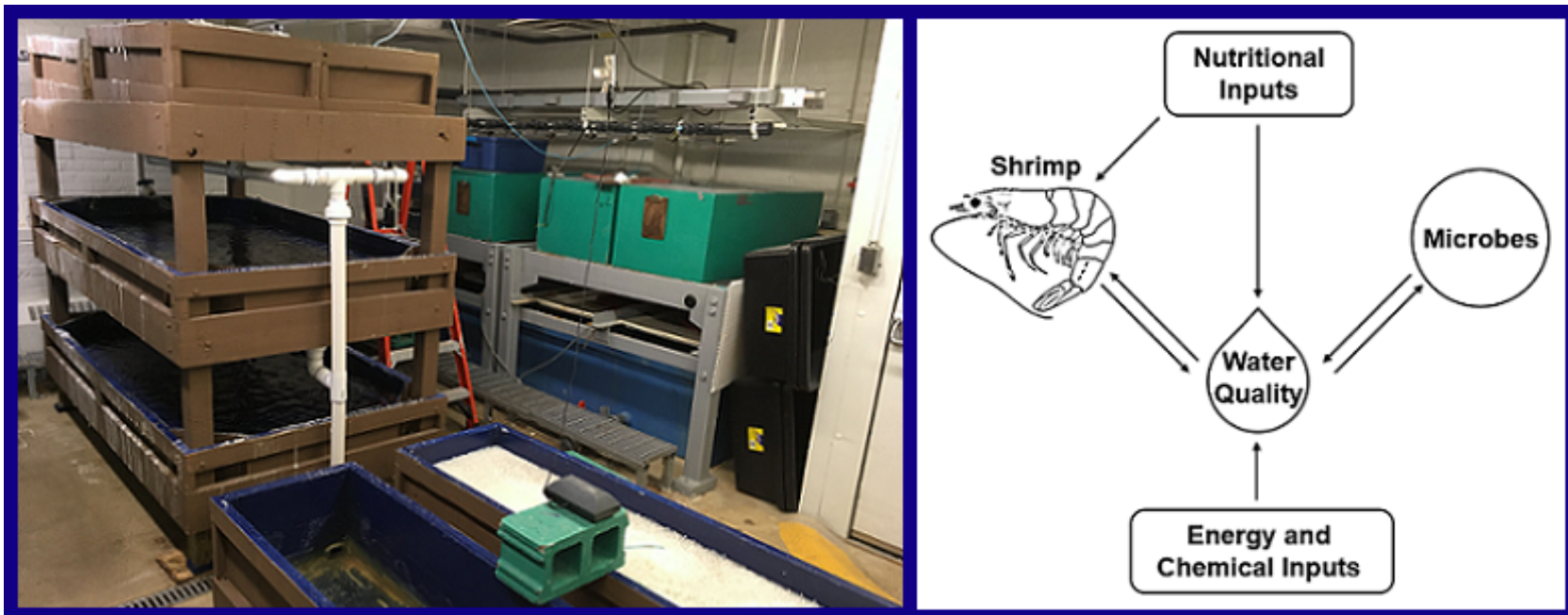


# Recirculating Aquaculture System

Cindy Yao



Recirculating aquaculture systems (RAS) embody many interactions central to the food-energy-water nexus. With REFRESCH support and efforts of a senior design team in mechanical engineering, a 550-gallon RAS for the intensive grow-out of whiteleg shrimp was designed and constructed with energy efficiency and material accessibility in mind. During RAS operation, shrimp in the culture tank and the microbes in the biofilter mutually affect each other's ecology by mediating changes to system water quality. This project aims to evaluate the production of shrimp in RAS by assessing shrimp growth, nutrient conversions, and microbial community structure.