



Rangia Clams in Texas Bays

Using clams to determine how much fresh water our bay systems need

WHY Freshwater inflow is required to maintain the health and resilience of Texas bays and estuaries. The growth and reproductive success of *Rangia*, a clam common in brackish waters, could be used as indicators of the amounts of freshwater required to maintain ecosystem processes.

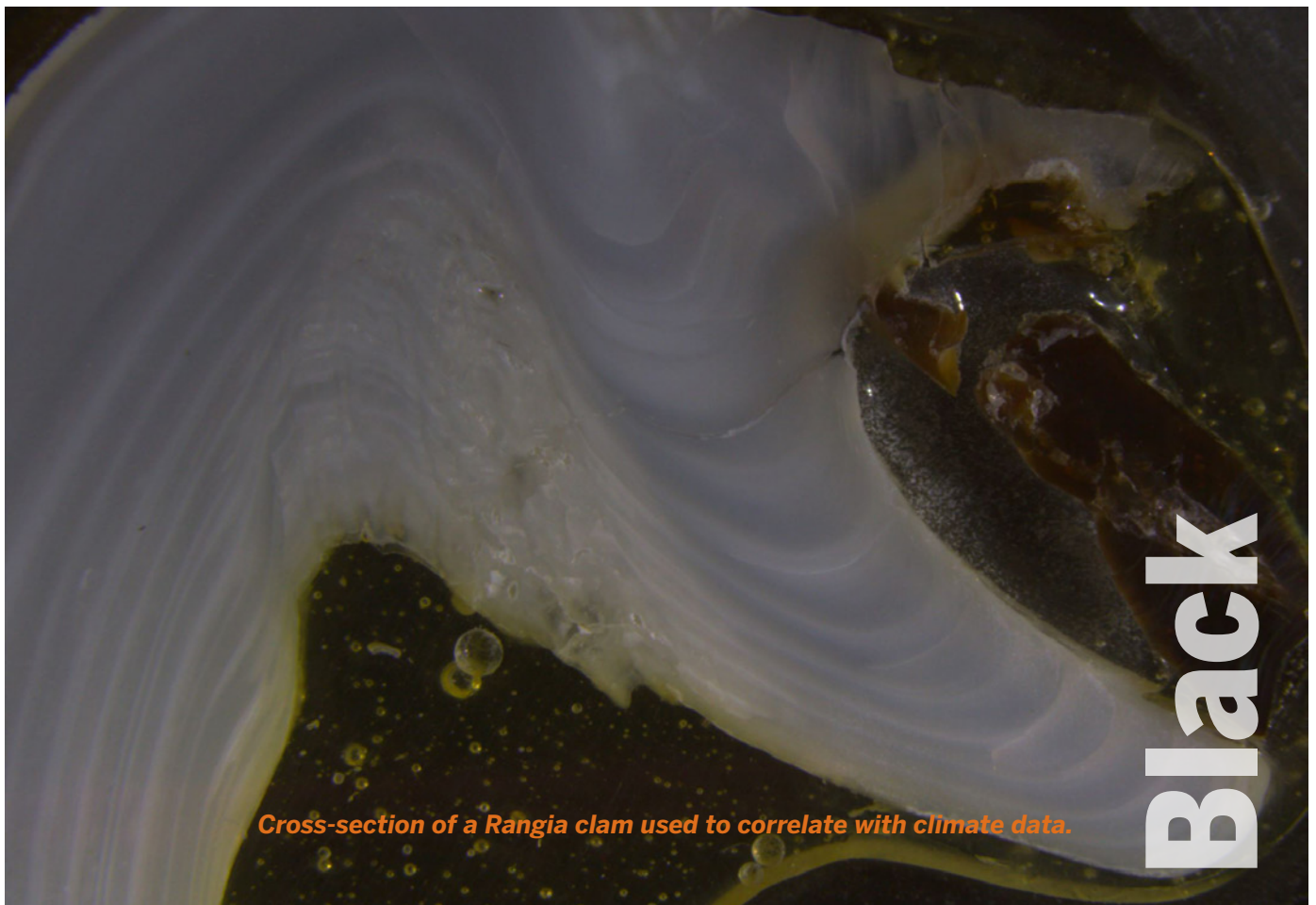
HOW We will analyze growth increments in *Rangia* clams from Texas bays to 1) describe the age structure of these populations and 2) develop chronologies from shell increments widths to describe population-wide growth patterns over the past decade to 15 years. These indices will be compared to climate data, including river discharge, temperature, and salinity, to establish environmental correlates with *Rangia* growth and recruitment. In so doing, we plan to quantify environmental requirements for growth and reproductive success of these populations.

FILLING THE KNOWLEDGE GAP

Techniques borrowed from the tree-ring sciences are borrowed to develop chronologies of the highest accuracy, which will in turn allow us to establish the more accurate correlations with climate. Moreover, *Rangia* have been sampled across several bays in Texas, allowing us to examine the effects of climate across a west (dry) to east (wet) rainfall gradient.

IMPACT

This work is done to help validate Texas Commission for Environmental Quality environmental flow standards, which rely heavily on reproductive requirements for *Rangia* clams, a good bioindicator of freshwater inflows.



Cross-section of a Rangia clam used to correlate with climate data.

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