

To: Dr. Margaret Diddams PhD, Director of the Center for Scholarship and Faculty Development
Dr. Bruce Congdon PhD, Dean of CAS - Sciences Division

From: Karisa Pierce PhD, Associate Professor, Department of Chemistry and Biochemistry

Date: July 15, 2015

Re: Report for CSFD Faculty Research Grant awarded to K. Pierce for July 1, 2014 – July 1, 2015.

This is a final report noting the activities and outcomes that were supported by the Faculty Research Grant awarded to Karisa Pierce on May 7, 2014, which was \$1,100 specifically for “toxins from Canadian National Research Council Chemical Supplier” for the project *Quantify Paralytic Toxins in Puget Sound Shellfish and Seastars*.

First of all, thank you for the support. It was extremely valuable and allowed us to achieve research goals that culminated in scholarly works that thoroughly describe and/or summarize the research accomplishments and project outcomes. The scholarly works consisted of two peer-reviewed publications, an oral presentation at a local undergraduate research conference, a poster presentation at the national research conference of the American Chemical Society, a poster presentation at a local undergraduate research conference, and an oral presentation at an SPU research institute symposium. The support provided by CSFD was acknowledged in these six publications and presentations. Please see (below) a detailed list of these publications and presentations. Each is an indicator of research progress, good quality results, and conclusions that are of interest to analytical chemists and biologists. In the list below, please note that first and last authors share equal significance in articles published in chemistry journals. These six scholarly works were directly related to the funding and time period of the FRG grant (July 2014 through July 2015). Prior to that time period, the research project was in earlier stages, and during those earlier stages, project outcomes included high quality results that yielded one oral presentation at an SPU research institute symposium and two poster presentations at local undergraduate research conferences. These are also listed below. The support provided by CSFD made it possible to conclude the earlier stages of the research project.

Journal Article - Madison L. Strawn (F14), Elias T. Lunsford, Lauren E. Larsen (S12), Meredith M. Moran (F12), Victoria Allbritton, Ryan P. Ferrer PhD, and Karisa M. Pierce PhD (corresponding author). “Identification and quantification of paralytic shellfish toxins in Puget Sound marine organisms.” *Journal of Environmental Analytical Chemistry* (2015) Volume 2 Issue 4 – 1000148: 1-6.
<http://dx.doi.org/10.4172/jreac.1000148>

Journal Article - Ryan P Ferrer, Elias T Lunsford, Camillo Candido, Madison L Strawn, Karisa M Pierce. “Saxitoxin and the ochre sea star: Molecule of keystone significance and a classic keystone species.” *Integrative and Comparative Biology* (2015) Accepted manuscript, In press.

Oral Presentation - Murdock College Science Research Conference. 11/15/2014. Oral presentation by Madison Strawn (F14). “Quantification of Paralytic Toxins in Puget Sound Marine Organisms.”

Poster Presentation - 249th ACS National Meeting, Denver, CO. 3/24/15. Poster presentation by Karisa M Pierce. “Identification and quantification of paralytic toxins in Puget Sound marine organisms.”

Poster Presentation - Murdock College Science Research Conference. 11/14/14. Camillo M. Candido, Karisa M. Pierce, Ryan P. Ferrer. Poster: “Saxitoxin and the ochre sea star: Molecule of keystone significance and a classic keystone species.”

Oral Presentation - SPU Summer Research Institute 2014. 8/21/14. Oral presentation by Madison Strawn (F14) "Paralytic Shellfish Toxins"

(Below is a list of work that was accomplished prior to the grant funding period, but these items are included in this report because the grant was extremely valuable in helping conclude these particular projects.)

Oral Presentation - SPU Summer Research Institute 2013. 8/16/13. Oral presentation by Victoria Allbritton. "Paralytic Shellfish Toxin"

Poster Presentation - MJ Murdock Charitable Trust Research Conference at Whitman University, 10/26/2012. Poster presentation by Meredith Moran (F12). "Quantification of paralytic shellfish poisons in Puget Sound *Mytilus edulis* using prechromatographic oxidation and liquid chromatography FLD"

Poster Presentation - MJ Murdock Charitable Trust Research Conference at Seattle University, 11/11/11. Poster presentation by Lauren Larsen (S12). "Quantifying saxitoxin in shellfish using prechromatographic oxidation and liquid chromatography with fluorescence detection."

In total, the FRG grant *directly* supported the work of three SPU undergraduate Research Assistants. The FRG grant *indirectly* supported the work of four other undergraduate Research Assistants who were involved in earlier stages of the work by allowing the later students to finalize the work begun by the earlier students. The undergraduate Research Assistants gained valuable experiences and knowledge. They were excellent representatives of SPU when they presented their work. Some of these students have since graduated from SPU (their graduation years are in parenthesis in the list above). These alumni have gone on to Yale School of Medicine in the Physician's Associate program, Columbia University in the Nurse Practitioner program, pursuing admission to medical school, working as a medical scribe, working in a chemistry laboratory, and pursuing industrial laboratory work. Your support is very much appreciated. It had a huge impact on improving research experiences for SPU students and it had a huge impact on improving my own scholarly trajectory as a faculty member.