
APPLYING NOVEL APPROACHES TO OLD DATASETS: UTILIZING OPPORTUNISTIC OBSERVATIONS TO DESCRIBE SPATIAL-USE PATTERNS FOR THE STELLER SEA LION USING A BAYESIAN POISSON MODEL

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This study utilized a dataset of opportunistic sightings to describe at-sea spatial use patterns for the endangered Steller sea lion (*Eumetopias jubatus*). Although opportunistic sighting data are often dismissed as unusable because of their lack of associated effort records, they often contain a wealth of information about a species' movement patterns and use of time and space. Such is the case with the Platforms of Opportunity (POP) dataset collected by the National Marine Fisheries Service. The POP dataset contains opportunistic at-sea marine mammal observations throughout the entire Pacific Ocean basin. In this study, a novel methodology was developed to overcome the lack of effort records associated with the POP observations and allow for calculation of effort-corrected Steller sea lion encounter rates in 15 km² grid cells covering the species' entire range. A Bayesian Poisson model was used to quantify both the encounter rate and the uncertainty surrounding that rate in each grid cell. Spatial-use patterns specific to the breeding and non-breeding seasons were estimated along with overall year-round patterns. Prior to this analysis no range-wide spatially-explicit information about Steller sea lion habitat use existed.