

Lewis University
STEM Undergraduate Research Experience (S.U.R.E.) 2019
Faculty Mentor – Project Application

Faculty Name: *Jerry H. Kavouras*

Department: *Biology*

Research Project Title: *Changing Food Webs: Dreissena and the Microbial Loop*

Research Project Abstract:

*The zebra mussel (*Dreissena polymorpha*) and quagga mussel (*Dreissena bugensis*) are changing the Great Lakes ecosystem and surrounding fresh waters. They alter ecosystems through their voracious filter feeding ability. The microbial loop is an important part of the aquatic food web that feeds organisms in the second trophic level. With the increasing number of *Dreissena* in our fresh waters, this is a serious threat to the microbial loop and secondary production. Potentially, *Dreissena* can change the species diversity of the microbial loop and/or the levels of secondary production. Changes in secondary production can result in a cascade effect observed in the other trophic levels, which can challenge the viability of macroscopic life in fresh waters. Ecologists have not studied thoroughly this topic for *Dreissena*. Using standard microbiological methods, the hypothesis will be tested that *Dreissena* modify the quantity and quality of dissolved organic matter in the water, which in turn influences the amount of bacterial secondary production and microbial diversity in fresh waters. The results will be applicable to fresh waters of North America colonized by these aquatic nuisances.*