

DSU WiCCED Summer Scholars - Oysters

Dates of internship: June 3rd, 2019 – July 25th, 2019

Location: Delaware State University, 1200 N. DuPont Hwy, Dover, DE 19901

Number of positions available: 1-3

Faculty Mentor: Gulinihal Ozbay

Graduate Student Mentor: Mohana Gadde

Professional Staff Mentor: Casssandra Eyong

Project Topic: Oysters

Research Description:

Our overarching goal is to distinguish between ocean, agricultural, wastewater, and atmospheric sources of the nutrients to the Delaware Inland Bays and their oyster populations. Although oyster aquaculture may be impacted by excess nutrients, it can also be a solution to mitigate this problem. We expect to see high efficiency for nitrogen removal by farmed shellfish compared to BMPs for agricultural and storm-water runoff. Current research effort focuses on understanding nutrient and salinity stresses on oysters and other species living in and around oysters. As part of the program goal, we propose to use the concentrations and isotopic compositions of dissolved and particulate carbon, nitrogen, and phosphorus in water, sediment, and oysters at the aquaculture sites in the Delaware Inland Bays. Following are our objectives:

1. Obtain continuous water quality readings for dissolved oxygen, temperature, pH, salinity, dissolved solids, turbidity using the sensor identified for the aquaculture site(s)
2. Analyze water quality for nutrients from water, sediment and oysters at aquaculture site(s) and restoration site(s)
3. Monitor oyster growth and survival and compare their growth and survival for aquaculture site(s) oyster restoration site(s)
4. Assess ecological benefits of oyster aquaculture: monitor differences in pelagic and benthic aquatic species diversity and presence and absences of some of the indicator species (i.e. blue crab)
5. Identify nutrient sources to oysters: monitor nitrogen and carbon sources in the sediment, water, oyster and surrounding lands to identify what are the major sources of nitrogen and carbon in that particular site
6. Identify potential land use stressors and obstacles for the aquaculture industry

Student Learning Objectives: Professional and Research Skills

This internship focuses on the development of the following professional and scientific skills.

Broad Professional Skills	Specific Skills
Planning and time management	Ability to set and complete specific goals of varying scope
Work independently	Independent work ethic - work independently to problem-solve
Collaborative skills	Learning to complete tasks efficiently and effectively with others
Express ideas in writing and verbally	Communicate with diverse audiences - Development of impactful poster and oral presentations. Honing ability to deliver scientific results/impacts to people of interdisciplinary background.

Prerequisites:

At least a Sophomore (or Freshman with equivalent lab experience) ; An interest in aquatic sciences and field research

Work Environment and Expectations:

Laboratory environment: Ag Annex Building, Rm 209. Hours are flexibly determined between student and mentor. Students will work part time during the fall and spring semesters, and full time during Summer Session. Students will also participate in a retreat, communications workshop and end of internship summer symposium.

Stipend:

\$5,000 total; \$2,500 will be paid on 6/28/19 and the final \$2,500 will be paid on 7/25/19 pending final poster completion. Both payments will be delivered via a paper check.

Funding Source:

National Science Foundation, Delaware EPSCoR Track I

How to apply: <https://ciber.desu.edu/opportunities/> or contact Ms. Tiffini Johnson at trjohnson@desu.edu with subject line: WICCED