



INTRODUCTION

The magnitude, type, and often prolonged nature of volcanic activity in the Aleutian Islands have shaped the habitats and behavior of the species that use them. The eruption of Kasatochi volcano, in the Central Aleutians, on August 7–8, 2008 buried nesting habitats for the large number of seabirds that have used it during the summer. Since the eruption we have monitored the physical processes that develop nesting habitats for Crested Auklets (*Aethia cristatella*) and Least Auklets (*Aethia pusilla*).



METHODS

We examined the role of erosion and rock-fall on the development of reproductive habitat for crested and least auklets.

- We compared two adjacent coves using a combination of time-lapse photography in Tundering Cove in 2010 and opportunistic images of Whiskey Cove (Fig. 1).
- Field reconnaissance of nesting habitat was conducted in June and August of 2009–2012.
- Tundering Cove was examined every year, however, Whiskey Cove only became accessible in 2012.

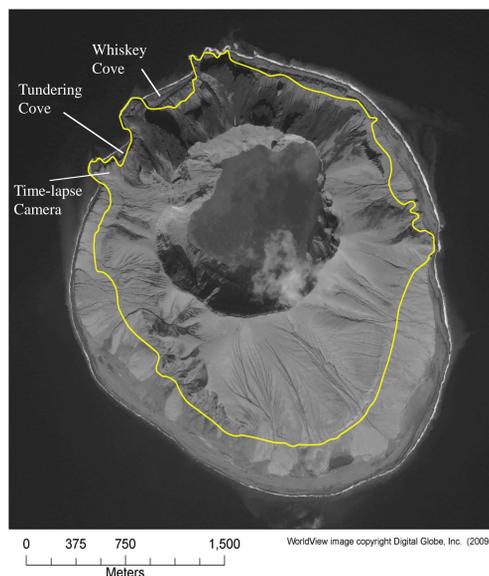


Fig. 1. Landsat image of Kasatochi Island collected 18 April 2009. The yellow line represents the shoreline prior to the 7 August 2008 eruption.

RESULTS

Tundering Cove

- Substantial gully erosion (Fig. 2), but only a subset of the volcanic material (30%) has been removed
- No significant rock-falls have been recorded.
- Wave erosion has exposed some beach boulders in Tundering Cove (Fig. 3), but few auklets are using this lower quality habitat.
- Images from the time-lapse camera focused on the previous Tundering Cove colony site showed little exposure of the pre-eruption talus (Fig. 4).
- Reconnaissance of the site has yet to identify successful nesting.

Whiskey Cove

- Similar gully erosion as Tundering Cove .
- Noticeable rock-fall beginning in 2010 creating approximately 1.5 Ha of new talus over the last 3 years (Fig. 5).
- Reconnaissance of the Whiskey Cove (possible in June of 2012) provided evidence of extensive nesting by both Crested and Least Auklets throughout the new talus field (Fig 6).

Tundering Cove

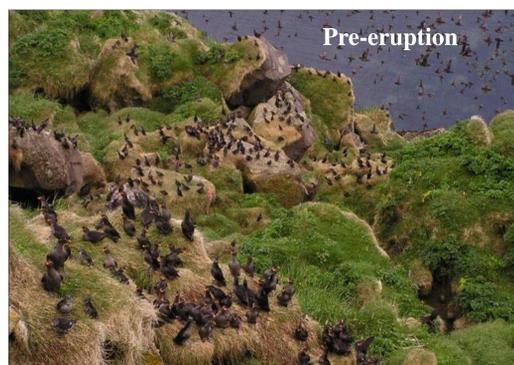


Figure 4. Time sequence of Tundering Cove colony site. The pre-eruption colony site was photographed from upslope. Post-eruption images of the site were taken by time-lapse cameras installed in June 2010. Song-meters are visible in the upper-right portion of the lower images.

Whiskey Cove

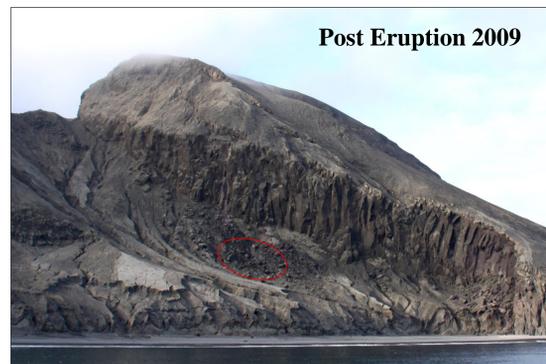


Figure 5. Time sequence of nesting habitat availability in Whiskey Cove. Pre-eruption colony site is represented by the yellow ellipse. Post-eruption rock-fall, first identified in 2009 is represented by the red ellipse. Between 2009 and 2012 talus increased in surface area and complexity.



Figure 2. Gullies have expanded with the deepest gullies reaching approximately 30 m deep.



Figure 3. Time-lapse cameras installed above Tundering Cove.

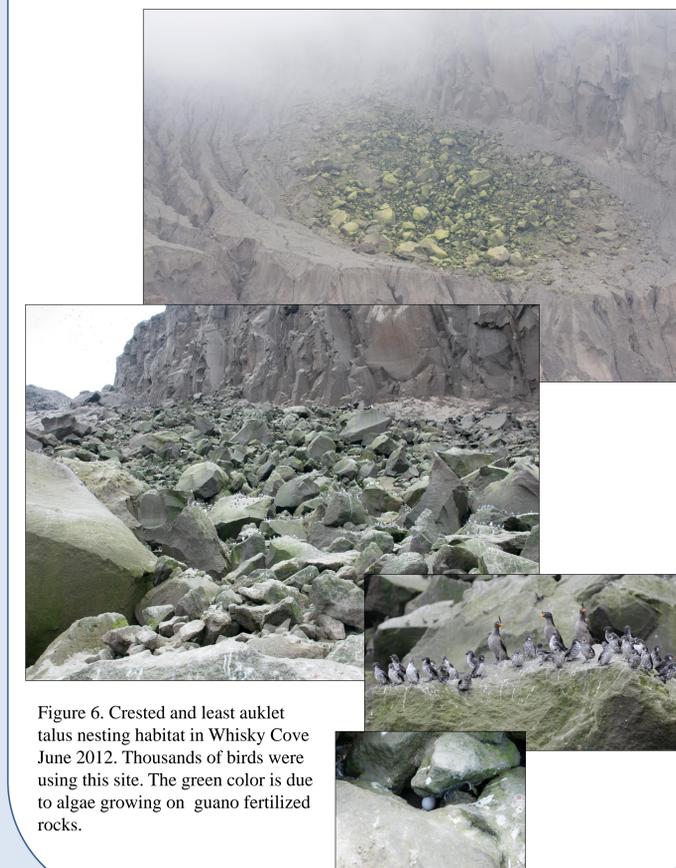


Figure 6. Crested and least auklet talus nesting habitat in Whiskey Cove June 2012. Thousands of birds were using this site. The green color is due to algae growing on guano fertilized rocks.

DISCUSSION

We had hypothesized that erosion would dictate the location and timing of nest site availability through the exposure of pre-eruption talus fields. Instead, we found that the erosion processes have not been able to uncover higher quality upslope talus sites. Photographic reconnaissance provided evidence of extensive rock-falls in Whiskey Cove. Crevice-nesting habitat availability on Kasatochi has been based on new talus habitats created through rock-fall.

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