

## **Characterization of pH at Wadsworth and Hatch Cove, Castine, Maine**

The coast of Maine is at an elevated risk for detrimental effects of coastal acidification compared to the southern coast of the United States. Increased ocean acidification may negatively affect Maine's marine economy, particularly the shellfish industry. Sediment-dwelling bivalves such as *Mya arenaria*, the soft-shell clam, are exposed to more acidic conditions through sediment porewater. This study aimed to characterize the spatial and temporal acidic conditions experienced by juvenile soft-shell clams by measuring the variability of intertidal pH at two locations, Hatch Cove and Wadsworth Cove, in Castine, Maine. At each location, porewater pH and temperature were measured at sediment depths of 2 cm and 5 cm. At each site, porewater pH samples were taken along a transect with three sample points: high tide as determined by the wrack line, mid-tide as determined by the slope of the beach, and low tide as determined by the waterline during a low tide. An additional pH measurement was collected from the overlying water at low tide because overlying water pH affects the porewater pH of sediment. No correlation was found between pH and time at either Cove. Wadsworth Cove and Hatch Cove were found to be significantly different with regards to porewater pH, sediment carbon content, and sediment water content. These differences in sediment chemistry, as well as in sediment type, may result in differences in soft-shell clam settlement, recruitment, and survivorship between beaches and over time.

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