WHM GLOBAL ENVIRONMENTAL SCIENCESPRINGSYNPOSIUM222

SESSION II, FRIDAY, MAY 6TH FROM 1:30PM - 3:30PM 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 II (1:30PM - 3:30PM HST)

1:30 Opening Remarks

- 1:35 Dingyi Liu | Suwan Shen (Urban and Regional Planning) Impact of Sea Level Rise on Aging Population's Accessibility to Essential Services in Honolulu, Hawai'i
- 1:50 Sofya Long | Jeffrey Drazen (Oceanography), Kirsten Leong (NOAA), Danika Kleiber (NOAA) Analysis of Social Science Opportunities Within United States Fishery Management Policy
- 2:05 Rayna McClintock | Craig Nelson (Oceanography) Characterizing the Effect of Submarine Groundwater Discharge on Coral Reef Planktonic Microbial Communities of Mo'orea, French Polynesia
- 2:20 Ashley Holck | Elizabeth Monaghan (Department of Land and Natural Resources), Craig Nelson (Oceanography) Validating an Invasive Species Screening Kit for Hawaiʻi: Muculista senhousia and Pinctada margaritifera
- 2:35 Alyssa Renteria | Christopher Shuler (Water Resources Research Center) Creating a Framework to Develop an Effective GIS Web Application for Public Consumption
- 2:50 Mariya Rutenberg | Joshua Madin (Hawai'i Institute of Marine Biology) Negligible Effect of Density on Coral Survivorship and Implications for Reef Restoration
- 3:05 Jakob Thelle | Dan Milz (Urban and Regional Planning) Ola I Ka Wai - The Barriers of a One Water Approach on Oʻahu towards Climate Resiliency

BIOGRAPHIES

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DINGYI LIU Mentor: Suwan Shen Dingyi was born and raised in Leshan, China. He is a combined bachelor and master program student of the Global Environmental Science (GES) and Master of Urban and Regional Planning (MURP) at University of Hawai'i at Mānoa. He also pursues the GIS certificate. His interests include climate change adaptation, transportation planning, and environmental planning. His works evaluate the impact of environment change on coastal communities and landscapes using spatial analysis. During his time in GES, he received funding from Undergraduate Research Opportunities (UROP) for three sequential semesters (Spring 2021, Summer 2021, and Fall 2021). He also worked as a co-author of a research paper and he went to Washington D.C. to present the research at the Transportation Research Board (TRB) in January, 2022. Dingyi's current research assesses impact of sea level rise on accessibility of aging population to essential services in Honolulu, Hawai'i.

Sofya was born in Portland, Oregon and grew up going to the beaches of the Pacific Northwest and surrounded by nature. She took every environmental science class offered at her high school out of sheer interest, but spent her first year of college in New York City at The New School, studying culture and media to pursue her interests in filmmaking and digital art. It was not soon into her year in New York that she decided that she wanted to create a career that would be meaningful to not only her passion for the environment, but also to help better the climate conditions in which humans have played a significant role in creating. It was not until further research into environmental science at UH Manoa that her interests in policy and environmental law were born. Through her studies at UHM she gained opportunities to work for the Applied Research Laboratory as their student media specialist through the school's Research Corps of UH (RCUH) program, as well as at the National Oceanic and Atmospheric Administration (NOAA) as a student researcher. At NOAA she worked with social scientists analyzing fishery management, which ultimately turned into her thesis project. The research she has completed for her thesis focuses largely on federal and regional policy management, humans' relationship to the environment, and the protection of human rights. The deeper understanding of environmental science and legal management acquired through her studies at UHM in addition to her compelling work experiences have paved the way toward an impactful career in social justice and environmental law.



SESSION II

Mentors: Jeffrey Drazen, Kirsten Leong, Danika Kleiber



RAYNA MCCLINTOCK Mentor: Craig Nelson

Rayna grew up in Denver, Colorado where, after receiving her SCUBA certification and working at a diving shop, she began asking questions about ocean ecosystems and climate change. This curiosity did not cease throughout high school and led her to attend the University of Hawai'i at Mānoa with the intention of doing hands-on research in coral reef ecosystems. Rayna found the GES program during her college visit where she met with a SOEST advisor and chose Global Environmental Science to apply a multidisciplinary approach to environmental research and problem solving. Through SOEST, Rayna was able to find ample research opportunities, eventually working for Dr. Brian Glazer on the SMART Ala Wai project and then accepting a position as a Laboratory Assistant in Dr. Craig Nelson's Lab. Dr. Nelson became an incredible mentor to Rayna and provided countless opportunities for her to pursue interests in coral conservation while teaching her the importance of microbes throughout environmental systems by working simultaneously on projects through the Nelson Lab and Gates Lab. After some interruption from COVID-19, Rayna was able to travel to Mo'orea to conduct field research characterizing how an environmental change affects the assemblage of microbes throughout a reefscape by focusing on submarine groundwater discharge. Rayna just received her scientific diving certification and plans to pursue a field technician position before continuing on researching in graduate school and hopes to have a career implementing environmental solutions to anthropogenic problems.

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Ashley was born and raised in Kirkland, Washington, and spent her childhood exploring the waters of Puget Sound. She has been interested in science and nature since a young age and ventured to the University of Hawai'i at Mānoa (UHM) in 2017. She found the GES program at UHM an excellent fit for her scientific curiosity and adventurous spirit. During her time at UHM, she had the opportunity to volunteer on the Hawai'i Ocean Time Series cruises, and she developed an interest in biological oceanography through her time on the vessel. She began working with the faculty and staff at the Department of Land and Natural Resources and the Department of Aquatic Resources to monitor and assess invasive aquatic risks from vessel biofouling and ballast water discharge. During her time at Mānoa, Ashley also explored science education through various teaching experiences, including educating local K-12 students on ecology, oceanography, and geology. She added an education minor to her college course load as she wanted to combine her love for science and the environment with her passion for education. After graduation, Ashley plans to teach in Washington and, in the future, receive her Master's in Education.



SESSION II

ASHLEY HOLCK Mentors: Elizabeth Monaghan, Craig Nelson





Alyssa had the opportunity to explore her passion for the environmental field at a young age. She took advantage of a GIS introductory class in high school which led to her internship on spatial interpolation with the Department of Energy. Since then she has been working in the Office of Systems Integration as a GIS student assistant helping maintain UH campus maps and building up her technical experience. Her interests in science communication and policy led her to join the Associated Student of the University of Hawai'i (ASUH). She first joined as Senator of SOEST and is now Acting President bringing sustainability policy as a major focus for the 109th Senate. She has also been continuously volunteering as a GES Peer to help her fellow students. When it came to choosing her thesis project she wanted to incorporate her technical skills and personal interests. Under Dr. Shuler, she was able to create a project with those goals in mind. She developed and tested the Hawai'i Cesspool Prioritization Tool researching the factors that determine the success of GIS web applications.

Known to everyone as Masha, she was born in Belarus but raised in New York City and New Jersey. She spent her childhood summers visiting her family in Belarus where she was surrounded by the simple country lifestyle that varied drastically from the busy metropolitan area in which she grew up. As a recent high school graduate, Masha was unaware of where or how to pursue her passions or what they even were. It was a month after graduation that she decided to move to Kaua'i and explore the Hawaiian islands. While on Kaua'i, she attended KCC and met amazing individuals that sparked her interest in the remarkable marine underworld and the tragedies it faces. Since then, Masha became an avid ocean fanatic and explorer which led her to decide to pursue a degree in marine biology. As she completed her associates degree she transferred to Mānoa, and within her first semester in the Marine Biology program she realized the program did not align with her interests. Through meeting like-minded individuals, Masha found her home in SOEST with the GES program. During her time at UHM, Masha was able to create long lasting friendships and network with brilliant scientists. As an undergraduate, she has volunteered at the Madin Lab at HIMB focusing on coral density-dependent relationships which eventually led her to thesis work. With the help of the GES faculty, Masha discovered that her passions align with public health and environmental science. Her future plans are to continue onto graduate school where she hopes to study toxicology and its relationship to climate science.



MARIYA RUTENBERG Mentor: Joshua Madin

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JAKOB THELLE Mentor: Dan Milz Jakob is from the oldest city in Norway rooting back to the Viking age, called Tønsberg. After graduating from high school in 2018, he was offered an athletic scholarship to the University of Hawai'i for collegiate volleyball. This was an opportunity he could not ignore. He started off as a marine biology major but transitioned into the GES program in his sophomore year gaining interest in environmental sciences. During his time in the program, he came to realize the importance of effectively communicating scientific research to influence policy and planning. This is what led him into environmental planning. For his thesis, Jakob decided to dive into water management in Hawai'i and investigate how planning can play a role to conserve water resources in the face of global climate change. What he hopes to gain from the research is to better understand the ways in which science and planning can work hand-in-hand to solve our future challenges driven by climate change. Following his GES degree, Jakob will spend another year in Hawai'i to finish his graduate studies in the Bachelor-and-Master pathway with Urban and Regional Planning. Ultimately, he wants to work in a field involving environmental science and planning to leave a positive impact on the world and the planet we all live on.

SESSION II

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.

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