

Estimating the population abundance of green crabs, *Carcinus maenas*, in Hatch Cove, Castine, Maine

Invasive species can have an effect on the community's ecology in which their population resides (Grosholz 2011, Matheson 2012, and Ruiz 1997). The green crab, *Carcinus maenas*, is an invasive species that has established its population along the coasts of North America, and currently have a negative effect on the soft-shell clam (*Mya arenaria*) population within the Gulf of Maine (Wong 2013). A mark and recapture technique with 5 lobster traps was used to produce a population estimate of an effected area, Hatch Cove, Castine Maine. The Chapman estimator calculated the population estimation (Eq. 1) for each replicate of the mark and recapture sessions to generate an overall average of the successful marked recaptures. The estimated population was 5459 ± 1582 within Hatch Cove. A significant difference was not found for the average number of green crabs caught between marking sessions, but there was a significant difference between the traps, with trap four being the highest. The location of the traps played a role in the differences in the amount of crabs caught between the traps. The traps on the northern shore and in the deeper waters caught more crabs over the course of the experiment. This pattern suggests that the crabs migrate within the cove periodically according to the tides.

Advisor: Jim McKenna