

**EFFECTS OF LATITUDE, SEASONALITY, AND TIDE LEVEL ON POPULATION
PARAMETERS OF *Ucides cordatus*: TOWARDS PREDICTIVE MODELS FOR
CONSERVATION MANAGEMENT**

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The mangrove crab *Ucides cordatus* is an important fishery resource in the western Atlantic. Since 1998 we have been studying its ecology, mainly to understand the biological processes of estuarine systems like sediment bioturbation, and to monitor the effects of climate changes. Population parameters can be affected by several sources of variation that need to be identified to validate predictive models. Thus, in this study we evaluated the effects of latitude (LAT), seasonality (SES) and tide level (FLO) on the density (DE, as ind./m²) and body size (CW, carapace width in mm) of *U. cordatus*. We conducted sampling expeditions in the summer and winter of three consecutive years (2016–2018) in two mangroves: Juréia Ecological Station (24°26'00"S, 47°5'58"W) and Superagui National Park (25°18'33"S, 48°10'10"W). In each mangrove, population parameters (DE and CW) were recorded in three quadrats (5x5 m) randomly placed in two zones (margin, higher mean high water; and 'apicum', lower mean high water). Each parameter was analyzed with a 3-Way ANOVA. The density of *U. cordatus* (n=72) was significantly affected by FLO (F=6.83, p=0.01; 1.4x higher in 'apicum') and LAT (F=43.58, p=0.000; 2.3x higher in the northernmost mangrove), but not by SES (F=0.02, p=0.89). Also, there was a significant interaction LATxSES (F=4.11, p=0.05). The body size of *U. cordatus* (n=64) was affected by the three sources of variation: FLO (F=18.03, p=0.0001; crabs are 14.5% larger in the estuarine margin); LAT (F=60.52, p=0.000; crabs are 24.9% larger in the southernmost mangrove); and SES (F=4.60; p=0.040; crabs are 7.6% larger in summer). The interaction FLOxLAT was significant (F=8.36, p=0.006). Density and CW were negatively correlated (r= -0.66; p<0.05). In estuarine margins, density was lower and the individuals were larger, whereas the opposite occurred in the 'apicum'. Our results provide relevant baseline information for predictive models aiming to regulate the use of fishery stocks and conservation of *U. cordatus*.

Keywords: body size, crab, density, mathematical model.

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