

Stranding pattern analyses for resident and migratory seal species along the coast of Maine, 2000-2013

Marine mammal stranding data provide insight into wild seal population dynamics, improve understanding of how these species interact with their environment, and influence conservation policy decisions. A total of 4,139 NOAA Fishery stranding records from 2000 to 2013, for harbor (*Phoca vitulina*), gray (*Halichoerus grypus*), harp (*Pagophilus groenlandicus*), and hooded (*Cystophora cristata*) seals were summarized using GIS mapping, and analyzed to identify spatial, temporal and temperature related stranding patterns using analysis of variance and regression analyses. GIS stranding density maps showed that an area of high stranding density, or a hotspot, existed within the coastal region of Southern Maine for the four species. Within the temporal analysis, resident seals (harbor and gray) were discovered to strand mostly within the spring and summer months while migratory seals (harp and hooded) stranded predominately in the winter. Sea surface temperatures (SST) within the spring, summer and fall seasons were determined to be significantly increasing over the thirteen year period and some these changing SSTs were found to be correlated with seal strandings, especially for the spring season which was correlated with three of the seal species' strandings. The conclusions made in this study could be useful if presented to the marine mammal stranding response network and present future research opportunities to investigate causative factors relating to these stranding patterns in the wild.

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