Lamberson,J.O., M.R. Frazier, W.G. Nelson, P.J. Clinton. 2011. Utilization Patterns of Intertidal Habitats by Birds in Yaquina Estuary, Oregon

Abstract

Bird utilization patterns were assessed in five types of intertidal soft sediment and low marsh habitat in the Yaquina estuary, Oregon. Censuses were designed to determine the spatial and seasonal utilization patterns of birds in *Zostera marina* (eelgrass), *Upogebia* (mud shrimp)/mudflat, *Neotrypaea* (ghost shrimp)/sandflat, *Zostera japonica* (Japanese eelgrass), and low marsh estuarine habitats, and to determine how these patterns changed during the tidal cycle and along the estuarine gradient. A total of 49,015 birds consisting of 79 distinct species and 10 composite taxa were recorded. Gulls and terns comprised 42% of the total birds and, together with ducks, shorebirds, corvids and geese, accounted for about 92% of the total abundance. Analyses compared three indices of bird use: bird density, Shannon diversity index, and species richness, while statistically controlling for variation in habitat area, location within the estuary, and time of year. In addition to total birds, the subgroups all birds excluding gulls, waterfowl (ducks and geese), and shorebirds were assessed. The embayments in the lower Yaquina estuary supported greater numbers and densities of birds than upriver areas, but species diversity was greater upriver. Eelgrass appears to be an important estuarine habitat based on nearly all metrics of bird use. The habitat formed by the introduced Japanese eelgrass appeared to have comparable bird use to unvegetated habitat at equivalent height on the intertidal gradient. Tide level was an important factor affecting bird distribution across intertidal habitats. Birds tended to move upslope across the intertidal flat with the incoming tide, and then move down slope to forage in newly exposed areas as the tide receded.