PSG Kittlitz's Murrelet Technical Committee Meeting

Meeting time and date: 16:00-17:00 PST (15:00-16:00 AKST); February 23, 2021

Associated meeting: Pacific Seabird Group Annual Meeting

KIMU TC Chair: Sarah Schoen (sschoen@usgs.gov); U.S. Geological Survey, Alaska Science Center

Meeting attendees:
Sarah Schoen (USGS), Michelle Kissling (University of Montana), Kathy Kuletz (USFWS), Yumi Arimitsu (USGS), Nora Rojek (USFWS), Jamie Womble (NPS), Steve Hoekman (Wild Ginger Consulting), Doug Cooper (USFWS), Tuula Hollmen (Alaska SeaLife Center), Bill Ritchie (USFWS), Nick Docken (USFS), Courtney Amundson (NPS), Rick Spaulding (Man Tech), Tom van Pelt (Transboundary Ecologic), Robin Corcoran (USFWS), John Piatt (USGS), Gary Drew (USGS), Jonathan Felis (USGS), Shaye Wolf (Center for Biological Diversity), Marc Romano (USFWS), Susan Oehlers (USFS), Caitlin Marsteller (USGS), Kim Nelson (Oregon State University), Anne Schaefer (Prince William Sound Science Center)

1. **Project Updates**

Michelle Kissling (University of Montana)

Brachyramphus murrelet projects:

1. Linking life history and population dynamics
    - Goal: Identify sources of uncertainty and variation and examine effect on inference of trend and dynamics
    - Four research questions: 1) What factors are influencing reproductive success? 2) What are the causes of temporary emigration and consequences of it on abundance estimates? 3)Why do reproduction and survival fail to explain changes in observed abundance? 4) What is the population trajectory and what information will reduce uncertainty surrounding it most efficiently?
2. Nest habitat use and disturbance in northwestern Alaska
    - Goal: Develop a framework for long-term site monitoring and guidelines for minimizing nest disturbance
    - Approach: develop repeatable survey design, estimate nest density and success, identify factors influencing nest fate
3. Hearing measurement study

- Goal: Assess potential impacts of anthropogenic noise
- Approach: In-air and underwater audiograms to measure hearing capabilities and thresholds

4. Testing transmitter performance and attachment
    - Goal: Improve tracking capability of murrelets across time and space while minimizing potential impacts
    - Approach: testing transmitter performance, exploring attachment techniques, measuring transmitter drag

For more information, contact Michelle Kissling (kissling.michelle@gmail.com)

Jamie Womble (National Park Service)- Glacier Bay murrelet monitoring updates

- Objective: Estimate spatial distribution and abundance and develop models that allow integration into the broader ecological food web, while accounting for multiple sources uncertainty.
- 2019 was 11th year of murrelet monitoring in Glacier Bay.
- Survey did not occur in 2020 due to the pandemic.
- Survey in Glacier Bay is planned for July 2021.
- Outer coast survey is planned for 2021 and will include marine predator surveys in addition to oceanographic and zooplankton monitoring.
- Link to SEAN NPS murrelet website: https://irma.nps.gov/DataStore/Reference/Profile/2254276

For more information, contact Jamie Womble (jamie_womble@nps.gov)

Steve Hoekman (Wild Ginger Consulting)- Methods for estimating species misidentification applied to Glacier Bay surveys

- Statistical methods article on estimating uncertain species identification is *In Press* at Ecosphere. These "multi-observer methods" rely on discrepancies in species classifications of the same animal groups by multiple observers to estimate uncertain identification.
- Multi-observer methods are unique in not requiring complete or certain identification by any observer, and they can be applied to diverse surveys for estimating abundance, occupancy, etc. In the article, I apply methods to line transect surveys for murrelets in Glacier Bay. The draft article can be downloaded here [https://spideroak.com/browse/share/ST_Hoekman/Hoekman_Uncertain_ID]. Please don't redistribute beyond the Kittlitz's Murrelet Technical Committee without permission. Let me know if you have questions or comments [steven.hoekman@protonmail.com].
- Hoekman 2019 [https://irma.nps.gov/DataStore/Reference/Profile/2265288] provides some discussion of the implications of uncertain identification for murrelet monitoring in Glacier Bay. Between these multi-observer methods and methods of Schaefer et al. (2015) [https://doi.org/10.1650/CONDOR-14-143.1], we have alternatives (with differing

strengths and weaknesses) for estimating uncertain species identification. Because methods of Schaefer et al. are a special case of multi-observer methods (i.e., a survey with multiple primary observers with uncertain identification and one secondary observer with certain identification), these alternatives can be applied in concert and unified in a single analytic framework.

For more information, contact Steve Hoekman (steven.hoekman@protonmail.com)

Mayumi Arimitsu (U.S. Geological Survey)

- To identify interannual variability in distribution and abundance of *Brachyramphus* murrelets in Kachemak Bay and Lower Cook Inlet, VAST Joint Dynamic Species Distribution Model (JDSDM, Thorson and Barnett 2017) were applied to at-sea survey data after apportioning unidentified observations (i.e., BRMU) to species based on the ratio of identified birds by transect.
- Modeled KIMU abundance indices during 1996-1999 and 2016-2019 were lowest in Cook Inlet in 2019 and 2018 and were lowest for MAMU in 2018. For both species persistently higher densities were observed in all years around Anchor Point. Spatio-temporal models can provide larger-scale inference for KIMU population trends.

For more information, contact marimitsu@usgs.gov

Kathy Kuletz (U.S. Fish and Wildlife Service)

- USFWS at-sea surveys with KIMU and MAMU data
    - Seward & Northern Gulf of Alaska Long-term Ecosystem Research (NGA-LTER)
        - Original Seward Line was a single line, sampled in spring and fall (1998-2024). It was expanded in 2018 as part of the NGA-LTER, with surveys along four cross-shelf lines in spring, summer, and fall.
        - Only summer and fall surveys were conducted in 2020 due to COVID.
        - Along Seward Line, 2017-2019 were three of the four lowest years for BRMU of 18 surveys; highest year was 2016
        - Most identified murrelets were MAMU
    - No Prince William Sound surveys conducted in 2020; 2021 remains uncertain.
    - Requested funds from Exxon Valdez Oil Spill Trustees to add KIMU-specific surveys in selected fjords during the PWS surveys.
    - Bering/Chukchi offshore surveys (2006-2020)- were focused on N. Bering and Chukchi seas since 2015, but vessels often transit through southern Bering.

- New project funded by Exxon Valdez Oil Spill Trustee Council- status and trends of EVOS injured seabirds in Kachemak Bay and Resurrection Bay/Kenai Fjords (USFWS Alaska Region and Alaska SeaLife Center)
    - 5-year project (2021-2025); surveys may be reduced in 2021 due to Covid
    - Goal: obtain abundance and productivity information for non-recovered seabird species; focus on KIMU and MAMU
    - Lead PIs: Kachemak Bay- Liz Labunski (USFWS); Kenai Coast- Tuula Hollmen (ASLC)
    - Coordinate concurrent regional surveys in July and August
    - This project will look at habitat use, estimate adult and juvenile densities, derive population estimates, examine seasonal patterns
- Gillnet bycatch analysis
    - NFWF grant beginning in 2021; expected completion by September 2022
    - Analyze NOAA seabird gillnet bycatch data 1990-2013
    - Provide baseline data on seabird bycatch
    - Identify high risk locations and species
    - Characterize potential environmental and biological factors to assist in developing bycatch reduction methods

For more information, contact Kathy_kuletz@fws.gov or Elizabeth_Labunski@fws.gov

2. **Discussion**
    - Possible merge with Marbled Murrelet Technical Committee (MAMU TC)
        - Consensus was not to merge with the MAMU TC due to an already very busy MAMU meeting agenda, many different conservation issues between the two species, and different agencies/players having interest in the two different species.
        - Having the meeting virtually really expanded the meeting attendance, in addition to having the meeting at a different time than the MAMU TC.
        - We discussed continuing to have the meeting online even post pandemic so that more people can be involved without the time/expense of having to fly to a meeting.
    - Response to USFWS re letter of concern
        - The letter did have an impact- it brought KIMU more onto the radar of USFWS and others. The letter encouraged USFWS to spend personnel time on KIMU issues, including applying for outside funding for projects.
        - The letter returned from the USFWS didn't address several of the points raised by the KIMU TC in our letter. Additionally, it incorrectly stated that Migratory Bird Management was funding Michelle Kissling's work on arctic KIMU nesting habitat. Communication between branches of USFWS might be a problem; USFWS members could approach upper management and be points of contact, provide consistent message.
        - Relevant questions:
            - What do we know about the KIMU conservation status?
            - Is the monitoring that we are doing adequate to help answer some of the outstanding questions?

        - How do we get a status assessment for KIMU?
        - We have multiple monitoring sites, but are these efforts telling us what we would need to know if we had a new listing effort?
- It's unlikely that USFWS will get to a status assessment for KIMU unless they are petitioned. A monitoring plan might be more likely. Letters like these do have value at the Regional Director level.
- There is a new Associate Regional Director (ARD) at USFWS for MBM (now combined with Science Applications and International Affairs, and with a new name: Science, International and Migratory Birds - Alaska (SIMBA)). - This would be a good time to write a response letter to remind them about KIMU and educate the new ARD.