2 beluga traveling NE along nearshore; 0827 sight lost due to barge and infrastructure, handoff back to SC; **SC: 0827-0848 Fix 1686-1688 milling while slowly traveling northeast; **NEX took group from SC at 0838; F1688-1703 Belugas travelling north and beyond outbound line: Last seen 0928.

354	1661	7/1/2020 7:49:53 AM	61.226831	-149.907368	1085.4445
354	1663	7/1/2020 7:53:17 AM	61.2241	-149.910445	1426.51951
354	1664	7/1/2020 7:55:51 AM	61.221829	-149.912824	1705.9353
354	1665	7/1/2020 7:57:50 AM	61.221184	-149.913795	1794.431
354	1669	7/1/2020 8:03:43 AM	61.223206	-149.910967	1523.59125
354	1671	7/1/2020 8:08:06 AM	61.224489	-149.909013	1346.87173
354	1672	7/1/2020 8:09:41 AM	61.225444	-149.9084	1241.39873
354	1673	7/1/2020 8:11:14 AM	61.22622	-149.906824	1122.1505
354	1674	7/1/2020 8:13:49 AM	61.227254	-149.905025	972.83672
354	1676	7/1/2020 8:15:40 AM	61.227524	-149.904402	929.26762
354	1677	7/1/2020 8:16:32 AM	61.228036	-149.903876	866.41255
354	1678	7/1/2020 8:17:40 AM	61.228934	-149.902694	748.38931
354	1679	7/1/2020 8:21:33 AM	61.232056	-149.899412	367.56311
354	1680	7/1/2020 8:22:03 AM	61.232554	-149.89797	274.92334
354	1681	7/1/2020 8:22:35 AM	61.232928	-149.89725	218.37038

Group ID 354	Created Date 7/1/2020 7:10:27 AM	Last Update 7/1/2020 5:09:47 PM	Species Common Name Beluga
------------------------	--	---	--------------------------------------

Spread >10	Formation Linear	Combined Group False	Pace Moderate	Primary Behavior Travelling	Secondary Behavior Milling
----------------------	----------------------------	--------------------------------	-------------------------	---------------------------------------	--------------------------------------

Beluga Counts 1	White 1	Gray 0	Calf 0	Neonate 0	Unknown 0	Other MM Counts 0	Other Adult 0	Other Calf 0	Total Other
---------------------------	-------------------	------------------	------------------	---------------------	---------------------	-----------------------------	-------------------------	------------------------	------------------------

Comments

** NEX: Sighted whales at 0710; Fixes 1645 - 1648, 1651, 1652 show them moving south along the shoreline towards the construction site; Passed off to SC at 0728.; **SC: 0728 took over from NEX; 730 Fix1653 whales traveling southwest; 0739 passed to PCT; **PCT: 0739 takes over fixes from SC; F1654 & F1656 lead of two traveling SW along nearshore; F1657-F1659 trail beluga (grey) traveling SW along nearshore; 0745 radioed SC for handoff; **SC: 0746-0748 Fix 1660-1661 (1660 accidentally saved in MMGroup 355) whales milling around mouth of SC; 0753-0757 Fix 1663-1665 travelling southwest, white leading, gray trailing; 0804 Fix 1669 traveling northeast, bubbling observed; 0808-0811 Fix 1671-1673 milling while slowly traveling northeast; **PCT: F1674 Beluga ~160 m and heading towards proposed Level B zone; 0821 PCT takes over fixes from SC; F1679-F1682 2 beluga traveling NE along nearshore; 0827 sight lost due to barge and infrastructure, handoff back to SC; **SC: 0827-0848 Fix 1686-1688 milling while slowly traveling northeast; **NEX took group from SC at 0838; F1688-1703 Belugas travelling north and beyond outbound line: Last seen 0928.

354	1682	7/1/2020 8:23:21 AM	61.233178	-149.896191	163.32351
354	1686	7/1/2020 8:27:24 AM	61.234614	-149.896025	73.98108
354	1687	7/1/2020 8:36:46 AM	61.241971	-149.887938	909.61098
354	1688	7/1/2020 8:38:06 AM	61.242164	-149.88799	928.26386
354	1690	7/1/2020 8:46:30 AM	61.247852	-149.885777	1562.86662
354	1692	7/1/2020 8:52:31 AM	61.250999	-149.883142	1939.04141
354	1693	7/1/2020 8:57:32 AM	61.251038	-149.883612	1935.32029
354	1695	7/1/2020 9:05:08 AM	61.249739	-149.883723	1796.49042
354	1698	7/1/2020 9:13:50 AM	61.252723	-149.88219	2136.88234
354	1699	7/1/2020 9:18:20 AM	61.254635	-149.881986	2342.77586
354	1700	7/1/2020 9:20:18 AM	61.255754	-149.881558	2468.45238
354	1701	7/1/2020 9:22:39 AM	61.257342	-149.881189	2643.42046
354	1702	7/1/2020 9:26:25 AM	61.266921	-149.881313	3677.62117
354	1703	7/1/2020 9:29:45 AM	61.26921	-149.880047	3940.3048

Group ID
Created Date
Last Update
Species Common Name

Spread
Formation
Combined Group
Pace
Primary Behavior
Secondary Behavior

Beluga Counts	White	Gray	Calf	Neonate	Unknown	Other MM Counts	Other Adult	Other Calf	Total Other
<input type="text" value="0"/>	<input type="text" value="1"/>	<input type="text" value="0"/>	<input type="text" value=""/>	<input type="text" value=""/>					

Comments

**SC: 0739 Fix 1655 seal milling between mouth of Ship Creek and PCT; 1660 beluga fix (accident, should be in MM Group 354); Last time seen 1232.

Group ID	Fix ID	Fix Time	MM Latitude	MM Longitude	Distance To PCT
355	1655	7/1/2020 7:38:43 AM	61.227164	-149.903772	944.91799
355	1660	7/1/2020 7:45:52 AM	61.227745	-149.903686	887.67248

Group ID	Created Date		Last Update		Species Common Name				
356	7/1/2020 7:53:03 AM		7/1/2020 9:45:22 AM		Harbor Seal				
Spread	Formation	Combined Group	Pace	Primary Behavior	Secondary Behavior				
1	Linear	False	Moderate	Travelling	Milling				
Beluga Counts	White	Gray	Calf	Neonate	Unknown	Other MM Counts	Other Adult	Other Calf	Total Other
0	0	0	0	0	0	2	0		

Comments

**PCT: F1662-F1666 seal sighted swimming NE along nearshore, looked and sank; F1666-F1684 show seal in and outside the 100m from pile shutdown zone; F1685 a second seal sighted near by, looked and sank, added to total; F1689-F1694 show seal(s) in and outside the 100m from pile shutdown zone last sight of nearest seal to pile; F1696 Seal confirmed outside the 100m zone; Last sight 09:07

Group ID	Fix ID	Fix Time	MM Latitude	MM Longitude	Distance To PCT
356	1662	7/1/2020 7:53:17 AM	61.232362	-149.896689	256.22711
356	1666	7/1/2020 8:00:06 AM	61.23326	-149.896007	150.59328
356	1667	7/1/2020 8:01:17 AM	61.233459	-149.895091	112.895
356	1668	7/1/2020 8:02:15 AM	61.23411	-149.897145	137.23415
356	1670	7/1/2020 8:04:25 AM	61.23532	-149.898895	244.94163
356	1683	7/1/2020 8:24:30 AM	61.233467	-149.894917	110.58009
356	1684	7/1/2020 8:26:39 AM	61.233979	-149.894198	58.93197
356	1685	7/1/2020 8:27:24 AM	61.23577	-149.893815	153.21925
356	1689	7/1/2020 8:44:56 AM	61.232268	-149.897918	298.41888
356	1691	7/1/2020 8:49:00 AM	61.233639	-149.894728	90.7807
356	1694	7/1/2020 8:59:02 AM	61.233427	-149.896948	166.60966
356	1696	7/1/2020 9:05:06 AM	61.233102	-149.895981	165.7005

Group ID
Created Date
Last Update
Species Common Name

Spread
Formation
Combined Group
Pace
Primary Behavior
Secondary Behavior

Beluga Counts	White	Gray	Calf	Neonate	Unknown	Other MM Counts	Other Adult	Other Calf	Total Other
<input type="text" value="0"/>	<input type="text" value="1"/>	<input type="text" value="0"/>	<input type="text" value=""/>	<input type="text" value=""/>					

Comments

PW: Fix 1675 one harbor seal looking and sinking in the middle of the arm; Last time seen: 0847; **PCT: disregard F1697, bad fix.

Group ID	Fix ID	Fix Time	MM Latitude	MM Longitude	Distance To PCT
357	1675	7/1/2020 8:13:02 AM	61.219627	-149.987092	5210.15288

Group ID
Created Date
Last Update
Species Common Name

Spread
Formation
Combined Group
Pace
Primary Behavior
Secondary Behavior

Beluga Counts	White	Gray	Calf	Neonate	Unknown	Other MM Counts	Other Adult	Other Calf	Total Other
<input type="text" value="0"/>	<input type="text" value="1"/>	<input type="text" value="0"/>	<input type="text" value=""/>	<input type="text" value=""/>					

Comments

NEX: 1510 Fix 1706 One harbor seal. Last seen 1510

Group ID	Fix ID	Fix Time	MM Latitude	MM Longitude	Distance To PCT
358	1706	7/1/2020 3:10:35 PM	61.26284	-149.880505	3243.80678

Group ID
Created Date
Last Update
Species Common Name

Spread
Formation
Combined Group
Pace
Primary Behavior
Secondary Behavior

Beluga Counts	White	Gray	Calf	Neonate	Unknown	Other MM Counts	Other Adult	Other Calf	Total Other
<input type="text" value="1"/>	<input type="text" value="1"/>	<input type="text" value="0"/>	<input type="text" value=""/>						

Comments

***SC: 0702 belugas spotted. 0715 Fix 1709 whales milling in the mouth of SC; last seen 0726

Group ID	Fix ID	Fix Time	MM Latitude	MM Longitude	Distance To PCT
360	1709	7/2/2020 7:14:11 AM	61.227173	-149.903676	941.42686

Group ID	Created Date	Last Update	Species Common Name
361	7/2/2020 7:17:50 AM	7/2/2020 9:19:12 AM	Harbor Seal

Spread	Formation	Combined Group	Pace	Primary Behavior	Secondary Behavior
1	Linear	False	Sedate	Milling	Looking

Beluga Counts	White	Gray	Calf	Neonate	Unknown	Other MM Counts	Other Adult	Other Calf	Total Other
0	0	0	0	0	0	1	0		

Comments

***SC: 0718 Fix 1710 milling, periscoping; last time seen 0918

Group ID	Fix ID	Fix Time	MM Latitude	MM Longitude	Distance To PCT
361	1710	7/2/2020 7:18:00 AM	61.226908	-149.902842	945.458

Group ID	Created Date	Last Update	Species Common Name						
362	7/2/2020 10:57:13 AM	7/2/2020 1:31:19 PM	Harbor Seal						
Spread	Formation	Combined Group	Pace	Primary Behavior	Secondary Behavior				
1	Linear	False	Sedate	Looking	Sink				
Beluga Counts	White	Gray	Calf	Neonate	Unknown	Other MM Counts	Other Adult	Other Calf	Total Other
0	0	0	0	0	0	1	0		

Comments

***PCT: 1056 Fix 1712 Seal looking and then sank. 1109 closer to the mouth of the creek. 1127 Fix 1714 Seal further north close to shore. 1152 Passed to SC.
 ***SC: 1152 Seal popped up momentarily, headed south. 1223 Seal popped up farther south along beach. Last seen: 1223.

Group ID	Fix ID	Fix Time	MM Latitude	MM Longitude	Distance To PCT
362	1712	7/2/2020 10:57:40 AM	61.226634	-149.906563	1076.66056
362	1714	7/2/2020 11:28:00 AM	61.231976	-149.89856	344.88516
362	1715	7/2/2020 11:53:35 AM	61.225279	-149.908292	1252.87165
362	1716	7/2/2020 12:25:51 PM	61.215033	-149.931134	2908.61371

Group ID 363	Created Date 7/2/2020 2:47:41 PM	Last Update 7/2/2020 4:18:49 PM	Species Common Name Harbor Seal
------------------------	--	---	---

Spread 1	Formation Linear	Combined Group False	Pace Moderate	Primary Behavior Milling	Secondary Behavior Looking
--------------------	----------------------------	--------------------------------	-------------------------	------------------------------------	--------------------------------------

Beluga Counts	White 0	Gray 0	Calf 0	Neonate 0	Unknown 0	Other MM Counts	Other Adult 1	Other Calf 0	Total Other
----------------------	-------------------	------------------	------------------	---------------------	---------------------	------------------------	-------------------------	------------------------	------------------------

Comments

**SC: 1449 FIX 1717 one harbor seal looking and sinking at the mouth of ship creek. Last seen 1601

Group ID	Fix ID	Fix Time	MM Latitude	MM Longitude	Distance To PCT
363	1717	7/2/2020 2:49:51 PM	61.226911	-149.904091	977.80344

Group ID 364	Created Date 7/2/2020 2:52:07 PM	Last Update 7/2/2020 2:56:10 PM	Species Common Name Harbor Seal
------------------------	--	---	---

Spread 1	Formation Linear	Combined Group False	Pace Sedate	Primary Behavior Looking	Secondary Behavior Diving
--------------------	----------------------------	--------------------------------	-----------------------	------------------------------------	-------------------------------------

Beluga Counts	White 0	Gray 0	Calf 0	Neonate 0	Unknown 0	Other MM Counts	Other Adult 1	Other Calf 0	Total Other
----------------------	-------------------	------------------	------------------	---------------------	---------------------	------------------------	-------------------------	------------------------	------------------------

Comments

**PW Fix 1718 Seal seen closer to far shore looking and diving. Last seen 1454

Group ID	Fix ID	Fix Time	MM Latitude	MM Longitude	Distance To PCT
364	1718	7/2/2020 2:54:03 PM	61.231958	-149.99478	5360.07542

Group ID 365	Created Date 7/2/2020 4:16:52 PM	Last Update 7/2/2020 5:27:05 PM	Species Common Name Harbor Seal
------------------------	--	---	---

Spread 1	Formation Linear	Combined Group False	Pace Moderate	Primary Behavior Travelling	Secondary Behavior None
--------------------	----------------------------	--------------------------------	-------------------------	---------------------------------------	-----------------------------------

Beluga Counts	White 0	Gray 0	Calf 0	Neonate 0	Unknown 0	Other MM Counts	Other Adult 1	Other Calf 0	Total Other
----------------------	-------------------	------------------	------------------	---------------------	---------------------	------------------------	-------------------------	------------------------	------------------------

Comments

**SC: 1615 seal traveling north with incoming tide; 1617 Fix 1719 traveling north; last seen 1633, 1725.

Group ID	Fix ID	Fix Time	MM Latitude	MM Longitude	Distance To PCT
365	1719	7/2/2020 4:17:03 PM	61.22605	-149.908898	1204.37685

Group ID
Created Date
Last Update
Species Common Name

Spread
Formation
Combined Group
Pace
Primary Behavior
Secondary Behavior

Beluga Counts	White	Gray	Calf	Neonate	Unknown	Other MM Counts	Other Adult	Other Calf	Total Other
<input type="text" value="0"/>	<input type="text" value="1"/>	<input type="text" value="0"/>	<input type="text" value=""/>	<input type="text" value=""/>					

Comments

** PW FIX 1720 Harbor seal seen looking and sinking. Last seen 1635

Group ID	Fix ID	Fix Time	MM Latitude	MM Longitude	Distance To PCT
366	1720	7/2/2020 4:35:28 PM	61.218281	-149.990886	5450.62495

Group ID 367	Created Date 7/2/2020 7:03:40 PM	Last Update 7/2/2020 7:12:12 PM	Species Common Name Harbor Seal
------------------------	--	---	---

Spread 1	Formation Linear	Combined Group False	Pace Moderate	Primary Behavior Looking	Secondary Behavior Travelling
--------------------	----------------------------	--------------------------------	-------------------------	------------------------------------	---

Beluga Counts	White 0	Gray 0	Calf 0	Neonate 0	Unknown 0	Other MM Counts	Other Adult 1	Other Calf 0	Total Other
----------------------	-------------------	------------------	------------------	---------------------	---------------------	------------------------	-------------------------	------------------------	------------------------

Comments

**NEX: 21:03 Fix 1721 seal sighted looking and sinking; 21:06 seal traveling SW along nearshore; Last sight 21:09

Group ID	Fix ID	Fix Time	MM Latitude	MM Longitude	Distance To PCT
367	1721	7/2/2020 7:03:59 PM	61.258072	-149.879752	2742.90396

Group ID 368	Created Date 7/2/2020 7:07:03 PM	Last Update 	Species Common Name Harbor Seal
------------------------	--	------------------------	---

Spread 1	Formation Linear	Combined Group False	Pace Sedate	Primary Behavior Sink	Secondary Behavior Looking
--------------------	----------------------------	--------------------------------	-----------------------	---------------------------------	--------------------------------------

Beluga Counts	White 0	Gray 0	Calf 0	Neonate 0	Unknown 0	Other MM Counts	Other Adult 1	Other Calf 0	Total Other
----------------------	-------------------	------------------	------------------	---------------------	---------------------	------------------------	-------------------------	------------------------	------------------------

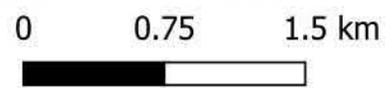
Comments

** Fix 1722 PW Harbor Seal looking and sinking.

Group ID	Fix ID	Fix Time	MM Latitude	MM Longitude	Distance To PCT
368	1722	7/2/2020 7:08:09 PM	61.20295	-149.956429	4813.50075

**2020 POA PCT
Marine Mammal Sightings
Overview
07/01/20 - 07/05/20**

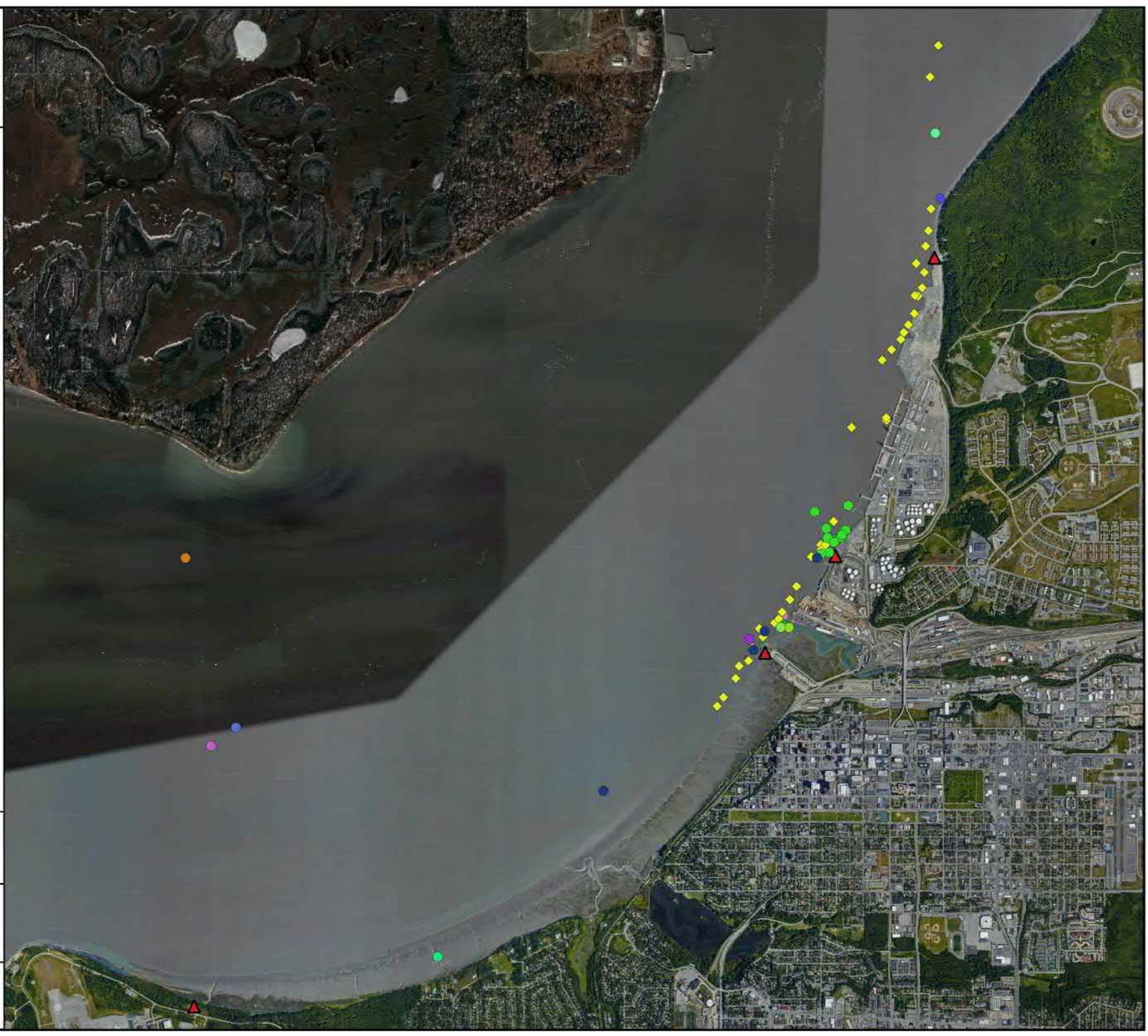
- ▲ PSO Station
- Marine Mammal Groups**
- ◆ Group 354 Beluga
- Group 355 Harbor Seal
- Group 356 Harbor Seal
- Group 357 Harbor Seal
- Group 358 Harbor Seal
- ◆ Group 360 Beluga
- Group 361 Harbor Seal
- Group 362 Harbor Seal
- Group 363 Harbor Seal
- Group 364 Harbor Seal
- Group 365 Harbor Seal
- Group 366 Harbor Seal
- Group 367 Harbor Seal
- Group 368 Harbor Seal



61° N
61 North Environmental



Map Imagery Source:
Google Earth, 2020



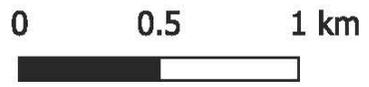
**2020 POA PCT
Beluga Sightings
07/01/20 - 07/05/20
Figure 1**

▲ PSO Station

Beluga Track Lines

→ Group 354

→ Group 360



61|N
61 North Environmental



Map Imagery Source:
Google Earth, 2020



Appendix D – Week of 7/6 – 7/12 Sighting Forms and Maps

MM Group Report

Group ID
Created Date
Last Update
Species Common Name

Spread
Formation
Combined Group
Pace
Primary Behavior
Secondary Behavior

Beluga Counts	White	Gray	Calf	Neonate	Unknown	Other MM Counts	Other Adult	Other Calf	Total Other
<input type="text" value="2"/>	<input type="text" value="0"/>	<input type="text" value=""/>							

Comments

***NEX: 1236 Fix 1728 One white traveling south. 1237 Fix 1729-1730 Two white beluga traveling further south. 1238 Last time seen. ***PCT: 1246 FIX 1731 whales traveling southeast; ***SC 1251 Fix 1732-1737 Belugas spotted traveling south; Last seen 1322.

Group ID	Fix ID	Fix Time	MM Latitude	MM Longitude	Distance To PCT
370	1728	7/6/2020 12:36:33 PM	61.254162	-149.881865	2294.44479
370	1729	7/6/2020 12:37:10 PM	61.252816	-149.882372	2143.69458
370	1730	7/6/2020 12:38:28 PM	61.250757	-149.883342	1910.14738
370	1731	7/6/2020 12:46:39 PM	61.243351	-149.887587	1058.72806
370	1732	7/6/2020 12:53:03 PM	61.238909	-149.891197	528.76329
370	1733	7/6/2020 1:04:38 PM	61.234034	-149.89789	177.87015
370	1734	7/6/2020 1:08:55 PM	61.230902	-149.900883	515.67945
370	1735	7/6/2020 1:13:18 PM	61.23014	-149.903093	657.51912
370	1736	7/6/2020 1:18:16 PM	61.228404	-149.905932	902.34297
370	1737	7/6/2020 1:22:35 PM	61.226767	-149.907625	1099.60541

Group ID	Created Date	Last Update	Species Common Name
372	7/7/2020 7:39:54 AM	7/7/2020 10:24:37 AM	Harbor Seal

Spread	Formation	Combined Group	Pace	Primary Behavior	Secondary Behavior
1	Linear	False	Moderate	Looking	Sink

Beluga Counts	White	Gray	Calf	Neonate	Unknown	Other MM Counts	Other Adult	Other Calf	Total Other
0	0	0	0	0	0	1	0		

Comments

**SC: FIX 1741 one harbor seal seen looking and sinking. Last seen 1024

Group ID	Fix ID	Fix Time	MM Latitude	MM Longitude	Distance To PCT
372	1741	7/7/2020 7:40:47 AM	61.222772	-149.909349	1516.8963

Group ID
Created Date
Last Update
Species Common Name

Spread
Formation
Combined Group
Pace
Primary Behavior
Secondary Behavior

Beluga Counts	White	Gray	Calf	Neonate	Unknown	Other MM Counts	Other Adult	Other Calf	Total Other
<input type="text" value="0"/>	<input type="text" value="1"/>	<input type="text" value="0"/>	<input type="text" value=""/>	<input type="text" value=""/>					

Comments

**NEX: FIX 1742 head spotted on the surface; traveling northeast and dove. FIX 1743 head spotted at the surface. Last seen 0839

Group ID	Fix ID	Fix Time	MM Latitude	MM Longitude	Distance To PCT
373	1742	7/7/2020 7:55:58 AM	61.255019	-149.88333	2364.19585
373	1743	7/7/2020 8:39:10 AM	61.256088	-149.881315	2507.72738

Group ID 375	Created Date 7/8/2020 7:53:05 AM	Last Update 7/8/2020 10:10:42 AM	Species Common Name Harbor Seal
------------------------	--	--	---

Spread 1	Formation Linear	Combined Group False	Pace Moderate	Primary Behavior Travelling	Secondary Behavior Diving
--------------------	----------------------------	--------------------------------	-------------------------	---------------------------------------	-------------------------------------

Beluga Counts	White 0	Gray 0	Calf 0	Neonate 0	Unknown 0	Other MM Counts	Other Adult 1	Other Calf 0	Total Other
----------------------	-------------------	------------------	------------------	---------------------	---------------------	------------------------	-------------------------	------------------------	------------------------

Comments

***SC: Fix 1747 was a bad fix. 0752 Fix 1748 Harbor seal spotted traveling and diving. Observed up past first big bend in Ship Creek. Last seen 0808. (ATL post-processed: moved fix 1747 to Obs ID374 (unknown) to remove association with this sighting)

Group ID	Fix ID	Fix Time	MM Latitude	MM Longitude	Distance To PCT
375	1748	7/8/2020 7:54:35 AM	61.224651	-149.908725	1323.30505

Group ID	Created Date	Last Update	Species Common Name						
376	7/8/2020 10:01:48 AM	7/8/2020 5:27:38 PM	Harbor Seal						
Spread	Formation	Combined Group	Pace	Primary Behavior	Secondary Behavior				
1	Linear	False	Moderate	Milling	Sink				
Beluga Counts	White	Gray	Calf	Neonate	Unknown	Other MM Counts	Other Adult	Other Calf	Total Other
0	0	0	0	0	0	1	0		

Comments

**SC 0959 Fix 1750 Harbor Seal observed milling and sinking. Fix 1751 Harbor seal traveling toward mouth of Ship Creek. Last seen 1310. Fix 1752 Harbor seal showed back up in the same area and was similar in size. Fix 1753 Harbor seal traveling south east. Last seen 1700.

Group ID	Fix ID	Fix Time	MM Latitude	MM Longitude	Distance To PCT
376	1750	7/8/2020 10:01:58 AM	61.223347	-149.907942	1423.63493
376	1751	7/8/2020 1:25:40 PM	61.22523	-149.909835	1306.81789
376	1752	7/8/2020 4:26:47 PM	61.227109	-149.906828	1043.28318
376	1753	7/8/2020 4:58:20 PM	61.215041	-149.951601	3731.50854

Group ID 377	Created Date 7/8/2020 5:05:27 PM	Last Update 7/8/2020 5:44:55 PM	Species Common Name Harbor Seal
------------------------	--	---	---

Spread 1	Formation Linear	Combined Group False	Pace Sedate	Primary Behavior Looking	Secondary Behavior Feeding Suspected
--------------------	----------------------------	--------------------------------	-----------------------	------------------------------------	--

Beluga Counts	White 0	Gray 0	Calf 0	Neonate 0	Unknown 0	Other MM Counts	Other Adult 1	Other Calf 0	Total Other
----------------------	-------------------	------------------	------------------	---------------------	---------------------	------------------------	-------------------------	------------------------	------------------------

Comments

***SC: 1703 Fix 1754 One harbor seal, looking and feeding suspected. Last seen 1742

Group ID	Fix ID	Fix Time	MM Latitude	MM Longitude	Distance To PCT
377	1754	7/8/2020 5:06:23 PM	61.226968	-149.907084	1064.06935

Group ID
Created Date
Last Update
Species Common Name

Spread
Formation
Combined Group
Pace
Primary Behavior
Secondary Behavior

Beluga Counts	White	Gray	Calf	Neonate	Unknown	Other MM Counts	Other Adult	Other Calf	Total Other
<input type="text" value="0"/>	<input type="text" value="1"/>	<input type="text" value="0"/>	<input type="text"/>	<input type="text"/>					

Comments

***SC: 0824 Fix 1759 One harbor seal, traveling and sinking. Last seen 0825

Group ID	Fix ID	Fix Time	MM Latitude	MM Longitude	Distance To PCT
379	1759	7/9/2020 8:25:45 AM	61.227142	-149.90718	1052.27276

Group ID 380	Created Date 7/9/2020 8:51:27 AM	Last Update 7/9/2020 11:14:20 AM	Species Common Name Harbor Seal
------------------------	--	--	---

Spread 1	Formation Linear	Combined Group False	Pace Sedate	Primary Behavior Travelling	Secondary Behavior Sink
--------------------	----------------------------	--------------------------------	-----------------------	---------------------------------------	-----------------------------------

Beluga Counts	White 0	Gray 0	Calf 0	Neonate 0	Unknown 0	Other MM Counts	Other Adult 1	Other Calf 0	Total Other
----------------------	-------------------	------------------	------------------	---------------------	---------------------	------------------------	-------------------------	------------------------	------------------------

Comments

** NEX Seal traveling sedately. Last seen 0853

Group ID	Fix ID	Fix Time	MM Latitude	MM Longitude	Distance To PCT
380	1760	7/9/2020 8:51:37 AM	61.253372	-149.881782	2212.20193

Group ID	Created Date	Last Update	Species Common Name						
381	7/9/2020 8:52:33 AM	7/9/2020 9:18:25 AM	Beluga						
Spread	Formation	Combined Group	Pace	Primary Behavior	Secondary Behavior				
1	Linear	False	Moderate	Travelling	Travelling				
Beluga Counts	White	Gray	Calf	Neonate	Unknown	Other MM Counts	Other Adult	Other Calf	Total Other
1	0	0	0	0	0	0	0	0	

Comments

***PW 0850 Fix 1761 at least one beluga spotted traveling north. 0914 Fix 1762 one white beluga in line with previous fix, moving directly towards PW station; Last seen 0914

Group ID	Fix ID	Fix Time	MM Latitude	MM Longitude	Distance To PCT
381	1761	7/9/2020 8:52:41 AM	61.220686	-149.992356	5443.65414
381	1762	7/9/2020 9:14:43 AM	61.213583	-149.990569	5629.21971

Group ID
Created Date
Last Update
Species Common Name

Spread
Formation
Combined Group
Pace
Primary Behavior
Secondary Behavior

Beluga Counts	White	Gray	Calf	Neonate	Unknown	Other MM Counts	Other Adult	Other Calf	Total Other
<input type="text" value="0"/>	<input type="text" value="1"/>	<input type="text" value="0"/>	<input type="text"/>	<input type="text"/>					

Comments

**PCT 0936 FIX 1763 spotted looking and then dove; Last seen 0936

Group ID	Fix ID	Fix Time	MM Latitude	MM Longitude	Distance To PCT
382	1763	7/9/2020 9:40:47 AM	61.223949	-149.922089	1873.96915

Group ID 383	Created Date 7/9/2020 11:14:37 AM	Last Update 7/9/2020 11:16:44 AM	Species Common Name Harbor Seal
------------------------	---	--	---

Spread 1	Formation Linear	Combined Group False	Pace Moderate	Primary Behavior Looking	Secondary Behavior Sink
--------------------	----------------------------	--------------------------------	-------------------------	------------------------------------	-----------------------------------

Beluga Counts	White 0	Gray 0	Calf 0	Neonate 0	Unknown 0	Other MM Counts	Other Adult 1	Other Calf 0	Total Other
----------------------	-------------------	------------------	------------------	---------------------	---------------------	------------------------	-------------------------	------------------------	------------------------

Comments

***NEX initially travelling southwest along shore, looking and sinking. Last time seen 1113

Group ID	Fix ID	Fix Time	MM Latitude	MM Longitude	Distance To PCT
383	1764	7/9/2020 11:14:54 AM	61.254265	-149.881404	2312.81358

Group ID 384	Created Date 7/9/2020 12:56:40 PM	Last Update 7/9/2020 1:50:38 PM	Species Common Name Harbor Seal
------------------------	---	---	---

Spread 1	Formation Linear	Combined Group False	Pace Moderate	Primary Behavior Looking	Secondary Behavior Sink
--------------------	----------------------------	--------------------------------	-------------------------	------------------------------------	-----------------------------------

Beluga Counts	White 0	Gray 0	Calf 0	Neonate 0	Unknown 0	Other MM Counts	Other Adult 1	Other Calf 0	Total Other
----------------------	-------------------	------------------	------------------	---------------------	---------------------	------------------------	-------------------------	------------------------	------------------------

Comments

**SC 1255 F1765 Harbor Seal observed looking and sinking. Last seen 1348.

Group ID	Fix ID	Fix Time	MM Latitude	MM Longitude	Distance To PCT
384	1765	7/9/2020 12:56:49 PM	61.227507	-149.904635	937.85034
384	1766	7/9/2020 1:27:32 PM	61.228631	-149.912396	1147.35252

Group ID 386	Created Date 7/9/2020 5:19:57 PM	Last Update 7/9/2020 5:22:39 PM	Species Common Name Harbor Seal
------------------------	--	---	---

Spread 1	Formation Linear	Combined Group False	Pace Sedate	Primary Behavior Looking	Secondary Behavior Sink
--------------------	----------------------------	--------------------------------	-----------------------	------------------------------------	-----------------------------------

Beluga Counts	White 0	Gray 0	Calf 0	Neonate 0	Unknown 0	Other MM Counts	Other Adult 1	Other Calf 0	Total Other
----------------------	-------------------	------------------	------------------	---------------------	---------------------	------------------------	-------------------------	------------------------	------------------------

Comments

***SC: Fix 1770 One harbor seal, looking and sinking. Last seen 1720

Group ID	Fix ID	Fix Time	MM Latitude	MM Longitude	Distance To PCT
386	1770	7/9/2020 5:20:35 PM	61.22733	-149.906966	1028.87676

Group ID
Created Date
Last Update
Species Common Name

Spread
Formation
Combined Group
Pace
Primary Behavior
Secondary Behavior

Beluga Counts	White	Gray	Calf	Neonate	Unknown	Other MM Counts	Other Adult	Other Calf	Total Other
<input type="text" value="0"/>	<input type="text" value="1"/>	<input type="text" value="0"/>	<input type="text" value=""/>	<input type="text" value=""/>					

Comments

PW:0846 Fix1773 1 harbor seal , 0847 Fix1174 looking and sinking, last seen: 0909

Group ID	Fix ID	Fix Time	MM Latitude	MM Longitude	Distance To PCT
389	1773	7/10/2020 8:46:29 AM	61.215929	-149.979956	5004.37763
389	1774	7/10/2020 8:47:31 AM	61.210451	-149.98297	5424.13453

Group ID	Created Date	Last Update	Species Common Name						
390	7/10/2020 3:29:14 PM	7/10/2020 4:10:04 PM	Harbor Seal						
Spread	Formation	Combined Group	Pace	Primary Behavior	Secondary Behavior				
1	Linear	False	Sedate	Looking	Sink				
Beluga Counts	White	Gray	Calf	Neonate	Unknown	Other MM Counts	Other Adult	Other Calf	Total Other
0	0	0	0	0	0	1	0		

Comments

**PCT: 1528 F1775 looking and then sunk; 1550 F1776 sighted looking around and then sunk. HS ~150m from the pile during vibratory 48" pile driving with bub can; F1777 HS still within Level B zone, looking and sinking; LAST SEEN 1609

Group ID	Fix ID	Fix Time	MM Latitude	MM Longitude	Distance To PCT
390	1775	7/10/2020 3:30:57 PM	61.23166	-149.898422	369.48976
390	1776	7/10/2020 3:50:52 PM	61.233467	-149.896214	137.06713
390	1777	7/10/2020 4:08:33 PM	61.233434	-149.896779	159.60047

Group ID
Created Date
Last Update
Species Common Name

Spread
Formation
Combined Group
Pace
Primary Behavior
Secondary Behavior

Beluga Counts	White	Gray	Calf	Neonate	Unknown	Other MM Counts	Other Adult	Other Calf	Total Other
<input type="text" value="0"/>	<input type="text" value="1"/>	<input type="text" value="0"/>	<input type="text" value=""/>	<input type="text" value=""/>					

Comments

**SC: FIX 1779 one harbor seal splashing, feeding suspected. 08:10 FIX 1781 Moving further north along shore. FIX 1785 seal respotted. 11:00 last time seen.

Group ID	Fix ID	Fix Time	MM Latitude	MM Longitude	Distance To PCT
392	1779	7/11/2020 7:18:56 AM	61.216479	-149.92634	2618.75574
392	1781	7/11/2020 8:11:40 AM	61.221312	-149.914793	1813.89508
392	1785	7/11/2020 10:11:03 AM	61.223737	-149.909364	1426.63258

Group ID	Created Date	Last Update	Species Common Name						
393	7/11/2020 8:22:25 AM	7/11/2020 4:43:05 PM	Harbor Seal						
Spread	Formation	Combined Group	Pace	Primary Behavior	Secondary Behavior				
1	Linear	False	Moderate	Feeding Suspected	Looking				
Beluga Counts	White	Gray	Calf	Neonate	Unknown	Other MM Counts	Other Adult	Other Calf	Total Other
0	0	0	0	0	0	1	0		

Comments

**PCT: 08:21 F1782 Seal sighted chasing fish under water surface, surfaced and looked. Sight lost when seal traveled behind a pile at work-site. F1783 Seal sighted traveling NW with fish in mouth. LAST SEEN 09:46

Group ID	Fix ID	Fix Time	MM Latitude	MM Longitude	Distance To PCT
393	1782	7/11/2020 8:22:42 AM	61.234167	-149.89432	37.44137
393	1783	7/11/2020 8:36:25 AM	61.235077	-149.898295	205.20633

Group ID 394	Created Date 7/11/2020 12:43:36 PM	Last Update 7/11/2020 4:45:48 PM	Species Common Name Harbor Seal
------------------------	--	--	---

Spread 1	Formation Linear	Combined Group False	Pace Sedate	Primary Behavior Looking	Secondary Behavior Sink
--------------------	----------------------------	--------------------------------	-----------------------	------------------------------------	-----------------------------------

Beluga Counts	White 0	Gray 0	Calf 0	Neonate 0	Unknown 0	Other MM Counts	Other Adult 1	Other Calf 0	Total Other
----------------------	-------------------	------------------	------------------	---------------------	---------------------	------------------------	-------------------------	------------------------	------------------------

Comments

**SC: 12:42 FIX 1786 HS drifting backwards past small boat dock, looking and sinking.

Group ID	Fix ID	Fix Time	MM Latitude	MM Longitude	Distance To PCT
394	1786	7/11/2020 12:43:46 PM	61.225975	-149.907198	1155.92983

Group ID 395	Created Date 7/11/2020 1:08:45 PM	Last Update 7/11/2020 4:43:51 PM	Species Common Name Harbor Seal
------------------------	---	--	---

Spread 1	Formation Linear	Combined Group False	Pace Sedate	Primary Behavior Looking	Secondary Behavior Sink
--------------------	----------------------------	--------------------------------	-----------------------	------------------------------------	-----------------------------------

Beluga Counts	White 0	Gray 0	Calf 0	Neonate 0	Unknown 0	Other MM Counts	Other Adult 1	Other Calf 0	Total Other
----------------------	-------------------	------------------	------------------	---------------------	---------------------	------------------------	-------------------------	------------------------	------------------------

Comments

**PCT: 13:08 F1787 sighted looking and then sunk. LAST SEEN 13:09

Group ID	Fix ID	Fix Time	MM Latitude	MM Longitude	Distance To PCT
395	1787	7/11/2020 1:09:01 PM	61.232101	-149.896626	281.56

Group ID 396	Created Date 7/11/2020 1:22:58 PM	Last Update 7/11/2020 4:46:01 PM	Species Common Name Harbor Seal
------------------------	---	--	---

Spread 1	Formation Linear	Combined Group False	Pace Sedate	Primary Behavior Looking	Secondary Behavior Sink
--------------------	----------------------------	--------------------------------	-----------------------	------------------------------------	-----------------------------------

Beluga Counts	White 0	Gray 0	Calf 0	Neonate 0	Unknown 0	Other MM Counts	Other Adult 1	Other Calf 0	Total Other
----------------------	-------------------	------------------	------------------	---------------------	---------------------	------------------------	-------------------------	------------------------	------------------------

Comments

**SC: 13:20 FIX 1788 Harbor seal, looking and sinking. Last seen 13:20

Group ID	Fix ID	Fix Time	MM Latitude	MM Longitude	Distance To PCT
396	1788	7/11/2020 1:23:13 PM	61.220645	-149.914033	1851.06265

Group ID
Created Date
Last Update
Species Common Name

Spread
Formation
Combined Group
Pace
Primary Behavior
Secondary Behavior

Beluga Counts	White	Gray	Calf	Neonate	Unknown	Other MM Counts	Other Adult	Other Calf	Total Other
<input type="text" value="0"/>	<input type="text" value="1"/>	<input type="text" value="0"/>	<input type="text" value=""/>	<input type="text" value=""/>					

Comments

** NEX: 13:29 Harbor Seal seen travelling in front of our station heading south. Last seen 1724

Group ID	Fix ID	Fix Time	MM Latitude	MM Longitude	Distance To PCT
397	1789	7/11/2020 1:29:48 PM	61.253189	-149.881836	2191.98386
397	1792	7/11/2020 5:12:50 PM	61.255061	-149.88146	2396.26351
397	1795	7/11/2020 5:23:39 PM	61.26318	-149.880367	3282.26481

Group ID	Created Date	Last Update	Species Common Name						
398	7/11/2020 4:23:31 PM	7/11/2020 5:33:51 PM	Harbor Seal						
Spread	Formation	Combined Group	Pace	Primary Behavior	Secondary Behavior				
1	Linear	False	Moderate	Looking	Sink				
Beluga Counts	White	Gray	Calf	Neonate	Unknown	Other MM Counts	Other Adult	Other Calf	Total Other
0	0	0	0	0	0	1	0		

Comments

**SC: FIX 1790 one harbor seal looking and sinking. FIX 1791 seal drifted a bit from last location. Last seen 1658. Fix 1793-1794 Looking, sinking, traveling north along shore. Last seen 1733.

Group ID	Fix ID	Fix Time	MM Latitude	MM Longitude	Distance To PCT
398	1790	7/11/2020 4:24:13 PM	61.219604	-149.937617	2827.96596
398	1791	7/11/2020 4:59:42 PM	61.21625	-149.924615	2579.96642
398	1793	7/11/2020 5:13:55 PM	61.221257	-149.914229	1801.14402
398	1794	7/11/2020 5:21:44 PM	61.226074	-149.914101	1395.03368

Group ID 400	Created Date 7/12/2020 7:04:34 AM	Last Update 7/12/2020 7:39:46 AM	Species Common Name Harbor Seal
------------------------	---	--	---

Spread 1	Formation Linear	Combined Group False	Pace Sedate	Primary Behavior Looking	Secondary Behavior Sink
--------------------	----------------------------	--------------------------------	-----------------------	------------------------------------	-----------------------------------

Beluga Counts	White 0	Gray 0	Calf 0	Neonate 0	Unknown 0	Other MM Counts	Other Adult 1	Other Calf 0	Total Other
----------------------	-------------------	------------------	------------------	---------------------	---------------------	------------------------	-------------------------	------------------------	------------------------

Comments

***PCT 0705 Harbor Seal sighted in front of station. Last seen at 0726

Group ID	Fix ID	Fix Time	MM Latitude	MM Longitude	Distance To PCT
400	1797	7/12/2020 7:04:53 AM	61.232064	-149.899816	382.13499

Group ID 401	Created Date 7/12/2020 7:42:19 AM	Last Update 7/12/2020 5:12:38 PM	Species Common Name Harbor Seal
------------------------	---	--	---

Spread 1	Formation Linear	Combined Group False	Pace Moderate	Primary Behavior Travelling	Secondary Behavior Milling
--------------------	----------------------------	--------------------------------	-------------------------	---------------------------------------	--------------------------------------

Beluga Counts	White 0	Gray 0	Calf 0	Neonate 0	Unknown 0	Other MM Counts	Other Adult 1	Other Calf 0	Total Other
----------------------	-------------------	------------------	------------------	---------------------	---------------------	------------------------	-------------------------	------------------------	------------------------

Comments

***NEX: 0743 FIX 1800 seal traveling north; 0754 seal milling; Last seen 0754.

Group ID	Fix ID	Fix Time	MM Latitude	MM Longitude	Distance To PCT
401	1800	7/12/2020 7:42:26 AM	61.253268	-149.882887	2183.44048

Group ID 402	Created Date 7/12/2020 9:56:11 AM	Last Update 7/12/2020 9:59:03 AM	Species Common Name Harbor Seal
------------------------	---	--	---

Spread 1	Formation Linear	Combined Group False	Pace Moderate	Primary Behavior Milling	Secondary Behavior Feeding Suspected
--------------------	----------------------------	--------------------------------	-------------------------	------------------------------------	--

Beluga Counts	White 0	Gray 0	Calf 0	Neonate 0	Unknown 0	Other MM Counts	Other Adult 1	Other Calf 0	Total Other
----------------------	-------------------	------------------	------------------	---------------------	---------------------	------------------------	-------------------------	------------------------	------------------------

Comments

**PW: FIX 1803 a salmon was seen jumping out of the water and a harbor seal was spotted in the same area. Last seen 0955

Group ID	Fix ID	Fix Time	MM Latitude	MM Longitude	Distance To PCT
402	1803	7/12/2020 9:57:39 AM	61.201867	-149.970275	5428.6771

Group ID
Created Date
Last Update
Species Common Name

Spread
Formation
Combined Group
Pace
Primary Behavior
Secondary Behavior

Beluga Counts	White	Gray	Calf	Neonate	Unknown	Other MM Counts	Other Adult	Other Calf	Total Other
<input type="text" value="0"/>	<input type="text" value="1"/>	<input type="text" value="0"/>	<input type="text" value=""/>	<input type="text" value=""/>					

Comments

SC: 1031 Fix ID 1804 one harbor seal looking and sinking between SC and tug boat dock. Last seen 1114.

Group ID	Fix ID	Fix Time	MM Latitude	MM Longitude	Distance To PCT
403	1804	7/12/2020 10:31:23 AM	61.22482	-149.907764	1279.06255

Group ID
Created Date
Last Update
Species Common Name

Spread
Formation
Combined Group
Pace
Primary Behavior
Secondary Behavior

Beluga Counts	White	Gray	Calf	Neonate	Unknown	Other MM Counts	Other Adult	Other Calf	Total Other
<input type="text" value="0"/>	<input type="text" value="1"/>	<input type="text" value="0"/>	<input type="text" value=""/>	<input type="text" value=""/>					

Comments

***NEX: 1209-1336 FIX 1805-1806 One harbor seal, milling near the wet barge birth. Last seen 1344.

Group ID	Fix ID	Fix Time	MM Latitude	MM Longitude	Distance To PCT
404	1805	7/12/2020 12:11:35 PM	61.25115	-149.882628	1963.7994
404	1806	7/12/2020 1:35:42 PM	61.252865	-149.881418	2165.03844

Group ID 406	Created Date 7/12/2020 1:58:36 PM	Last Update 7/12/2020 2:19:46 PM	Species Common Name Harbor Seal
------------------------	---	--	---

Spread 1	Formation Linear	Combined Group False	Pace Sedate	Primary Behavior Looking	Secondary Behavior Sink
--------------------	----------------------------	--------------------------------	-----------------------	------------------------------------	-----------------------------------

Beluga Counts	White 0	Gray 0	Calf 0	Neonate 0	Unknown 0	Other MM Counts	Other Adult 1	Other Calf 0	Total Other
----------------------	-------------------	------------------	------------------	---------------------	---------------------	------------------------	-------------------------	------------------------	------------------------

Comments

SC: 1358 Fix ID 1807 one seal looking and sinking to left along tug boat dock. Last seen 1402.

Group ID	Fix ID	Fix Time	MM Latitude	MM Longitude	Distance To PCT
406	1807	7/12/2020 1:58:53 PM	61.224191	-149.908239	1351.57913

Group ID 407	Created Date 7/12/2020 3:49:36 PM	Last Update 7/12/2020 5:13:11 PM	Species Common Name Harbor Seal
------------------------	---	--	---

Spread 1	Formation Linear	Combined Group False	Pace Sedate	Primary Behavior Travelling	Secondary Behavior None
--------------------	----------------------------	--------------------------------	-----------------------	---------------------------------------	-----------------------------------

Beluga Counts	White 0	Gray 0	Calf 0	Neonate 0	Unknown 0	Other MM Counts	Other Adult 1	Other Calf 0	Total Other
----------------------	-------------------	------------------	------------------	---------------------	---------------------	------------------------	-------------------------	------------------------	------------------------

Comments

NEX: 1547 Fix ID 1808 Harbor Seal traveling south with tide. Last seen 1547.

Group ID	Fix ID	Fix Time	MM Latitude	MM Longitude	Distance To PCT
407	1808	7/12/2020 3:52:39 PM	61.278254	-149.91165	4950.62173

Group ID	Created Date	Last Update	Species Common Name						
408	7/12/2020 4:07:30 PM	7/12/2020 5:14:30 PM	Beluga						
Spread	Formation	Combined Group	Pace	Primary Behavior	Secondary Behavior				
1	Linear	False	Moderate	Travelling	None				
Beluga Counts	White	Gray	Calf	Neonate	Unknown	Other MM Counts	Other Adult	Other Calf	Total Other
1	0	0	0	0	0	0	0	0	

Comments

NEX: 1607 FIX 1809-1810, 1 white beluga traveling north along shoreline past NEX. 1615 FIX 1811 Beluga now traveling south along NEX shoreline, no change in pace. 1626 FIX 1812 beluga milling between NEX and Wet Barge Berth. 1638 FIX 1813 traveling north. Last seen 1638.

Group ID	Fix ID	Fix Time	MM Latitude	MM Longitude	Distance To PCT
408	1809	7/12/2020 4:09:12 PM	61.254848	-149.881114	2379.23153
408	1810	7/12/2020 4:10:39 PM	61.258362	-149.880236	2766.41716
408	1811	7/12/2020 4:16:21 PM	61.253888	-149.881446	2272.28033
408	1812	7/12/2020 4:27:05 PM	61.252009	-149.882113	2063.00445
408	1813	7/12/2020 4:38:26 PM	61.260398	-149.880784	2976.88384

**2020 POA PCT
Marine Mammal Sightings
Overview
07/06/20 - 07/12/20**

▲ PSO Station

Marine Mammal Groups

- ◆ Group 370 Beluga
- Group 372 Harbor Seal
- Group 373 Harbor Seal
- Group 375 Harbor Seal
- Group 376 Harbor Seal
- Group 377 Harbor Seal
- Group 379 Harbor Seal
- Group 380 Harbor Seal
- ◆ Group 381 Beluga
- Group 382 Harbor Seal
- Group 383 Harbor Seal
- Group 384 Harbor Seal
- Group 386 Harbor Seal
- Group 389 Harbor Seal
- Group 390 Harbor Seal
- Group 392 Harbor Seal
- Group 393 Harbor Seal
- Group 394 Harbor Seal
- Group 395 Harbor Seal
- Group 396 Harbor Seal
- Group 397 Harbor Seal
- Group 398 Harbor Seal
- Group 400 Harbor Seal
- Group 401 Harbor Seal
- Group 402 Harbor Seal
- Group 403 Harbor Seal
- Group 404 Harbor Seal
- Group 406 Harbor Seal
- Group 407 Harbor Seal
- ◆ Group 408 Beluga

0 1 2 km



61 | N

61 North Environmental



Map Imagery Source:
Google Earth, 2020



**2020 POA PCT
Beluga Sightings
07/06/20 - 07/12/20
Figure 1**

▲ PSO Station

Beluga Track Lines

- Group 370
- Group 381
- Group 408



61 | N
61 North Environmental



Map Imagery Source:
Google Earth, 2020



Appendix E – Week of 7/13 – 7/19 Sighting Forms and Maps

MM Group Report

Group ID
Created Date
Last Update
Species Common Name

Spread
Formation
Combined Group
Pace
Primary Behavior
Secondary Behavior

Beluga Counts	White	Gray	Calf	Neonate	Unknown	Other MM Counts	Other Adult	Other Calf	Total Other
<input type="text" value="1"/>	<input type="text" value="0"/>	<input type="text" value=""/>							

Comments

** NEX FIX 1818 One white beluga seen heading North. Last Seen 1008

Group ID	Fix ID	Fix Time	MM Latitude	MM Longitude	Distance To PCT
410	1818	7/13/2020 10:06:30 AM	61.255922	-149.881819	2482.45558

Group ID	Created Date	Last Update	Species Common Name						
411	7/13/2020 1:23:36 PM	7/13/2020 3:52:21 PM	Beluga						
Spread	Formation	Combined Group	Pace	Primary Behavior	Secondary Behavior				
1	Linear	False	Moderate	Travelling	None				
Beluga Counts	White	Gray	Calf	Neonate	Unknown	Other MM Counts	Other Adult	Other Calf	Total Other
1	0	0	0	0	0	0	0	0	

Comments

NEX: 1324 Fix ID 1819-1822 one white beluga traveling south along near shore; individual milled around the Corner and has now changed direction and is heading north; 1334 Fix ID 1823 individual is heading north along near shore; 1339 Individual has once more changed direction and is now slowly headed south; 1345 Fix ID 1824 individual continues to move south; Last time seen: 1345. **SC: 14:11 F1825-F1827 1 white sighted at the mouth of Ship Creek travelling SW along the nearshore. **PW Took over for SC. F1828-1831 1 white beluga observed travelling W along near shore directly in front of PW station and out toward middle of inlet and toward inbound line. LAST SEEN 1527.

Group ID	Fix ID	Fix Time	MM Latitude	MM Longitude	Distance To PCT
411	1819	7/13/2020 1:23:48 PM	61.25472	-149.881481	2359.74888
411	1820	7/13/2020 1:24:18 PM	61.253205	-149.882323	2185.66282
411	1821	7/13/2020 1:25:39 PM	61.251287	-149.883285	1967.02551
411	1822	7/13/2020 1:29:16 PM	61.247895	-149.887175	1546.35935
411	1823	7/13/2020 1:34:48 PM	61.252354	-149.882281	2096.42954
411	1824	7/13/2020 1:45:26 PM	61.246432	-149.887003	1392.68627
411	1825	7/13/2020 2:12:51 PM	61.228021	-149.902749	835.11056
411	1826	7/13/2020 2:20:15 PM	61.220888	-149.912707	1789.55108
411	1827	7/13/2020 2:23:42 PM	61.221046	-149.912804	1777.60746
411	1828	7/13/2020 3:15:24 PM	61.201005	-149.98339	6028.43896
411	1829	7/13/2020 3:18:36 PM	61.200771	-149.991005	6369.42516
411	1830	7/13/2020 3:19:49 PM	61.200839	-149.992655	6436.66891
411	1831	7/13/2020 3:24:27 PM	61.206047	-150.000627	6487.69554

Group ID
Created Date
Last Update
Species Common Name

Spread
Formation
Combined Group
Pace
Primary Behavior
Secondary Behavior

Beluga Counts	White	Gray	Calf	Neonate	Unknown	Other MM Counts	Other Adult	Other Calf	Total Other
<input type="text" value="0"/>	<input type="text" value="1"/>	<input type="text" value="0"/>	<input type="text" value=""/>	<input type="text" value=""/>					

Comments

PCT** 0713 FIX 1835-1836 Spotted looking and sinking; headed towards Ship Creek; 0720 heading back towards PCT; Last Seen 0720

Group ID	Fix ID	Fix Time	MM Latitude	MM Longitude	Distance To PCT
413	1835	7/14/2020 7:13:20 AM	61.232017	-149.900111	397.16852
413	1836	7/14/2020 7:14:57 AM	61.231237	-149.899696	447.0299

Group ID 414	Created Date 7/14/2020 7:48:42 AM	Last Update 7/14/2020 8:13:24 AM	Species Common Name Harbor Seal
------------------------	---	--	---

Spread 1	Formation Linear	Combined Group False	Pace Sedate	Primary Behavior Travelling	Secondary Behavior Sink
--------------------	----------------------------	--------------------------------	-----------------------	---------------------------------------	-----------------------------------

Beluga Counts	White 0	Gray 0	Calf 0	Neonate 0	Unknown 0	Other MM Counts	Other Adult 1	Other Calf 0	Total Other
----------------------	-------------------	------------------	------------------	---------------------	---------------------	------------------------	-------------------------	------------------------	------------------------

Comments

NEX: 0749 Fix ID 1839 one seal looking and sinking in front of NEX, moving north. Last seen 0750.

Group ID	Fix ID	Fix Time	MM Latitude	MM Longitude	Distance To PCT
414	1839	7/14/2020 7:49:32 AM	61.253675	-149.883197	0

Group ID	Created Date	Last Update	Species Common Name			
415	7/14/2020 8:25:57 AM	7/14/2020 10:10:56 AM	Beluga			
Spread	Formation	Combined Group	Pace	Primary Behavior	Secondary Behavior	
>10	Linear	False	Moderate	Travelling	None	
Beluga Counts	White	Gray	Calf	Neonate	Unknown	Other MM Counts
5	0	0	0	0	0	0
						Other Adult
						0
						Other Calf
						0
						Total Other

Comments

**PW: 08:20 disturbances in water were seen rippling in front of PW station. FIX 1840 confirmed 3 white beluga travelling NE towards SC station along shoreline.
 **SC: 08:35 F1842 AND F1844 1 white travelling NE nearshore. F1846 1 white surfaced once near tugdock S of station. LAST SEEN 08:48

Group ID	Fix ID	Fix Time	MM Latitude	MM Longitude	Distance To PCT
415	1840	7/14/2020 8:26:46 AM	61.207074	-149.947703	4178.30923
415	1841	7/14/2020 8:31:21 AM	61.21243	-149.933523	3229.21161
415	1842	7/14/2020 8:39:26 AM	61.220297	-149.916373	1973.72241
415	1844	7/14/2020 8:44:01 AM	61.223282	-149.910848	1513.0232
415	1846	7/14/2020 8:48:13 AM	61.224152	-149.909727	1399.43425

Group ID	Created Date	Last Update	Species Common Name			
416	7/14/2020 8:39:21 AM	7/14/2020 4:42:18 PM	Beluga			
Spread	Formation	Combined Group	Pace	Primary Behavior	Secondary Behavior	
>10	Linear	False	Moderate	Travelling	Feeding Suspected	
Beluga Counts	White	Gray	Calf	Neonate	Unknown	Other MM Counts
7	0	0	0	0	0	0
						Other Adult
						0
						Other Calf
						0
						Total Other

Comments

(***PCT: requested split group based on beluga whales remaining closer to PW and only one beluga from group 415 proceeding to be in view of SC) **PW 0839 beluga spotted in front of PW station. FIX 1843, 1845, 1847 whales travelling NE along shoreline. Fix 1848 Trailing beluga in front of station. 0932 Belugas milling in front of station. Consensus between PSO's at PW was that apprx. 10-15 beluga were observed between MMG's 415-416. Further corroborating these numbers were the linear/travelling nature of the disturbances occuring 10-20 meters off of the near shore, extending from the PW station to apprx 4000 meters NE and toward the POA. Multiple disturbances (4-5) were often concurrent with one another during these sightings. From 0915-0943, multiple surface disturbances observed centralized in bootleggers cove. Feeding suspected. Many of these disturbances were breaching fish with the last confirmed beluga sighting at 0943 in front of PW station. Called both the field lead (PCT) and station lead at SC at 1008 and 0954 respectively to discuss observations and to establish the last seen time for beluga. Last seen 0943.

Group ID	Fix ID	Fix Time	MM Latitude	MM Longitude	Distance To PCT
416	1843	7/14/2020 8:40:35 AM	61.201504	-149.992534	6406.04154
416	1845	7/14/2020 8:48:10 AM	61.201921	-149.977882	5734.52177
416	1847	7/14/2020 8:52:11 AM	61.20171	-149.983159	5970.6086
416	1848	7/14/2020 9:05:23 AM	61.20144	-149.989297	6251.76062

Group ID	Created Date	Last Update	Species Common Name						
418	7/15/2020 7:19:34 AM	7/15/2020 10:34:28 AM	Beluga						
Spread	Formation	Combined Group	Pace	Primary Behavior	Secondary Behavior				
1	Linear	False	Sedate	Milling	Travelling				
Beluga Counts	White	Gray	Calf	Neonate	Unknown	Other MM Counts	Other Adult	Other Calf	Total Other
1	0	0	0	0	0	0	0	0	

Comments

**PCT: 07:01 F1849 SC called in 1 white milling nearshore approx. 1000 m SW of NEX station. 07:34 Hand-off to SC. **NEX: generator working again; 07:34-07:54 FIX 1850-1853- whale continues to mill. 08:01 FIX 1855- traveling northeast along shore. LAST SEEN 08:02

Group ID	Fix ID	Fix Time	MM Latitude	MM Longitude	Distance To PCT
418	1849	7/15/2020 7:24:40 AM	61.246094	-149.887088	1375.61196
418	1850	7/15/2020 7:34:14 AM	61.253817	-149.881157	2269.65838
418	1853	7/15/2020 7:54:08 AM	61.252613	-149.88192	0
418	1855	7/15/2020 8:01:04 AM	61.260665	-149.87949	3023.45979

Group ID	Created Date	Last Update	Species Common Name						
421	7/16/2020 7:58:33 AM	7/16/2020 2:13:52 PM	Beluga						
Spread	Formation	Combined Group	Pace	Primary Behavior	Secondary Behavior				
1	Linear	False	Sedate	Travelling	Travelling				
Beluga Counts	White	Gray	Calf	Neonate	Unknown	Other MM Counts	Other Adult	Other Calf	Total Other
1	0	0	0	0	0	0	0	0	

Comments

**NEX: 07:59-08:09 Fix 1860-1862 One white beluga spotted by Cairn Point traveling south, bubbling observed; 08:12-08:59 Fix 1863-1872 milling; **PCT: takes over from NEX; 09:25 F1873-F1876 1 small white beluga surfaced directly in front of PCT station. Travelling SW along near shore; 09:46 hand off to SC; **SC: takes over, 09:55 F1877-1888 spotted in mouth of ship creek milling; **PCT: 11:25 Take over from SC; F1889-F1891 1 beluga surfaced SW of PCT station, travelling NE along near shore; LAST SEEN By PCT 11:25; 11:47 NEX called and has eyes on beluga; 11:48 pass off to NEX; **NEX: 11:47-12:00 F1892-F1898 whale traveling north nearshore; LAST SEEN: 12:00

Group ID	Fix ID	Fix Time	MM Latitude	MM Longitude	Distance To PCT
421	1860	7/16/2020 7:59:29 AM	61.256383	-149.880806	2555.73592
421	1861	7/16/2020 8:04:46 AM	61.255383	-149.881188	2443.51309
421	1862	7/16/2020 8:09:26 AM	61.252285	-149.882323	2097.17615
421	1863	7/16/2020 8:12:35 AM	61.252235	-149.882013	2097.20392
421	1864	7/16/2020 8:16:12 AM	61.251862	-149.88205	2057.37637
421	1865	7/16/2020 8:18:30 AM	61.251736	-149.88211	2043.09981
421	1866	7/16/2020 8:27:10 AM	61.25192	-149.882167	2061.42344
421	1867	7/16/2020 8:35:30 AM	61.252004	-149.882087	2071.64063
421	1868	7/16/2020 8:40:22 AM	61.253336	-149.881604	2220.12164
421	1869	7/16/2020 8:40:55 AM	61.253665	-149.88139	2258.42133
421	1871	7/16/2020 8:49:27 AM	61.252406	-149.882157	2112.7381
421	1872	7/16/2020 8:56:52 AM	61.252058	-149.882074	2077.5409
421	1873	7/16/2020 9:26:35 AM	61.232652	-149.896764	221.11571
421	1874	7/16/2020 9:27:20 AM	61.232453	-149.897091	249.04287

Group ID	Created Date	Last Update	Species Common Name
421	7/16/2020 7:58:33 AM	7/16/2020 2:13:52 PM	Beluga

Spread	Formation	Combined Group	Pace	Primary Behavior	Secondary Behavior
1	Linear	False	Sedate	Travelling	Travelling

Beluga Counts	White	Gray	Calf	Neonate	Unknown	Other MM Counts	Other Adult	Other Calf	Total Other
1	0	0	0	0	0	0	0		

Comments

**NEX: 07:59-08:09 Fix 1860-1862 One white beluga spotted by Cairn Point traveling south, bubbling observed; 08:12-08:59 Fix 1863-1872 milling; **PCT: takes over from NEX; 09:25 F1873-F1876 1 small white beluga surfaced directly in front of PCT station. Travelling SW along near shore; 09:46 hand off to SC; **SC: takes over, 09:55 F1877-1888 spotted in mouth of ship creek milling; **PCT: 11:25 Take over from SC; F1889-F1891 1 beluga surfaced SW of PCT station, travelling NE along near shore; LAST SEEN By PCT 11:25; 11:47 NEX called and has eyes on beluga; 11:48 pass off to NEX; **NEX: 11:47-12:00 F1892-F1898 whale traveling north nearshore; LAST SEEN: 12:00

421	1875	7/16/2020 9:28:33 AM	61.231738	-149.898829	367.03731
421	1876	7/16/2020 9:33:42 AM	61.22866	-149.904558	825.50391
421	1877	7/16/2020 9:47:53 AM	61.227245	-149.904396	947.01874
421	1878	7/16/2020 10:16:25 AM	61.2267	-149.902274	944.25996
421	1879	7/16/2020 10:19:44 AM	61.226598	-149.902535	960.51928
421	1880	7/16/2020 10:23:28 AM	61.226558	-149.902498	963.66214
421	1881	7/16/2020 10:27:18 AM	61.227006	-149.901826	903.29209
421	1882	7/16/2020 10:34:26 AM	61.226939	-149.901657	906.29747
421	1883	7/16/2020 10:40:02 AM	61.226948	-149.901633	904.85876
421	1884	7/16/2020 10:47:16 AM	61.227039	-149.901747	898.18728
421	1885	7/16/2020 10:52:15 AM	61.226923	-149.901524	905.02586
421	1886	7/16/2020 11:04:52 AM	61.226934	-149.901494	903.26064
421	1887	7/16/2020 11:10:12 AM	61.227039	-149.906152	1019.7504
421	1888	7/16/2020 11:16:25 AM	61.226499	-149.907141	1099.51658
421	1889	7/16/2020 11:24:52 AM	61.230751	-149.90735	787.44358

Group ID	Created Date	Last Update	Species Common Name
421	7/16/2020 7:58:33 AM	7/16/2020 2:13:52 PM	Beluga

Spread	Formation	Combined Group	Pace	Primary Behavior	Secondary Behavior
1	Linear	False	Sedate	Travelling	Travelling

Beluga Counts	White	Gray	Calf	Neonate	Unknown	Other MM Counts	Other Adult	Other Calf	Total Other
1	0	0	0	0	0	0	0		

Comments

**NEX: 07:59-08:09 Fix 1860-1862 One white beluga spotted by Cairn Point traveling south, bubbling observed; 08:12-08:59 Fix 1863-1872 milling; **PCT: takes over from NEX; 09:25 F1873-F1876 1 small white beluga surfaced directly in front of PCT station. Travelling SW along near shore; 09:46 hand off to SC; **SC: takes over, 09:55 F1877-1888 spotted in mouth of ship creek milling; **PCT: 11:25 Take over from SC; F1889-F1891 1 beluga surfaced SW of PCT station, travelling NE along near shore; LAST SEEN By PCT 11:25; 11:47 NEX called and has eyes on beluga; 11:48 pass off to NEX; **NEX: 11:47-12:00 F1892-F1898 whale traveling north nearshore; LAST SEEN: 12:00

421	1890	7/16/2020 11:25:39 AM	61.232843	-149.897353	221.74297
421	1891	7/16/2020 11:25:57 AM	61.232841	-149.896423	193.88248
421	1892	7/16/2020 11:46:56 AM	61.253138	-149.882204	2189.25685
421	1893	7/16/2020 11:47:34 AM	61.253672	-149.881976	2249.49236
421	1894	7/16/2020 11:49:23 AM	61.255832	-149.882434	2472.73469
421	1895	7/16/2020 11:52:34 AM	61.258329	-149.88167	2751.30598
421	1896	7/16/2020 11:56:49 AM	61.260444	-149.881341	2983.42068
421	1897	7/16/2020 11:58:06 AM	61.263532	-149.880251	3330.62132
421	1898	7/16/2020 12:00:10 PM	61.270302	-149.879095	4078.31726

Group ID
Created Date
Last Update
Species Common Name

Spread
Formation
Combined Group
Pace
Primary Behavior
Secondary Behavior

Beluga Counts	White	Gray	Calf	Neonate	Unknown	Other MM Counts	Other Adult	Other Calf	Total Other
<input type="text" value="0"/>	<input type="text" value="1"/>	<input type="text" value="0"/>	<input type="text" value=""/>	<input type="text" value=""/>					

Comments

***NEX: 12:05 - 12:51 Fix 1899 - 1900 Harbor seal observed looking and sinking. Last seen: 12:51

Group ID	Fix ID	Fix Time	MM Latitude	MM Longitude	Distance To PCT
422	1899	7/16/2020 12:05:55 PM	61.261631	-149.880113	3127.35655
422	1900	7/16/2020 12:50:44 PM	61.261279	-149.879467	3098.38568

Group ID 424	Created Date 7/17/2020 11:07:36 AM	Last Update 7/17/2020 11:09:58 AM	Species Common Name Harbor Seal
------------------------	--	---	---

Spread 1	Formation Linear	Combined Group False	Pace Sedate	Primary Behavior Looking	Secondary Behavior Sink
--------------------	----------------------------	--------------------------------	-----------------------	------------------------------------	-----------------------------------

Beluga Counts	White 0	Gray 0	Calf 0	Neonate 0	Unknown 0	Other MM Counts	Other Adult 1	Other Calf 0	Total Other
----------------------	-------------------	------------------	------------------	---------------------	---------------------	------------------------	-------------------------	------------------------	------------------------

Comments

**NEX: 11:07 F1907 looking and sunk; LAST SEEN 11:07

Group ID	Fix ID	Fix Time	MM Latitude	MM Longitude	Distance To PCT
424	1907	7/17/2020 11:08:32 AM	61.254717	-149.882322	2355.17581

Group ID	Created Date	Last Update	Species Common Name						
425	7/17/2020 11:43:27 AM	7/17/2020 1:38:59 PM	Harbor Seal						
Spread	Formation	Combined Group	Pace	Primary Behavior	Secondary Behavior				
1	Linear	False	Moderate	Looking	Sink				
Beluga Counts	White	Gray	Calf	Neonate	Unknown	Other MM Counts	Other Adult	Other Calf	Total Other
0	0	0	0	0	0	1	0		

Comments

**PCT 1143 FIX 1908 Head surfaced, looked around for several moments and then sunk. 1145 FIX 1909-1910 traveling towards Ship Creek. **SC: 1204 FIX 1911 milling near mouth of Ship Creek; 1214-1338 FIX 1912 seal looking, sinking, milling nearshore; Last seen 1338

Group ID	Fix ID	Fix Time	MM Latitude	MM Longitude	Distance To PCT
425	1908	7/17/2020 11:43:37 AM	61.235459	-149.897558	194.70532
425	1909	7/17/2020 11:45:33 AM	61.233338	-149.900691	340.64005
425	1910	7/17/2020 11:48:28 AM	61.231392	-149.900663	460.10308
425	1911	7/17/2020 12:04:09 PM	61.226676	-149.906842	1074.18074
425	1912	7/17/2020 1:22:24 PM	61.218169	-149.919379	2232.93195

Group ID
Created Date
Last Update
Species Common Name

Spread
Formation
Combined Group
Pace
Primary Behavior
Secondary Behavior

Beluga Counts	White	Gray	Calf	Neonate	Unknown	Other MM Counts	Other Adult	Other Calf	Total Other
<input type="text" value="0"/>	<input type="text" value="1"/>	<input type="text" value="0"/>	<input type="text" value=""/>	<input type="text" value=""/>					

Comments

***SC: 1537 fix 1913 looking and sinking near mouth of Ship Creek. 1544 Fix 1914 travelling into Ship Creek. Last seen 1544

Group ID	Fix ID	Fix Time	MM Latitude	MM Longitude	Distance To PCT
426	1913	7/17/2020 3:37:03 PM	61.227557	-149.903858	902.26587
426	1914	7/17/2020 3:44:02 PM	61.226957	-149.903273	943.33641

Group ID 428	Created Date 7/18/2020 1:17:45 PM	Last Update 7/18/2020 2:07:35 PM	Species Common Name Harbor Seal
------------------------	---	--	---

Spread 1	Formation Linear	Combined Group False	Pace Sedate	Primary Behavior Milling	Secondary Behavior Looking
--------------------	----------------------------	--------------------------------	-----------------------	------------------------------------	--------------------------------------

Beluga Counts	White 0	Gray 0	Calf 0	Neonate 0	Unknown 0	Other MM Counts	Other Adult 2	Other Calf 0	Total Other
----------------------	-------------------	------------------	------------------	---------------------	---------------------	------------------------	-------------------------	------------------------	------------------------

Comments

***SC: spotted 2 harbor seals near mouth of Ship Creek. 1318 FIX 1919 both seals miling, looking, and sinking. Last seen 1407

Group ID	Fix ID	Fix Time	MM Latitude	MM Longitude	Distance To PCT
428	1919	7/18/2020 1:18:01 PM	61.227544	-149.907227	1012.56487

Group ID
Created Date
Last Update
Species Common Name

Spread
Formation
Combined Group
Pace
Primary Behavior
Secondary Behavior

Beluga Counts	White	Gray	Calf	Neonate	Unknown	Other MM Counts	Other Adult	Other Calf	Total Other
<input type="text" value="0"/>	<input type="text" value="1"/>	<input type="text" value="0"/>	<input type="text" value=""/>	<input type="text" value=""/>					

Comments

***SC: Fix 1920 harbor seal spotted near mouth of Ship Creek with fish in mouth. Fix 1921 near tugs. Last seen 1703

Group ID	Fix ID	Fix Time	MM Latitude	MM Longitude	Distance To PCT
429	1920	7/18/2020 4:07:05 PM	61.22855	-149.905657	873.25709
429	1921	7/18/2020 4:22:50 PM	61.225119	-149.909608	1301.50855

Group ID 430	Created Date 7/18/2020 4:25:03 PM	Last Update 7/18/2020 4:26:29 PM	Species Common Name Harbor Seal
------------------------	---	--	---

Spread 1	Formation Linear	Combined Group False	Pace Sedate	Primary Behavior Looking	Secondary Behavior Sink
--------------------	----------------------------	--------------------------------	-----------------------	------------------------------------	-----------------------------------

Beluga Counts	White 0	Gray 0	Calf 0	Neonate 0	Unknown 0	Other MM Counts	Other Adult 1	Other Calf 0	Total Other
----------------------	-------------------	------------------	------------------	---------------------	---------------------	------------------------	-------------------------	------------------------	------------------------

Comments

**NEX Fix 1922 Seal seen looking and sinking

Group ID	Fix ID	Fix Time	MM Latitude	MM Longitude	Distance To PCT
430	1922	7/18/2020 4:25:16 PM	61.254292	-149.882876	2301.58388

**2020 POA PCT
Marine Mammal Sightings
Overview
07/13/20 - 07/19/20**

▲ PSO Station

Marine Mammal Groups

- ◆ Group 410 Beluga
- ◆ Group 411 Beluga
- Group 413 Harbor Seal
- Group 414 Harbor Seal
- ◆ Group 415 Beluga
- ◆ Group 416 Beluga
- ◆ Group 418 Beluga
- ◆ Group 421 Beluga
- Group 422 Harbor Seal
- Group 424 Harbor Seal
- Group 425 Harbor Seal
- Group 426 Harbor Seal
- Group 428 Harbor Seal
- Group 429 Harbor Seal
- Group 430 Harbor Seal

0 0.75 1.5 km



61 | N
61 North Environmental



Map Imagery Source:
Google Earth, 2020



**2020 POA PCT
Beluga Sightings
07/13/20 - 07/19/20
Figure 1**

▲ PSO Station

Beluga Track Lines

→ Group 410

→ Group 418

→ Group 421



61 | N
61 North Environmental



Map Imagery Source:
Google Earth, 2020



**2020 POA PCT
Beluga Sightings
07/13/20 - 07/19/20
Figure 2**

▲ PSO Station

Beluga Track Lines

- Group 411
- Group 415
- Group 416

0 0.5 1 km

61 | N
61 North Environmental



Map Imagery Source:
Google Earth, 2020



Appendix F – Week of 7/20 – 7/26 Sighting Forms and Maps

MM Group Report

Group ID 432	Created Date 7/20/2020 7:29:05 AM	Last Update 7/20/2020 7:30:33 AM	Species Common Name Harbor Seal
------------------------	---	--	---

Spread 1	Formation Linear	Combined Group False	Pace Sedate	Primary Behavior Looking	Secondary Behavior Diving
--------------------	----------------------------	--------------------------------	-----------------------	------------------------------------	-------------------------------------

Beluga Counts	White 0	Gray 0	Calf 0	Neonate 0	Unknown 0	Other MM Counts	Other Adult 1	Other Calf 0	Total Other
----------------------	-------------------	------------------	------------------	---------------------	---------------------	------------------------	-------------------------	------------------------	------------------------

Comments

** PW Fix 1925 Harbor Seal looking and diving. Last Seen 0729

Group ID	Fix ID	Fix Time	MM Latitude	MM Longitude	Distance To PCT
432	1925	7/20/2020 7:29:16 AM	61.200637	-149.992329	6429.69169

Group ID
Created Date
Last Update
Species Common Name

Spread
Formation
Combined Group
Pace
Primary Behavior
Secondary Behavior

Beluga Counts	White	Gray	Calf	Neonate	Unknown	Other MM Counts	Other Adult	Other Calf	Total Other
<input type="text" value="0"/>	<input type="text" value="1"/>	<input type="text" value="0"/>	<input type="text" value=""/>	<input type="text" value=""/>					

Comments

NEX: 1650 HS looked and sank; Fix 1927-1928 Milling. Last seen: 1655

Group ID	Fix ID	Fix Time	MM Latitude	MM Longitude	Distance To PCT
433	1927	7/20/2020 4:50:43 PM	61.254819	-149.883093	2354.86507
433	1928	7/20/2020 4:52:14 PM	61.255745	-149.8809	2486.49193

Group ID
Created Date
Last Update
Species Common Name

Spread
Formation
Combined Group
Pace
Primary Behavior
Secondary Behavior

Beluga Counts	White	Gray	Calf	Neonate	Unknown	Other MM Counts	Other Adult	Other Calf	Total Other
<input type="text" value="0"/>	<input type="text" value="1"/>	<input type="text" value="0"/>	<input type="text" value=""/>	<input type="text" value=""/>					

Comments

** PW FIX 1932-34 HS seen travelling. Last seen 0751.

Group ID	Fix ID	Fix Time	MM Latitude	MM Longitude	Distance To PCT
435	1932	7/21/2020 7:32:44 AM	61.210034	-149.963944	4586.75365
435	1933	7/21/2020 7:39:28 AM	61.211274	-149.976538	5075.07605
435	1934	7/21/2020 7:51:38 AM	61.211797	-149.998031	6070.41134

Group ID 436	Created Date 7/21/2020 5:08:20 PM	Last Update 7/21/2020 5:16:23 PM	Species Common Name Beluga
------------------------	---	--	--------------------------------------

Spread 1	Formation Linear	Combined Group False	Pace Moderate	Primary Behavior Travelling	Secondary Behavior Milling
--------------------	----------------------------	--------------------------------	-------------------------	---------------------------------------	--------------------------------------

Beluga Counts	White 1	Gray 0	Calf 0	Neonate 0	Unknown 0	Other MM Counts	Other Adult 0	Other Calf 0	Total Other
----------------------	-------------------	------------------	------------------	---------------------	---------------------	------------------------	-------------------------	------------------------	------------------------

Comments

***SC: 1706 one white beluga traveling East. Estimated location is 3,600 meters West of SC station. Last seen 1715 still in the area. Fix 1935 bad fix (ATL post-processed: edited lat/long of fix 1935 to 61.225063 -149.973489 to position it approximately 3600 meter due west of SC station per comment for map/figure creation)

Group ID	Fix ID	Fix Time	MM Latitude	MM Longitude	Distance To PCT
436	1935	7/21/2020 5:13:23 PM	61.225063	-149.973489	1247.21316

**2020 POA PCT
Marine Mammal Sightings
Overview
07/20/20 - 07/26/20**

▲ PSO Station

Marine Mammal Groups

- Group 432 Harbor Seal
- Group 433 Harbor Seal
- Group 435 Harbor Seal
- ◆ Group 436 Beluga



61 | N
61 North Environmental



Map Imagery Source:
Google Earth, 2020



**2020 POA PCT
Beluga Sightings
07/20/20 - 07/26/20
Figure 1**

▲ PSO Station

Beluga Track Lines

→ Group 436



61 | N
61 North Environmental



Map Imagery Source:
Google Earth, 2020

Appendix G – 7/27 – 7/31 Sighting Forms and Maps

Group ID	Created Date	Last Update	Species Common Name						
438	7/31/2020 2:43:10 PM	7/31/2020 4:04:24 PM	Harbor Seal						
Spread	Formation	Combined Group	Pace	Primary Behavior	Secondary Behavior				
1	Linear	False	Moderate	Looking	Sink				
Beluga Counts	White	Gray	Calf	Neonate	Unknown	Other MM Counts	Other Adult	Other Calf	Total Other
0	0	0	0	0	0	1	0		

Comments

PW: 1442 HS Look/sink; Fix 1942; Hand off to SC @1943 **SC: 1455 Fix 1943 Harbor seal spotted travelling in front of SC station; 1506 Fix 1945 Harbor seal looking and sinking at ship creek mouth; Last seen 1503

Group ID	Fix ID	Fix Time	MM Latitude	MM Longitude	Distance To PCT
438	1942	7/31/2020 2:43:16 PM	61.220518	-149.950897	3382.17988
438	1943	7/31/2020 2:54:18 PM	61.22628	-149.912733	1325.66182
438	1945	7/31/2020 3:06:01 PM	61.227249	-149.904042	944.4054

**2020 POA PCT
Marine Mammal Sightings
Overview
07/27/20 - 07/31/20**

- ▲ PSO Station
- Marine Mammal Groups**
- Group 438 Harbor Seal



61 | N
61 North Environmental



Map Imagery Source:
Google Earth, 2020



Appendix H – Data Field Information for Sighting Reports

**Port of Alaska, PCT Construction 2020
Marine Mammal Monitoring
Data Field Information for Sighting Reports**

Marine Mammal Group Sighting - Parent Record Information	
Group ID	The marine mammal group identification number generated by the database upon entry. Note: The marine mammal sighting form is used test the theodolites each morning to ensure they are functioning properly. The database assigns a Group ID number to the test record , therefore some group ID numbers are missing from the sequence of marine mammal group sightings.
Created Date	The date and time the parent record of the marine mammal sighting was first created.
Last Update	The date and time any field within the parent record of the marine mammal sighting was last edited.
Species Common Name	The common name of the marine mammal sighted, selected from the list: Beluga, Harbor Seal, Harbor Porpoise, Steller Sea Lion, Pinniped Unid., Humpback Whale, Gray Whale, Fin Whale, Minke Whale, Dall's Porpoise, Cetacean Unid., Mysticetes Unid., Unknown.
Spread	The spread of the whales is defined as the mean distance between beluga whales in body lengths (e.g., a spread of 2 indicates that the whales are spaced out, on average, 2 body lengths apart). One selection is made from a dropdown for each sighting from 1 - 10, or >10. Additional notes on spread may be located in the Comments field.
Formation	The formation of the group references how the individual marine mammals are distributed within the group. The formation code that best reflects the distribution pattern of the group is entered: Circular (C) – arranged in a circular group while moving in one direction Parallel (P) – alongside each other, spread perpendicular to direction of movement Linear (L) – forming a line, spread along direction of movement Echelon (E) – Arranged diagonally, each marine mammal to the side and behind animal ahead of it; also includes "v" formation No Formation (NF) – Random or un-patterned formation
Combined Group	A field to indicate if the parent record of the sighting is related to another sighting. The default setting is "False" meaning the group did not combine with or split from another group. "True" means the group either combined with or split from another group and the comments of each sighting should be reviewed for behavior.
Pace	Sedate, moderate, or vigorous.
Primary and Secondary Behavior	The primary and secondary behaviors represent the most common and second most common behavior exhibited by the group throughout the sighting. Additional behaviors are presented in the Comments field. Behaviors are selected from a dropdown and include: Unknown, Avoiding Predation, Bubbling, Calving, Diving, Feeding Observed, Feeding Suspected, Mating Suspected, Milling, Other, Resting, Side Scanning, Snorkeling, Socializing, Spyhopping, Startling, Tail Slapping, Tail Waving, Travelling, Vocalizing, Multiple-see comments, Breach, Porpoising, Sink, None, Looking.
Beluga Counts White, Gray, Calf, Neonate, and Unknown	The MMOs best count of the number of each category of belugas present in the group. Often multiple MMOs observe the group and reach consensus on the best count. The addition of animals to the overall counts throughout the sighting are often documented in the Comments field.
Other MM Counts: Adult, Calf, Total	The MMOs best count of the number of adults and calf/pup present in the group if it can be discerned. Often multiple MMOs observe the group and reach consensus on the "best" count. The addition of animals to the overall counts throughout the sighting are often documented in the Comments field.
Comments	MMO comments on behaviors, fix details, counts, sighting progression, which station is has "control" of the parent record and is entering fixes, and other sighting details.
Marine Mammal Position Table	
Group ID	Corresponds to the Group ID of the sighting parent record in the database.
Fix ID	The sequential identification number given to a marine mammal position (or theodolite check shot) measured through entry of a horizontal and vertical angle.
Fix Time	The initial time the fix is entered. Updates can be made to the horizontal or vertical angles of a fix and that time is also captured, but not displayed on the report form.
MM Latitude	The latitude in decimal degrees of the marine mammal group position. In a group that is spread out, generally the animal closest to the PCT is selected for measurement of the position.
MM Longitude	The longitude in decimal degress of the marine mammal group position.
Distance To PCT	The distance of the marine mammal group from either a specific pile if there is a pile driving activity selected in the database, or from a the generalized PCT location 61.23445565°, -149.8946812° if no pile-driving activity is selected in the database.

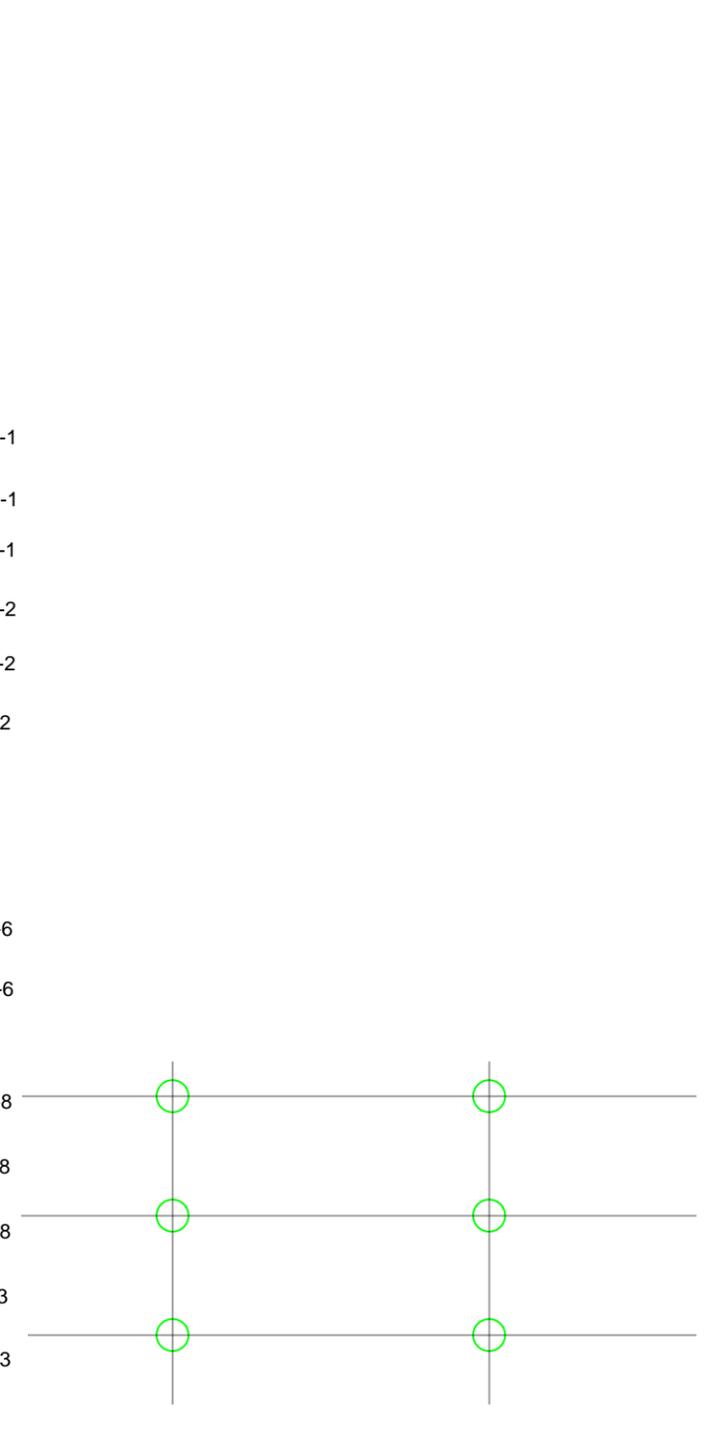
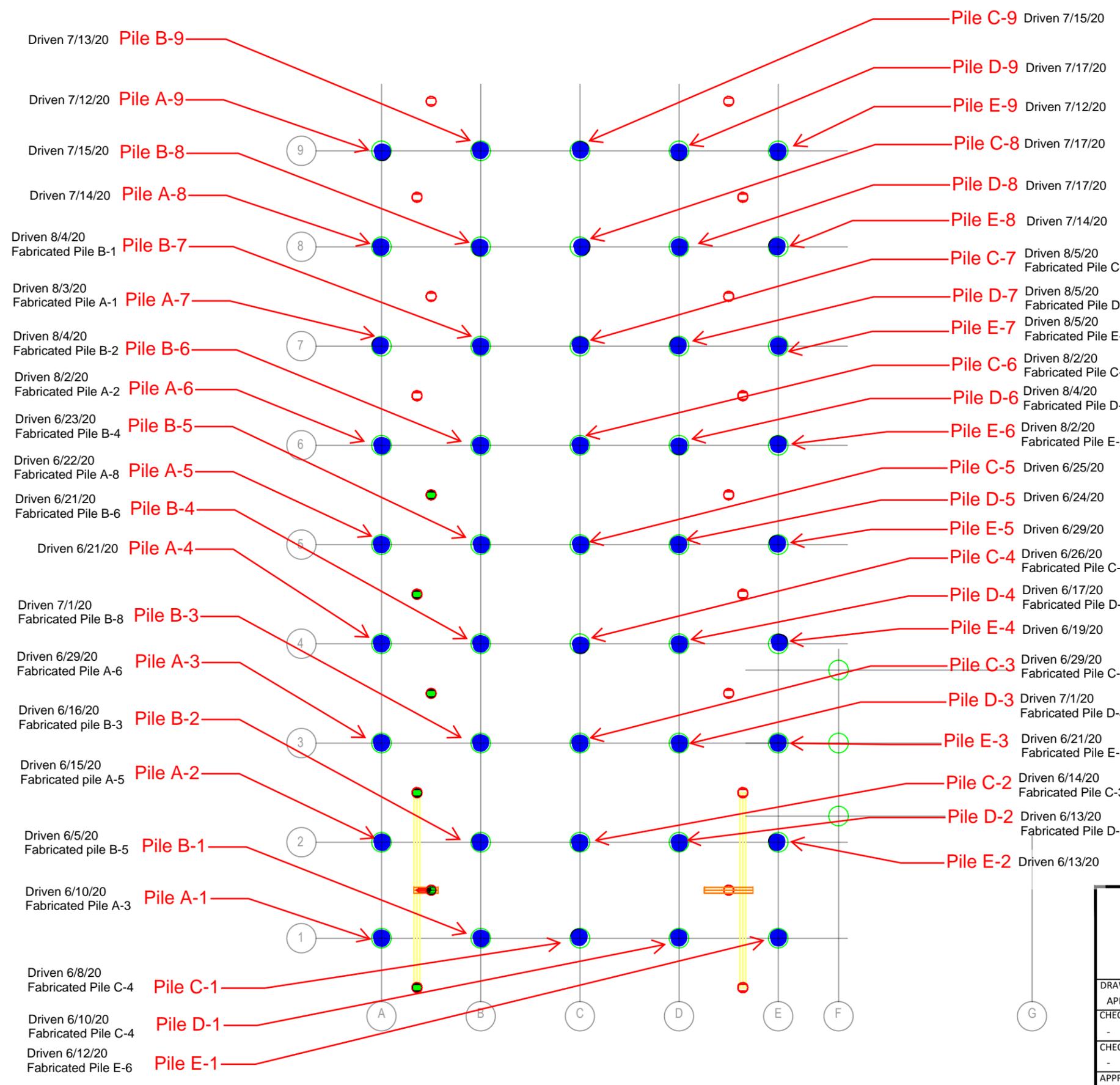
Pile Driving Activity

Drive Date	Pile Type	Pile Location Name	Pile Diameter (inches)	Hammer Type	Total time (minutes)
1-Jul	Permanent	B-3	48	Impact	15
1-Jul	Permanent	B-3	48	Vibratory	11
1-Jul	Permanent	D-3	48	Impact	24
2-Jul	Loading Platform Template	Temp- 8	24	Vibratory	23
2-Jul	Loading Platform Template	Temp- 10	24	Vibratory	15
2-Jul	Loading Platform Template	Temp- 18	24	Vibratory	6
2-Jul	Loading Platform Template	Temp- 20	24	Vibratory	20
3-Jul	No work- holiday weekend				
4-Jul	No work- holiday weekend				
5-Jul	No work- holiday weekend				
6-Jul	No Pile Driving				
10-Jul	Permanent	B-9	48	Vibratory	9
12-Jul	Permanent	A-9	48	Impact	38
12-Jul	Permanent	A-9	48	Vibratory	12
12-Jul	Permanent	E-9	48	Impact	29
12-Jul	Permanent	E-9	48	Vibratory	13
13-Jul	Permanent	A-8	48	Vibratory	10
13-Jul	Permanent	B-9	48	Impact	33
13-Jul	Permanent	E-8	48	Vibratory	8
14-Jul	Permanent	A-8	48	Impact	31
14-Jul	Permanent	HT- 2	48	Impact	23
14-Jul	Permanent	C-9	48	Vibratory	10
14-Jul	Permanent	E-8	48	Impact	33
15-Jul	Permanent	B-8	48	Impact	23
15-Jul	Permanent	B-8	48	Vibratory	11
15-Jul	Permanent	C-9	48	Impact	26
16-Jul	Permanent	C-8	48	Vibratory	11
17-Jul	Permanent	C-8	48	Impact	24
17-Jul	Permanent	D-8	48	Impact	26
17-Jul	Permanent	D-8	48	Vibratory	8
17-Jul	Permanent	D-9	48	Impact	39
17-Jul	Permanent	D-9	48	Vibratory	10
18-Jul	No Pile Driving				
19-Jul	No Pile Driving				
20-Jul	No Pile Driving				
21-Jul	No Pile Driving				
22-Jul	No Pile Driving				
23-Jul	No Pile Driving				
24-Jul	No Pile Driving				
25-Jul	No Pile Driving				
26-Jul	No work				
27-Jul	No Pile Driving				
28-Jul	No Pile Driving				
29-Jul	No Pile Driving				

30-Jul

No Pile Driving

4 3 2 1



4 3 2 1

Pacific Pile & Marine
 700 S Riverside Drive, Seattle, WA 98108
 PH: 206.331.3873 FAX: 206.774.5958

DRAWN APB	DATE -	POA TEMPLATE SEQUENCE - P1				
CHECKED -	DATE -					
CHECKED -	DATE -					
APPROVED -	DATE -	DWG NO. -	SHEET -OF-	SIZE 11x17	SCALE: AS NOTED	REV -