

The City of Ketchikan Rock Pinnacle Removal Monthly Report: December 2019

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Prepared for

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1.0 Introduction

The National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service (NMFS) issued the City of Ketchikan an Incidental Harassment Authorization (IHA) on July 18, 2019 under the authority of section 101(a)(5)(D) of the Marine Mammal Protection Act (16 U.S.C. 1361 et seq) to take, by Level A and Level B harassment only, small numbers of marine mammals incidental to underwater rock blasting in the Tongass Narrows, Alaska.

The City of Ketchikan is currently performing blasting operations to remove an existing rock outcrop (i.e., rock pinnacle), in close proximity to Berth II of the Ketchikan cruise ship dock to expand the area of safe navigation depths for cruise ships that presently visit Berths I and II. The rock pinnacle measures approximately 97.5 meters (m) by 45.7 m by 1.2 m, and up to 5,734 cubic m of material are expected to be removed through this effort.

This IHA authorizes a small number of takes for the following species: humpback whale (*Megaptera novaeangliae*), gray whale (*Eschrichtius robustus*), minke whale (*Balaenoptera acutorostrata*), killer whale (*Orcinus orca*), harbor porpoise (*Phocoena phocoena*), Dall's porpoise (*Phocoenoides dalli*), Pacific white-sided dolphin (*Lagenorhynchus obliquidens*), Steller sea lion (*Eumetopias jubatus*), and harbor seal (*Phoca vitulina richardsi*). Other marine mammal species will be recorded if observed.

This monthly field report presents preliminary information requested in the IHA, Biological Opinion, and/or the US Army Corps of Engineers (USACE) permit for the reporting period of December 2019, during which operations took place from December 17-20. This report includes information on blasting operations, marine mammal monitoring, fish sightings, and mitigation measures implemented.

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1.1 Summary of Sightings

There were three marine mammal sightings during this monthly reporting period; one sighting of one individual humpback whale, one sighting of one individual Steller sea lion, and one sighting of one individual harbor seal (Table 1, Appendix A). Fish sightings were also recorded (Section 5).

Table 1. Summary of Marine Mammal Sightings, Estimated Number of Individuals, Number of Delays and Exposures per Species for Dec 17-20, 2019.

Marine Mammal Species	No. of sightings ¹	No. of Individuals	No. of Delays	No. of Monthly Exposures	Cumulative No. of Project Exposures
Humpback whale	1	1	0	0	0
Gray whale	0	0	0	0	0
Killer whale	0	0	0	0	0
Minke whale	0	0	0	0	0
Harbor porpoise	1	1	0	0	0
Dall's porpoise	0	0	0	0	0
Steller sea lion	1	1	0	0	0
Harbor seal	1	1	0	0	0
Other	0	0	0	0	0
Unidentified marine mammal	0	0	0	0	0
Unidentified pinniped	0	0	0	0	0
Total	3	3	0	0	0

¹One sighting equals one group

2.0 Summary of Operations

Six project vessels operated during this monthly reporting period; one barge conducted test and production blasting in the project area, two crew boats were on site during the 30-minute (min) pre-blast marine mammal clearing period to provide general vessel clearance and pre-blast notification for other vessels in the area; two tugs were on site to move the work barge into position, and; one survey vessel was present from December 17-20 to collect sound information from the test blasts for analysis. One test blast was conducted per day between December 17-20 for a total of four blasts during the month of December 2019. One partial-strength blast (8 holes) was conducted on December 17, and the first full-strength blast (21 holes) was performed on December 18. Additional full-strength blasts occurred on December 19 and 20 (21 holes and 22 holes, respectively).

A total of three Protected Species Observers (PSOs) monitored for marine mammals and fish during daylight hours in accordance with all permits and the blasting schedule. Two observers were stationed on land (Figure 1); one PSO was stationed at a “North Dock” location (Figure 2), at the end of Berth IV at the Ketchikan cruise ship dock, approximately 600 m southwest of the

blast zone; the second PSO was stationed at a “South Dock” location (Figure 3), at the end of Berth I of the Ketchikan cruise ship dock, approximately 400 m southeast of the blast zone. The land-based PSOs were stationed approximately 1,000 m apart to capture the full visible range required to monitor the largest shutdown zone (1,500-m radius). The Lead PSO was stationed on the barge from which blasting operations occurred. All necessary security clearance measures were completed prior to the Lead PSO boarding the barge. All observers were actively on watch for at least 30 min before blasting, and for one hour after the blast. PSO watch during December 2019 began between 11:15 AM and 12:30 PM, and ended between 1:00 PM and 2:05 PM.

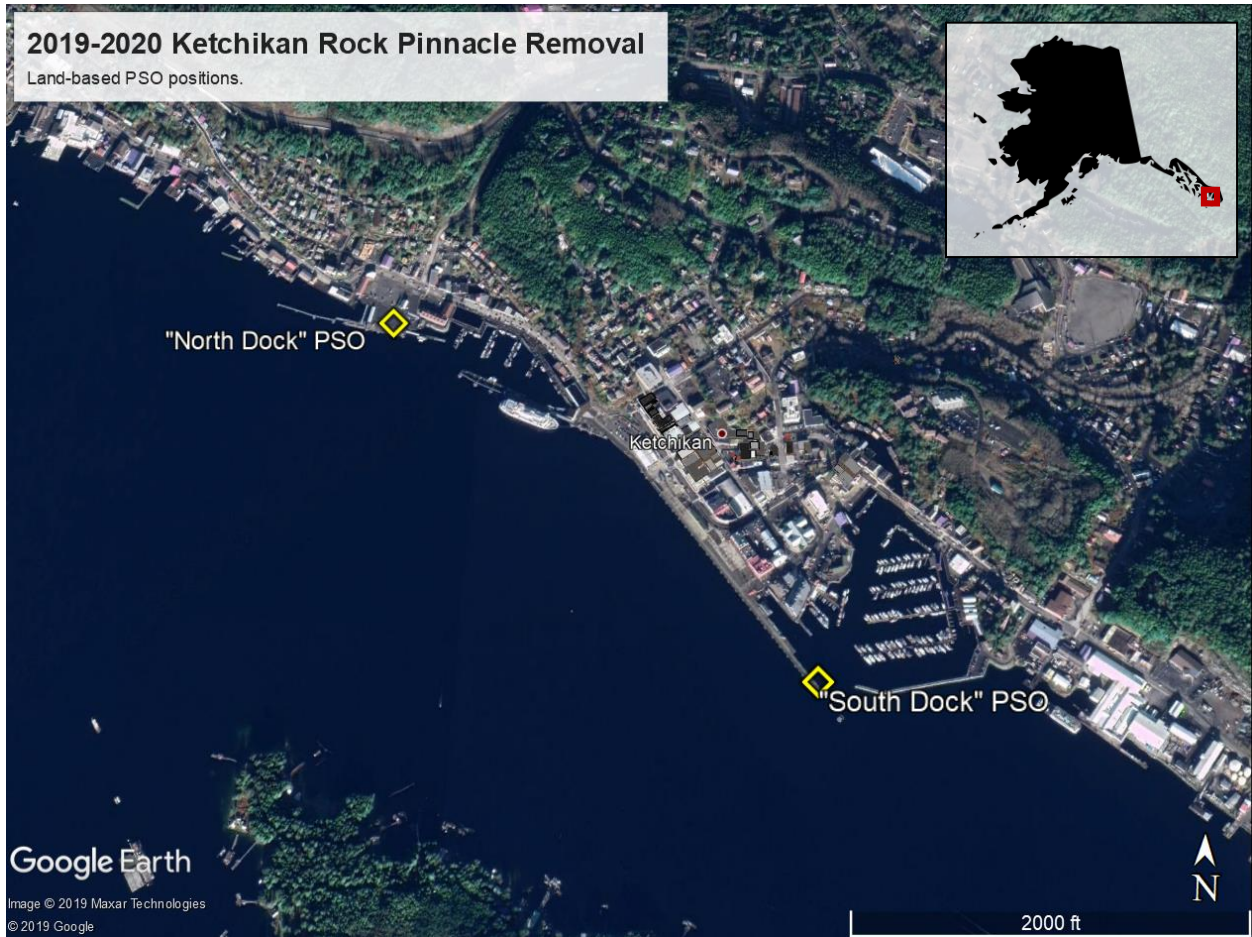


Figure 1. Land-based PSO stations (“North Dock” and “South Dock”) for the 2019-2020 Ketchikan Rock Pinnacle Removal project.



Figure 2. View from “North Dock” PSO observing location on Berth I of the Ketchikan cruise ship dock: left) view to the southwest, right) view of the blasting area, north.



Figure 3. View from “South Dock” PSO observing location on Berth IV of the Ketchikan cruise ship dock: left) view to the southeast, right) view of the blasting area, northwest.

3.0 Monitoring Effort and Environmental Conditions

PSOs recorded effort and environmental information during each watch period. All three PSOs were equipped with 7x50 Fujinon reticle binoculars, a Bushnell rangefinder, a Canon Powershot camera, Garmin GPS, and a clipboard with rite-in-the-rain datasheets. PSOs remained in contact with each other and the barge personnel at all times via marine radios.

3.1 Monitoring Effort

From December 17-20, 2019, PSOs observed for a total of 21 hours which included 9 hours of pre-blast watch, and 12 hours of post-blast watch (Table 2).

Table 2. PSO Observation Hours for Dec 17-20, 2019 and Cumulative Project Totals.

Activity	Total effort hours	Total Cumulative Hours
Pre-test blast	9:00:00	9:00:00
Post-test blast	12:00:00	12:00:00
TOTAL	21:00:00	21:00:00

3.2 Environmental Conditions

Overall, the environmental conditions were conducive to appropriately monitor marine mammals and fish during project blasting operations from December 17-20, 2019. PSOs reported an average visible distance of 6.4 kilometers (km). Cloud cover was between 90-100% with light rain and drizzle for each day, with little to no glare. The ability to detect a marine mammal with the given environmental conditions, or “sightability” was reported as fair or good for the majority of the days.

4.0 Marine Mammal Sightings

A total of three sightings (i.e., groups) of three individual marine mammals were observed during December 17-20, 2019 (Table 3); one sighting of one individual humpback whale, one sighting of one individual Steller sea lion, and one sighting of one individual harbor seal.

No sightings were observed during the 30-min watch period prior to each blast. All three recorded sightings occurred post-blast.

At the end of each watch period, the Lead PSO collected data sheets from the land-based PSOs and entered all information (effort, environmental, and sightings) into a Google Drive database. The Fairweather Science data manager performed a detailed QAQC of all entered data on a daily basis. A daily sightings summary was distributed to key J.E. McAmis and Contract Drilling & Blasting, LLC personnel.

Table 3. Total Marine Mammal Sightings, Individuals, Sightings Pre- and Post-blasting Activity, and Initial Behaviors Observed during Dec 17-20, 2019.

Species	No. of Sightings ¹	No. of Individuals Observed	No. Sightings Pre-blast	No. Sightings Post-blast	Initial Behavior
Humpback whale	1	1	0	1	Swim
Gray whale	0	0	0	0	-
Minke whale	0	0	0	0	-
Killer whale	0	0	0	0	-
Harbor porpoise	0	0	0	0	-
Dall's porpoise	0	0	0	0	-
Pacific white-sided dolphin	0	0	0	0	-
Steller sea lion	1	1	0	1	Snorkel
Harbor seal	1	1	0	1	Look
Other	0	0	0	0	-
Unidentified marine mammal	0	0	0	0	-
Unidentified pinniped	0	0	0	0	-
Total	3	3	0	3	-

¹One sighting equals one group

5.0 Summary of Fish Sightings

Per the USACE permit, PSOs recorded all sightings of dead fish present in the project area prior to, during, and after blasting operations. A total of four dead fish sightings (6 total fish) were observed during December 17-19, 2019. All records of dead fish sightings were captured in the PSO effort data. Appendix B contains a table of effort entries during which dead fish were sighted in December 2019; fish sightings were identified to the lowest possible taxonomic group, and are described in the ‘Notes’ column. Fork length was not measured because PSOs could not access the dead fish sightings in a safe or feasible manner.

6.0 Implementation of Mitigation Measures

As outlined in the IHA and Biological Opinion for the project, PSOs established monitoring zones and shutdown zones around the blasting area, which represent species-specific estimated 120 dB disturbance harassment thresholds for marine mammals as defined by NMFS (Table 4). PSOs cleared the zones for 30 min prior to the blast and observed the project area for 60 min after the blast. All marine mammals observed within the project area were documented. No shutdowns were implemented during this monthly reporting period, and sightings did not result in delays to operations.

Table 4. Marine Mammal Monitoring Zones and Total Project Delay Time Due to Sightings in Zones.

Description	Low frequency cetacean	Mid frequency cetacean, otariid	High frequency cetacean, sea otter	Phocid
Monitoring zone	2,500 m	500 m	5,000 m	1,500 m
Shutdown zone	1,000 m	100 m	1,500 m	250 m
Delay time	0 min	0 min	0 min	0 min

A total of three marine mammals were observed during the 60-min post-blast observation periods. Of these, one sighting of one individual humpback whale was recorded within the Level B zone (Table 5) approximately 55 min after test blasting operations were completed. The humpback whale was observed 75 m away from the North Dock PSO, traveling in the direction of the blast site. The animal was swimming at a slow pace, then dove out of site; total time of sighting observation was under one min.

Table 5. Number of Mitigation Measures Implemented Per Species for all Marine Mammal Sightings Dec 17-20, 2019.

Species	Mitigation Measure		
	Delay ¹	None	Total
Humpback whale	0	1	1
Grey whale	0	0	0
Minke whale	0	0	0
Killer whale	0	0	0
Harbor porpoise	0	1	1
Dall's porpoise	0	0	0
Pacific white-sided dolphin	0	0	0
Steller sea lion	0	1	1
Harbor seal	0	0	0
Other	0	0	0
Unidentified marine mammal	0	0	0
Unidentified pinniped	0	0	0
Total	0	3	3

¹Sightings that result in a delay of operations.

7.0 Implementation of Terms and Conditions

The City of Ketchikan endeavors to comply with stipulations outlined in all required permits. The City of Ketchikan has complied with the Terms and Conditions specified in the IHA and Biological Opinion as practicable while maintaining safety standards.

APPENDIX A

Monthly Report 1 (Dec 17-20, 2019) Marine Mammal Sightings

(Re-sightings highlighted in red)

Date	PSO Location	Sighting time	End time	Species	Total Group Size	Juveniles	MM Distance to Observer	MM Distance to blast zone	Optics	Sighting Cue	Behavior 1	Reaction to Activity	Mitigation Measure	Notes
2019-12-17	North Dock	13:04	13:04	HW	1	0	75	600	NAKED EYE	BODY	SWIM	NONE	NONE	HW surfaced once traveling in direction of blast site, dove, and was not sighted again.
2019-12-18	South Dock	13:09	13:09	SSL	1	0	20	620	NAKED EYE	BODY	SNORKLE	NONE	NONE	SSL surfaced below dock twice to breathe, then dove and was not seen again. Heading away from work site.
2019-12-19	South Dock	12:08	12:12	HS	1	0	270	900	7X50	HEAD	LOOK	NONE	NONE	HS seen milling around under Ketchikan Cr. bridge in Thomas Basin Harbor. Milled into mouth of creek, submerged and was not seen again after about 4 min.

APPENDIX B

Monthly Report 1 (Dec 17-20, 2019) Dead Fish Observations¹

PSO Location	Latitude	Longitude	Effort ID	Date	Time	Activity	Water Depth	Sea State	Visibility	Glare	% Cloud Cover	Precipitation	Sightability	Notes
Barge	55.339	131.6494	BB003	2019-12-17	12:15	POST-BLAST	X	1	8	NONE	90-100	DRIZZLE	GOOD	Blast @ 12:11. 3 dead fish post blast (rockfish)
North Dock	55.344	131.6557	ND007	2019-12-18	13:00	PRE-BLAST	X	2	5	NONE	90-100	LIGHT RAIN	GOOD	1 dead fish floated up pre-blast (flounder sp.)
North Dock	55.344	131.6557	ND008	2019-12-18	13:30	POST-BLAST	X	2	5	NONE	90-100	LIGHT RAIN	GOOD	Blast @ 13:05; 1 dead fish floated up post-blast (rockfish)
Barge	55.3391	131.6488	BB013	2019-12-19	12:30	POST-BLAST	X	3	8	NONE	90-100	DRIZZLE	FAIR	Increasing wind. blast at 12:00. 1 dead fish post blast (possible salmonid)

¹Fork length was not measured because PSOs could not access the dead fish sightings in a safe or feasible manner.