

Effects of Feeding Preference on the Growth Rate of the Green Sea Urchin *Strongylocentrotus droebachiensis*

In this study the effects of feeding preference on the growth rate of the green sea urchin, *Strongylocentrotus droebachiensis*, were investigated. Optimal foraging theory (OFT) is a model that helps predict how an organism behaves when searching for food. Fifteen urchins were provided with three algal diets including *Chondrus crispus*, *Ascophyllum nodosum*, and *Saccharina latissima* to test for feeding preference in relation to OFT. Each algal diet was weighed before and after all six 48-hour trials to determine the mass of each type of algae consumed and to determine whether feeding preference reflects OFT. There was a significant difference in percent consumed across all three algal species, *A. nodosum*, *C. crispus*, and *S. latissima* ($p < 0.001$), with *S. latissima* being the most preferred out of the three algal diets. Each urchin was weighed before and after the 7-week experiment to determine if what they were consuming influenced how much they grew over time. There was a significant difference in urchin mean initial and final weight after the 7-week experiment ($p < 0.001$). No significant relationship was found between total growth of the urchins over time (g) and the total alga consumed (g). In conclusion, for this study specifically, feeding preference does not affect the growth rate of juvenile urchins.