

IEH Undergraduate Intern Mentoring Opportunity

Deadline: **March 17th, 2015**

Name/Title/Institution(s) of senior mentor(s):

Tawnya Peterson/Assistant Professor/OHSU

Name/Title/Institution(s) of frontline mentor(s):

N/A

Project Title:

Linking *Mesodinium* bloom timing with river discharge and estuarine circulation regimes in the Columbia River estuary

Context for Project:

Each summer, intense and expansive red water blooms of the photosynthetic ciliate, *Mesodinium cf. major*, occur in the Columbia River estuary. These blooms are episodic in nature, and therefore it is difficult to gather empirical data with which to build predictive understanding of bloom behavior, initiation, and demise. Using several years of data that include anecdotal evidence for the approximate date of bloom initiation, in situ observations of a diagnostic pigment, and direct determinations of abundance, we will identify windows for bloom initiation and development.

Proposed Outcomes/Broader Impact:

The Columbia River is a regulated river where flows are controlled for hydropower generation and to maintain suitable conditions for ESA-listed stocks of juvenile salmonids. Since the oxygen-producing red water blooms counteract low-oxygen conditions often found during the summer months in the estuary, the potential to regulate bloom timing and intensity through flow modifications may provide a useful resource management tool.

Proposed timeline (within a 10 week span):

Week 1: Orientation, literature review and background reading. Lab meeting (Fri. 9 am).

Week 2-6: Analyze data collected from in situ sensors and make plots. Lab meeting (Fri. 9am).

Week 7-9: Produce publication-quality graphs and write up methods. Lab meeting (Fri. 9am).

Week 10: Final wrap-up, final presentation and paper.

Intern academic experience and skill set should include:

Basic science courses to include mathematics, statistics, chemistry or biology.