

# An investigation of the feeding ecology of *Heliocidaris erythrogramma*

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## **Abstract**

During the marine heatwave that occurred in 2011 Western Australian coastal waters, the benthic cover of *Ecklonia radiata* and *Scytothalia dorycarpa* was severely reduced as a result of mortality induced by the 2-4 degree temperature anomaly that persisted for nearly two months. *H. erythrogramma* is a species of sea urchin that feeds primarily on *E. radiata* and *S. dorycarpa* drift that it often comes from distance sources. This apparent role in bringing nutrients into an environment will be threatened if heatwave events continue to occur as has been predicted. I sought to understand whether they could survive changes to their diet and how these diet changes would affect their feeding behaviour and performance. I assessed their consumption rates, feeding preferences and performance when subjected to different species of macroalgae. I found that consumption rates did differ between food sources with *Caulerpa flexilis* being consumed more than the other three food sources (*E. radiata*, *S. dorycarpa*, and *H. crista*). The preference trials showed a slight preference *E. radiata* and *S. dorycarpa* but no other food sources were consumed significantly more than their standalone diet counterparts. The diet impact study found no significant difference in weight over the six week trial. The results show that *H. erythrogramma* can survive at least in the short term without detriment on other food sources by altering their consumption rates.