

***Readying sustainable aquaculture for a changing ocean: uncovering the mechanisms associated with intergenerational carryover effects to enhance bivalve resilience to acidification***

Annual Report  
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Primary activity in this reporting period was exposing adult clams to ocean acidification, with the aim of understanding how changes in ocean chemistry might affect clam populations, crucial for both marine biodiversity and aquaculture. Adult Manila clams were collected from Puget Sound and acclimated at the NOAA Manchester Research Station. The primary focus is on how these acidified conditions affect the clams' reproductive outputs and their physiological health. Initial results show that egg size remains consistent across normal and acidified conditions. However, larval survival seems to tell a different story, with a significant increase in survival rates at day two post-fertilization under acidified conditions. Additionally, measurements of gill ATPase activity are underway, with initial samples indicating variability in response to acidification, suggesting some degree of physiological stress or adaptation. The project team has also had to adjust data collection protocols to enhance the reliability of the findings due to the high variability in larval survival rates. The project remains on budget, with all funds allocated as planned for personnel, equipment, and operational costs, and no additional funding requests are anticipated at this time. This next year will focus on characterizing maternal and paternal contribution to offspring and differential gene expression in broodstock.

Below are images from the experimental setup at the NOAA Manchester Field Station.

