



Marine Mammal Monitoring Report

Tenakee Springs City Dock and Ferry Terminal

Western Marine Construction

Alaska Department of Transportation and Public Facilities

July 26 - October 31, 2020

Marine Mammal Monitoring Report
Tenakee Springs City Dock and Ferry Terminal
NMFS Consultation Number AKR-2018-9756

Introduction

Purpose

The Alaska Department of Transportation and Public Facilities contracted Western Marine Construction (WMC) to replace the Tenakee Springs city dock and ferry terminal. This project required removing and driving pilings through use of vibratory, impact, and down-the-hole (DTH) drivers that produce loud noise with potential to disturb or harm certain marine mammal species. The US Department of Commerce, National Marine Fisheries Service (NMFS) developed harassment and injury limits for this project, through a Biological Opinion issued on June 18, 2018 and an Incidental Harassment Authorization (IHA) updated on January 13, 2020. (Appendix A)

As required, WMC hired observers to monitor and report the presence marine mammals during pile driving. This report compiles and documents the results of those observations, and records the estimated "takes" as required by the Marine Mammal Protection Act.

Area Description

Tenakee Inlet is a long fjord penetrating Chichagof Island in an approximately east-west direction, with abundant marine life. The monitored construction project is within the City of Tenakee Springs, on the north shore of the Inlet. (57 46.764 N, 135 13.168 W). The south shore has a series of richly productive salmon streams with large estuaries.

Observers

Protected species observers (PSOs) were individually approved by NMFS . All PSO's were Tenakee residents with long histories of involvement with marine mammal protection, through personal observation and experience along with involvement with the local Stranding Network. The Tenakee PSO team consisted of Laura Strong, Uriah Strong, Mark Meyer, Cynthia Meyer, Gordon Chew, Nick Olmsted and Molly Kemp. Steve Lewis and Justin Moody were also approved but did not participate in observations.

Objectives

Our primary objective was to preclude potential injury to marine mammals by stopping driving operations if there was potential of a Level A take (injury or death) of a protected species. Another objective was enumeration of Level B takes (disturbance or harassment) resulting from pile driving activities.

Methods

The IHA (appendix A) specified ranges for Level A zones (potential injury/shutdown) and Level B zones (harassment/ disturbance) based on species, type of driver, and piling dimension and type. In the interests of simplicity and erring on the side of caution, as advised by WMC , we did not attempt to differentiate between the different Level B boundaries, and used the most conservative standard for monitoring and observations. In practice that meant recording any marine mammal activity visible from the construction site.

Two observers were on duty during any period of pile driving, and often for many hours before and between pile driving activity. Observations started at least 30 minutes before starting driving, and continued 30 minutes after pile driving ended for the day. Observers were based at the existing ferry platform, but moved from the helipad

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(east) to a rock fill pad (west) as required to see around construction equipment and barges. On at least one occasion an observer was stationed in a skiff tied to a WMC anchor buoy offshore from the construction site.

Observations were recorded whenever observers were on duty. While not strictly necessary, this ensured that the required 30 minutes prior to driving would be covered, and helped keep track of individuals or groups so they would not be double-counted. At first sighting each animal or group was assigned a number, and confident re-sighting of the same individual or group added a letter (ie., 1a, 1b, 1c, etc.) Sightings recorded during or within 5 minutes of driver activity were considered a "take". On some occasions of brief driver activity animals that were seen both before and after the activity were considered a "take" even if not seen during that actual operation.

Observations were with binoculars or the naked eye. We were fortunate to generally have good to excellent visibility. There was only one day that fog could have been a problem, and on that day a mechanical breakdown ended all pile driving activity.

Communication with crew chief and manager was either in person or with VHF radio. These interactions were unfailingly courteous and cooperative in nature.

Results and Discussion

Total Observation and Driving Periods

Two observers were on duty for varying periods on 38 days between 7/26/2020 and 10/31/2020, logging a total of 243 hours of paired observation. Three days had no Level B takes recorded due to mechanical breakdowns of the driving equipment.

Observers recorded cumulative time of pile driving operations. These times are approximate, due to the intermittent and sometimes very brief periods of operation.

Driver Type	Approximate Time
Vibratory	5.7 hours
Impact	7.2 hours
DTH Drill	22 hours

Level A Takes

There were no Level A takes associated with this project, for any species.

Shut-downs

There were numerous occasions that a protected species approached the shut-down zone and prompted radio communication with the construction crew. As requested, observers notified the crew chief well before a shut-down might be required. However, as predicted by local fishermen, cetaceans generally maintained their normal route following the deepest water between shoreline and the marked reef about 1100 m from shore, outside the shut down zone. Pinnipeds were more problematic, with both harbor seals and Steller sea lions occasionally following the shoreline closely and occasionally swimming right through the construction site.

The sole shut-down occurred on October 16, 2020, when a persistently curious Steller sea lion required an approximately 20 minutes delay before start of DTH drill operation.

Observed Class B Takes

Protected Species	Observed Level B Takes
humpback whale (<i>Megaptera novaeangliae</i>)	261
killer whale (<i>Orcinus orca</i>)	4
harbor seal (<i>Phoca vitulina</i>)	58
Steller sea lion (<i>Eumetopias jubatus</i>)	44
Dall's porpoise (<i>Phocoenoides dalli</i>)	15
harbor porpoise (<i>Phocoena phocoena</i>)	0

Extrapolated Level B Takes

Despite the extended observation area, we are reasonably confident that all cetaceans in the level B area during observation periods were recorded, and no additional estimated takes are indicated. Spouts, shape and behavior are highly visible and distinctive.

Pinnipeds are a different matter, as the sheer distance across Tenakee Inlet precludes seeing harbor seal or Steller sea lion heads on the far side of the Inlet.

Harbor seals commonly haul out on the marked reef approximately 1100 m from shore, and disappear when the tide covers the reef. Having confirmed through personal communications with NMFS staff that no takes should be recorded for animals on land, these observations still beg the question of "where do those seals go when the reef is underwater?" Local knowledge of very experienced and observant local fishermen provides valuable insights. The varying number of seals observed on the visible side exposed reef (from 0 to 140) is regarded as entirely normal for the time of year when driving occurred. It is worth noting that careful observation of hauled-out seals on the reef revealed no reaction to pile driving. Seals lounging on the reef did not even lift their heads at onset of driving, or any other construction noise.

Knowing that a significant number of harbor seals were using the reef haul out indicates a need to estimate how many might have affected by pile driving noise. Again local knowledge is helpful. We know that marine mammals are not uniformly distributed throughout the Inlet, and that harbor seals congregate seasonally at the outlets of salmon streams. The Kadashan estuary is directly across from the construction site, and within the most conservative Level B zone. It is not unusual to see 20-30 seals at the mouth of the Kadashan river. It seems reasonable to posit that at least some also concentrate at Corner Creek, and others might be in transit to other watersheds beyond the Level B zone. Therefore we account for these unseen animals by assigning an additional take of 50 harbor seals for each day pile driving occurred.

During summer months, Steller sea lions are relatively scarce in Tenakee Inlet. Sea lions start to show up in late September or early October, and haul out at Cannery Point which is outside the Level B zone. At that time of year it is typical, as shown in recorded observations, for individuals and playful groups of 5-12 sea lions to cruise the shoreline. To account for similar behavior on the far shore we suggest doubling the number of Stellar Sea lion takes for each day that driving occurred.

Protected Species	Extrapolated Level B Take (estimate)
harbor seal (<i>Phoca vitulina</i>)	35 days with some period of pile driving activity x 50 = 1650 extrapolated takes
Steller sea lion (<i>Eumetopias jubatus</i>)	44 observed takes ,additional 44 extrapolated takes

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All observation data and analysis is provided in an Excel spreadsheet (Appendix B). The spreadsheet format has been manipulated to make it printable.

Appendix A: Tenakee Incidental Harassment Authorization

Appendix B1 and B2: Tenakee PSO Observations and Analysis

Appendix A: Incidental Harassment Authorization

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE Silver Spring, MD 20910

INCIDENTAL HARASSMENT AUTHORIZATION

The Alaska Department of Transportation and Public Facilities (ADOT &PF) is hereby authorized under section 101(a)(5)(D) of the Marine Mammal Protection Act (MMPA; 16 U.S.C. 1371(a)(5)(D)) to harass marine mammals incidental to pile driving and removal in Tenakee Springs, Alaska, when adhering to the following terms and conditions.

1. This Incidental Harassment Authorization (IHA) is valid from June 1, 2020, to May 31, 2021.
2. This IHA is valid only for in-water construction activities associated with improvements at the Tenakee Springs city dock and ferry terminal, in Tenakee Springs, Alaska.
3. General Conditions
 - (a) A copy of this IHA must be in the possession of the ADOT &PF, its designees, work crew, and marine mammal monitoring personnel operating under the authority of this IHA.
 - (b) The species authorized for taking are humpback whale (*Megaptera novaeangliae*), killer whale (*Orcinus orca*), Harbor porpoise (*Phocoena phocoena*), Dall's porpoise (*Phocoenoides dalli*), Steller sea lion (*Eumetopias jubatus*), harbor seal (*Phoca vitulina*) and minke whale (*Balaenoptera acutorostrata*).
 - (c) The taking, by Level B harassment only, is limited to the species/stocks listed in condition 3(b). See Table 1 for numbers of take authorized.
 - (d) For those marine mammals for which take has not been authorized, in-water pile installation/removal and drilling shall shut down immediately when the animals are sighted.
 - (e) The taking by injury (Level A harassment), serious injury, or death of any of the species listed in condition 3(b) of the Authorization or any taking of any other species of marine mammal is prohibited and may result in the modification, suspension, or revocation of this IHA.
 - (f) ADOT &PF shall conduct briefings between construction supervisors and crews, marine mammal monitoring team, and ADOT &PF staff prior to the start of all piling and drilling activities, and when new personnel join the work, in order to explain responsibilities, communication procedures, marine mammal monitoring protocol, and operational procedures.

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(g) Work may only occur during daylight hours.

4. Mitigation Measures

The holder of this Authorization is required to implement the following mitigation measures:

(a) Shutdown Measures

(i) For all pile driving/removal and drilling activities, ADOT&PF shall implement shutdown measures in which operations shall cease if a marine mammal enters or approaches an established shutdown zone. Shutdown zones are defined below.

(ii) For all vibratory pile driving/removal, drilling, impact pile driving of 14-inch, 18-inch, and 20-inch piles, and impact pile driving of 24-inch and 30-inch steel piles at a frequency of one pile per day, ADOT &PF shall implement a shutdown zone of 100 meters for cetaceans and 50 meters for pinnipeds.

(iii) For impact pile driving of 24-inch and 30-inch steel piles at a frequency of two or more piles per day, ADOT &PF shall implement a shutdown zone of 200 meters for high and low frequency cetaceans and 100 meters for pinnipeds and mid-frequency cetaceans.

(iv) ADOT&PF shall implement shutdown measures if the amount of take authorized is reached and if such marine mammals are sighted.

(v) If a marine mammal comes within 10 meters of in-water, heavy machinery work other than pile driving or drilling (*e.g.*, standard barges, tugboats), operations shall cease and vessels shall reduce speed to the minimum level required to maintain steerage and safe working conditions. Construction crew members can enforce this shutdown zone.

(vi) If a marine mammal is observed at or within the shutdown zone, work shall be delayed or stopped until the individual has been observed outside of the zone, or has not been observed for at least 15 minutes for pinnipeds and small cetaceans and 30 minutes for large whales.

(b) ADOT &PF shall establish Level A and Level B harassment zones as shown in Tables 3 and 4.

(c) Soft Start for Impact Pile Driving

(i) At the start of any pile driving activities or when there has been downtime of 30 minutes or more without impact pile driving, the contractor shall initiate the driving with ramp-up procedures described below.

(ii) During soft start for impact hammers, contractors are required to provide an initial set of strikes from the impact hammer at 40 percent energy, followed by no less than a 30-second waiting period. This procedure shall be conducted three times before impact pile driving begins.

5. Monitoring The holder of this Authorization is required to conduct marine mammal monitoring during pile driving/removal and drilling activities. Monitoring and reporting shall be conducted in accordance with the Monitoring Plan within the IHA Application.

(a) Pre-Activity Monitoring

(i) Prior to the start of a daily in-water construction activity, or whenever a break in pile driving of 30 minutes or longer occurs, the observer(s) shall observe the shutdown and monitoring zones for a period of 30 minutes.

(ii) If the shutdown zones has been observed to be clear of marine mammals for 30 minutes, in-water construction can commence and work can continue even if visibility becomes impaired within the Level B harassment zone.

(iii) When a marine mammal is present in the Level B harassment zone, piling and drilling activities may begin and or continue and Level B harassment take shall be recorded.

(iv) If the entire Level B harassment zone is not visible while work continues, takes shall be recorded and extrapolated based upon the amount of total observed takes and the percentage of the Level B harassment zone that was not visible.

(b) Monitoring shall be conducted by qualified protected species observers (PSOs).

(i) Two observers shall be on site to actively observe the shutdown and harassment zones during all pile driving, removal, and drilling.

(ii) Observers shall use their naked eye with the aid of binoculars, and/or a spotting scope during all pile driving and extraction activities.

(iii) Monitoring location(s) shall be identified with the following characteristics:

1. Unobstructed view of pile being driven; and

2. Unobstructed view of all water within the Level A harassment zone (if applicable) and as much of the Level B harassment zone as possible for piles being driven.
- (c) If waters exceed a sea-state which restricts the PSOs ability to observe within the shutdown zone (e.g., excessive wind or fog), pile installation and removal shall cease. Pile driving shall not be initiated until the entire shutdown zone is visible.
- (d) Marine mammal location shall be determined using a rangefinder and a GPS or compass.
- (e) Ongoing in-water pile installation may be continued during periods when conditions such as low light, darkness, high sea state, fog, ice, rain, glare, or other conditions prevent effective marine mammal monitoring of the entire Level B harassment zone. PS Os would continue to monitor the visible portion of the Level B harassment zone throughout the duration of driving activities.
- (f) Post-construction monitoring shall be conducted for 30 minutes beyond the cessation of piling and drilling activities at end of day.

6. Reporting

The holder of this Authorization is required to:

- (a) Submit a draft report on all monitoring conducted under the IHA within ninety calendar days of the completion of marine mammal monitoring This report shall detail the monitoring protocol, summarize the data recorded during monitoring, and estimate the number of marine mammals that may have been harassed, including the total number extrapolated from observed animals across the entirety of relevant monitoring zones. A final report shall be prepared and submitted within thirty days following resolution of comments on the draft report from NMFS. This report must contain the following:
 - (i) Date and time a monitored activity begins or ends;
 - (ii) Construction activities occurring during each observation period;
 - (iii) Record of implementation of shutdowns, including the distance of animals to the pile and description of specific actions that ensued and resulting behavior of the animal, if any;
 - (iv) Weather parameters (*e.g.*, percent cover, visibility);
 - (v) Water conditions (*e.g.*, sea state, tide state);
 - (vi) Species, numbers, and, if possible, sex and age class of marine mammals;

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- (vii) Description of any observable marine mammal behavior patterns;
 - (viii) Distance from pile driving activities to marine mammals and distance from the marine mammals to the observation point;
 - (ix) Locations of all marine mammal observations; and
 - (x) Other human activity in the area.
- (b) Reporting injured or dead marine mammals:
- (i) In the unanticipated event that the specified activity clearly causes the take of a marine mammal in a manner prohibited by this IHA, such as an injury (Level A harassment), serious injury, or mortality, ADOT &PF shall immediately cease the specified activities and report the incident to the Office of Protected Resources (301-427-8401), NMFS, and the Alaska Regional Stranding Coordinator (907-271-1332), NMFS. The report must include the following information:
 1. Time and date of the incident;
 2. Description of the incident;
 3. Environmental conditions (e.g., wind speed and direction, Beaufort sea state, cloud cover, and visibility);
 4. Description of all marine mammal observations and active sound source use in the 24 hours preceding the incident;
 5. Species identification or description of the animal(s) involved;
 6. Fate of the animal(s); and
 7. Photographs or video footage of the animal(s).

Activities shall not resume until NMFS is able to review the circumstances of the prohibited take. NMFS shall work with ADOT &PF to determine what measures are necessary to minimize the likelihood of further prohibited take and ensure MMP A compliance. ADOT &PF may not resume their activities until notified by NMFS.

- (ii) In the event that ADOT &PF discovers an injured or dead marine mammal, and the lead observer determines that the cause of the injury or death is unknown and the death is relatively recent (e.g., in less than a moderate state of decomposition), ADOT &PF shall immediately report

the incident to the Office of Protected Resources, NMFS, and the Alaska Regional Stranding Coordinator, NMFS.

The report must include the same information identified in 6(b)(i) of this IHA. Activities may continue while NMFS reviews the circumstances of the incident. NMFS shall work with ADOT &PF to determine whether additional mitigation measures or modifications to the activities are appropriate.

(iii) In the event that ADOT &PF discovers an injured or dead marine mammal, and the lead observer determines that the injury or death is not associated with or related to the activities authorized in the IHA (e.g., previously wounded animal, carcass with moderate to advanced decomposition, or scavenger damage), ADOT&PF shall report the incident to the Office of Protected Resources, NMFS, and the Alaska Regional Stranding Coordinator, NMFS, within 24 hours of the discovery. ADOT &PF shall provide photographs, video footage, or other documentation of the stranded animal sighting to NMFS.

7. This Authorization may be modified, suspended or withdrawn if the holder fails to abide by the conditions prescribed herein, or if NMFS determines the authorized taking is having more than a negligible impact on the species or stock of affected marine mammals.

JAN f 3 2020

Date

Director, Office of Protected Resources,

National Marine Fisheries Service.

Donna S. Wieting,

T b l 1 A t h . d t k . l t k

a e u o n z e a e n u m b e r s , b y s p e c i e s s o c s S p e c i e s	Stock	Level A Takes	Level B Takes
Steller sea lion	Eastern DPS Western DPS	0	5,351 1,159
Harbor seal	Glacier Bay/Icy Strait	0	8,144
Harbor porpoise	Southeast Alaska	0	242
Dall's porpoise	Alaska	0	49
West Coast transient	0	60	
Killer whale	Alaska resident	0	60
Northern Resident	0	60	
Humpback whale	Central North Pacific	0	558
Minke whale	Alaska	3	

Date	Obs #	Time	visibility	species	#	Se	istanc	Bearing	Animal Behavior	Driver	level	Level B takes					Notes
												takes	HBW	HS	SSL	KW	
							(meters)			Type							
7/26/2020	1	7:45	fair	HS	2		170	W	swimming, headed	-	0						
7/26/2020	2a	9:25	good	HBW	4		7200	WSW	resting	vibratory	0	4					
7/26/2020	3a	9:39	good	HS	34		1050	SSW	hauled out on reef,	-	0						
7/26/2020	2b	9:50	good	HBW	4		7200	WSW	still there, milling a	-	0						
7/26/2020	2c	11:00	good	HBW	4		7200	WSW	fog on far shore lift	-	0						
7/26/2020	3b	14:16	good	HS	110		1050	SSW	hauled out on reef,	-	0						
7/26/2020	4a	14:30	good	HBW	1		1000	SW	swim, headed SE	-	0						
7/26/2020	5a	14:38	good	HBW	1		1500	WSW	swimming, diving	-	0						
7/26/2020	4b	14:45	good	HBW	1		1050	S	swim, heading E	-	0						
7/26/2020	4c	14:55	good	HBW	1		3000	SE	travelling E	-	0						
7/26/2020	5b	15:10	fair	HBW	1		2100	SW	travelling E	-	0						
7/26/2020	6	15:15	fair	HS	1		500	S	looking about	-	0						
7/26/2020	7a	15:18	good	HS	1		300	E	splashing/fighting f	-	0						
7/26/2020	7b	15:55	good	HS	1		300	E	relaxing in the shall	vibratory	0		1				
7/26/2020	5c	16:00	fair	HBW	1		4500	SW	resting- on the surf	-	0						
7/26/2020	7c	16:27	good	HS	1		300	E	splashing/fishing	vibratory	0						repeat sighting, no take
7/26/2020	5d	16:40	good	HBW	1		4000	SSW	breached, heading	-	0						
7/26/2020	9a	16:42	good	HS	1		900	S	head above water,	-	0						
7/26/2020	5e	16:48	good	HBW	1		1000	S	swimming E	-	0						
7/26/2020	10a	17:15	good	HS	1		200	W	in water, head up h	-	0						
7/26/2020	10b	17:22	good	HS	1		4500	W	swimming at surfac	-	0						
7/26/2020	5f	17:25	good	HBW	1		4500	SSE	heading E	-	0						
7/26/2020	11a	17:32	fair	HS	1		600	ESE	head up looking ar	-	0						
7/26/2020	Observers: MK MM LS CM Wx: wind calm, precip light drizzle, cloud cover 100%															Daily time totals	
7/27/2020	1a	10:15	good	HBW	4 or 5		2500	SW	swimming south	-	0						
7/27/2020	2a	10:20	good	DP	1		800	SSW	swimming E	-	0						
7/27/2020	3a	10:22	good	HBW	1		6500	SSW	Swimming NE slow	-	0						
7/27/2020	4a	10:30	good	HBW	3		3000	ssw	sleeping? Angling N	-	0						
7/27/2020	3b	10:30	good	HBW	3		6500	SE	Swimming NE slow	-	0						
7/27/2020	4b	10:35	good	HBW	3		4500	S	meandering W	-	0						
7/27/2020	4c	10:50	good	HBW	3		4500	SW	1 resting on surface, 1 h	-	0						
7/27/2020	4d	11:07	good	HBW	3		4500	SSW	2 resting, facing E, 1	-	0						

8/14/2020	1c	10:10	fair	HBW	2	800	SE	traveling southeast	-	0										
8/14/2020	2a	10:12	fair	HBW	1	1000	SSW	off the reef, east side	-	0										
8/14/2020	2b	10:30	fair	HBW	1	1000	SSW	off the reef, SE side	-	0										
8/14/2020	2c	10:42	fair	HBW	1	1000	SSW	off the reef, south side	-	0										
8/14/2020	3a	12:20	fair	HBW	1	6000	W	distant observation	impact	0	1									
8/14/2020	CM GC Wx: 3-8 mph, precip 100% rain, CC 100%																			Daily time totals
8/31/2020	1a	7:23	fair	HBW	1	1700	WSW	blowing, normal	-	0										
8/31/2020	2a	7:39	fair	HS	1 or 2	20	E to W	swimming by, swam from	-	0										
8/31/2020	2b	7:42	fair	HS	1	400	W	swimming	-	0										
8/31/2020	1b	8:05	fair	HBW	1	1400	WSW	blowing, normal	-	0										
8/31/2020	3a	8:12	fair	HS	2	350	E	swimming SSW	-	0										
8/31/2020	4a	8:41	good	DP	5	3400	S	charging, normal	-	0										
8/31/2020	5a	8:41	good	HBW	1	3000	SSE	diving, normal	-	0										
8/31/2020	1c	8:43	good	HBW	1	1500	SW	blowing, normal	-	0										
8/31/2020	5b	8:51	good	HBW	1	3000	S	Blowing, normal	-	0										
8/31/2020	1d	9:06	good	HBW	1	1500	WSW	blowing, normal	-	0										
8/31/2020	1e	9:14	good	HBW	1	1500	SW	Dive, normal	-	0										
8/31/2020	1f	10:15	good	HBW	1	1500	W	Blow	-	0										
8/31/2020	6a	10:48	good	HS	1	30	N	hanging out in front	-	0										
8/31/2020	6b	10:50	good	HS	1	20	NE	hanging out, surfaced	-	0										
8/31/2020	6c	10:56	good	HS	1	100	E	hanging out, surfaced	-	0										
8/31/2020	6d	11:10	good	HS	1	200	E	hanging out, surfaced	-	0										
8/31/2020	1g	11:30	good	HBW	1	1500	WSW	blow normal	-	0										
8/31/2020	1h	11:45	good	HBW	1	500 +	SW	blow normal	-	0										
8/31/2020	6e	11:50	good	HS	1	100	E	surfaced - patrolling	-	0										
8/31/2020	1i	11:55	good	HBW	1	500 +	WSW	dive normal	-	0										
8/31/2020	1j	13:12	good	HBW	1	500 +	W	blow, normal	-	0										
8/31/2020	1k	13:40	good	HBW	1	1000+	W	blow, normal	-	0										
8/31/2020	1L	13:52	good	HBW	1	2000+	W	blow, normal	-	0										
8/31/2020	1m	14:30	good	HBW	1	500 +	SW	blow, normal	-	0										
8/31/2020	1n	15:07	good	HBW	1	500 +	W	blow, normal	DTH drill	0	1									
8/31/2020	7a	15:13	good	HBW	2	000 +	SW	dive normal	DTH drill	0	2									
8/31/2020	7b	15:30	good	HBW	2	2000	SW-1SS	breach	DTH drill	0									repeat sighting, no take	
8/31/2020	7c	15:41	fair	HBW	3	2000	SW-1SS	blow, first view of j	DTH drill	0	1								first view 3rd animal in group	

9/1/2020	10a	14:25	good	HBW	4	1000	S	heading W	-	0							
9/1/2020	10b	14:36	good	HBW	4	1200	SSW	blow, dive, headed	-	0							
9/1/2020	10c	14:55	good	HBW	4	4500	W	diving	-	0							
9/1/2020	5c	15:10	good	HBW	3	4000	SW	bubble net feeding	-	0							
9/1/2020	10d	15:13	fair	HBW	4	1100	WSW	blow, dive	-	0							
9/1/2020	12	15:20	okay	HS	8	1050	S	swimming at high t	-	0							
9/1/2020	13	15:34	good	HS	1	100	W	cruising the beach	-	0							
9/1/2020	14	15:40	good	HBW	1	5000	W	blow, dive	-	0							
9/1/2020	8L	15:57	good	HBW	1	4500	SSE	blowing on surface	-	0							
9/1/2020	14a	16:10	good	HBW	1	6000	W	blowing, dove NW	-	0							
9/1/2020	13a	16:15	good	HS	1	200	W	looking around, we	-	0							
9/1/2020	LS MM	Wx: wind light and variable, precip light rain, CC 100%															Daily time totals
9/2/2020	1	10:40	good	HBW	4	3500	SSW	blow, dive	-	0							
9/2/2020	2	10:47	good	HBW	1	3500	SSW	blow, dive	-	0							
9/2/2020	1a	10:51	good	HBW	2	500-40	SSW	blow, dive	-	0							
9/2/2020	2	10:58	fair	HBW	1	6000	W	blow, dive	-	0							
9/2/2020	3	10:58	good	HS	1	120	W	head up - normal	-	0							
9/2/2020	1b	11:04	good	HBW	4	3500	S	blow, dive	-	0							
9/2/2020	1c	11:38	good	HBW	4	3500	S	blow, dive	-	0							
9/2/2020	2a	11:48	good	HBW	1	3500	SSW	blow, dive	-	0							
9/2/2020	3a	12:13	fair	HS	1	100	W	head up	-	0							
9/2/2020	4	13:20	fair	HBW	1	3000	WSW	blow, drive	-	0							
9/2/2020	5	13:35	fair	HBW	5	1500	W	fin slap, blow	-	0							
9/2/2020	5a	13:45	fair	HBW	6	1200	W	blow, dive, headed	-	0							
9/2/2020	5b	13:56	fair	HBW	5	500-10	W to E	transit the inner ch	-	0							
9/2/2020	1d	14:16	fair	HBW	4	4500	SSW	blow, dive	-	0							
9/2/2020	6	14:26	good	HBW	2	4500	SSW	blow, dive	-	0							
9/2/2020	1e	1500	fair	HBW	3	4500	SSW	blow, dive	-	0							
9/2/2020	1d	15:22	fair	HBW	3	4000	SSW	blow, dive	-	0							
9/2/2020	7	15:30	fair	HBW	1	3000	SE	blow, dive	-	0							
9/2/2020	8	15:42	good	HBW	1	3500	WSW	blow, dive	-	0							
9/2/2020	9	15:56	good	HBW	4	5000	WSW	blow, dive	-	0							
9/2/2020	8a	16:28	good	HBW	1	3500	WSW	blow, dive	-	0							
9/2/2020	9	16:28	fair	HBW	1	4500	SW	blow, dive	-	0							

9/2/2020	10	17:00	fair	HBW	1	4500	S	blow, dive	-	0							
9/2/2020	9a	17:18	fair	HBW	1	4500	S	blow, dive	DTH drill	0	1						
9/2/2020	9b	17:49	fair	HBW	1	4500	SSW	blow, dive	-	0							
9/2/2020	MM GC Wx: wind light, precip misty, CC 100%																Daily time totals
9/3/2020	1	6:45	good	HBW	1	900	S	blow, dive		0							
9/3/2020	2	7:05	good	SSL	2	100m	SE	swimming		0							
9/3/2020	3	7:05	good	HBW	1	3000	SE	blow, dive		0							
9/3/2020	4	7:41	good	HBW	1	3500	SSW	blow, dive		0							
9/3/2020	5	7:41	good	HBW	1	4000	SSW	blow, dive		0							
9/3/2020	6	7:56	fair	HBW	1	2000	SSE	dive		0							
9/3/2020	7	8:54	fair	HBW	1	5000	WSW	dive	DTH drill	0	1						
9/3/2020	3a	8:58	fair	HBW	1	3000	SE	dive	DTH drill	0	1						
9/3/2020	8	9:00	good	HBW	2	2500	SSE	dive	DTH drill	0	2						
9/3/2020	8a	9:20	good	HBW	2	2500	SSE	blow, dive	DTH drill	0							repeat sighting, no take
9/3/2020	9	9:26	good	HBW	1	500	SSW	blow, dive	DTH drill	0	1						
9/3/2020	8b	9:28	good	HBW	2	2500	SSE	blow,dive	DTH drill	0							repeat sighting, no take
9/3/2020	10	9:34	good	HBW	1	4500	S	dive	DTH drill	0	1						
9/3/2020	8c	9:45	good	HBW	3	2500	SSE	blow, dive (joined v	DTH drill	0							repeat sighting, no take
9/3/2020	8d	9:49	good	HBW	3	2000	SSE	blow,dive	DTH drill	0							repeat sighting, no take
9/3/2020	8e	10:00	good	HBW	2	2000	SSE	blow, dive	-	0							
9/3/2020	5a	10:05	good	HBW	1	3000	SSW	dive	-	0							
9/3/2020	11	10:12	good	HBW	2	2000	S	blow, dive	-	0							
9/3/2020	8f	10:12	good	HBW	2	3000	SSW	blow, dive	-	0							
9/3/2020	11a	10:20	good	HBW	3	2200	S	blow, dive	-	0							
9/3/2020	11b	10:30	good	HBW	3	2400	S	blow, dive	-	0							
9/3/2020	12	10:40	good	HBW	1	2500	S	blow, dive	-	0							
9/3/2020	13	10:46	good	HBW	2	4500	SSW	blow	-	0							
9/3/2020	14	10:51	good	SSL	3	500	SSW	swim, looks	-	0							
9/3/2020	11c	10:51	good	HBW	3	1200	SSW	blow	-	0							
9/3/2020	11d	11:04	good	HBW	3	1600	SSW	blow, dive	-	0							
9/3/2020	11e	11:17	good	HBW	3	1600	SSW	blow, dive	-	0							
9/3/2020	11f	11:30	good	HBW	3	2000	SSW	blow, dive	-	0							
9/3/2020	5a	11:30	good	HBW	1	4500	SSW	blow	-	0							
9/3/2020	11g	11:42	good	HBW	3	2200	SSW	blow,dive	-	0							

9/3/2020	11h	11:55	good	HBW	3	2600	SSW	blow,dive	-	0							
9/3/2020	15	13:00	good	HBW	1	10 to 1	W to E	blow, travel W to E	-	0							
9/3/2020	15a	13:13	good	HBW	1	500	E	still travelling E	-	0							
9/3/2020	16	13:17	good	HBW	3	100-45	WSW	blow,dive	-	0							
9/3/2020	17	13:27	good	HBW	1	6500	W	blow,dive	-	0							
9/3/2020	18	13:28	good	HBW	1	4000	WSW	blow,dive	-	0							
9/3/2020	19	14:03	good	HBW	3	5000	SSW	blow,dive	-	0							
9/3/2020	20	14:25	good	HBW	2	6500	WSW	blow,dive	-	0							
9/3/2020	19b	14:35	good	HBW	3	5800	SW	blow,dive	-	0							
9/3/2020	19c	14:45	good	HBW	4	5000	SSW	blow,dive	-	0							
9/3/2020	20	14:55	good	HBW	1	4500	SSW	blow,dive	-	0							
9/3/2020	19d	15:12	good	HBW	3	1500	S	blow,dive	-	0							
9/3/2020	19e	15:37	good	HBW	3	1500	SSW	blow,dive	-	0							
9/3/2020	19f	15:55	good	HBW	3	1500	SSW	blow,dive	-	0	3						assume still in level B area
9/3/2020	20	16:06	good	HBW	1	6000	SSE	breach	impact	0	1						
9/3/2020	21	16:22	good	HBW	1	5000	SW	blow, dive	impact	0	1						
9/3/2020	22	16:29	good	HBW	1	3500	SSW	dive	-	0	1						assume was in level B area
9/3/2020	23	16:54	good	HBW	1	1400	SSW	blow	-	0							
9/3/2020	MM GC	Wx: wind 0, precip misty, CC 100%															Daily time totals
9/4/2020	1	8:00	good	HBW	1	4000	S	resting on the surfa	-	0							
9/4/2020	2	8:05	good	HBW	1	4000	SSE	diving headed W	-	0							
9/4/2020	3	8:10	good	HBW	1	6000	W	blowing, diving	-	0							
9/4/2020	4	8:20	good	HBW	1	1500	WSW	blowing, slapping fl	-	0							
9/4/2020	5	8:20	good	HBW	1	4000	WSW	blowing, headed S	-	0							
9/4/2020	2a	8:35	good	HBW	1	4000	S	blowing, diving, hea	-	0							
9/4/2020	3a	8:45	good	HBW	1	6000	W	blowing	-	0							
9/4/2020	6	8:55	good	HBW	2	2000	SE	blowing, diving, hea	-	0							
9/4/2020	7	9:05	good	HBW	4	2000	SE	group of 4 spread d	-	0							
9/4/2020	3b	9:20	good	HBW	1	6000	W	blowing, headed SS	-	0							
9/4/2020	3c	9:30	good	HBW	1	6000	W	3 breeches, blowing	-	0							
9/4/2020	6a	9:50	good	HBW	2	4500	SE	blowing, slowly mo	-	0							
9/4/2020	8	9:55	good	HBW	1	5000	SW	diving	-	0							
9/4/2020	9	10:00	good	SSL	1	250	S	looking around, hea	-	0							
9/4/2020	10	10:05	good	HBW	4	4500	SW	blowing, slowly hea	-	0							

9/4/2020	6b	10:15	good	HBW	2	4000	SE	blowing, diving, head	-	0						
9/4/2020	11	10:25	good	HBW	4 or 5	6000	W	blowing - possibly surf	-	0						
9/4/2020	12	10:40	good	HS	2	250	W	curious, looking around	impact	0	2					
9/4/2020	13	10:45	good	HBW	1	4000	SE	diving	impact	0	1					
9/4/2020	14	10:50	good	HBW	2 or 3	4500	ESE	blowing, heading W	impact	0	3					
9/4/2020	15	10:53	good	HBW	1	5000	SSW	blowing, lazily to the	impact	0	1					
9/4/2020	2b	11:00	good	HBW	1	3500	S	blowing, heading E	impact	0	1					
9/4/2020	15a	11:02	good	HBW	1	5000	SSW	blowing, wandering	impact	0						repeat sighting, no take
9/4/2020	16	11:05	good	HBW	1	4000	SE	blowing - asleep? R	impact	0	1					
9/4/2020	17	11:07	good	HS	1	300	W	head above water,	impact	0	1					
9/4/2020	18	11:10	good	HBW	1	3000	S	blowing, diving, going	impact	0	1					
9/4/2020	19	11:10	good	HBW	2	3500	SE	blowing, diving	-	0						
9/4/2020	20	11:15	good	HBW	4	1050	WSW	blowing, heading N	-	0						
9/4/2020	20a	11:25	good	HBW	4 or 5	550	SSW	moving ENE	-	0						
9/4/2020	21	11:30	good	HBW	2 or 3	2000	SSE	blowing	-	0						
9/4/2020	20b	11:30	good	HBW	4 or 5	500	SSE	moving ENE	-	0						
9/4/2020	LS GC Wx:	wind calm, precip not yet, CC yes, hints of blue sky														Daily time totals
9/9/2020	1	7:06	good	HBW	1	1400	SSE	diving	-	0						
9/9/2020	2a	7:45	good	HBW	1	1500	W	surfacing, going south	-	0						
9/9/2020	3	8:03	good	HS	52	1200	S	seals hauled out on	-	0						
9/9/2020	2b	8:04	good	HBW	1	2000	WSW	surfaced, same direction	-	0						
9/9/2020	4	8:28	good	HS	1	150	W	head up near shore	-	0						
9/9/2020	5	8:52	good	HBW	1	4500	SW	blow and dove	-	0						
9/9/2020	6a	9:16	good	KW	1	1300	ESE	dorsal fin, lots of sp	DTH drill	0			1			
9/9/2020	6b	9:20	good	KW	1	500	SSE	moving W	DTH drill	0						repeat sighting, no take
9/9/2020	7	9:24	good	HBW	1	1000	S	just inside reef, moving	DTH drill	0	1					
9/9/2020	6c	9:24	good	KW	1	1200	S	between reefs, moving	DTH drill	0						repeat sighting, no take
9/9/2020	8	9:38	good	KW	3	1500	SSE	more killer whales,	DTH drill	0			3			
9/9/2020	9a	9:32	good	HBW	1	500	S	moving E, then dove	DTH drill	0	1					
9/9/2020	10	9:34	good	HBW	1	6000	SE	breach	DTH drill	0	1					
9/9/2020	9b	9:45	good	HBW	1	700	SSE	feeding, gaping jaw	DTH drill	0						repeat sighting, no take
9/9/2020	11	10:06	good	HBW	1	750	SSW	headed E	DTH drill	0	1					
9/9/2020	12	10:15	good	SSL	2	300	WSW	headed W	-	0						
9/9/2020	13	10:46	good	HBW	1	600	SE	Corner Bay, headed	-	0						

9/9/2020	14	11:51	good	HS	1	250	W	head up in front of	DTH drill	0		1				
9/9/2020	15	14:15	good	HBW	1	5000	SW	spout Corner Pt	-	0						
9/9/2020	16a	14:22	good	SSL	3	150	ESE	lolling on their back	-	0						
9/9/2020	17	14:25	good	HBW	3	5000	SW	moving W	-	0						
9/9/2020	16b	14:35	good	SSL	3	200	ESE	moved away when	(DTH drill)	0			3			
9/9/2020	16c	14:40	good	SSL	3	300	S	moving W slowly	DTH drill	0						repeat sighting, no take
9/9/2020	18a	14:45	good	SSL	1	150	SE	nose up	DTH drill	0			1			
9/9/2020	19	14:53	good	HBW	1	2000	W	spout	DTH drill	0	1					
9/9/2020	20a	15:01	good	HBW	4	4500	SSE	spouts, headed W	DTH drill	0	4					
9/9/2020	16a	15:09	good	SSL	3	300	SSE	group of 3 and sing	DTH drill	0						repeat sighting, no take
9/9/2020	18b	15:09	good	SSL	1	300	SSE	group of 3 and sing	DTH drill	0						repeat sighting, no take
9/9/2020	21	15:40	good	HBW	3	3000	SW	spouts toward Crab	-	0						
9/9/2020	20b	15:20	good	HBW	2	4000	S	2 of 4 seen	-	0						
9/9/2020	22	15:33	good	HS	1	100	W	head up	-	0						
9/9/2020	NO MK Wx: less than 5, precip 0, CC broken															Daily time totals
9/10/2020	1	7:00	good	HBW	1	4000	SSE	breech	-	0						
9/10/2020	2	7:10	good	HBW	1	4000	SSE	blowing, heading E	-	0						
9/10/2020	3	7:23	good	HBW	2	5000	W	blowing	-	0						
9/10/2020	4	7:25	good	HBW	1	4500	WSW	blowing	-	0						
9/10/2020	5	7:40	good	HBW	3	6500	ESE	two double breech	-	0						
9/10/2020	6	7:52	good	HBW	1	2000	SSW	heading NW	-	0						
9/10/2020	7	8:20	good	HBW	2	2500	ESE	blowing	-	0						
9/10/2020	8	8:30	good	HBW	1	5000	S	breeching, slapping	-	0						
9/10/2020	9	8:45	good	HS	1	300	W	head above water,	-	0						
9/10/2020	10	8:51	good	HBW	2	1000	ESE	headed west	-	0						
9/10/2020	11	8:56	good	HBW	2	500	SSE	headed SSW	-	0	2					assume still in level b area
9/10/2020	12	9:00	good	HBW	1	600	SW	diving heading SE	DTH drill	0	1					
9/10/2020	3a	9:00	good	HBW	2	6500	W	double breech	DTH drill	0	2					
9/10/2020	13	9:10	good	HBW	3	2000	S	navigating to the E	DTH drill	0	3					
9/10/2020	(14)	9:20	good	HBW	3	1000	ESE	blowing (observati	DTH drill	0	3					
9/10/2020	12a	9:30	good	HBW	1	1200	SW	wandering to the S	DTH drill	0	1					
9/10/2020	14	9:50	good	SSL	5 to 8	100	E	approached from E w/in	-	0						
9/10/2020	-	-	-	-	-	-	-	then went S and milled a	-	0						
9/10/2020	14a	10:05	good	SSL	8	300	S	done harrassing/greetin	-	0						

9/11/2020	2	8:35	good	HBW	1	900	W	blowing, travelling	-	0							
9/11/2020	3	8:49	good	HBW	2	4000	SSE	slowly traversing w	-	0							
9/11/2020	4	9:15	good	SSL	1	250	W	swimming west	-	0							
9/11/2020	5	9:35	good	HS	1	1050	S	one seal right off th	-	0							
9/11/2020	6	9:52	good	HS	1	250	W	heading E after soft	impact	0		1					
9/11/2020	7	9:55	good	SSL	5	150	E	group approached at	impact	0			5				
9/11/2020	6a	10:05	good	HS	1	500	W	head up, watching	impact	0		1					
9/11/2020	1a	10:12	good	HBW	1	7000	SE	hanging out in sam	impact	0	1						
9/11/2020	3a	10:20	good	HBW	2	4000	SSE	feeding slowly near	-	0							
9/11/2020	8	10:31	good	HS	1	1000	S	swimming off E end	-	0							
9/11/2020	LS US Wx: wind calm, precip none, CC low clouds, blue sky																Daily time totals
9/13/2020	1	6:35	good	SSL	2	500	W	wrestling with each	-	0							
9/13/2020	2	6:50	good	SSL	1	300	ESE	popping his head u	-	0							
9/13/2020	3a	7:00	great	HBW	1	5000	S	surface breath	-	0							
9/13/2020	3b	7:25	great	HBW	1	5000	S	surface breath	-	0							
9/13/2020	4	8:45	great	HS	1	250	E	looking around, wa	DTH drill	0		1					
9/13/2020	5	9:00	great	HBW	1	4000	W	surface breathing	-	0							
9/13/2020	6	9:30	great	HBW	2 or 3	2000	SW	traveilling and divin	-	0							
9/13/2020	7	9:40	great	HBW	1	1500	E	blowing	-	0							
9/13/2020	3c	9:45	great	HBW	1	5000	S	blowing	-	0							
9/13/2020	8a	9:50	wesom	HBW	1	1000	SE	blowing, diving, heading	DTH drill	0	1						
9/13/2020	9a	9:50	great	HBW	2	1000	S	blowing heading E	DTH drill	0	2						
9/13/2020	8b	10:05	great	HBW	1	1500	ESE	blowing, diving, heading	DTH drill	0							repeat sighting, no take
9/13/2020	9b	10:10	great	HBW	2	3000	S	blwoing, heading E	DTH drill	0							repeat sighting, no take
9/13/2020	9c	11:15	great	HBW	2	4000	S	blowing	-	0							
9/13/2020	8c	11:50	great	HBW	1	3000	SE	blowing	-	0							
9/13/2020	10a	12:30	great	HBW	4	2000	SSE	blowing, diving, might b	-	0							
9/13/2020	10b	13:00	good	HBW	4 or 5	2500	SSE	blowing, heading E	DTH drill	0	2						partial repeat sighting
9/13/2020	11	13:15	good	HBW	1	4000	SW	blowing	DTH drill	0	1						
9/13/2020	12	13:45	good	HBW	2	4500	SW	blwoing, heading N	DTH drill	0	2						
9/13/2020	10c	14:20	good	HBW	4 or 5	3000	SE	blowing, hanging o	-	0							
9/13/2020	12a	14:35	good	HBW	2	4500	SW	blowing, moving N	-	0							
9/13/2020	5a	15:10	good	HBW	1	5000	W	blowing	-	0							
9/13/2020	13	15:15	good	SSL	4	350	SSE	frolicking , playing,	impact	0			4				

9/13/2020	9d	15:25	good	HBW	2	5000	SE	blowing, diving	impact	0						repeat sighting, no take
9/13/2020	5b	15:30	good	HBW	1	5000	W	breeching	-	0	1					assume in area during driving
9/13/2020	12b	15:40	good	HBW	2	4500	SW	blowing, hanging a	impact	0						repeat sighting, no take
9/13/2020	14a	15:45	good	HBW	1	500	W	blowing, dived mov	impact	0	1					
9/13/2020	14b	15:56	good	HBW	1	500	S	blowing, dove, mea	-	0						
9/13/2020	14c	16:00	good	HBW	1	700	SSE	blowing, heading S	-	0						
9/13/2020	14d	16:06	good	HBW	1	1000	SE	blowing, heading S	-	0						
9/13/2020	15	16:30	good	HBW	1	5500	SE	breeching	-	0						
9/13/2020	16	16:45	good	SSL	2	350	S	swimming W	-	0						
9/13/2020	16a	16:50	good	SSL	2	500	W	still hustling W	-	0						
9/13/2020	17	17:20	good	HBW	1	4500	S	milling around	-	0						
9/13/2020	17a	17:30	good	HBW	1	3500	SSE	blowing	impact	0	1					
9/13/2020	18a	17:37	good	HBW	1	6000	W	blowing	impact	0	1					
9/13/2020	18b	18:00	good	HBW	2	7000	W	blwoing and plus 1	-	0						
9/13/2020	19	18:10	good	HBW	2	2000	S	blowing, hanging o	-	0						
9/13/2020	LS CM Wx:	wind breezy, precip none, CC none														Daily time totals
9/15/2020	1	7:35	clear	HBW	2	2000	SW	resting on the surfa	-	0						
9/15/2020	2	7:52	clear	HBW	2	6000	SE	spouts - near Corne	-	0						
9/15/2020	3	8:50	clear	HBW	1	2500	SSW	Diving	DTH drill	0	1					
9/15/2020	4	9:00	clear	HBW	1	2500	SW	Resting on the surfa	DTH drill	0	1					
9/15/2020	5	9:05	clear	HBW	2	3000	SSE	spouts, possibly 3?	DTH drill	0	2					
9/15/2020	6	9:15	clear	HS	1	250	W	near Paddocks	DTH drill	0		1				
9/15/2020	6a	9:20	clear	HS	1	200	W	near firehall	-	0						
9/15/2020	7	9:25	amazin	HBW	1	3000	E	blowing	-	0						
9/15/2020	5a	10:00	great	HBW	2 or 3	2000	SE	blowing, milling arc	-	0						
9/15/2020	8	10:15	plendi	HBW	2	150	SSW	moving E, notified c	-	0						
9/15/2020	9	10:15	clear	HBW	2	1500	S	spout, headed w	-	0						
9/15/2020	8a	10:23	sublime	HBW	2	300	SE	still moving E, comp	DTH drill	0	2					
9/15/2020	8b	10:30	clear	HBW	2	1000	ESE	blowing	DTH drill	0						repeat sighting, no take
9/15/2020	10	10:40	clear	HBW	2 or 3	3000	SSE	blowing	DTH drill	0	3					
9/15/2020	11	10:35	clear	HBW	3	3500	SE	blowing, diving	DTH drill	0	3					
9/15/2020	12	10:50	he bes	HS	1	100	E	surfaced	DTH drill	0		1				
9/15/2020	12a	10:53	great	HS	1	300	W	swimming W	DTH drill	0						repeat sighting, no take
9/15/2020	13	11:00	great	SSL	6	700	ESE	splashing and rollin	DTH drill	0			6			

9/15/2020	14	11:15	great	HS	1	2000	S	head above water	DTH drill	0		1					
9/15/2020	13a	11:25	great	SSL	10	100	E	first seen 600E, app	DTH drill	0			4				added 4 to previous sighting
9/15/2020	13b	11:30	great	SSL	10	500	SW	swimming N	DTH drill	0							repeat sighting, no take
9/15/2020	15	11:35	great	HBW	2	4000	SSW	blwoing, diving	DTH drill	0	2						
9/15/2020	16	11:44	great	HS	1	300	SW	swimming slowly E	DTH drill	0		1					
9/15/2020	16a	11:48	great	HS	1	250	S	slowly meandering	DTH drill	0							repeat sighting, no take
9/15/2020	17	12:02	great	HS	4	1200	SSE	swimming, heads u	DTH drill	0		4					
9/15/2020	18a	12:15	great	HS	1	600	W	ambling along, head	-	0							
9/15/2020	19a	12:40	great	HBW	2	3500	W	double breeches	-	0							
9/15/2020	18b	12:45	great	HS	1	200	W	head up	-	0							
9/15/2020	18c	12:50	great	HS	1	100	W	head up	-	0							
9/15/2020	20a	13:05	great	SSL	1	200	SSW	head up	-	0							
9/15/2020	19b	13:12	great	HBW	2	3500	SW	fin slapping and bre	-	0							
9/15/2020	20b	13:25	great	SSL	1	200	SW	head up, travelling	-	0							
9/15/2020	21	13:40	great	HBW	2	1500	SSW	hanging out, surfac	DTH drill	0		2					
9/15/2020	22a	14:05	great	HBW	1	1000	SSW	travelling SE slowly	DTH drill	0		1					
9/15/2020	22b	14:30	great	HBW	1	2000	SSE	slowly travelling SE	DTH drill	0							repeat sighting, no take
9/15/2020	23	14:20	great	HBW	3	6000	WSW	moving south slow	DTH drill	0		3					
9/15/2020	24	14:30	great	HBW	2	4000	SW	fin slapping and sur	DTH drill	0		2					
9/15/2020	23b	15:25	great	HBW	3	5500	WSW	milling about, divin	-	0							
9/15/2020	22c	15:25	great	HBW	1	4000	S	fin slapping, diving	-	0							
9/15/2020	23c	15:34	great	HBW	3	5000	SW	feeding? Diving	impact	0							repeat sighting, no take
9/15/2020	22d	15:55	great	HBW	1	5000	SW	diving, surface feed	-	0							
9/15/2020	23d	15:38	great	HBW	3	5000	SW	spout	-	0							
9/15/2020	LS MK NO CM	Wx: wind light, precip 0 , CC none															Daily time totals
9/16/2020	1	7:05	great	HBW	9	4000	S	blowing, surfacing,	-	0							
9/16/2020	2	7:19	good	HS	1	1000	WSW	swimming near day	-	0							
9/16/2020	3	7:22	good	HS	1	1100	SSW	head bobbing E of T	-	0							
9/16/2020	4	7:25	good	HBW	1	1000	E	blowing	-	0							
9/16/2020	5	7:33	good	HBW	2	5000	SW	surface near W side	-	0							
9/16/2020	6	7:45	good	HBW	1	4000	SW	surface beyond W r	-	0							
9/16/2020	7	7:55	good	HBW	2	4500	SE	blowing just west o	-	0							
9/16/2020	8	8:35	good	HS	1	150	SE	looking around near	impact	0		1					
9/16/2020	9	8:40	good	HBW	3	3500	S	blowing, diving	impact	0	3						

9/16/2020	10	8:42	good	DP	15	5000	S	feeding/playing, Ka	impact	0					15		
9/16/2020	11	9:10	good	HS	1	1000	SW	head bobbing E of c	-	0							
9/16/2020	LS US	Wx: wind light, precip none, CC pretty clouds, blue sky															Daily time totals
9/20/2020	1	8:40	fair	HBW	2	7000	W	blow and dive	-	0							
9/20/2020	2	8:45	fair	HS	1	150	W	surfaced	-	0							
9/20/2020	3a	8:50	okay	HS	1	50	E	surfaced, swam S	-	0							
9/20/2020	4a	8:50	okay	HBW	1	1500	E	blowing, diving, jus	-	0							
9/20/2020	5	8:50	fine	HBW	1	2500	ESE	blowing	-	0							
9/20/2020	6	8:52	okay	HBW	1	2500	S	blowing, diving	-	0							
9/20/2020	7a	9:00	fine	HBW	4	3500	SE	blowing, heading N	-	0							
9/20/2020	3b	9:05	fine	HS	1	75	W	surfaced, swimming	-	0							
9/20/2020	8a	9:12	okay	SSL	3	50	E	surfaced heading W	-	0							
9/20/2020	8b	9:15	okay	SSL	3	200	W	surfaced heading W	-	0							
9/20/2020	4b	9:20	okay	HBW	1	2500	E	blwoing, diving	-	0							
9/20/2020	3c	9:40	good	HS	1	150	W	loitering, curious, lo	vibratory	0		1					
9/20/2020	4c	9:46	good	HBW	1	2500	E	blowing, diving	vibratory	0	1						
9/20/2020	7b	9:50	fine	HBW	4	3500	SE	blowing, diving	-	0	4					assume in area during driving	
9/20/2020	3d	10:05	fine	HS	1	450	W	head above water	-	0							
9/20/2020	9	10:10	good	HBW	2	2500	ESE	blowing/diving	-	0							
9/20/2020	7c	10:18	good	HBW	4	4000	SE	1 tail lobbing, diving	-	0							
9/20/2020	1a	10:20	fair	HBW	2	7000	W	blowing, breaching	-	0							
9/20/2020	10	14:45	good	HS	1	100	W	playing, splashing	-	0							
9/20/2020	11a	14:50	good	HBW	1	2000	SSW	blowing/resting on	-	0							
9/20/2020	12	15:15	good	SSL	4	700	E	playing/swimming	-	0							
9/20/2020	13	15:20	good	HBW	2 or 3	2000	SSW	blowing, breaching	-	0							
9/20/2020	14	15:36	fair	HBW	1	4000	W	blowing	-	0							
9/20/2020	15	15:45	okay	HBW	1	3500	SSE	blowing/breech	-	0							
9/20/2020	16	16:05	okay	HBW	3	100-30	SSW	blowing, diving - sp	-	0							
9/20/2020	LS CM	Wx: wind light SE, precip light rain , CC 100%															Daily time totals
9/21/2020	1	10:01	good	HS	1	1000	SSW	head bobbing near	-	0							
9/21/2020	2	10:10	good	HBW	2	2000	W	blowing	-	0							
9/21/2020	3a	10:18	good	SSL	1	80	E	head up- swam awa	-	0							
9/21/2020	3b	10:26	good	SSL	1	650	E	head up - hanging c	-	0							
9/21/2020	3c	10:34	good	SSL	1	150	SE	head up - travelling	-	0							

9/21/2020	3d	10:40	good	SSL	1	150	W	head up - travelling	-	0							
9/21/2020	4	10:46	good	HBW	1	5000	E	blowing, travelling	-	0							
9/21/2020	2b	10:45	good	HBW	2	5500	W	blowing	-	0							
9/21/2020	5	10:50	good	KW	3	7000	W	surfaced, moving S	-	0							
9/21/2020	6	11:00	good	SSL	1	150	E	head up - looking a	-	0							
9/21/2020	7a	11:12	good	HS	1	25	nder doc	swam right under d	-	0							
9/21/2020	5a	11:49	good	KW	3	5000	SSW	moving E	-	0							
9/21/2020	7b	11:39	good	HS	1	200	E	head up	-	0							
9/21/2020	4a	12:05	good	HBW	1	4500	SSE	diving showing fluk	-	0							
9/21/2020	2c	12:23	good	HBW	2	4500	W	still hanging out W	-	0							
9/21/2020	9	12:56	good	HS	1	400	W	head up	-	0							
9/21/2020	2d	13:14	good	HBW	2	2000	W	blowing	-	0							
9/21/2020	4b	13:37	good	HBW	1	4000	S	blowing, diving, sar	-	0							
9/21/2020	2e	13:38	good	HBW	5	4500	W	guessing that 3 mo	-	0							
9/21/2020	4c	13:50	good	HBW	1	2500	S	diving	impact	0	1						
9/21/2020	2f	13:54	good	HBW	5	3000	W	hanging out same g	impact	0	5						
9/21/2020	4d	14:34	good	HBW	1	3500	S	diving	vibratory	0							repeat sighting, no take
9/21/2020	10	15:14	good	HBW	1	7500	E	breaching in Finn C	impact	0	1						
9/21/2020	4e	15:28	good	HBW	1	4500	S	surfacing and blow	impact	0							repeat sighting, no take
9/21/2020	2g	15:35	good	HBW	5	6000	W	fractured back into	impact	0							repeat sighting, no take
9/21/2020	4d	16:02	fair	HBW	1	1500	SSW	blowing	-	0							
9/21/2020	US CM	Wx: SE 10 , precip none, CC 90%															Daily time totals
10/1/2020	1	8:25	good	HS	2	100	E	head above water,	-	0							
10/1/2020	2	8:25	good	HS	2	200	W	head up	-	0							
10/1/2020	3a	8:30	good	SSL	2	500	W	travelling E	-	0							
10/1/2020	3b	8:35	good	SSL	1	50	E	travelling E	-	0							
10/1/2020	4a	9:10	good	HS	1	200	E	fishing along the ec	-	0							
10/1/2020	5a	9:15	good	HS	1	200	W	head up	-	0							
10/1/2020	4b	9:22	good	HS	1	700	E	head up swimming	-	0							
10/1/2020	5b	9:42	good	HS	1	275	W	head up	-	0							
10/1/2020	5c	9:48	good	HS	1	175	W	head up	-	0							
10/1/2020	6a	10:55	okay	HBW	3	1500	SE	swimming,blowing,	-	0							
10/1/2020	7a	11:02	fair	HBW	1	4000	SW	blowing, travelling	-	0							
10/1/2020	6b	11:10	fair	HBW	3	3000	SE	blowing,diving, hea	-	0							

10/2/2020	9	15:57	good	SSL	1	45	SSE	head up and away	impact	0			1			wood piling
10/2/2020	10	16:10	good	HBW	1	4000	SSE	blowing	-	0						assume in level B
10/2/2020	11	16:15	good	SSL	1	450	W	swimming W	-	0						
10/2/2020	12	16:30	good	HBW	1	6000	W	blowing	-	0						
10/2/2020	13	16:35	good	SSL	2	350	W	playing, swimming	-	0						
10/2/2020	14a	16:37	good	SSL	5	300	E	travelling W, heads	-	0						
10/2/2020	14b	16:42	good	SSL	5	300	W	travelling W, heads	-	0						
10/2/2020	4c	16:45	good	HBW	2	3000	S	blowing	impact	0						repeat sighting, no take
10/2/2020	CM, LS	Wx : wind light, precip yes, cc 100%														Daily time totals
10/7/2020	1	10:00	great	HBW	5 to 8	2000	S	blowing/diving head	-	0						
10/7/2020	2	10:00	great	HBW	3	2000	SSE	blowing/diving head	-	0						
10/7/2020	3	10:05	great	HBW	1 or 2	5000	SSW	blowing	-	0						
10/7/2020	4	10:10	great	HS	1	300	W	head above water	-	0						
10/7/2020	2a	10:27	great	HBW	3	2000	SSE	blow/dive	-	0						
10/7/2020	5	10:30	great	HBW	2	2000	SSE	blow/dive	-	0						
10/7/2020	6	10:34	great	HBW	3	2500	SSE	blow/dive	-	0						
10/7/2020	7	10:45	great	HBW	10+	500-40	S-SE	all blow/dive	-	0						
10/7/2020	7b	11:00	great	HBW	10+	500-40	S-SE	all blow/dive	-	0						
10/7/2020	7c	11:18	great	HBW	10+	500-40	S-SE	all blow/dive	-	0						
10/7/2020	7d	11:35	great	HBW	10+	500-40	S-SE	all blow/dive	-	0						
10/7/2020	8	11:55	great	HBW	2	1000	SW	heading SW, just be	-	0						
10/7/2020	7e	12:00	great	HBW	10+	500-40	S-SE	blow/dive	-	0						
10/7/2020	9	12:15	great	HS	1	350	E	head above water	-	0						
10/7/2020	7d	12:21	great	HBW	10+	500-40	S-SE	blow/dive	-	0						
10/7/2020	9	12:35	great	HBW	2	5000	WSW	blow/dive	-	0						
10/7/2020	10	12:35	great	HBW	1	3500	SSE	blowing/diving	-	0						
10/7/2020	7e	13:00	good	HBW	10+	500-40	S-SE	blow/dive	-	0						
10/7/2020	9a	13:15	good	HBW	2	5000	WSW	blow/dive	-	0						
10/7/2020	7f	13:17	good	HBW	10+	500-40	S-SE	blow/dive	-	0						
10/7/2020	11	13:25	good	HBW	4	800	SE	blow/diving headin	-	0						
10/7/2020	11a	13:28	good	HBW	4	200	S	blow/diving, slowly	DTH drill	0	4					
10/7/2020	7g	13:35	good	HBW	10+	500-40	S-SE	blow/dive	DTH drill	0	10					
10/7/2020	12	13:50	good	HBW	2	500	S	moving W towards	DTH drill	0	2					
10/7/2020	7h	13:50	good	HBW	10+	500-40	S-SE	blow/dive	DTH drill	0						repeat sighting, no take

10/7/2020	12a	13:54	good	HBW	2	1000	WSW	blow/dive E to W	DTH drill	0						repeat sighting, no take
10/7/2020	13	14:10	good	HBW	2	700	S	cruise/ blow E to W mor	DTH drill	0	2					
10/7/2020	7i	14:15	good	HBW	10+	100-40	S-SW	blow/dive	-	0						repeat sighting, no take
10/7/2020	14	14:35	good	HS	2	200	W	head above water,	-	0						
10/7/2020	7j	14:50	good	HBW	10+	100-70	W	blow , dive	-	0						
10/7/2020	15	15:00	good	HBW	3	100-45	S	blow-dive	-	0						
10/7/2020	15a	15:50	good	HBW	3	3500	SSW	blow-dive	DTH drill	0	3					
10/7/2020	7k	15:50	good	HBW	10+	100-70	SW-W	blow-dive	DTH drill	0						repeat sighting, no take
10/7/2020	MM, LS	Wx: Wind 0, Precip 0, CC 75%														Daily time totals
10/8/2020	1	8:10	good	HBW	10 to 1	4000	S	blowing/diving, fee	-	0						
10/8/2020	2	8:10	good	HS	1	110	W	head above water,	-	0						
10/8/2020	3	8:20	good	SSL	1	25	S	swam by on its way	-	0						
10/8/2020	4	9:10	good	HBW	1	6000	SE	1 big HBW, blowing	-	0						
10/8/2020	1a	9:20	good	HBW	15	5000+	SSE	blow, dive	-	0						
10/8/2020	1b	10:00	good	HBW	16	5000+	SSE	blow, dive	DTH drill	0	16					
10/8/2020	5	10:15	good	HBW	1	5000	SW	blow	DTH drill	0	1					
10/8/2020	6	10:20	good	HBW	2	1000	E	blowing/diving past	DTH drill	0	2					
10/8/2020	2a	11:02	good	HBW	1	300	W	floating	-	0						
10/8/2020	7	11:15	good	HS	1	350	E	swimming around r	-	0						
10/8/2020	6a	12:45	good	HBW	2	1000	SE	swimming, diving, r	-	0						
10/8/2020	1c	12:45	good	HBW	5 or 10	100-50	SW-SSE	big group has sprea	-	0						
10/8/2020	1d	13:10	good	HBW	5 or 10	100-60	S-SW	big group slowly far	DTH drill	0						repeat sighting, no take
10/8/2020	6b	13:10	good	HBW	2	1,200	SSW	slowly swimming W	DTH drill	0						repeat sighting, no take
10/8/2020	1e	13:30	good	HBW	13	100-60	SW-WSW	blow, dive	DTH drill	0						repeat sighting, no take
10/8/2020	MM, LS	Wx wind calm, precip not yet, cc 100%														Daily time totals
10/9/2020	1	9:05	okay	HBW	5 to 7	4500	SSE	blowing, heading E	-	0						
10/9/2020	2	9:05	okay	HBW	4 to 6	4000	S	blowing, spread ou	-	0						
10/9/2020	3	9:10	okay	SSL	1	50	SSL	scoping out the bar	-	0						
10/9/2020	4	9:55	okay	HBW	2	100-70	W	blow	impact	0	2					
10/9/2020	1a	9:55	okay	HBW	4	4500	SSE	blow, some are hea	impact	0	4					
10/9/2020	2a	9:55	okay	HBW	4	100-45	S	spread out from Ka	impact	0	4					
10/9/2020	5	10:30	okay	HBW	1	6000	SW	1 blowing heading t	-	0						
10/9/2020	1a+2a	14:22	okay	HBW	10+	5000	E-SW	blow, breach,dive	-	0						
10/9/2020	7	14:30	okay	HBW	2	6500	W	blow/dive	-	0						

10/13/2020	4	9:45	good	HBW	1	3000	S	wandering W, blow	-	0							
10/13/2020	1a	9:48	good	HBW	1	8000	W	blow,dive	-	0							
10/13/2020	3a	9:50	good	HS	2	500	E	swimming by harbor	-	0							
10/13/2020	5	9:50	good	HS	1	400	W	bobbing head above	-	0							
10/13/2020	6	10:18	good	HBW	1	6000	WSW	blow, dive	impact	0	1						
10/13/2020	2a	10:22	good	HBW	3 or 4	3000	SSE	blowing	impact	0	2						
10/13/2020	7	10:55	good	SSL	5	400	W	swam through work	-	0							
10/13/2020	8	10:55	good	HS	1	400	S	head above water	S	0							
10/13/2020	2b	10:55	good	HBW	3 or 4	3500	SSE	holding steady, feet	-	0							
10/13/2020	3b	10:55	good	HS	1	500	E	sharing the harbor	-	0							
10/13/2020	9	11:15	good	SSL	1	400	W	1 line SSL travelling	-	0							
10/13/2020	9a	11:25	good	SSL	1	500	E	hanging out near harbor	impact	0		1					
10/13/2020	3c	11:25	good	HS	1	500	E	head above water	impact	0		1					
10/13/2020	1c	11:38	good	HBW	1	8000	W	blow dive	(impact)	0	1						
10/13/2020	2c	11:43	great	HBW	3	4000	S	blowing, resting on	impact	0	1						2 repeats, 1 additional take
10/13/2020	2d	12:01	great	HBW	3	4000	S	blowing, resting on	-	0							repeat sighting, no take
10/13/2020	LS MM	Wx: Wind 3 knots W, precip none, CC overcast									0						Daily time totals
10/14/2020	1	9:05	good	HBW	1	8000	W	blowing, moving into	-	0							
10/14/2020	2	9:15	good	SSL	4 or 5	500	E	playing around near	-	0							
10/14/2020	3	9:25	good	SSL	2	400	W	approached from W, went	S	0							
10/14/2020	4	9:35	good	SSL	1	400	W	approached from W	-	0							
10/14/2020	5	?	good	HBW	2	4000	S	blowing	-	0							
10/14/2020	6	9:50	good	HBW	1	2000	E	blowing beyond the	-	0							
10/14/2020	7	10:15	good	HS	5	1000	SW	hanging around reef	impact	0		5					
10/14/2020	2a	10:18	good	SSL	1 or 5	900	E	SSL headed E around	impact	0			5				
10/14/2020	8	11:20	good	HBW	2	8000	W	blowing, near Salter	-	0							
10/14/2020	5a	11:40	good	HBW	1	4000	S	blowing/dived head	impact	0	1						
10/14/2020	8a	11:40	good	HBW	2	8000	WSW	blowing, resting on	impact	0	2						
10/14/2020	5b	12:00	good	HBW	2	600-4000	S-SSW	blowing, one straight	-	0							
10/14/2020	8b	12:00	good	HBW	2	8000	WSW	still cruising near Salter	-	0							
10/14/2020	LS MK	Wx: wind none, precip light, CC 75% fog clearing															Daily time totals
10/16/2020	1	11:15	not great	SSL	5	250	W	swimming E	-	0							
10/16/2020	1a	11:45	good	SSL	2	25	W	hanging out between 50	-	0							
10/16/2020	2	12:00	good	HS	1	50	NW	swam between rocks	delayed	0							delayed DTH startup

10/18/2020	4c	11:21	good	SSL	6	300	E	travelling east to th	-	0									
10/18/2020	6	11:30	good	HBW	2 or 3	450	W	blowing heading SV	-	0									
10/18/2020	5a	11:46	good	HS	1	100	W	swam from Millers	-	0									
10/18/2020	7	11:50	good	HBW	1	6000	SE	blowing against the	-	0									
10/18/2020	8	11:52	good	HBW	1	1300	E	blowing, resting on	-	0									
10/18/2020	6a	12:10	good	HBW	3	1000	S	blwoing,diving just	DTH drill	0	3								
10/18/2020	2a	12:10	good	HBW	1	5000	SSW	blowing between K	DTH drill	0	1								
10/18/2020	8a	12:10	good	HBW	1	1500	SSE	blowing heading SV	DTH drill	0	1								
10/18/2020	9	12:15	good	HBW	1	6500	WSW	blowing, heading N	DTH drill	0	1								
10/18/2020	10	12:18	good	HBW	3	7000	ESE	blwoing,diving	DTH drill	0	3								
10/18/2020	6b	12:35	good	HBW	3	1000	SSE	blowing, slowly trav	-	0									
10/18/2020	11	12:40	good	HBW	1	6200	SE	blowing sleeping or	-	0									
10/18/2020	2b	12:45	good	HBW	2	5000	S	1 blowing,diving, 1	-	0									
10/18/2020	12	12:50	great	SSL	2	400	W	heads above water	-	0									2 hour break in observations
10/18/2020	13	15:15	good	HBW	7 or 8	900-50	SSW-W	between reef and S	-	0									
10/18/2020	14	15:15	good	KW	2	800	SW	cruised by W reef, k	-	0									
10/18/2020	15	15:20	good	SSL	3	75-400	W	travelling fast E to V	-	0									
10/18/2020	16	15:55	good	SSL	3	150	W	travelling E	-	0									
10/18/2020	17	16:14	good	SSL	1	75	W	travelling W	-	0									
10/18/2020	18	16:17	good	SSL	3 or 4	100	W	travelling W	-	0									
10/18/2020	19	16:25	good	SSL	4 or 5	100	W	skeddaddled to the W		0									
10/18/2020	20	16:30	good	SSL	to 1	100	W	hustling up the Inlet		0									
10/18/2020	10a	16:38	good	HBW	2 or 3	6000	ESE	blowing	impact	0	3								
10/18/2020	13a	16:40	good	HBW	5 or 6	900-30	S	spread out, blowing	impact	0	6								
10/18/2020	-	17:15	good	HBW	to 11			total HBW still in area at end of o		0									
10/18/2020	LS CM	Wx: wind E20, precip none, CC 50-100%																	Daily time totals
10/19/2020	1	12:28	good	HBW	7	6000	SW-W	blow, dive	-	0									
10/19/2020	2a	13:38	good	HS	1	200	W	head up , slowly tra	-	0									
10/19/2020	2b	14:27	good	HS	1	200	W	head up looking N	-	0									
10/19/2020	1a	15:50	good	HBW	3	6000	SW	blow, dive	impact	0	7								assume all group #1 still there
10/19/2020	3a	16:08	good	HBW	1	4000	S	blow,dive moveing	-	0									
10/19/2020	1b	16:15	good	HBW	5	6000	W- WSV	blow, dive	-	0									
10/19/2020	4	16:40	good	SSL	3	0 to 2	E to W	travelling, before sc	(impact)	0	3								assume still in area at start 16:42
10/19/2020	3b	17:03	good	HBW	1	4000	S	blow - resting on su	(impact)	0	1								assume in area at start 16:42

10/19/2020	1c	17:05	good	HBW	7 or 8	6000	SW- W	blow	-	0							
10/19/2020	5	17:07	good	SSL	5	100	W	travelling W	-	0							
10/19/2020	6	17:10	good	SSL	4	50	W	travelling W	-	0							
10/19/2020	7a	17:14	good	SSL	10	300	E	travelling W	-	0							
10/19/2020	8	17:14	good	SSL	4	200	E	travelling W	-	0							
10/19/2020	7b	17:16	good	SSL	10	100	W	travelling W	-	0							
10/19/2020	CM, MM	Wx: wind calm, precip 0, CC 100%														Daily time totals	
10/26/2020	1	7:45	good	SSL	2	50	W	heads up swimming	-	0							
10/26/2020	2	7:55	good	SSL	1	50	E	heading E slowly	-	0							
10/26/2020	3	8:00	good	HBW	4	500-450	SE-S	4 blows spread out	-	0							
10/26/2020	4	8:14	good	SSL	1	70	W	heading W to E	-	0							
10/26/2020	5	8:20	good	SSL	3	150	E	heading E to harbor	-	0							
10/26/2020	6	8:30	good	SSL	2	100-200	S	splashing together	-	0							
10/26/2020	7	8:32	good	SSL	2	200	S	2 more heading E	-	0							
10/26/2020	8	9:30	good	SSL	5	250	W	loitering at 250 m t	-	0							
10/26/2020	9	10:39	good	SSL	1	50	W	swimming	-	0							
10/26/2020	10	11:15	good	HBW	3	4500	WSW	blowing heading N	-	0							breakdown, no pile driving
10/26/2020	LS,MM	Wx: wind calm precip 100%, CC yes														Daily time totals	
10/27/2020	1	8:00	good	SSL	5	50-150	W-SW	swimming	-								
10/27/2020	2	8:15	good	SSL	3	200-500	W-E	cruising	-								
10/27/2020	3	8:15	good	HS	1	200-500	W-E	cruising	-								
10/27/2020	4	8:25	good	HBW	3 or 4	5000	SSW	blowing, tucked ag	-								
10/27/2020	5	8:30	good	SSSL	1	200	SW	swimming SE	-								
10/27/2020	6	8:35	good	HS	1	200-800	W to E	cruising	soft start			1					
10/27/2020	7	8:37	good	SSL	4	400	SW-SE	cruising	impact				1				
10/27/2020	8	8:45	good	SSL	5 to 8	50-250	W-SW	meandering slowly,	-								
10/27/2020	3a	9:00	good	HS	1	120	W	cruising	-								
10/27/2020	9	9:03	good	HBW	3	6000	ESE	blowing beneath Tr	soft start			3					
10/27/2020	10	9:07	good	HBW	2	7000	S	blowing	impact			2					
10/27/2020	11	9:10	good	HBW	3	6500	WSW	blow/dive	impact			3					
10/27/2020	12	9:20	good	SSL	1	100-1000	W to E	cruising, heading to	-								
10/27/2020	9a	9:35	good	HBW	3	4000	S	group is steadily m	impact								repeat sighting, no takes
10/27/2020	4a	9:40	good	HBW	5	6000	SW	blow/dive	impact			5					
10/27/2020	13	9:40	good	HS	1	300	E	splashing/fishing	impact				1				

Date	daily observer time	vibratory driver time		impact driver time		DTH drill time	
	measured in hours		minutes		minutes	hours	minutes
7/26/2020	8.50		27		11		
7/27/2020	7.00		11		9		
7/28/2020	7.50		5		63		
7/29/2020	5.50		85		2.5		
7/30/2020	4.00		99				
8/7/2020	8.50		30		29		
8/8/2020	3.75		17		22		
8/13/2020	8.50		17				
8/31/2020	10.50					2	30
9/1/2020	10.00					3	
9/2/2020	8.00						20
9/3/2020	9.00				24		
9/4/2020	4.00				17		
9/9/2020	8.50					2	53
9/10/2020	10.50				7	2	40
9/11/2020	4.25		16				
9/13/2020	11.75				15	3	10
9/15/2020	8.75				1	3.0	
9/16/2020	2.50				15		
9/20/2020	3.50		4				
9/21/2020	6.75						
10/1/2020	8.75				26		
10/2/2020	7.50				12		
10/7/2020	7.00					1	35
10/8/2020	5.25					1	50
10/9/2020	5.25				7		
10/11/2020	3.75				14		
10/12/2020	6.25						24
10/13/2020	3.25				16		
10/14/2020	3.25				17		
10/16/2020	4.50		0		0		0
10/17/2020	2.75				8		

10/18/2020	6.00				3		35
10/19/2020	5.00				9		
10/26/2020	4.75						
10/27/2020	6.50				50		
10/31/2020	6.50				23		
PROJECT TOTAL	237.50	0.00	311.00	0.00	400.50	17.00	297.00