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GRO Forum

Greater Research Opportunities Undergraduate Student Fellowships

Where are they going?

News from a GRO Fellow

OCTOBER 2015

Serina Ki'ili

He ali'i ka 'āina, he kauwā ke kanaka
-- The land is the chief, the people its servants

"Why does the ocean do that? Why can't I swim there? What makes waves?" were some of the questions asked by an inquisitive girl growing up on the Big Island of Hawaii. That girl, Serina Haleaka Kaneaumoana Ki'ili, has grown up to be a student of marine science, an EPA Greater Research Opportunities Fellow and a Native Hawaiian cultural practitioner.

"Choosing to study marine science was a natural choice," Serina says. "Being surrounded by the ocean for my entire life, it was always something that intrigued me." She is now working toward her bachelor's degree at the University of Hawaii at Hilo. The GRO Fellowship, she says, allows her to concentrate on her studies and her research on the impacts of wastewater pathogens as stressors on corals. Wastewater discharge into the ocean is a major issue in Hawaii, due in part to high use of septic systems and cesspools and the Islands' porous basalt rock. "My study community is very concerned about wastewater discharge," Serina says. "We've seen a more than 30 percent decline in coral reefs in the area since the 1960s."

(read more)

Serina Ki'ili (continued)

Serina's heritage underlies her academic and professional interests; Native Hawaiians have a direct connection with the environment, she says. "Our people's relationship with the environment is summed up in the proverb – He ali'i ka 'āina, he kauwā ke kanaka," Serina says. "This means 'the land is the chief, the people its servants.' We are here to take care of the environment – mālama 'āina -- and love it – aloha 'āina." Historically, this connection produced a good relationship with the environment, she says, which sustained the Hawaiian people for thousands of years. Today however, many issues face Hawaii including climate change, sea level rise, ocean acidification, invasive species and habitat loss.

Serina points out the necessity of considering both cultural and ecological factors when evaluating human activities that affect the environment. For example, plans are underway to build a major astronomical observatory on Mauna Kea, the tallest mountain on the Big Island and in all of Hawaii. In the Native Hawaiian tradition, Mauna a Wākea is the place where Papahānaumoku (Mother Earth) and Wākea (Father Sky) joined and the islands were formed. It is also the home of Poliahu, the snow goddess. Serina explains that the mountain is considered the realm of akua (gods); it is a sacred site to Native Hawaiians and of major cultural significance.

Environmentally, Mauna Kea contains ecologically important biomes – including a rare alpine ecosystem – and many species of endemic organisms. "Some extremely rare species of plants and insects are found only there, for instance," Serina says. Construction of a facility as large as this observatory, which will house a telescope that is 30 meters in diameter, involves drilling into the mountain's porous basalt rock and other potential risks. "It's important to use good science in evaluating the environmental and cultural impacts of the project," Serina says.

Serina, a mother of four, considers progressing this far in her education to be a major accomplishment. "Being chosen as a GRO Fellow allows me to teach my children how to strive to reach their educational and career goals," she says. "I can be an example to my children by showing them how important education is."

It was a challenge to leave her family for three months to go to Seattle for her GRO internship at Region 10 headquarters, but Serina found it very rewarding. She conducted a baseline assessment of tribal wetland and aquatic resources programs within the Region. "As a Native Hawaiian woman, working with Native American tribes was very fulfilling for me," she says. Serina learned about how tribal governments worked, and how the tribes protect and value their natural resources. "I felt an immediate connection with the people I was fortunate to meet," she says. "We understood each other's backgrounds and connected on a fundamental level."

Her internship and the networking opportunities it provided helped broaden Serina's outlook on what she might do following graduation. She's now considering going on to graduate school to get a master's degree in environmental policy. "During my internship I saw a different side of things," she says. "I learned how scientific research supports policy. Seeing that connection was very informative in helping me decide where I want to go next." She can also see herself doing work like she did during her internship in the future. "I would like to work with communities to make our environment better, to heal it from the damage we have already caused and to protect it from any more damage," Serina says. "When natural resources are threatened, it is our responsibility to protect them."

White House Recognizes GRO Fellow as Climate Leader

Rachel Lamb, a 2010 GRO Fellow, was one of 12 faith and lay leaders who received the White House "People of Faith Acting on Climate" Champions of Change Award in recognition of their efforts in combating climate change and advancing conservation in their communities. The Champions of Change program is part of President Obama's challenge to Americans to win the future through education, innovation and building in the 21st century. According to the program the best ideas come from the American people, everyone has a story to tell and everyone has a part to play. "It was a privilege and honor to receive this award and to share my own story and passion for climate change action," Rachel says.

SUMMER 2015 GRO INTERNSHIP PROJECTS

Rebecca Andreucci
Vacant Land Reuse and Environmental Justice
Cleveland, Ohio

Nerida De Jesus-Villanueva
Comprehensive Water Quality Assessment
Athens, Ga.

Ashley Funk
Advancing the Adoption of Sustainable Water Infrastructure and Green Infrastructure as Tools for Climate Change Adaptation
Chicago, Ill.

Brittney Jackson
Sublethal Indicators of Chemical and Other Stressors
Narragansett, R.I.

Emily Moothart
Hazardous Waste Site Assessment and Management
Denver, Colo.

Jacob Stone
Harmful Algal Bloom Study and Program Development
Golden, Colo.

Kevin Vu
Synthesis and Testing of Materials for Drinking Water Treatment
Cincinnati, Ohio

Jennifer Bailey
Sublethal Indicators of Chemical and Other Stressors
Narragansett, R.I.

Ryan DuChanois
Green Infrastructure for Sustainable Cities
Corvallis, Ore.

Richard Garner
Advanced Monitoring Development for Clean Air Act Investigations
Washington, D.C.

Serina Ki'ili
Assessing State and Tribal Wetland Programs
Seattle, Wash.

Robyn Nielsen
Rocky Mountain National Park Nitrogen Deposition Reduction Initiative
Denver, Colo.

Breck Sullivan
Analysis of Chesapeake Bay Water Quality Trends
Annapolis, Md.

Amber White
Evaluating the Environmental Efficacy of Biochar
Corvallis, Ore.

Emmalee Biesiada
Region 8 Field Operations
Denver, Colo.

Trevor Dunn
Life Aquatic
Wheeling, W.V.

Zev Greenberg
Fecal Indicators and Host-specific qPCR Markers in Quantitative Microbial Risk Assessment
Athens, Ga.

Makari Krause
Carbon Pollution and Mobile Source Research Analysis
San Francisco, Calif.

Kerry Phan
Approaches for Small Drinking Water System Compliance
San Francisco, Calif.

Marissa Taylor
Community Air Toxics
San Francisco, Calif.

Allison Wood
Congressional Districts and Representative Profiles for Region 9
San Francisco, Calif.

Eden Bonjo
Communicating on Science Support for Environmental Protection in the Mid-Atlantic
Philadelphia, Pa.

Grace Estridge
Effects of Macroalgae Blooms on Ecosystem Service Production in Pacific Northwest Estuaries
Newport, Ore.

Sarah Guberman
Improving Ecological Understanding of the Response of Seagrass to Nutrient and Salinity Stress
Narragansett, R.I.

Carolyn McDermott
Amphibian Physiology and Pesticide Exposure
Athens, Ga.

Sederra Ross
Environmental Justice Community Leaders Academy
Atlanta, Ga.

Savannah Tjaden
Storm Water, Salmon, & Tribal Trust: The Pacific Northwest at Its Best and Worst
Seattle, Wash.

Alexis Wormington
Assessing Effects of Burrowing Crab Activity on Salt Marsh Sustainability
Narragansett, R.I.

Bobbi Carter
Using Native American Shell Middens to Establish an Anthropogenic Baseline for Nitrogen Enrichment
Narragansett, R.I.

Montana Etten-Bohm
Green Infrastructure for Sustainable Cities
Corvallis, Ore.

Tom Gumbley
Using Native American Shell Middens to Establish an Anthropogenic Baseline for Nitrogen Enrichment
Narragansett, R.I.

Melissa Michaelson
Tribal□specific Fish Consumption Rates, Human Health and Water Quality Standards
Chicago, Ill.

Rachael Sclafani
Coastal Wetlands Functions and Values
Boston, Mass.

Joshua Tully
Assessment of Dissolved Oxygen Status (ADOS)
Gulf Breeze, Fla.

During her GRO internship in Seattle, Wash., and Anchorage, Alaska, Rachel worked with tribes to develop a guide to best practices for climate change adaptation. "My first exposure to the impacts of climate change was through my work with the Tribal Trust and Assistance Unit as a GRO Fellow," she says. "I learned so much from the Unit and from the Tribes themselves. That experience has uniquely informed my passion for working on climate change issues in many different contexts since then."

Currently, Rachel serves as the National Organizer and Spokesperson of Young Evangelicals for Climate Action, an interdenominational organization whose members are working to overcome the climate crisis. "The Champion of Change award that I received largely reflects the hard work of our steering committee, climate leadership fellows, and project leaders," she says. "They collectively carry out YECA's mission and positively influence campuses and communities around the country to act on climate as a reflection of our Christian witness and discipleship."

One of YECA's most successful projects, the Climate Leadership Fellows program, extends to college campuses throughout the United States and internationally to the Christian Bilingual University of Congo in the eastern Democratic Republic of Congo. Through this program, student leaders develop and implement strategies to raise awareness about climate change, take clean energy initiatives, and transform mindsets on their campuses from a faith-informed perspective.

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Rachel Lamb (continued)

Rachel's work with YECA is just one facet of her accomplishments. She has worked for agencies and organizations including the Texas Commission on Environmental Quality, A Rocha Peru in Lima, the Society for Conservation Biology, and the National Socio-Ecological Synthesis Research Center of the University of Maryland, College Park, Md. Rachel is currently an Assistant Professor at the Au Sable Institute of Environmental Studies, Mancelona, Mich., where she teaches environmental law and policy.

Rachel's professional expertise is in identifying interdisciplinary strategies to climate change mitigation and adaptation that address ecological, economic and sociopolitical concerns through both community-based conservation and national policy development. Her current research focuses on mapping global "hotspots" of highest social-ecological vulnerability and greatest impact under climate and land use change. One goal of this work is to provide policy-makers with key information about the scope and nature of potential vulnerabilities in order to help them assess overall impact and plan for navigating this change.

Rachel hopes to pursue a doctorate to further her research and work on policy-relevant and community-based climate change adaptation strategies. She holds two master's degrees from the University of Maryland, one in public policy and one in sustainable development and conservation biology. A 2012 graduate of Wheaton College, a Christian liberal arts college near Chicago, Ill., Rachel earned two bachelor's degrees (environmental studies and international relations) and a certificate in development from Wheaton's Human Needs and Global Resources Program. The HNGR program combines classroom study and field-based service-learning internships with the goal of equipping students to confront the multiple challenges faced by peoples and nations of the Global South.