2012 Annual Meeting of the Alaska Chapter of the American Statistical Association

Titles, Abstracts, and Presenter Information

For Talks on Friday, August 17

The 2012 Annual Meeting of the Alaska Chapter of the American Statistical Association will occur Wednesday-Friday, August 15-17, in Rasmuson Hall 211 at the University of Alaska Anchorage.

The times for presentations and breaks noted below are subject to change.

Title	Presenter	Abstract
Demography of the Pacific Walrus in a Changing Arctic	Rebecca Taylor Research Statistician USGS Alaska Science Center 4210 University Drive Anchorage, AK 99508 907-786-7004 rebeccataylor@usgs.gov	I will discuss a model I'm developing to estimate Pacific walrus population size and demographic rates. Two major goals of the work are to incorporate multiple sources of data (harvest records, population age structures and population counts) and to quantify the substantial uncertainty associated with the data.
Modeling partially classified wildlife age ratio data	Mark S. Udevitz, Ph.D. USGS Alaska Science Center 4210 University Drive Anchorage, AK 99508 907-786-7083 (voice) 907-786-7150 (fax) mudevitz@usgs.gov	I will discuss basic theory for estimating survival rates from time series of fully classified age-structure data and some new extensions I am working on for data that is only partly classified, as is often the case with wildlife composition survey data.
Estimation of Post-Weir Escapement by Bootstrap Simulation with Elicited Prior Distribution on End-Run Timing	Bill Gaeuman ADF&G Biometrician Kodiak william.gaeuman@alaska.gov	A simple simulation-based method for constructing an empirical distribution for estimated post-weir escapement is illustrated with 2011 late-run sockeye data from Chignik, AK. Parametric bootstrap is used to account for uncertainty in model estimation, given model specification, and knowledge with uncertainty regarding end-run timing is incorporated into the procedure using an elicited prior. The general approach is flexible, however, and in more complex applications additional sources of knowledge with uncertainty, including auxiliary data, could be similarly integrated into the analysis. In any application, meaningful use of the method presupposes participation of management biologists or others with experience of the fishery and run characteristics.

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Geo Spatial Population Estimator for moose in Alaska: one size fits all?	Nathan M. Roberts, PhD Regional Refuge Biometrician U.S. Fish and Wildlife Service, Region 7 1011 East Tudor Road Anchorage, Alaska, 99503 907.786.3896 Nathan_Roberts@FWS.gov	The Geospatial Population Estimator (GSPE) is widely used in Alaska by state and federal wildlife and land management agencies. Primarily used for moose (*Alces alces*), user-friendly web-based software have made the planning and analysis of these surveys relatively simple. The technique is useful and robust when applied as described. However, there are a number of underlying assumptions and recognized limitations to this technique. We surveyed wildlife biologists in the US Fish and Wildlife Service, the Bureau of Land Management, and the National Park Service to determine who is using the technique, variation in adherence to the prescribed methodology, interpretation of results, and recognition of assumptions. We suggest that, among federal agencies, the assumptions and limitations of the technique are not fully appreciated.
Those ignorant of the past....: some old ideas, recently encountered, for potentially much faster survey planning	Joel H. Reynolds Science Coordinator Western Alaska Landscape Conservation Cooperative 1011 E. Tudor Rd., mailstop 281 Anchorage, AK 99503 Voice: (907) 786-3914 FAX: (907) 786-3592	Survey planning studies, to assess minimum sample sizes and tradeoffs among competing sampling designs, are especially important for long-term monitoring projects. I'll briefly review two concepts from Kish (1965) that would have greatly simplified a number of my projects the last few years if I had only known them a decade ago: the *design effect* (Deff) for comparing two competing sampling designs, and the *unit variance* for quickly approximating expected variance for a given sample size.

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Using DNA Capture-Recapture Methods and Spatially-Explicit Capture-Recapture (SECR) Models to Estimate Grizzly Bear (*Ursus arctos*) Density & Distribution	Brian D. Taras and Craig L. Gardner brian.taras@alaska.gov craig.gardner@alaska.gov	We conducted a DNA capture-recapture study to estimate grizzly bear (*Ursus arctos*) density in a remote and forested area of Interior Alaska. We divided the 5,194 km^2 study area into 106 7x7 km units, within which we maintained 1 lure-baited hair trap during each of the 4-14 day sampling periods. We moved all traps mid-study. The system lacked geographic closure and the potential for bias was exacerbated by large home ranges. We used spatially explicit capture-recapture (SECR) models, which directly estimate density, employing both Bayesian (WinBUGS) and maximum likelihood (R-package "secr") estimators. We modeled density as the intensity of an inhomogeneous poisson process and demonstrated that grizzly bear distribution was three times greater in unburned areas relative to those recently burned. The top (AICc) SECR models accounted for heterogeneity in both detection probability and home range size. Accommodating individual heterogeneity increased the density estimate by one-third and doubled its SE. We recommend design modifications and explore, through simulation, bias induced by dependent observations.