

High-marsh pool use by the fiddler crab, *Uca pugnax*, in a New England salt marsh

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with less than 5 data collection points was discarded from the statistical analyses. Counts from each video were normalized to density per 1 m² based on calculations of total pool area and used in statistical analyses.



Figure 2: Location of sampling locations of all video cameras.

b. Physical Characteristics: Several physical characteristics of the pools were measured including, temperature with a multi-variable YSI meter, salinity with a standard refractometer, and dissolved oxygen using a portable YSI ProDO meter. Area and shape of each pool was measured using a Trimble GEO XH 2002 GPS unit. Mapping data was processed using a geographic information system (GIS). Depth of each pool was measured in 3 places and averaged. All physical characteristic measurements were taken on the same days at low tide to ensure consistency between pool measurements.

Results and Discussion

The density of *Uca pugnax* in high marsh pools was surprisingly high compared to previous literature, which had makes little to no mention of pool use by the marsh fiddler. Previous literature has pointed to *Uca pugnax*

Changes in crab behavior and movement due to the shadow of the camera rigs over the substrate were considered as another possible source of error. Avian predators common to the Branford area are known to consume fiddler crabs as part of their diet (Montague 1980). It did not appear that the behavior of the crabs was modified due to the presence of a shadow. In every video, both male and female crabs were observed repeatedly crossing through the camera shadow without reservation.

Conclusions

Previous literature has typically noted the marsh fiddler, *Uca pugnax*, as being primarily a low marsh inhabitant due to limitations in its physiological and other adaptive abilities to occupy high marsh habitat (Bertness and Miller 1984, Grimes, et al. 1989). This study has shown that the *Uca pugnax* can occupy high marsh habitats in high numbers and utilize habitats not previously noted for *Uca pugnax*. Changes on the marsh may be pushing the crab higher onto the marsh including sea level rise, loss of low marsh habitat, and biological pressure. In order to support or refute this trend,

