

Shorebird migration chronology at a stopover site in Massachusetts

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Monomoy National Wildlife Refuge, Cape Cod, Massachusetts is one of the most important stopover sites in eastern North America for migratory shorebirds. However, researchers have not quantified seasonal variation in species composition or abundance of shorebirds at this critical site. We conducted weekly surveys on 75 1-ha plots located throughout intertidal mudflat and saltmarsh habitats from April to October (2006) or November (2007). Peak shorebird density estimates during southward migration (48–52 shorebird-use-days ha⁻¹) were approximately three to five times greater than northward migration (9–15 shorebird-use-days ha⁻¹), but were similar between years. We detected 22 species, with six species accounting for 87% of birds detected: Semipalmated Sandpiper *Calidris pusilla* (25%), Sanderling *Calidris alba* (19%), Black-bellied Plover *Pluvialis squatarola* (14%), Dunlin *Calidris alpina* (11%), Short-billed Dowitcher *Limnodromus griseus* (10%), and Semipalmated Plover *Charadrius semipalmatus* (8%). We documented low density human use in both years (0.018±0.003 humans ha⁻¹ in 2006 and 0.008±0.001 humans ha⁻¹ in 2007). Understanding seasonality of shorebird and human use of this site is critical to implementing an effective management strategy to minimize impacts from human disturbance.