

## **Influence of human disturbance and marsh vegetation on fiddler crab retreat behavior**

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*Uca pugilator*, the sand fiddler crab, is found distributed throughout the southeastern coastal region of North America. They are foragers of detritus found within intertidal substrates, and have a few natural predators that range from raccoons to various species of shore birds. In response to a predator's presence, fiddler crabs often retreat into nearby burrows. Reemergence time after predator exposure is influenced by crab size, sex, and tidal location. However, it is unclear how this behavior varies with human disturbances and vegetation zones. The purpose of this study was to examine these factors at two sites in Savannah, Georgia, USA; one site was frequented by beachgoers while the second was infrequently visited. One-meter plots were temporarily delineated within zones of bare substrate, mixed *Distichlis/Salicornia*, and *Spartina alterniflora*. Following the human disturbance of establishing the temporary plot, the time elapsed for crabs to reemerge from the burrows was recorded. At both sites, average return times were shorter in the lower intertidal plots. Crab return time was significantly longer at the infrequently visited site for plots located within the high intertidal bare patches and the *Distichlis/Salicornia*, but there was no significant difference in return times between sites for crabs within low intertidal *Spartina alterniflora*. This study supports previous findings that location within a marsh influences crab behavior. It also indicates that *U. pugilator* reemergence times following a disturbance do not depend solely on the presence or absence of vegetation and may be modified by human disturbances. Additional work is needed to determine whether features of the vegetation (species, height, density) and/or abiotic factors modify reemergence behavior. Given that urbanization in the coastal zone is expanding, determining the impact of anthropogenic and abiotic factors on fiddler crab antipredator response is vital in order to better understand the influence of humans on marsh environments.

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