



Annual Report of Marine Mammal Monitoring at Ugak Island

**Compliance with National Marine Fisheries Service Final Rule
(50 CFR Par 217, Subpart H)**

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TABLE OF CONTENTS

Introduction	2
Overview	2
Launch Operations and Monitoring	3
Pupping Season Monitoring	5
Quarterly Aerial Surveys	5
New Vehicle Sound Pressure	5
Contact	5

Attachments

- Attachment 1 (FINAL TacSat-4 Environmental Report_12-19-11)
- Attachment 2 (4Q FY11 Ugak Quarterly Monitoring Report (21 Sep 2011))

Introduction

The Alaska Aerospace Corporation (AAC) owns and operates the Kodiak Launch Complex (KLC) at Narrow Cape, Kodiak Island, Alaska. AAC is licensed by the Federal Aviation Administration to launch rocket from KLC. KLC is adjacent to the Pacific Ocean, and marine mammals are known to occupy land on Ugak Island. Therefore AAC is subject to the Marine Mammal Protection Act and oversight by the National Marine Fisheries Service (NMFS) for harassment and incidental take of marine mammals. NMFS has issued a final rule which will govern AAC mitigation, monitoring and reporting requirements from 2011 to 2016. These reporting requirements include an annual report summarizing the annual activities at KLC with regards to rocket launches and marine mammal monitoring. This document is the annual report for March 2011 through March 2012.

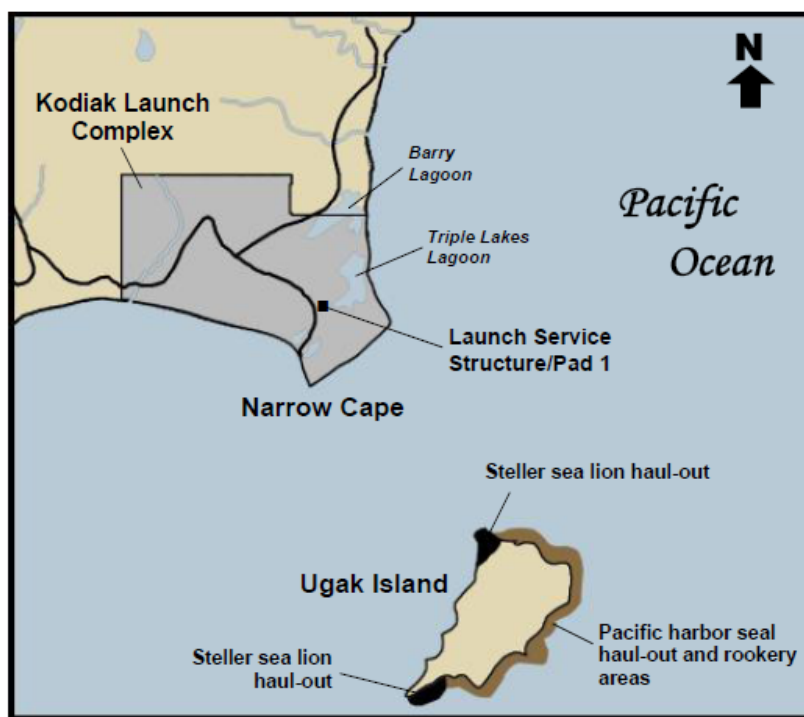
Overview

The Alaska Aerospace Corporation (AAC) owns and operates the Kodiak Launch Complex (KLC) at Narrow Cape, Kodiak Island, Alaska. KLC is a spaceport that launches both orbital and suborbital rockets on a southern trajectory for government and commercial customers. KLC can launch up to eight rockets a year.

AAC monitors the effects of launch operations on the environment. For marine mammals, the main focus is on the pinniped population on Ugak Island, about 3.5 miles south of the

launch pad along the flight azimuth. Rockets are usually eight miles in altitude when they pass over the island. Ugak Island is a known haul-out area for both Stellar sea lions and harbor seals.

According to the Marine Mammal Protection Act, Regulations Governing Small Takes of Marine Mammals Incidental to Specified Activities, and the conditions of previous Letters of Authorization (LOA), AAC must perform the following monitoring activities for the NMFS in accordance with the final rule (50 CFR Part 217, Subpart H):



Source: Modified from USASMD, 2003

Figure 1: Narrow Cape and Ugak Island site overview.

- Deploy a remote camera system designed to detect pinniped responses to rocket launches for at least the first five launches.
- Conduct visual monitoring of pinniped response two hours before launch, during launch, and two hours after launch.
- Conduct visual monitoring of harbor seal rookery if the launch is during pupping season.
- Conduct quarterly aerial surveys of haulout sites.
- Monitor sound pressure and exposure time for new classes of rockets.

A summary of these monitoring activities follows.

Launch Operations and Monitoring

In the last year, AAC performed the following launch from KLC:

Date	Time	Mission	Launch Vehicle	Launch Site
27 September 2011	0749 local	TacSat-4	Minotaur IV	LP-1

Ugak Island was monitored using the SeeMore Wildlife System remote camera that was installed on the island on 8-9 September 2011, 18 days prior to the launch. The camera recorded for 2.5 hours on the morning of the 26th and for 2.5 hours following the launch on the morning of the 27th.

Issues:

- **Darkness.** The launch took place at 0749 (local). Sunrise was at 0804. Therefore no monitoring was performed for the two hours directly prior to the launch because the darkness prevented any meaningful observations. Instead, this observation was performed the day prior to provide a basis for comparison for the post launch observation.
- **Electromagnetic interference potential.** The camera was deactivated during the launch because the transmission path for the remote video signal is adjacent to Launch Pad 1 (LP-1), which has the potential to cause electromagnetic interference (EMI) with the rocket or the satellite. Due to the geography of Ugak Island, LP-1, and the signal receive site, this issue cannot be avoided. Pre-installation analysis indicated that the camera signal is too weak to interfere with the sensitive launch vehicle and space vehicle systems. However, AAC did not have an opportunity to validate the calculations with real EMI measurements from LP-1 prior to the launch. Therefore, after consulting with NMFS, the Launch Decision Authority decided to turn the camera off until the rocket was safely launched, about ten minutes after lift-off.
- **Loss of signal.** The camera signal was lost for 2-7 minutes on three separate occasions on 26 September and once on the 27th due to software issues. These issues will be addressed and resolved prior to the next mission.

Results

- The day prior to the launch, 17-19 harbor seals were observed in two haulout sites on the south-eastern side of the island.
- After the launch, 4-5 harbor seals were observed in one haulout site.
- No sea lions were observed.
- No injured, killed or harassed seals were observed.
- Since the camera was deactivated during the launch due to potential EMI issues, it is difficult to conclude what effect, if any, the launch had on the seals.
- The remote camera system was able to provide useful visual monitoring of Ugak Island during daylight hours. The system's effectiveness is expected to increase once the EMI and software issues are resolved.
- See Attachment 1 (FINAL TacSat-4 Environmental Report_12-19-11) for the full report.

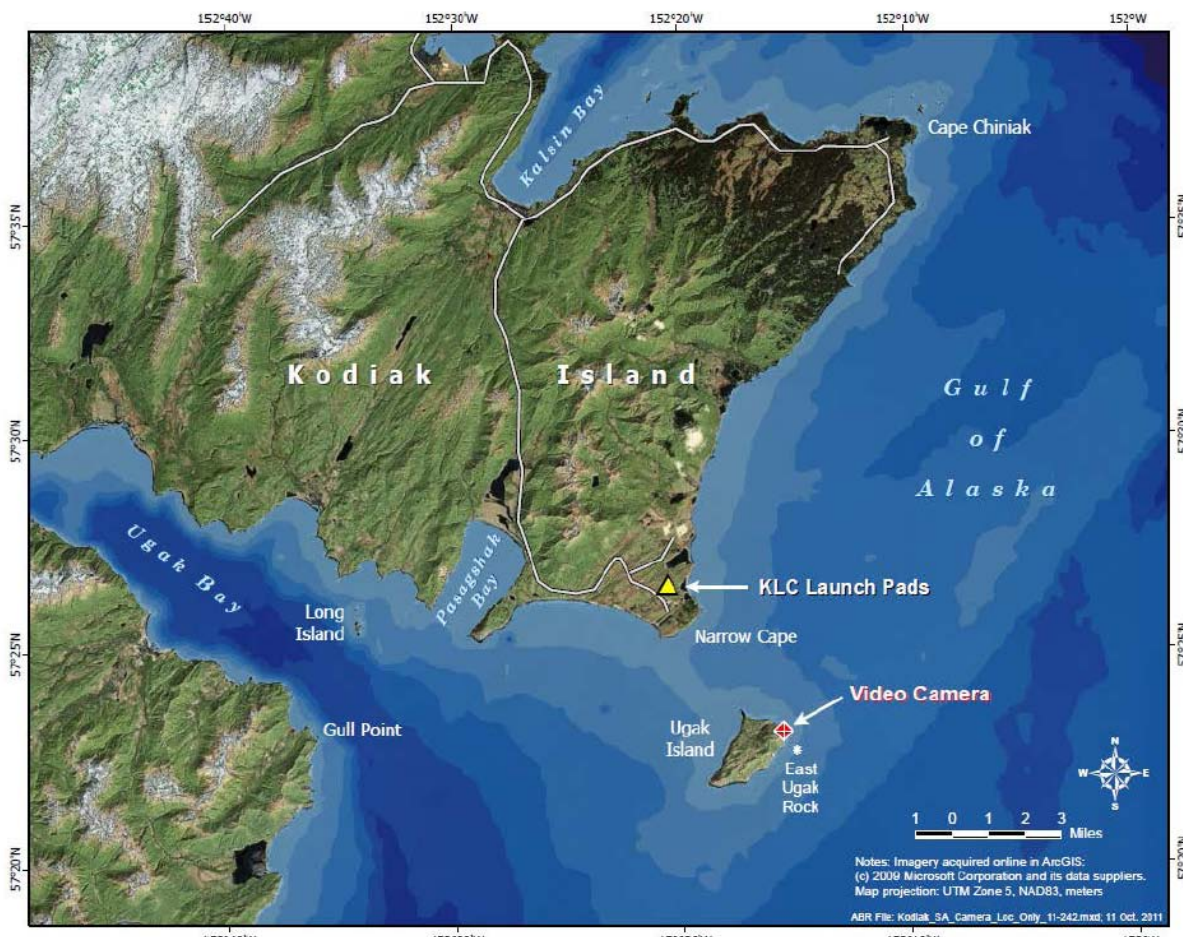


Figure 2: Remote Camera location on Ugak Island.

Pupping Season Monitoring

There were no launches during seal pupping season (15 May – 30 June).

Quarterly Aerial Surveys

The following aerial surveys of Ugak Island were performed this last year:

Quarter	Date	Time (local)	# Sea Lions	# Harbor Seals	Notes
3 rd (Apr-Jun)	N/A		Source selection for flights		
4 th (Jul-Sep)	21 Sep 2011	1330-1430	19	462	
1 st (Oct-Dec)	5 Dec 2011		Postponed twice due to multiple storms		
2 nd (Jan-Mar)	Mar 2012	TBD			

See Attachment 2 (4Q FY11 Ugak Quarterly Monitoring Report (21 Sep 2011)) for the full fourth quarter monitoring report. This annual report will be updated once the March survey is completed.

New Vehicle Sound Pressure

No new launch vehicles were launched from KLC this year.

Contact

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