

GLOBAL ENVIRONMENTAL SCIENCE SYMPOSIUM '22

SESSION I. FRIDAY, MAY 6TH FROM 10:00AM - 12:00PM HST VIA ZOOM

GES SYMPOSIUM

GES students presenting at this symposium conducted faculty-mentored 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 our presenters.

AGENDA SESSION I (10:00AM - 12:00PM HST)

10:00 Opening Remarks

10:05 Sara Bower | Kristi West (Hawai'i Institute of Marine Biology)
Rate of DNA Degradation in Pygmy Killer Whales for the Estimation of Post-Mortem Interval

10:20 Samantha Darin | Christopher Sabine (Oceanography)
Determination of Microplastics in Surface Waters of Kāneʻohe Bay, Oʻahu

10:35 Devyn Montesinos | Kasey Barton (Botany)
Hawaiian Dune Plant Tolerance to Simulated Coastal Flooding

10:50 Lauryn Hansen | Robert Richmond (Kewalo Marine Laboratory)
The Impacts of Perfluorooctanoic acid (PFOA) Exposure on Hawaiian Corals

11:05 Estefania Henao | Michael Cooney (Hawai'i Natural Energy Institute)
Assessment of Methods of Fluoridation to Conclude Most Beneficial for Human Health and the Environment

11:20 Tiana Hughes | David Beilman (Geography and the Environment)
Using Nitrogen Stable Isotope Values to Track Nitrogen Cycling Over the Last 4000 Years at Cape Tuxen, Antarctic Peninsula

11:35 Honoka Katayama | Megan Donahue (Hawai'i Institute of Marine Biology)
Relationship Between Sediment Characteristics and Contaminant Concentrations on Oʻahu and Kauaʻi

11:50 Seraphina King | Priyam Das (Urban and Regional Planning)
Bringing Food to the Table: Exploring the Potential of Urban Agriculture in Honolulu



SARA BOWER

Mentor: Kristi West

Sara grew up in the Bay Area in California where she developed a fascination for environmental and climate science. She applied only to UH Mānoa when she became infatuated with the research and opportunities in ocean science. Engrossed by these opportunities she participated in all she could. One of her favorite memories was participating in QUEST, a two-week scuba diving field course of collecting, organizing, and interpreting data while camping on the Hawai'i coastline. She also spent one week on the Hawaiian Ocean Timeline (HOT) Research Cruiseboard assisting with research on the vessel with researchers from across the globe. These ocean experiences led her to take a semester off to go to Indonesia and get her Divemaster. After returning to a global pandemic she returned to her studies and in Summer 2021 she began a UROP internship at the UH Health and Stranding Lab. There she worked under Dr. Kristi West and after finishing her internship she started her thesis researching the feasibility of utilizing DNA Degradation for the estimation of a post-mortem time interval in pygmy killer whales. In her final spring semester she started work as a UH STEM Fellow working with NOAA to enhance her STEM communication. Apart from the opportunities in college she also taught as a science teacher and began work with Citizens' Climate Lobby and was able to meet with members of congress to discuss climate action. Sara plans to work to progress climate work that will help preserve this ocean planet for future generations.

Samantha was born in La Jolla, California and grew up in Lafayette, a small town in the Northern California Bay Area. In high school, she took an AP environmental science class that sparked her interest in environmentalism and conservation, and ultimately led her to the GES program at UH Mānoa. Since joining the program, Samantha has gotten her scientific dive certification and discovered her passion for scientific diving, which opened up many other opportunities. Samantha has been employed by the dive safety office as a student assistant since Fall of 2019, dives weekly to clean the shark tank at the Waikī Aquarium, is a teaching assistant for the UH scientific dive course, and serves as the student representative on the UH system Diving Control Board. She is grateful that her thesis has provided an opportunity to work in the lab, and helps with mooring deployments alongside Dr. Sabine's graduate students. Samantha is very passionate about GES and everything it has to offer, and she assists in developing the GES website and helps teach the introduction to research GES course to help students find projects and mentors. Samantha hopes to find a job as a dive safety officer for a university or aquarium, and is very excited to combine her passion for diving with work.



**SAMANTHA
DARIN**

Mentor: Christopher
Sabine



**DEVYN
MONTESINOS**

Mentor: Kasey Barton

Devyn Montesinos is a GES Undergraduate that has dedicated her research to climate change resilience in Hawaiian coastal dune communities. After joining Dr. Kasey Barton's Lab in 2019, they quickly started working together to try and find insights into the resilience of coastal plants that are at risk from anthropogenic climate change and sea level rise. While this is her first real experimental based research project, she has gained invaluable experience and has found some exciting results!

BIOGRAPHIES

SESSION I

Growing up near the Puget Sound and along the coast of Southern California, Lauryn has always had a great appreciation for marine organisms and sustainability. It was in high school that she realized that she wanted to pursue environmental science in college and as a career. Passionate about her academics, she was enticed by the challenges and opportunities that GES had to offer and was set on finding a research project that focused on the environmental impact of everyday household products. After spending months searching for a project across various departments at the university, she was finally referred to do ecotoxicology work with corals under Dr. Robert Richmond at Kewalo Marine Laboratory. After one meeting she knew that it would be a perfect fit. Since committing to her research project, Lauryn has managed to balance a research internship with full time classes and a part-time job, all while beginning her Master's degree in Public Health. Lauryn hopes that her research can help bridge the gap between people's everyday activities, their impact on the environment, and ultimately their personal health. She hopes to expand her research in toxicology from corals to people for her Master's degree and continue this style of work after graduation to create a safer community.



LAURYN HANSEN

Mentor: Robert Richmond



**ESTEFANIA
HENAO**

Mentor: Michael Cooney

Estefania was born in Miami, FL and raised in Los Angeles, CA. In high school, her interests were ignited by taking an AP Environmental Science class and falling in love with the environment and its importance to our changing world. Originally, Estefania attended the University of Hawai'i (UH) at Hilo before transferring to the Global Environmental Science program at UH Mānoa. Over the next two years at UH Mānoa, she began to discover that although she's extremely passionate about the environment, a lot of her interests lie with the medical field. After doing some research to determine her exact field of interest, she decided that dental school was going to be the next step in continuing her education. As a result, she has now taken all of the prerequisites necessary in order to apply to dental school straight from undergraduate college. In order to gain medical experience, she started working full time as a Certified Nurse Aide and is planning to spend the next year, until dental school, gaining valuable experience by interning and shadowing doctors. Estefania combined her environmental and medical passions in her thesis work titled "Assessment of Methods of Fluoridation to Conclude Most Beneficial for Human Health and the Environment", allowing her to have both doors open for her to walk through. Estefania plans to continue her education at dental school in Southern California starting in 2023.

Tiana was born and raised in Honolulu, Hawai'i and developed an innate curiosity for the environment at a young age. This eventually led to her joining the GES program at UH Mānoa. During her time at UHM, she worked under the Research Corporation of the University of Hawai'i at Mānoa to research and write on energy transitions for a policy recommendation project. Although environmental policy was something of interest to her, she moved onto exploring scientific-based research in a laboratory setting, and worked at a geography and environment laboratory at UHM for nearly two years. Under the direction of her boss and mentor, she completed her senior thesis which focused on characterizing nitrogen abundance in Antarctic land environments to determine how marine nitrogen affects the terrestrial nitrogen cycle. After graduation, she hopes to move into a career that combines data analysis and both field and laboratory work, such as environmental consulting or hydrology.



TIANA HUGHES

Mentor: David Beilman

BIOGRAPHIES

SESSION I



**HONOKA
KATAYAMA**

Mentor: Megan Donahue

Honoka was born in Osaka, Japan and moved to O'ahu, Hawai'i at the age of six years old. In her senior year of high school, she enrolled in AP Environmental Science. Honoka enjoyed this class and decided to explore environmental science through a summer internship with KUPU. Honoka began her studies at the Kapi'olani Community College (KCC) and received her Associates in Science degree. During her time at KCC, she had the opportunity of participating in an environmental exchange program with students from Kansai University in Japan. She was also a member of the Ecology club, where she was able to have field experiences on Moloka'i, Lāna'i, and O'ahu. An experience that encouraged her to pursue GES was an internship at the Hawai'i Institute of Marine Biology (HIMB). There, she assisted a project in the Gates Lab and presented the research result at the Science Undergraduate Research Fair held at KCC. Most recently, Honoka completed her thesis project in which she studied the relationship between sediment characteristics and contaminant concentrations on O'ahu and Kaua'i. Honoka plans to continue exploring the field of environmental science and hopes to find a career that incorporates her studies and educating the next generation of Hawai'i.

Born in New York City, but growing up in London, Seraphina had an interest in the environment and nature, which she continued to explore this interest through summer camps that focused on marine biology. As she learnt about sustainability practices in school, she was wanting to learn more about the different ways that the environment could be helped. After taking an environmental systems course in high school, she decided this was the area that she wanted to study at university, especially looking into the interaction between the built and natural environment. Her thesis topic allowed her to know how research differs between urban planning and environmental science by focusing on urban agriculture and looking into the different planning aspects that relate to it. Seraphina is grateful for her mentors and thesis topic because it also allowed her to have a deeper understanding of the urban planning field. Her future plans include moving back to London to apply her degree from UHM to the busy city life and potentially continue on to get a master's degree in urban planning.



SERAPHINA KING

Mentor: Priyam Das

ABOUT US

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 Oceanography Emeritus 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 experience 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 experience requirement, 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 US

Dr. Michael Guidry, GES Chair
Lentina Villa, Student Services Specialist
Department of Oceanography
1000 Pope Road, Marine Sciences Building Room 205
University of Hawai'i at Mānoa
Honolulu, HI 96822
Email: ges@soest.hawaii.edu
Web: www.soest.hawaii.edu/oceanography/GES