The effects of short-term temperature changes on the metabolic rates of the bushy-backed nudibranch (*Dendronotus frondosus*)

Global warming is a climate change factor that has been linked to increasing water temperatures in the world's oceans. Global warming can be detrimental to the survival of smaller species, like molluscs, in the intertidal zone. Within the Mollusca phylum, adult nudibranchs have relatively few published studies on thermal stress. This study evaluated the effects of short-term temperature increases on the metabolic rate of *Dendronotus frondosus* (bushy-backed nudibranch), found in the Gulf of Maine intertidal zone. In treatments 20ºC and 22ºC, *D. frondosus* experienced a 29.83 ug O2·g-1·hr-1 increase in the metabolic rate from the control temperature (18ºC). Overall, the results suggest that global climate change may increase the amount of energy required for an organism to acclimate to temperature changes and may potentially exceed the thermal tolerance of *D. frondosus* and other molluscs in the intertidal zone.

Advisor: Steven Baer