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.