

## ABSTRACT

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Title: THE EFFECT OF TEMPERATURE ON THE RATE OF PHOTOSYNTHESIS OF INTERTIDAL *ASTRANGIA POCULATA* (ELLIS AND SOLANDER 1786)

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*Astrangia poculata* is a scleractinian coral with a far distribution in the Atlantic including the Long Island Sound and throughout the Southern New England coast. This coral, like its tropical relatives, feeds both heterotrophically capturing prey and autotrophically through a symbiotic relationship with the dinoflagellate zooxanthellae, which is present within the gastrodermal tissue of the coral. This coral, unlike its' tropical relatives, can survive with and without zooxanthellae present and thus can exist in a 'bleached' state. This coral is also unique in that it experiences a dormant state called quiescence, during colder months characterized by polyps no longer responding to touch. This study examined the *in situ* photosynthetic yield of zooxanthellae present in brown and white colonies over the course of 10 months, including the time the corals were dormant. Results demonstrated that the photosynthetic yield from zooxanthellate colonies was consistently greater than the azooxanthellate colonies on every visit to the site. Results also demonstrated that the yield from summer months (July, August and September) was significantly greater than the yield from winter months (December and February) and that corals, when quiescent, continue to photosynthesize. These results conclude that *Astrangia poculata* continues to photosynthesize throughout quiescence and bleaching, and that there is a difference between the photosynthetic yield of zooxanthellate and azooxanthellate corals.