

January 12, 2015

George Matsumoto
Senior Education and Research Specialist
Monterey Bay Aquarium Research Institute
7700 Sandholdt Road
Moss Landing, CA 95039

Dear Dr. George Matsumoto, Dr. Ken Smith, Dr. Crissy Huffard & Linda Kuhnz,

I am writing to apply for the 2015 Summer Internship Program to work with Dr. Ken Smith, Dr. Crissy Huffard and Linda Kuhnz on the project: **Monitoring changes in deep-seafloor community using time-lapse photography**. I believe that my previous experience, research interests and strong work ethic would make me a valuable contributor to this project and provide me an unparalleled opportunity to learn from world experts in deep-sea biology.

My primary research interest is the Torquaratoridae, a family of deep-sea hemichordates. Dr. Ken Smith's research has been instrumental in establishing the current knowledge of this family. I would like to expand upon the contributions made by him and his collaborators in order to assess the impacts of torquaratorids in deep-sea benthic communities through the analysis of their feeding ecology, symbiotic relationships, morphology and an assessment of their abundance in the deep-sea through time. This would not only increase our understanding of this fascinating family and their role in this ecosystem, but also, through sediment analysis we could better understand the impacts of climate and weather variation on life in the deep-sea. The MBARI Summer Internship would allow me to review the resources available to address questions of Torquaratoridae impacts on deep-sea community resources, and further my professional development as a deep-sea biologist.

This internship would provide me the opportunity to learn directly from individuals who have been instrumental in gathering knowledge of this family. While this internship topic is not an exclusive study of the torquaratorids, the image analysis skills that I would obtain and the knowledge of the deep-sea ecosystem I would gain would be invaluable when planning my dissertation project. A key aspect of my research interest involves determining the diet of torquaratorids, if they are competing for resources with other animals, the rate that they process sediment and possibly their bioturbation impact on benthic sediment. Through this internship I would have the opportunity to learn from experienced researchers about the composition of benthic sediment at a long-term research site. Additionally, by participating in a research cruise there is the opportunity to collect sediment (prior to consumption, in the pre-gut, post-gut and after excretion) for stable isotope analysis, which would be completed at the Smithsonian Museum Conservation Institute in Suitland, MD. Understanding the nutrient content of this sediment would help to potentially incorporate Torquaratoridae benthic bioturbation into models of the deep-sea carbon cycle and carbon sequestration rates.

The MBARI Summer Internship program would be incredibly beneficial to my professional development as a deep-sea biologist. Not only would I gain a wealth of knowledge and skills regarding the methods of deep-sea research, but also the expertise of Dr. Smith and the rest of the scholars at MBARI would be incredibly

valuable for me as I continue to develop my research interests and consider how to pursue them. My interest in deep-sea benthic communities in general, and torquaratorids in particular, is very relevant to the tasks I would be undertaking as an intern at MBARI. My previous experience, as outlined on my curriculum vitae, has given me a wealth of skills and knowledge in identifying and researching deep-sea fauna. For these reasons I believe I would be a valuable asset to this research project and in return gain valuable experience I could apply to my future graduate work and continuing career.

Thank you for your time and consideration.

Sincerely,

Jessica Whelpley

Relevant Courses & Grades:

General Biology I (4cr): B
General Biology II (4cr): B
General Biology III (4cr): B
Freshwater Ecology (4cr): A-
Human Physiology (4cr): A-
Marine Invertebrate Zoology (4cr): A
Evolutionary Biology (4cr): B+
Genetics (4cr): B-
Vertebrate Zoology (3cr): A-
Zoology Field Exp Lab (3cr): A
Special Topics Seminar: Principles of Aquaculture (3cr): A-
Biology Research I (3cr): A
Biology Research II (3cr): A
Extreme Weather (3cr): A

General Inorganic Chemistry I (3cr): C
General Inorganic Chem I Lab (1cr): B
General Inorganic Chemistry II (3cr): B-
General Inorganic Chemistry II Lab (1cr): A
Organic Chemistry I (3cr): C+
Organic Chemistry I Lab (1cr): B
Organic Chemistry II (3cr): B
Organic Chemistry II Lab (1): A
Introduction to Calculus (3cr): A-
Applied Calculus II (3cr): B-
Applied Matrix Theory (3cr): B+
Accelerated Statistics (3cr): B+
General Physics I (4cr): B-
General Physics II (4cr): B-

*4 cr. classes include labs