

Date prepared: April 30, 2010

Subject: Meeting Minutes of Kittlitz's Murrelet Technical Committee (KMTC) Annual Meeting

Meeting date: February 17, 2010

Meeting time: 13:00 – 17:00

Meeting location: Long Beach, California with Pacific Seabird Group Annual Meeting

Meeting organizer: Michelle Kissling, USFWS, Juneau; email: michelle_kissling@fws.gov; phone: 907-780-1168

Meeting attendees: Mayumi Arimitsu, Kim Nelson, Kathy Kuletz, Bob Day, Michelle Kissling, Sarah Schoen, Nick Hatch, Erica Madison, Scott Gende, Ellen Lance, Sadie Wright, Karen Blejwas, Adrian Gall, Matt Kirchhoff, Nora Rojek, Bill Richie, Steve Hoekman, Veronica Padula, Sean MacAllister, Harry Carter



2009 Activities

(1) In March 2009, we wrote a letter to Denby Lloyd, Commissioner, Alaska Department of Fish and Game, to express our concern for the long-term survival of the Kittlitz's Murrelet. At the time, the State was preparing a response to a petition by the Center for Biological Diversity to list the bird under the State Endangered Species Act. We informed the State of the newly-formed KMTC and offered our assistance in addressing conservation and information needs related to the species. We provided a list of seven high-priority information needs and invited the State to work with us in addressing them.

(2) In December 2009, the KMTC met in Anchorage, Alaska to identify and prioritize information needs to manage Kittlitz's Murrelet populations effectively (agenda available on request). We recruited a professional facilitator with experience in structured decision-making to lead the 2-day meeting with 38 participants from state and federal agencies, NGO's, universities, and private business. The meeting began with a half-day of short presentations on current research related to the Kittlitz's Murrelet. We then launched into crafting issue and task statements, which were refined during break-out group sessions. The actual prioritization was completed individually by using a voting system defined by the group.

(3) We held a symposium titled “Status and Trends of Kittlitz’s Murrelets” at the PSG Annual Meeting, Long Beach. The overall goal of the symposium was to present the most comprehensive evaluation of the population status of Kittlitz’s Murrelets to begin identifying and prioritizing conservation needs, including long-term population monitoring. The symposium was composed of 11 presentations primarily synthesizing historical and current information about the status and trends of Kittlitz’s Murrelets by geographic area, but also included presentations on population structure and methodological considerations during at-sea surveys. We generated \$6,000 to publish the symposium proceedings in *Marine Ornithology*. Michelle Kissling and Bob Day will be Guest Editors on the proceedings, and Scott Hatch agreed to provide editorial support when needed. Guidelines and a schedule for the proceedings were distributed to presenters and we met briefly during the PSG Annual Meeting in Long Beach to discuss the review process, deadlines, format, and content of papers.

(4) We compiled a list of current, ongoing, and proposed projects related to the Kittlitz’s Murrelet. It is updated and distributed at each meeting.

(5) We updated the PSG website to include information about the KMTC.

Federal and State listing status update

- Elevated from a Listing Priority (LP) 5 to a LP 2 in the 2007 Candidate Notice of Review (CNOR); remained a LP 2 in the 2008 and 2009 CNORs.
- USFWS will not receive funding to begin preparing a listing package in FY10 but has requested FY11 funds.
- On March 10, 2009, the Center for Biological Diversity petitioned the State of Alaska to list the Kittlitz’s Murrelet under the Alaska Endangered Species Act. The State denied the petition on April 7, 2009 stating that population trend estimates were geographically variable and were questionable because of differences in survey methodology across years and study areas. They concluded that there was insufficient information to indicate the continued existence of the Kittlitz’s Murrelet was threatened at this time.

PSG Executive Council briefing

Several hours prior to this meeting, M. Kissling briefed the PSG Executive Council (EXCO) on 2009 accomplishments and activities of the KMTC. She then reported back to the KMTC on the questions/inquiries of EXCO.

The EXCO applauded the 2009 accomplishments of the KMTC. Some members of EXCO inquired about outreach and coordination with user groups (e.g., fishermen, tour companies) that may be affected by federal listing of the Kittlitz’s Murrelet. M. Kissling informed EXCO that one tour boat operator attended and participated in the December 2009 meeting in Anchorage; otherwise, it was an area that the KMTC could certainly focus future efforts.

The KMTC then discussed this topic from EXCO; specifically, we discussed what kinds of conservation efforts were appropriate for our group to be involved. We briefly revisited the goals of the KMTC and agreed that one of the greatest benefits of the group is that we come to the table with the same set of goals, regardless of job obligations and duties; ultimately, these

goals will evolve, but the KMTC allows evolution of these goals to occur collectively as a group with the primary beneficiary being the Kittlitz's Murrelet. We compared the KMTC with the beginning of the MMTC.

Project updates and regional issues

Because we provided project and regional updates during the December 2009 meeting in Anchorage, we did not review or discuss specific projects at this meeting. Instead, we opened the discussion to include only new projects or significant changes to ongoing projects.

- B. Day informed the group of a new project by ABR (B. Day, primary investigator) to evaluate various studies in Alaska that have estimated density, abundance, and population trend of Kittlitz's Murrelets. He will interview key researchers to identify strengths and weaknesses of historical and current survey designs and protocols. B. Day believes the information will be useful in designing new studies and in standardizing at-sea survey designs and protocols for estimating long-term population trends of Kittlitz's Murrelets. This effort will not include reanalysis of datasets, but instead will be a summary of methods used to collect available datasets. The study is funded by State Wildlife Grant and State Endangered Species programs. A final report will be available by December 31, 2010.
- E. Lance noted that there is a new graduate student studying Kittlitz's Murrelets that are nesting on Kodiak Island using radar.
- E. Lance also noted that J. Piatt has expanded his effort with satellite transmitters, including discussions with the Alaska Sealife Center to investigate effects of transmitters on dive behavior of a surrogate species. K. Nelson stated that the Oregon Coast Aquarium has tried to keep Marbled Murrelets in captivity and failed.
- M. Kissling informed the group of a transmitter attachment comparison study planned for summer 2010 as part of the ongoing work in Icy Bay.

Information Needs and Prioritization Workshop

We reviewed preliminary results of the Information Needs and Prioritization Workshop held in December in Anchorage. We discussed the redundancy in some of the tasks identified and the best approach to refining the list without altering the intention of the rankings. In particular, we considered collapsing some of the tasks to reduce redundancy and categorizing tasks to achieve more meaningful results. For example, the tasks can be divided into those that require data collection (i.e., field or laboratory studies) and those that do not (e.g., synthesis papers, outreach materials); tasks that include data collection tend to be more expensive and therefore dropped to the bottom of the rankings based on the criteria.

The group agreed that M. Kissling should edit and refine the list to make it more useful and less redundant. E. Lance and A. Gall offered assistance. M. Kissling will prepare a final document summarizing the effort and reporting results (**ACTION ITEM**).

Formation of working groups under KMTC

We identified three working groups: (1) survey design and protocol, (2) telemetry methods and concerns, and (3) outreach. We also discussed a working group focused on climate change (originally proposed by Shay Wolfe), but concluded that, at this time, we could include climate

change as part of the Outreach Working Group; if necessary, we could form a specific working group to address climate change and the Kittlitz's Murrelet in the future.

- Survey design and protocol – We agreed that this is one of the most important tasks that needs to be undertaken by the KMTC, but that it would best be accomplished with a smaller group (≤ 5 members) who would report back to the entire KMTC. The progress of this group hinges on an effective and productive leader and nobody at this meeting felt they were able to handle the increased workload at this time. **As of April 30, 2010, this working group still does not have a leader. If anyone is interested in taking on this leadership role, please contact M. Kissling.**
- Telemetry methods and concerns – E. Lance proposed and agreed to lead this working group. M. Kissling agreed to participate. If anyone else is interested, please contact E. Lance.
- Outreach – We agreed that, for now, this is a “catch-all” working group. One primary goal is to reach different user groups (e.g., fishermen, tour operators). **Aaron Poe, U.S. Forest Service, agreed to lead the Outreach Working Group.** If you are interested in serving on this working group, please contact A. Poe.

Miscellaneous comments

- K. Kuletz recommended sending a form letter from the KMTC Coordinator to the supervisors of key participants to emphasize their importance on the KMTC and thank the supervisors for their support. M. Kissling agreed to do this (**ACTION ITEM**).
- B. Day noted that in the somewhat near future (roughly 3 years) the KMTC will need to host another symposium focused on the natural history and demography of Kittlitz's Murrelets (**FUTURE ACTION ITEM**).
- M. Kissling stated that she intends to step down as KMTC Coordinator after the 2012 PSG Annual Meeting. Anyone interested in stepping up to this leadership role should contact M. Kissling.

The meeting concluded at 1700h in order to meet with members of the MMTC to discuss standardization of at-sea survey protocols in Alaska. In addition, lead authors of symposium papers met to discuss manuscript guidelines, timelines, and review process.

List of attachments

- (1) Agenda for the KMTC meeting, February 17, 2010, Long Beach, California
- (2) KMTC Report to EXCO – 2009 Accomplishments and Activities
- (3) Kittlitz's Murrelet Research and Monitoring Activities (updated December 1, 2009)

Pacific Seabird Group



DEDICATED TO THE STUDY AND CONSERVATION OF PACIFIC SEABIRDS AND THEIR ENVIRONMENT

PSG Kittlitz's Murrelet Technical Committee Meeting

Meeting time and date: 13:00 – 18:00, February 17, 2010

Meeting location: Barcelona Room, Westin Hotel, Long Beach, California (in conjunction with Pacific Seabird Group Annual Meeting)

Associated meeting: Marbled Murrelet Technical Committee meeting to be held from 08:30-12:00, February 17, 2010 in Barcelona Room (contact Bill Ritchie at william_ritchie@fws.gov, 360-484-3482)

KIMU TC Coordinator: Michelle Kissling, US Fish and Wildlife Service, Juneau; email: michelle_kissling@fws.gov; phone: 907-780-1168

PROPOSED AGENDA

- 13:00-13:15 Welcome, introductions, announcements, and additions to agenda
- 13:15-13:30 Review of 2009 accomplishments of KIMU TC
- 13:30-13:45 Project updates and regional issues
- 13:45-15:15 Information Needs and Prioritization Workshop
 - Preliminary Results
 - Discussion of workshop process, results, and revisions
 - Final product format and distribution
- 15:15-16:00 Formation of sub-committees
- 16:00-16:30 Revisiting short (1-2 years) and long (3-5 years) term goals of KIMU TC
 - What do we want to tackle next?
 - Are we effective? Comments on Anderson et al (1999)¹?
 - What can we do better? How?
 - Are we communicating effectively?
- 16:30-16:45 Wrap-up, discuss next meeting, and announcements
- 16:45-17:00 Instructions for symposium proceedings (only symposium participants need to stay)
- 17:00-18:00 Joint meeting with interested members of MAMU and KIMU TCs to discuss standardization of at-sea survey protocol (location to be decided by group)

¹ Anderson, D.R., K.P. Burnham, A.B. Franklin, R.J. Gutierrez, E.D. Forsman, R.G. Anthony, G.C. White, and T.M. Shenk. 1999. A protocol for conflict resolution in analyzing empirical data related to natural resource controversies. *Wildlife Society Bulletin* 27:1050-1058.

2010 ANNUAL REPORT

TO: PACIFIC SEABIRD GROUP EXECUTIVE COUNCIL

FROM: MICHELLE KISSLING, KITTLITZ'S MURRELET TECHNICAL COMMITTEE COORDINATOR

DATE PREPARED: 29 JANUARY 2010

The Kittlitz's Murrelet Technical Committee (KMTC) was formed in 2008 to begin addressing concerns related to the status and conservation of this rare seabird. The Kittlitz's Murrelet is currently listed as a candidate under the Endangered Species Act. The purpose of the KMTC is to: (1) act as a technical authority on the status, distribution, and life history of the Kittlitz's murrelet; (2) identify, encourage, and facilitate research; (3) address conservation problems related to the Kittlitz's murrelet; and (4) act as a liaison between research and management.

We met on 22 February 2009 in Hakodate, Japan, during the 2009 Pacific Seabird Group Annual Meeting. Due to the location, we only had seven people participate in the committee meeting. However, we accomplished much in terms of defining the structure, goals, and responsibilities of the KMTC. We also identified action items to accomplish in 2009. Meeting minutes can be downloaded from the PSG website.

2009 KMTC accomplishments

(1) In March 2009, we wrote a letter to Denby Lloyd, Commissioner, Alaska Department of Fish and Game, to express our concern for the long-term survival of the Kittlitz's Murrelet. At the time, the State was preparing a response to a petition by the Center for Biological Diversity to list the bird under the State Endangered Species Act. We informed the State of the newly-formed KMTC and offered our assistance in addressing conservation and information needs related to the species. We provided a list of seven high-priority information needs and invited the State to work with us in addressing them.

(2) In December 2009, the KMTC met in Anchorage, Alaska to identify and prioritize information needs to manage Kittlitz's Murrelet populations effectively (agenda available on request). We recruited a professional facilitator with experience in structured decision-making to lead the 2-day meeting with 38 participants from state and federal agencies, NGO's, universities, and private business. The meeting began with a half-day of short presentations on current research related to the Kittlitz's Murrelet. We then launched into crafting issue and task statements, which were refined during break-out group sessions. The actual prioritization was completed individually by using a voting system defined by the group. We will review preliminary results of the workshop during our KMTC meeting at Long Beach (agenda attached) and then will prepare a formal report detailing the meeting process, results, and recommendations for future prioritization efforts.

(3) We will be conducting a symposium titled "Status and Trends of Kittlitz's Murrelets" to be held at the PSG Annual Meeting, Long Beach. The overall goal of the symposium is to present the most comprehensive evaluation of the population status of Kittlitz's Murrelets to begin identifying and prioritizing conservation needs, including long-term population monitoring. The

symposium is composed of 11 presentations primarily synthesizing historical and current information about the status and trends of Kittlitz's Murrelets by geographic area, but also includes presentations on population structure and methodological considerations during at-sea surveys. We generated \$6,000 to publish the symposium proceedings in *Marine Ornithology*. Michelle Kissling and Bob Day will be Guest Editors on the proceedings, and Scott Hatch agreed to provide editorial support when needed. Guidelines and a schedule for the proceedings has been distributed to presenters and we will meet briefly during the PSG Annual Meeting in Long Beach to discuss the review process, deadlines, format, and content of papers.

(4) We compiled a list of current, ongoing, and proposed projects related to the Kittlitz's Murrelet. It is updated and distributed at each meeting.

Relevant topics and updates

(1) On March 10, 2009, the Center for Biological Diversity petitioned the State of Alaska to list the Kittlitz's Murrelet under the Alaska Endangered Species Act. The State denied the petition on April 7, 2009 stating that population trend estimates were geographically variable and were questionable because of differences in survey methodology across years and study areas. They concluded that there was insufficient information to indicate the continued existence of the Kittlitz's Murrelet was threatened at this time.

(2) The KMTC was asked to assist Birdlife International in the review of the Red List status of Kittlitz's Murrelet, currently listed as "critically endangered". Comments are due by March 1, 2010.

(3) To facilitate communication with the 58 members of the KMTC, we formed a listserv and updated the PSG website to include information about our group. We will post meeting minutes, final products, and position statements on the website.

I appreciate the opportunity to coordinate this important committee on behalf of the Pacific Seabird Group.

Sincerely,

Michelle L. Kissling
Coordinator, Kittlitz's Murrelet Technical Committee

Kittlitz's Murrelet Project Summary

Current / on-going / planned (and funded) projects (updated 1 December 2009):

Region	Area	Years	Months	PIs & collaborators	Primary Agency	Funding	Project	main objectives	Secondary objectives	Future Plans / Prospects / Notes
SEAK	Icy Bay	2007-2011	May-August	Kissling (w/ Gende, Lukacs, and others)	USFWS, NPS	USFWS, NPS	Ecology of KIMU in Icy Bay, Alaska	Estimating vital rates (survival, reproduction) & estimating abundance and trend	Identifying important nesting and foraging areas	Annual reports prepared; final analysis and publications available in 2012
SWAK	Agattu Island	2006, 2008 - 2010	May-Sept	Piatt, Kaler, Williams, Byrd	USFWS, BRD	BRD, USFWS	Breeding biology	Repro success, habitat use, chick growth, diet, nest attendance		Progress reports available and publication (Kaler et al. 2009)
GOA, Aleutians	Inland/offshore	2008-2013	May-August	Piatt, Pyle, Byrd, Williams, Kaler, Lawonn	USFWS, USGS	FWS, USGS	Ecology of KIMU on FWS Refuges	Nesting ecology, breeding success, diets	Inland behavior, vocalizations, genetics	Expand to other locations within, between current sites
GOA, Aleutians	Offshore / Pelagic	2008-2013	August-May	Piatt (w/ others)	USGS	USGS & USFWS	At sea surveys, experimental satellite attachment and tracking	Abundance, trends, winter ecology	Document migration paths, samples for genetics, S-Iso	Directed and opportunistic surveys/locations; tagged 7 birds in 2009, plans to continue in 2010
SEAK	Icy Bay	2007-2011	May - August	Kissling, Evers, Goodale, Gende	USFWS	USFWS, NPS, BRI	Contaminant evaluation	Determining Hg and other contaminant levels		2007-2008 laboratory results complete; 2009 samples submitted
Arctic, Bering Sea, GOA	Offshore / Pelagic	2006-2010	Feb-Nov	Kuletz (w/ Labunski, Renner)	USFWS / NOAA	NPRB & USFWS	At-sea surveys on NOAA research vessels	Abundance & distribution relative to prey	Seasonal and habitat changes throughout year	Final report for 2006-2007 (Kuletz et al. 2008) and data in NPPSD
SCAK	PWS / focus on Heather Bay	2006-2010	June-Aug	Allyn (w/ McKnight, Irons, Kuletz, Piatt)	USFWS	USFWS, Earthwatch Institute, NFWF	At-sea surveys, CTD's, behavioral observations, prey sampling	Detailed marine habitat use & prey use, foraging ranges	Compare abundance & distribution to historical data in 5 fjords	Draft report for 2006-2008; progress report for 2009. Allyn's MS thesis (2009-2010)
SEAK	entire region	2006-2008	NA	Day and Kissling	ABR	USFWS	Plumage variation in Kittlitz's Murrelets - Phase I	Describe plumage variation of museum specimens, evaluate with live, captured birds	Relate plumage to known characteristics	Phase I complete, evaluating with photographs of live birds; Phase II will analyze and report data (see proposed projects)

Kittlitz's Murrelet Project Summary

Current / on-going / planned (and funded) projects (updated 1 December 2009):

Region	Area	Years	Months	PIs & collaborators	Primary Agency	Funding	Project	main objectives	Secondary objectives	Future Plans / Prospects / Notes
SEAK	Lost Coast / Malaspina Forelands	2008-2009	July	Kissling, Gende, Lukacs	USFWS	USFWS	At-sea surveys	Estimate population size and distribution	Compare with historical surveys	2008-2009 surveys complete; report in preparation
SEAK	Icy Bay	2008-2010	May-August	Hatch, Kissling, Roby	OSU, USFWS	USFWS	Trophic foraging ecology and reproductive energetics	Describe diet composition of KIMU in SEAK; compare with museum specimens	Develop reproductive energetics model for KIMU	Data will be reported in form of a MS thesis; expected graduation Dec 2010
SEAK	Yakutat Bay	2009	June	Kissling, Kuletz, Oehlers	USFWS	USFWS	At-sea surveys	Estimate population size and trend (compare to 2000 surveys)	Monitor on 3-5 year schedule; tie in with Icy Bay & gillnet bycatch studies	Surveys complete; report in preparation
GOA	Offshore / Pelagic	2010-2012	Feb-Oct	Slater (w/ NOAA PIs)	USFWS / NOAA	NPRB & USFWS	At-sea surveys on NOAA research vessels	Abundance & distribution relative to prey	Seasonal and habitat changes throughout year	Grant awarded as part of GOA-IERP; surveys start in 2010
SCAK	PWS	2010	March, July	Irons (w/ Kuletz)	USFWS	EVOS Trustees, USFWS	At-sea surveys of random transects (25ft whalers)	Obtain population estimates & trends (compare to historical data since 1989)	Monitor on 2-3 year schedule; distribution in PWS	Funded for 2010; will submit proposals to continue surveys
Arctic	Beaufort & Chukchi Seas & NW Alaska (inland areas)	2010		Day and Gall	ABR, Inc.	USFWS	Status of KIMU in northern Alaska	Summarize all available information on distribution, abundance, at-sea densities, nests, and timing of occurrence		Beginning analyses soon (we hope)
All	All	2010		Day and Gall	ABR	ADF&G	Evaluation of KIMU population trends in Alaska	Describe and evaluate methodology for at-sea surveys and statistical analyses of population-trend data		

Kittlitz's Murrelet Project Summary

Completed Projects (updated 1 December 2009)

Region	Area	Years	Months	PIs & collaborators	Primary Agency	Funding	Project	Main objectives	Secondary objectives	Products / Prospects / Notes
SCAK	PWS	1989-2007	March & July	Irons (w/ McKnight, Kuletz)	USFWS	EVOS Trustees, USFWS	At-sea surveys of random transects (25ft whalers)	Obtain population estimates	Monitor trends (2-3 year schedule); distribution in PWS	Final reports & publications (Irons et al. 2000, Lance et al. 2001, Kendall and Agler 1998)
SCAK	Kachemak Bay	2004-2007	June-Aug	Kuletz (w/ Labunski, Speckman)	USFWS	USFWS/ ADFG	At-sea surveys of random (June) and systematic (July-Aug) transects	Population estimates & trends (compare to historic data)	Juv densities & Juv:AD ratios; distribution & marine habitat (w/CTD), prey	Final report (Kuletz et al. 2008)
SCAK	PWS /17 fjords	2001	June-Aug	Kuletz (w/ Labunski, McKnight, Irons)	USFWS	USFWS	At-sea surveys targeting KIMU, using systematic transects	Population estimate & distribution	Habitat use; seasonal changes in abundance & distribution	Final report (Kuletz et al. 2003a) & publication (Kuletz et al. 2003b)
SCAK	PWS / Harriman & College Fjords	2003	June-Aug	Kuletz (w/ Labunski, McKnight)	USFWS	USFWS	Surveying Brachyramphus from fast tour boat, with small boat comparison	Feasibility of survey platform, abundance, & distribution	Seasonal changes, foraging habitat, & behavior	Final reports (Labunski et al. 2003, McKnight et al. 2003)
SCAK	PWS / Harriman & College fjords	2004	June-Aug	Stephensen (w/ Irons)	USFWS	USFWS	At-sea surveys of systematic transects & CTDs	Habitat use & comparison to MAMU	Seasonal changes, detailed marine habitat use	Stephensen 2009, Master's Thesis
SEAK	Icy Bay to Leconte Bay, 'Lost Coast'	2002-2004	July	Kissling (w/ Kuletz)	USFWS	USFWS	At-sea surveys (shoreline, pelagic) of outer SEAK coast	Population estimate & distribution	Estimate trends for Malaspina Forelands coastline (compare to 1992 survey)	Final report (Kissling et al. 2007a)
SEAK	Glacier Bay	2007	July	Kirchhoff	ADFG	ADFG	Survey Methods for <i>Brachyramphus</i> murrelets	Evaluate how alternative sampling designs and methods affect precision and accuracy of surveys.	Fine scale distribution of murrelets relative to shoreline, bathymetry, and season	Final report (Kirchhoff 2008)

Kittlitz's Murrelet Project Summary

Completed Projects (updated 1 December 2009)

Region	Area	Years	Months	PIs & collaborators	Primary Agency	Funding	Project	Main objectives	Secondary objectives	Products / Prospects / Notes
Bering Strait	Tin City, Seward Peninsula	2008	July	Rojek	USFWS	USFWS	Nest search	Determine if historical KIMU nesting sites in NW AK still active	Monitor productivity, if any nests were found	Trip report available.
SCAK	Kenai Fjords	2005-2008	May-Aug	Arimitsu, Piatt, Hall	USGS, NPS	USGS	At-sea surveys, oceanography, plankton, fish	Identify critical habitat, estimate abundance	Seasonal changes, fjord ecology	Arimitsu 2009, Master's Thesis
AK	all areas	2009		Kuletz	USFWS	USFWS	USFWS Focal Species Conservation Plan	Summarize KIMU status & complete an Action Plan	Provide template / plan for USFWS actions & research priorities	Draft complete. Currently undergoing internal review.
Chukchi Sea	Offshore / Pelagic	2009	Sep	Day and Gall	ABR, Inc.	USFWS	At-sea surveys off of Barrow	Distribution and abundance; study design		Final report (Gall and Day 2009)
SEAK	Icy Bay	2005	June-Aug	Kissling, Lewis, Gende, Lukacs	USFWS	USFWS & NPS	At-sea surveys in Icy Bay	Survey design and methods in ice-dominated waters	Distribution and abundance	Kissling et al 2007b
SEAK	Glacier Bay	2009	July	Kirchhoff, Wright	Audubon	ADFG/AUD	Comparative feeding ecology of KIMU and MAMU	Prey-capture performance by species, habitat, time and tide	ID and disposition of held prey	Final report in preparation

Kittlitz's Murrelet Project Summary

Proposed projects (in review or being written or discussed; updated 1 December 2009)

Region	Area	Years	Months	PIs & collaborators	Primary Agency	Funding	Project	main objectives	Secondary objectives	Prospects / Notes
SCAK	Kachemak Bay	2010-ongoing	June-Aug	Kuletz (w/ Labunski)	USFWS	USFWS	At-sea surveys of random (June) and systematic (July-Aug) transects	Population estimate & trends (compare to historical data)	Juv densities & Juv:AD ratios; distribution & marine habitat, prey	Submitted proposal within MBM/USFWS (Anchorage)
SCAK	Kachemak Bay	2010	June-Aug	Kohler, Piatt, Kuletz	USFWS / USGS	??	Ground search for nests in mountains of Kachemak Bay	Locate nests, describe habitat	Distance from forage areas, nest success; has management applications	In discussion
SEAK	entire region	ongoing	NA	Day and Kissling	ABR		Plumage variation in Kittlitz's Murrelets - Phase II	Describe plumage variation of museum specimens, relate to known characteristics	Develop field classification key for aging and sexing KIMU in hand	Most data collected; Phase II would provide funds for analysis and writing
SEAK	Glacier Bay	2010-2012	June-Aug	Kirchhoff	Audubon	??	Kittlitz's and Marbled Murrelet studies	Abundance and distribution relative to habitat features	Monitoring trends of KIMU and MAMU	Seeking funding