

**FEDERAL AID  
INTERIM PERFORMANCE REPORT**

ALASKA DEPARTMENT OF FISH AND GAME  
DIVISION OF WILDLIFE CONSERVATION  
PO Box 115526  
Juneau, AK 99811-5526

**Alaska Department of Fish and Game  
State Wildlife Grant**

**Grant Number:** T-1 **Segment Number:** 3  
**Project Number:** 2.10  
**Project Title:** Field testing alternative survey methods for monitoring Marbled Murrelet populations in Southeast Alaska  
**Project Duration:** 1 September 2006 – 30 June 2009  
**Report Period:** 1 July 2006 – 30 June 2007  
**Report Due Date:** September 30, 2007  
**Partner:** Alaska Department of Fish and Game

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**Project Objectives**

**OBJECTIVE 1:** Evaluate the strengths and weaknesses of alternative survey protocols to monitor trends in Marbled Murrelet populations in Southeast Alaska. Merit shall be reflected in statistical power to detect trends versus relative cost, including equipment, manpower, and time.

**JOB/ACTIVITY A:** Assess sources of variability in flyway count data, including temporal patterns (daily and seasonal), environmental effects (weather, visibility), equipment-related (optics quality) and observer.

**JOB/ACTIVITY B:** Assess error in distance estimation for strip and line transects

**JOB/ACTIVITY C:** Compare line-transect and strip-transect survey methods for measuring Marbled Murrelet densities at sea.

**OBJECTIVE 2:** Assess spatial variation in Marbled Murrelet numbers between watersheds and across the region and relate to upland and marine habitat attributes.

**JOB/ACTIVITY A:** Survey murrelets using different methods at multiple watersheds in Southeast Alaska.

**Summary of Project Accomplishments**

**OBJECTIVE 1:**

**JOB/ACTIVITY A:** During this report period, we completed 362 flyway surveys, including 102 flyway surveys to compare simultaneous counts among scopes and observers, 53 surveys to compare counts against time of day, 74 surveys to assess proportion of murrelets counted, and 133 surveys to compare spatial variation (5 sites). For the final analyses (depending on objective and methods) certain of these data sets have been pooled.

**JOB/ACTIVITY B:** We assessed accuracy and precision of distance estimates over 455 trials covering 7 observers, 3 targets (bouys, decoys, and murrelets), and varying light

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and sea conditions. Estimated distance and true distance at distances from 10-300 m were recorded. Error was expressed as mean distance error (m), mean percent error, absolute distance error (m), and absolute percent error. Effect of observer, target type, testing experience, and viewing conditions were tested.

JOB/ACTIVITY C: The boat we purchased and intended to use during this report period was not delivered until 9 September 06 (after the 2006 field season) and was inoperable (engine problems) during most of the first half of the 07 season (13 May – 30 June 2007). Consequently few at-sea surveys were completed. We surveyed Port Snettisham 3 times during this report period, running 15 standardized tracks in each survey. On one of those surveys, we conducted simultaneous strip and line counts using independent observers. The other two surveys employed strip transects only. We compared density estimates over time (3 surveys), between years (06 and 07), and between methods (one survey). More work on this Job/Activity is planned for next fiscal year.

**OBJECTIVE 2:**

JOB/ACTIVITY A: This job involved comparing survey results from 3 main methods (flyway counts, at-sea surveys, and boat-based radar) across a range of locations in Southeast Alaska. Because the ADF&G vessel I had planned to use was unavailable (or broken down) during this report period, no progress was made on this objective. This job will need to be extended a 1 year to satisfactorily complete this objective.

**Prepared By:** Matthew Kirchoff