



Dr. Paul Bienfang



Dr. Lorenz Magaard

## In Memory Of

The GES program and the Department of Oceanography are deeply saddened by the recent passing of two Emeriti faculty, Dr. Paul Bienfang and Dr. Lorenz Magaard.

Dr. Bienfang was an alumnus of the department. His research specialties included ciguatera fish poisoning, environmental water quality, and phytoplankton ecology issues, and his research laboratory was part of the Pacific Center for Research in Marine Biomedicine, one of four U. S. centers for oceans and human health. Dr. Bienfang's desserts, particularly his cheesecake, were legendary among those who had the good fortune to enjoy them.

Dr. Magaard moved to Honolulu, Hawaii, from Wallsbüll, Germany, in 1975 and joined the department as a professor. He specialized in ocean waves, oceanic turbulence, oceanography of Hawaiian waters, and climate and society, and made essential contributions to the theory of ocean waves. More significantly, Dr. Magaard was instrumental in the founding and development of SOEST, an accomplishment of which he was most proud.

They will both be missed by their Oceanography and SOEST 'ohana.

The University of Hawai'i at Mānoa Department of Oceanography presents

# FALL 2020



GLOBAL ENVIRONMENTAL SCIENCE

Friday, December 11, 2020

10:30am - 12:30pm

Via Zoom

## **About GES**

The Department of Oceanography launched the undergraduate Global Environmental Science (GES) program in 1998 with the generous support of the Pauley Foundation. The vision and brainchild of Emeritus Oceanography Professor Dr. Fred Mackenzie, the GES program is known for its rigorous math and science foundation, integrated study of environmental- and sustainability-related issues, and faculty-mentored research thesis requirement. This research experience results in every GES graduate having completed a faculty-mentored research project, written a thesis, and presented their research results in a public forum. As a result of the challenging curriculum and research thesis requirements, GES graduates are well-prepared to enter the workforce in environmental science-related fields and industries or continue on to graduate studies in many different subjects in the sciences, social sciences, law, medicine, and engineering.

## **Contact GES**

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## **GES Symposium**

GES students presenting at this symposium conducted basic research, analyzed their results, and compiled their findings into a thesis format. Many theses are converted into peer-reviewed journal publications; a feat usually accomplished by students once in graduate school. The GES Symposium is a celebration and culmination of undergraduate research efforts and experiences, so join us in supporting, engaging, and applauding today's presenters.

## **Agenda**

### **10:30 Welcome**

### **10:35 Arisa Barcinas**

*Evaluating the Barriers Faced by Native Hawaiian and Pacific Island Undergraduate Students in Science, Technology, Engineering, and Mathematics*

Mentor: Barbara Bruno (Hawai'i Institute of Geophysics and Planetology)

### **10:50 Anthony Barro**

*An Investigation of CO<sub>2</sub> Signals Caused by Weather Disturbances in Mamala Bay*

Mentors: Seth Bushinsky (Oceanography) and Christopher Sabine (Oceanography)

### **11:05 Sean Holland**

*Finding Ocean Giants: Using Species Distribution Modeling to Advance Our Understanding of The Giant Squid, *Architeuthis dux**

Mentor: Jeffrey Drazen (Oceanography)

### **11:20 Andrew Tokuda**

*Characterizing Foodwebs in Hadal Trenches*

Mentor: Jeffrey Drazen (Oceanography)

### **11:35 Jakkob Wagenvoord**

*Modeling the Impacts of an Ocean Thermal Energy Conversion Plant on Plankton Populations in Kāne'ohe Bay*

Mentor: Brian Powell (Oceanography)

### **11:50 Korey Wong**

*History of Coastal Zone Management in Hawai'i and Review and Analysis of Options for Managed Retreat in Response to Sea-Level Rise*

Mentor: Charles "Chip" Fletcher (Earth Sciences)

## Biographies



### **Arisa Barcinas**

*Mentor: Barbara Bruno*

Growing up on the island of Guam, Arisa was raised with a deep respect and fascination for the environment. This relationship with the environment was a key factor in the decision to pursue a Global Environmental Science (GES) degree. The GES program gave Arisa the liberty to explore different aspects of environmental

science, and expand her interests. Her decision to pursue environmental science was with the ultimate goal to one day return back to Guam, with the necessary skills and knowledge to make positive contributions to her community. While pursuing her degree, Arisa realized the underrepresentation of Pacific Islanders in STEM degrees. It was this realization that fueled her project to understand the different barriers present to NHPI undergraduates in STEM at the University of Hawaii at Mānoa. Arisa was born and raised on the island of Guam.



### **Sean Holland**

*Mentor: Jeffrey Drazen*

Growing up within the dynamic Puget Sound region, Sean became enamored with the marine environment at a young age, taking every opportunity to immerse himself in that environment. While attending the Tacoma Science and Math Institute (SAMI), Sean developed a passion for research by working on

microbial mats found in the eutrophic waters of Hood Canal, as well as a passion for education through the National Ocean Sciences Bowl (NOSB). He came to SOEST to pursue chemical oceanography in GES but was quickly pulled into the wonderful world of deep-sea biology, where he was taken on by his mentor, Dr. Jeff Drazen, for a diet analysis project. While working on diet analysis, Sean developed the idea for modeling the distribution of the giant squid, resulting in his thesis. While at SOEST Sean became the coach of a homeschool team competing in the regional NOSB competition hosted by SOEST and eventually moved to helping run the competition as a head moderator. Moving forward, Sean is returning home to Washington to co-coach the NOSB team at SAMI as well as work with a variety of education programs, focusing on making accessible and interactive lessons for students about the deep-sea, as well as a personal project creating a high-resolution time series of the plankton and fish populations in a local lake. Sean was born and raised in Pierce County, WA.

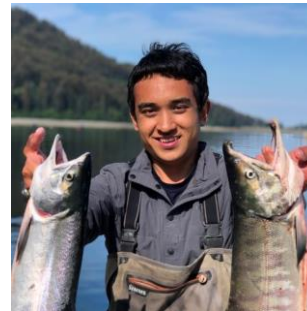


### **Anthony Barro**

*Mentors: Seth Bushinsky and Christopher Sabine*

Anthony N. Barro graduated from Leilehua High School in 2003. In 2004, he had his first child, joined the United States Marine Corps, and married his high-school sweetheart. After boot camp he was stationed at Cherry Point, North Carolina, and he was deployed to Iraq in 2005. After serving in the

Marine Corps Anthony worked various jobs and enrolled in community college part-time. He became interested in environmental science after taking an oceanography course. He eventually transferred to University of Hawai'i at Mānoa in 2015 with a major in Global Environmental Science. He currently lives in Wahiawa, Hawaii with his wife and children and anticipates graduating in Fall 2020. Anthony plans to stay in Hawaii and work in the environmental field with special interest in environmental protection, conservation and sustainability. Anthony was born in Ft. Riley, KS, and raised in Wahiawa, HI.



### **Andrew Tokuda**

*Mentor: Jeffrey Drazen*

Andrew came across the GES Program during the Mānoa Experience and quickly realized that it would be the perfect opportunity to apply his passion in nature, exploration and geopolitics. Andrew constantly received support and advice from GES faculty, staff, and peers which guided him towards numerous unforgettable

experiences. From exploring the Himalayas with his GES friends to researching the deepest trenches in the world with his mentor, Dr. Jeff Drazen, Andrew largely credits the networking opportunities in GES as a true gift to students who share similar passions. Andrew has participated in a number of international/national conferences and research cruises, which mostly revolved around deep-sea and fisheries sciences. A constant dean's lister, Andrew is a recipient of a multitude of scholarships, including the NOAA Ernest F. Hollings Scholarship, 1LT Nainoa Hoe Scholarship of Honor, Howard S. Okada Endowed Scholarship, and Gerald W. Kwock Scholastic Excellence Scholarship. His thesis has also been published in the peer-reviewed journal *Deep-Sea Research Part I*. Andrew is looking forward to commission as a Military Intelligence Officer in the United States Army and ultimately learn how to incorporate space technology for environmental monitoring beyond national borders. He was born in Honolulu, HI and spent most of his life in the rural areas of Kurashiki, Japan and more urban Makiki, HI.

## **Biographies (continued)**



### **Jakkob Wagenvoord**

*Mentor: Brian Powell*

Upon finding out about the GES program, Jakkob knew it was the place he wanted to be. From early on, he developed an interest in the environment and was thrilled to find such a great opportunity to explore that interest. He was able to gain a better understanding of the environment through his time working in the De

Carlo Lab and interning with the City and County of Honolulu's Storm Water Quality Branch. Especially interested in alternative energy, he decided to pursue a thesis project studying the effects of ocean thermal energy on the environment with his mentor Dr. Brian Powell. While currently working in IT, Jakkob hopes to eventually return to environmental science and pursue a career in environmental consulting. Jakkob was born and raised in Honolulu, HI.



### **Korey Wong**

*Mentor: Charles "Chip" Fletcher*

Korey was born and raised in Nuuanu Valley on the island of Oahu, where he happily resides to this day. He credits his happiness and success to the support of his mother, father, and older sister. Before attending UH Manoa, Korey attended Berklee College of Music, where he studied Latin percussion and jazz drumming.

Korey currently works with the Coastal Geology Group under his mentor, Dr. Chip Fletcher, assisting in shoreline erosion research. His thesis focuses on the concept of managed retreat — the purposeful and coordinated movement of development and people away from the shoreline — as a solution to beach erosion and loss. After graduating, Korey aspires to attend law school and use his degree to assist in conservation efforts here in Hawaii.



*Photo courtesy of Tina Huynh-Nguyen '21 (left). Tina collected algal samples off-shore from Kualoa Beach Park for her undergraduate thesis with the assistance of her Maile Mentor and GES alumna, Kammie Tavares '18.*



*Photo courtesy of Tehani Malterre '23. Tehani participated in the NOAA Hollings Prep Program this summer and was mentored by GES alum Leon Geschwind. Here she was collecting images to add to her virtual tour of the NOAA Inouye Regional Center.*