

Analytical Method Development for
Bed Sediments Containing Chlorophyll
Jonah Nguyen, Litesh Naryan, and Julie Masura*
University of Washington Tacoma
Environmental Science Undergraduate Research Project

Marine ecosystems are unique because they are comprised of a diverse range of species. Understanding the main food source for these organisms can provide a good indication of nutrient availability within the food web. It can also serve as the groundwork for determining what type of environmental factors influence food available within local ecosystems. Phytoplankton is a floating photosynthesizing organism and is a primary producer, creating energy from synthesizing the sun's energy. This is the foundational food source for many organisms that inhabit different marine ecosystems. Phytoplankton is a simple plant and contains chlorophyll, a green pigment that uses light to fuel energy production during photosynthesis. This project devised a method to confirm the presence of chlorophyll in sediment samples collected from various locations throughout the Puget Sound. Once sediment samples were processed, a fluorometer was used to detect and measure the absorbance of chlorophyll in raw fluorescence units (RFU). Chlorophyll was detected within the processed sediment samples, confirming the method was viable. Finding chlorophyll in sediments can be used to determine the productivity of the water column within the bay in which these sediments were found. Continued monitoring at these locations will reveal the reactions of marine organisms experience as environmental factors change. Since this initial work provided us with viable data, we can conclude that the method development will now be introduced as the University of Washington's first standard protocol for processing sediment samples containing chlorophyll.