

U. S. Fish and Wildlife Service – Juneau Field Office  
Update on Kittlitz's Murrelet projects and accomplishments  
Reporting period: March 2004 – October 2005  
Date: 17 October 2005  
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#### 6-16 July 2004

- Conducted at-sea surveys from LaPerouse Glacier to Yakutat
- Few KIMU observed in water greater than 10 fathoms in depth
- Clusters of KIMU observed near the mouth of Lituya Bay and Cape Fairweather
- KIMU population estimated to be 500-800 birds
- Many birds observed 'off-transect' and close to shore – popN estimate is probably biased low because the boat could not travel close to shore
- See Figures 1 and 2 below
- Draft report summarizing 2002-2004 KIMU surveys will be completed by December 31, 2005.

#### 25 June – 6 August 2005

- Conducted KIMU pilot study in Icy Bay. This project was a collaborative effort between FWS-SEES, NPS-WRST, NPS-Coastal Program, ADFG, and NPS-Partner Program (Fort Collins, CO)
- The overall objective of this study was to gather information for developing a long-term monitoring plan for Kittlitz's murrelets in Icy Bay. Specific objectives of this study were to:
  - (1) determine the range and peak period of appearance of juvenile Kittlitz's murrelets in Icy Bay;
  - (2) understand the spatial and temporal variation in peak fledging of hatch-year and dispersal of after-hatch-year birds;
  - (3) develop survey methods for monitoring and estimating densities of Kittlitz's murrelets in an area with dynamic ice cover; and
  - (4) conduct a pilot study to assess whether boat- and/or land-based telemetry will be effective at locating individuals within Icy Bay.
- Kittlitz's murrelet is the most common bird species in Icy Bay.
- We conducted weekly surveys throughout the main bay and in Taan Fjord. We concentrated our efforts in Taan Fjord for several reasons: (1) we consistently recorded KIMU in Taan Fjord; (2) the waters are well-protected; and (3) we observed many (at times up to 40% of KIMU, but usually 10-15%) with fish (usually capelin). The majority of KIMU were recorded on shoreline surveys and therefore pelagic estimates are low (see Fig. 3 below).
- We conducted juvenile searches at least once a week in Taan Fjord. This was a timed search (usually 5-6 hours per week) focused near the shoreline. We 'examined' approximately 309 KIMU and only observed eight possible juveniles (see Fig. 6 and 7). We never observed a definite KIMU juvenile.
- Marbled murrelets were nearly absent during the first three weeks of surveys, but were recorded during the last two weeks of surveys (including 12 black-and-white MAMU).

- Despite significant effort to capture AHY KIMU starting 1 July – 8 July, we only captured one AHY KIMU on 21 July 2005 (See Fig. 5 and 9). We attached a radio-transmitter and continued to track the bird daily until 6 August.
- Capture of AHY and possible HY KIMU proved difficult in July. We used the night-lighting technique described by Whitworth et al. (1997). Although we watched 30-60 birds (using spotting scopes) on the water until dusk (approx. 2230-2300 hours), we were unable to locate birds on the water at night. We searched for birds in all parts of the bay (i.e., mouth, head, and middle), in different water depths, and under different ice conditions. We did observe a few birds on the water at night, but all of those birds flew immediately after having the light shone on them.
- We recorded behavior observations including dive times, post-dive surface times, preening, stretching, interactions, etc. If birds were foraging, we recorded water depth (using handheld fathometer) and prey taken. We also recorded response to the boat and evaluated assumptions of distance sampling models.
- We're working with a spatial modeler/biometrician to analyze the survey data in relation to upland and oceanographic characteristics. He is also helping to refine survey methods in areas with heavy ice cover, such as Icy Bay.
- Despite logistical setbacks and several unforeseen circumstances, we consider this project to have been a great success.
- Final report for this project is due on September 30, 2006.

#### May 2006

FWS-SEES and all collaborators plan to return to Icy Bay in May and June 2006. The objectives are to refine methods for capturing AHY KIMU at-sea and to conduct a radio-telemetry pilot study. If successful at capturing birds on the water, radio-transmitters (n=14) will be attached. We will use aerial telemetry from a fixed-wing aircraft to locate radioed birds once per week (or as often as possible). Future KIMU work in Icy Bay will likely require nest-finding, which is best accomplished using radio-telemetry. Because only one bird was captured in 2005, we plan to conduct our radio-telemetry pilot study during May and June 2006. Estimated project cost: \$30K.

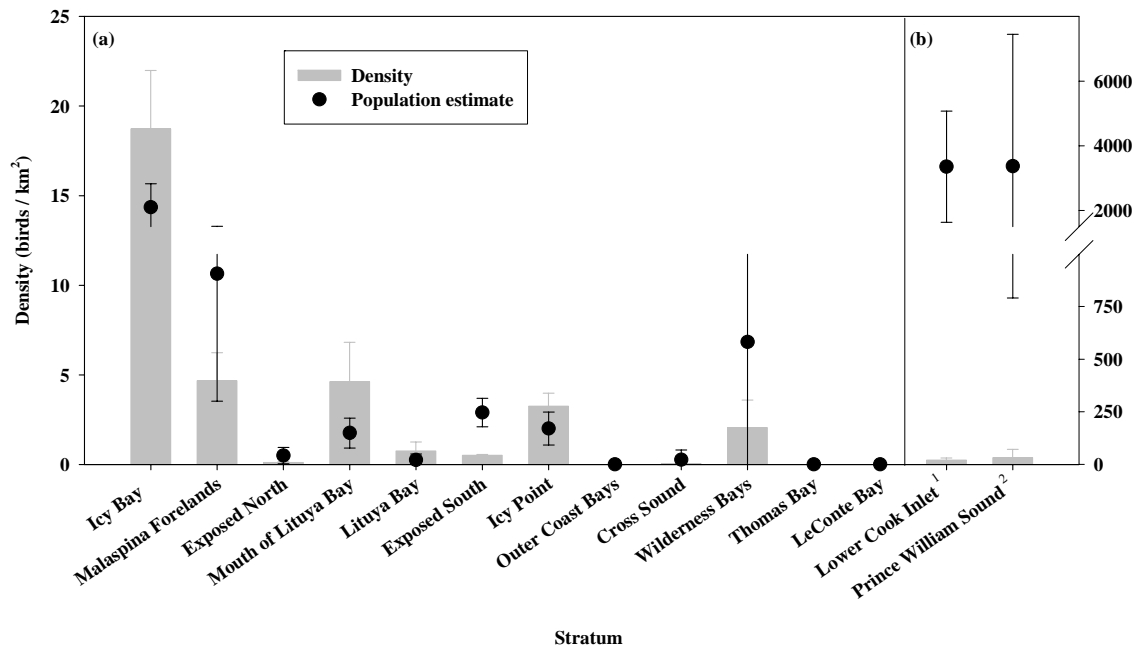


Fig. 1. Density and population estimates of Kittlitz's Murrelets for (a) 12 strata surveyed from 2002-2004, and (b) two other regions in Alaska. Error bars represent 95% confidence intervals. (<sup>1</sup>USFWS, unpubl. data; <sup>2</sup>Kendall, and Agler 1998. In 2004, PWS population = 758 birds [USFWS, unpubl. data]).

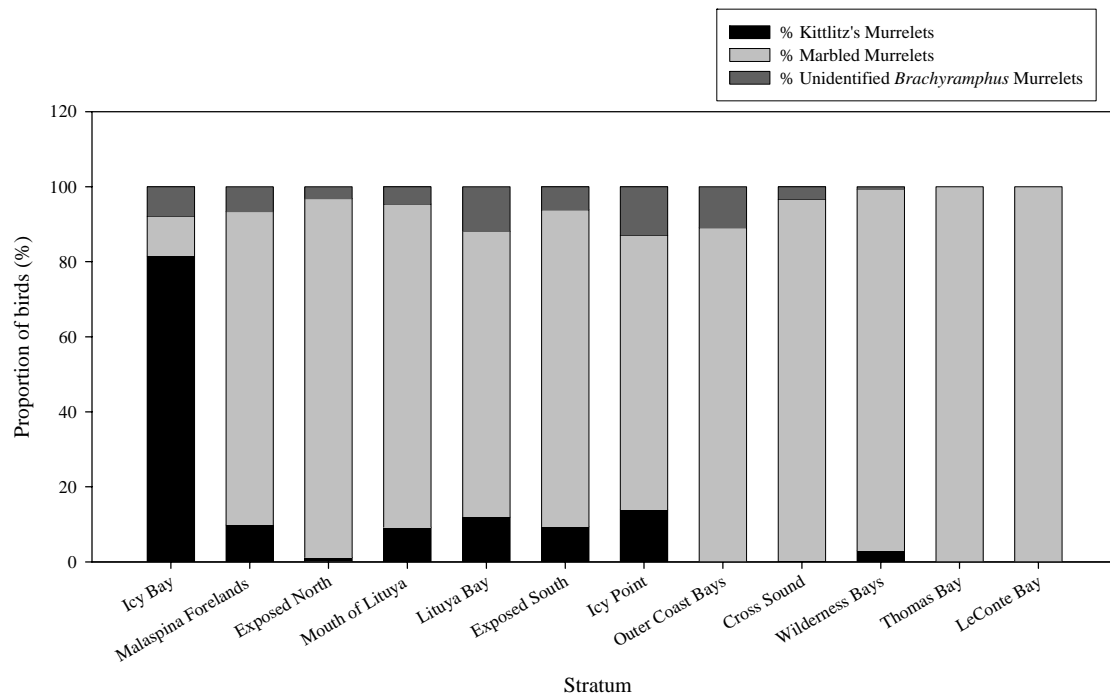


Fig. 2. Proportion of *Brachyramphus* murrelets by species observed on transect in each stratum. Cumulative raw counts of birds were used to calculate proportions.

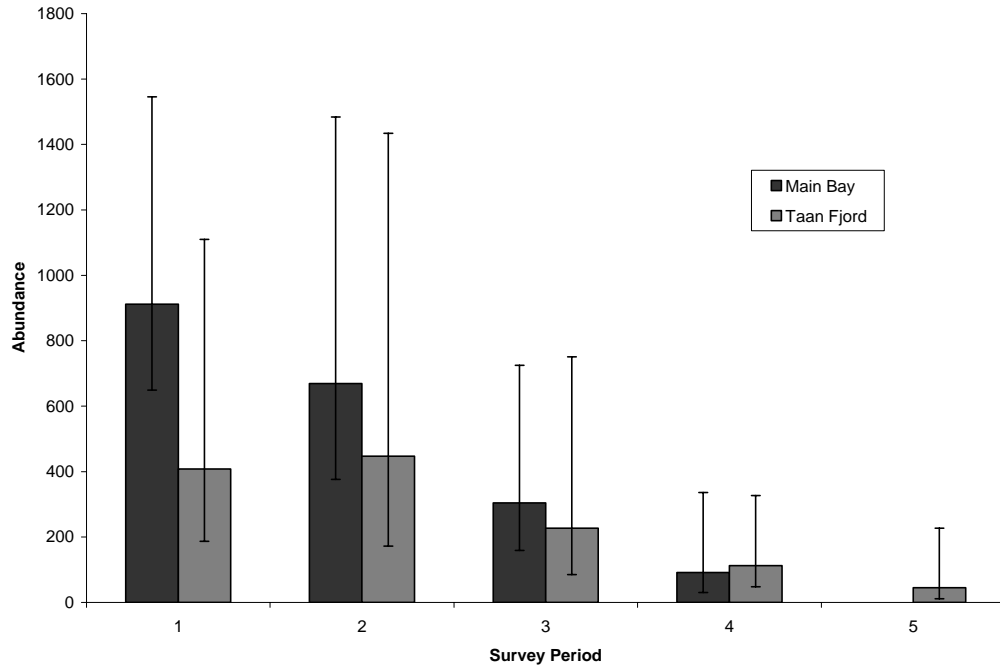


Fig. 3. Kittlitz's murrelet abundance estimates in Icy Bay during July 2005. Survey period refers to each week pelagic surveys were conducted (e.g., week of July 3, week of July 10, week of July 17, week of July 24, and week of July 31).

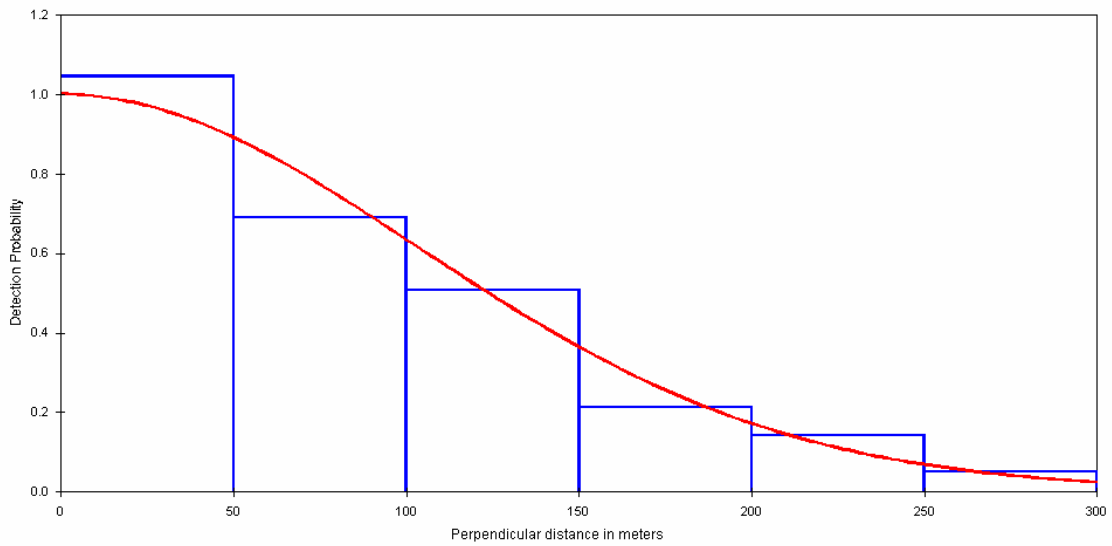


Fig. 4. Kittlitz's murrelet detection function modeled from data collected aboard a 5.5 m aluminum boat using standard FWS survey protocol in Icy Bay during July 2005.



Fig. 5. Kittlitz's murrelet (151.453) captured on 21 July 2005 in Icy Bay, Alaska.



Fig. 6. Kittlitz's murrelet observed on 28 July 2005 in Icy Bay, Alaska. Photo taken by Mason Reid.



Fig. 7. Kittlitz's murrelet observed on 23 July 2005 in Icy Bay, Alaska. Photo taken by Mason Reid.



Fig. 8. Kittlitz's murrelet observed on 27 July 2005 in Icy Bay, Alaska. Photo taken by Mason Reid.



Fig. 9. Kittlitz's murrelet (151.453) recaptured on 5 August 2005 in Icy Bay, Alaska.