RAMP cruise highlights environmental science research

by Ken Hupp

The recent return of two University of Hawai‘i at Hilo Marine Option Program (MOP) student interns from a 25-day expedition to the Northwestern Hawaiian Islands has been greeted with excitement over the opportunity they were provided and the positive reviews they received from their mentors. Their experience also illustrates how the environmental science disciplines are leveraging applied learning opportunities on several fronts to prepare students for careers in conservation and sustainability.

“UH Hilo faculty, students, and staff focus on research with partners in Hawai‘i and across the Pacific region that provide answers to resource managers, whereas research at larger institutions often tends to focus on publications,” explained Research Office Coordinator Bruce Mathews. “Getting students out of the classroom and into the field, interacting with agencies, organizations and the community and studying questions that will help us care for our resources is a huge advantage.”

Diver Rosie Lee sizing an ulua, or giant trevally—Caranx ignobilis, that compares similarly in size to her. Photo Credit: Jake Asher/NOAA

New data science program leading the way to a sustainable future

by Interim Chancellor Marcia Sakai

I am pleased to share an update on the exciting new data science degree program at the University of Hawai‘i at Hilo. The program is multidisciplinary in scope with elements of geophysics, microbiology, cyberinfrastructure, data modeling, indigenous knowledge, and economic forecasting. Students will learn how big data sets, from seemingly unrelated areas, can be used to solve complex problems.

Data science is a field that can have great impact on our local communities and environment. The collection and analysis of big data in areas such as water resources, for example, can reveal patterns and trends that can alert decision makers such as lawmakers and policymakers about the directions needed to ensure future stability for our island and state. This is especially important in relation to human behavior—for example, analyzing statewide water resources can reveal things our communities can do better to use and conserve water more efficiently.

‘Ike Wai

The UH Hilo Data Science program is part of a statewide project funded by the National Science Foundation, which awarded the UH System $20 million last year to do a five-year study of water sustainability issues throughout the state. The project is called ‘Ike Wai (Knowledge, Water) and has
The Reef Assessment Monitoring Program (RAMP) cruise illustrates that approach. UH Hilo interns Roseanna (Rosie) Lee and Keelee Martin were part of a team aboard the Research Vessel Hi’ialakai that traveled to Papahānaumokuākea Marine National Monument (PMNM) where they worked alongside regular NOAA divers as full members of survey crews, conducting Rapid Ecological Assessments (REAs) of reef fish, corals and non-coral invertebrates. Their work was guided by NOAA scientists and researchers from Papahānaumokuākea, the Pacific Islands Fisheries Science Center, Joint Institute for Marine and Atmospheric Research, and UH Hilo. The results of their research will help scientists gain a better understanding of the health of coral reef ecosystems throughout the archipelago.

“Not many students get the opportunity to go on a research cruise and work alongside professional NOAA researchers and surveyors,” said Lisa Parr, instructor of Marine Science. “Student research and applied/experiential learning is huge in Marine Science and the Marine Option Program because it provides students real-world experiences that gets them jobs after graduation.”

Their work drew praise from the scientific leads on their respective teams, who predicted amazing futures for the interns, and from the Monument’s Deputy Director Randy Kosaki, who said the feedback on their performance was excellent. Both said their experience was a real game changer.

“Being given the responsibility to be a part of a huge effort to collect data in a remote location catapults you into situations that make you a better diver, scientist, and team player,” Martin said.

“The kind of experience you get by jumping into the field and actually getting to do the same work as the established scientists you are working with is a learning experience you can’t get any other way,” Lee added.

Their internships were made possible through a memorandum of agreement (MOA) with the NOAA PMNM Division, which provides funding to hire up to four students each year to work on the RAMP cruises. NOAA is one of many partners the University works with to provide a wide range of opportunities for students to work side-by-side with experienced researchers to help them explore future careers.

One of the products of this collaboration is the Pacific Internship Programs for Exploring Science (PIPES), which has worked for nearly 25 years with natural resources agencies and organizations across the State and the Pacific to provide summer internships to local undergraduates.

Kamehameha Schools, the Hau’oli Mau Loa Foundation, the National Science Foundation (NSF) and other partners help support 35-40 student interns each summer with host agencies in Hawai’i and the Pacific, such as the U.S. Geological Survey, the U.S. Fish and Wildlife Service, and non-governmental organizations, including Hui Malāma Ola Nā ‘Ōiwi, and partnerships like the Three Mountain and Mauna Kea Watershed Alliances. Many former PIPES alumni now host interns from within their positions with organizations across the islands and some have hosted interns for over 20 years.

Students can also tap into various campus resources such as the Daniel K. Inouye U.S. Pacific Basin Agricultural Resource Center (PBARC) located in the UH Hilo Research Park. PBARC provides funding annually to hire students to work with scientists on various agricultural research ranging from plant pathology to pest studies.

The U.S. Forest Service also contributes by providing student employment and internships for various projects ranging from studies on controlling invasive species in native forests to developing a better understanding of the effects of climate change on soil processes and carbon sequestration.

In addition to internships, agency partnerships and campus resources, the University’s active research faculty has generated approximately $12.9 million in extramural funding this year for their programs and institutions.

The ‘Ike Wai Scholars program funded through UH Hilo’s $2.1 million share of a Statewide Experimental Program to Stimulate Competitive Research (EPSCoR) award, supported by NSF, is hiring undergraduates to work with faculty members on data science projects. The program recently announced recruitment for six students to work with researching faculty on projects ranging from 3-D Coral Reef Data Visualization to What’s in the Local Water and Soil and Exploring Collections of Phylogenetic Trees.

Faculty in the Tropical Conservation Biology and Environmental Science (TCBES) program are conducting research on native introduced species adaptation to environmental conditions.
change, funded through a five-year, $5 million NSF grant awarded in 2014. And the Pacific Aquaculture and Coastal Resources Center, whose research grants and agreements bring in annual funding of around $800,000, supports approximately seven employees and 25 students as part of its workforce program to produce seafood in a sustainable manner.

In a related development, an Oceanic Institute Feed Mill at the UH Hilo Agricultural Farm will soon become operational for cooperative research on new fish feeds for the local aquaculture industry involving students as interns and employees. These, along with other grant awards to faculty, provide students the opportunity to participate in research, and in some cases, have their work published.

“The bottom line is we have lots of research opportunities for students to get involved in, and not only in environmental sciences, but in the other sciences as well,” Mathews said. “And unlike other institutions that focus on graduate-level research, students at UH Hilo have the opportunity to get into the field or labs and do hands-on work beginning their first year here.”

In addition to research-related discoveries, students become schooled in the use of modern technology and instrumentation. Recent examples include small unmanned aerial systems (sUAS) along with spatial data analysis and visualization to map images that are used to create 3D data sets and projections. Past and current projects have included mapping the spread of Rapid Ohia Death, early detection of invasive vegetation species like Miconia, and monitoring erosion on Mauna Kea.

(Ken Hupp is a public information officer.)

Data Science
Continued from page 1

the overall goal of gathering new data on groundwater flow, sustainable yield, and economic impact. The data will help communities and state decision makers preserve Hawai‘i’s water resources for the future.

Four tenure-track professors will lead the UH Hilo program. The first was hired over the summer, Grady Weyenberg (who grew up in Hilo) is a statistician. He will be joined in the near future by the others—experts in mathematics, computer science, and the natural and social sciences.

While developing the UH Hilo Data Science program, our faculty team will work with ‘Ike Wai data scientists and water researchers around the state, collaborating alongside local communities, indigenous peoples, government agencies and businesses to generate the scientific data. Partners also include undergraduate students, graduate students, postdocs and junior faculty to address water challenges at the academic and policy level.

‘Ike Wai student scholars

As part of our program, a cohort of ‘Ike Wai student scholars will be chosen each year to do research and analyze the data collected (this year’s scholars are currently being chosen). The scholars will work with six faculty across natural science fields on research projects including investigation of local flora and fauna, genetics, and improving educational software. This is an invaluable training ground for our students, and when they graduate, they will have the background and skills needed to start professional careers in related fields. This is of immense benefit to our local communities and state.

Developing curriculum

Since Grady’s arrival, he has been hard at work on the process of getting approval for a certificate program in data science, which will be followed by a baccalaureate degree.
Meanwhile, proposals have been submitted to launch four new courses: three in computer science and one in math, which will form the core curriculum. Two of these courses will focus on computer programming and language, statistical techniques, and data plotting.

Grady is primarily involved in the development of the math course with focus on computing language and statistics, which will be attractive not only to students who are earning a data science certificate, but also to anyone in a natural science program (or even beyond) who needs an introduction to applied data analysis techniques. Target date to launch the new course is fall 2018.

While the University is developing curriculum, we also need to ensure that students are getting a good background in specialized techniques that will be useful for local industries, such as renewable energy and agriculture. It will be this practical application that will make the biggest impact on our local communities and economy.

**Outreach**

Faculty have recently begun reaching out to local schools and businesses, with the intent to ensure that a smooth transition can be created from secondary education to the University and through the data science program to the workplace. It will be wonderful to see high school students exposed to some of the interesting problems that can be addressed with data science before they get to the college level.

The development of the data science initiative makes us very proud of our campus—we are educating our students to be the problem solvers of our state’s future while helping to protect and conserve the islands’ precious natural resources.

Visit the EPSCoR website to learn more about the data science program and the ‘Ike Wai project.

Aloha,
Hats off to...


**Adam Pack**, Chair, Psychology, presented an invited keynote address entitled “Twenty years of sizing whales underwater: Insights into the behavioral ecology and mating system of humpback whales in the Hawaiian breeding grounds” at the second World Congress on Humpback Whales in Reunion Island in August.

**Zheng An**, Assistant Professor, Communication, authored “Diet-Specific Social Support, Dietary Acculturation, and Self-Efficacy among Chinese living in the United States,” accepted for publication in *Journal of International and Intercultural Communication*.

**Shugeng Cao**, Associate Professor, Pharmaceutical Sciences, co-authored “A New N-methoxypyridone from the Co-Cultivation of Hawaiian Endophytic Fungi Camporesia sambuci FT1061 and Epicoccum sorghinum FT1062,” published in *Molecules*, and “Linear peptides are the major products of a biosynthetic pathway that encodes for cyclic depsipeptides” and “Macrotermycins A-D, Glycosylated Macrolactams from a Termite-Associated *Amycolatopsis* sp. M39,” published in *Organic Letters*.

**Deborah Taira**, Professor, Pharmacy Practice, is lead author on two peer-reviewed manuscripts, “Attitudes of College-Aged Electronic Cigarette Users in Hawai‘i,” accepted for publication in *Health Behavior and Policy Review*, and “Examining Factors Associated with Non-Adherence and Identifying Providers Caring for non-Adherent Subgroups,” accepted for publication in *Journal of Pharmaceutical Health Services Research*.

**Karen Pellegrin**, Director, Continuing Education/Strategic Planning, DKICP, was co-author of “Potentially Preventable Medication-Related Hospitalizations: A Clinical Pharmacist Approach to Assessment, Categorization, and Quality Improvement,” published by the *Journal of the American Pharmacists Association*, and was an invited speaker on “Reducing Medication-Related Readmissions” at Hawai‘i Health Workforce Summit Rural Health Track on Innovative Approaches to Improving Access to Quality Health in Rural Hawai‘i held on O‘ahu in September.

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Nominations for excellence in teaching awards underway

The University of Hawai‘i at Hilo and the UH System are currently seeking nominations for the following 2018 Excellence in Teaching Awards, which annually honor faculty who are nominated by their colleagues and students:

- The Board of Regents (BOR) Excellence in Teaching awarded to a UH Hilo full-time tenured or tenure track faculty member
- The Chancellor’s Award for Teaching Excellence awarded to a UH Hilo Instructor or Lecturer
- The Frances Davis Award for Excellence in Undergraduate Teaching awarded to a UH Hilo Instructor or Assistant Professor

For more information, criteria and nomination form, go to [http://hilo.hawaii.edu/uhh/vcaa/ExcellenceTeachingAwards.php](http://hilo.hawaii.edu/uhh/vcaa/ExcellenceTeachingAwards.php). Faculty may win each award only once in their career.

Nominations will be accepted until February 1, 2018 and must be submitted electronically to vcaa@hawaii.edu. The name of the nominee and award should be included in the subject line.
KHʻUOK joins mural project celebrating Hawaiian immersion schools

The University of Hawaiʻi at Hilo’s Ka Haka ʻUla O Keʻelikōlani (KHʻUOK) College of Hawaiian Language is taking part in a Statewide campaign to commemorate a landmark anniversary for Hawaiian language education by designing and creating 10 Living Legacy Murals inspired by the moʻolelo (story) of Kalapana. Participants recently gathered to begin work in Hilo on the project’s third installment, sponsored by KHʻUOK, Kamehameha Schools and the State Department of Education Office of Hawaiian Education.

“The Ke Kanakolu (The 30th) project was created by 808 Urban’s Living Legacy Series to celebrate the 30th anniversary of Ka Papahana Kaiapuni – the Hawaiian Immersion Schools in Hawaiʻi,” said Kamalani Johnson, lecturer, KHʻUOK, and the project’s Hawaiian Language director. “The project’s goal is to use art as a medium to invigorate Native Hawaiian identity and perpetuate Hawaiian values, language and culture while raising awareness of the 23 Hawaiian Language Immersion and Charter schools that form Ka Papahana Kaiapuni.”

ʻĀuna Pāheona, a collective of art-centric individuals led by graffiti artist John “Prime” Hina, has been traveling the State since August. The group is engaging local artists and Hawaiian immersion schools to design and create the murals, culminating on May 25, 2018 in Hanapēpē, Kauaʻi.

Located at 51 Makaʻala Street, the Hilo mural is being painted by teachers, students and family from Ka ‘Umeke Kāʻeo, along with Hawaiian language students from KHʻUOK and the Hawaiian medium laboratory school Ke Kula ‘o Nāwahīokalaniʻōpuʻu.

The Ka Papahana Kaiapuni celebration coincides with the 20th anniversary of KHʻUOK. Director Keiki Kawaiʻaeʻa says the murals commemorate the progress and revitalization efforts of the Hawaiian language through its Hawaiian medium-immersion educational pathway as Hawaiʻi prepares to mark next year’s 40th anniversary of ʻōlelo (language) Hawaiʻi as a State official language.

“KHʻUOK continues to support the renormalization of ʻōlelo Hawaiʻi through various initiatives, including new Hawaiian lexicon, an online dictionary at wehewehe.org and Hawaiian medium curriculum for grades K-12 supported by the College’s Hale Kuamoʻo Hawaiian Language Center. Additional contributions include the preparation of Hawaiian medium-immersion teachers through the Kahuawaiola Indigenous Teacher Education program and Hawaiian medium laboratory schools such as Nāwahīokalaniʻōpuʻu in Keaʻau,” Kawaiʻaeʻa noted. “Through strong collaboration of P-12 and tertiary education working together with schools, families, government and community, Hawaiian language is showing a shift toward recovery of this precious cultural resource.”
Program Spotlight

Program Spotlight is a presentation of Ka Lono Hanakahi that highlights the work of various programs by following a program throughout the entire academic year and providing monthly updates.

This month’s update from the Division of Student Affairs (DSA) highlights a core programming element in three units within DSA: Counseling Services, Student Medical Services, and Campus Recreation.

As in years’ past, staff in Counseling Services saw a slight increase in students reaching out for support at the midway point of the current semester. Staffers provide counseling on an individual basis and in various group sessions (LGBTQIA+ Support Group, Non-Traditional Student Support Group, Mindfulness class). New this semester are Depression, ADHD and Anxiety Support Groups. They also offer outreach and prevention services that include website and social media promotion of the “No Shame No Blame” campaign, Heartmath emWave biofeedback training, relaxation stations and class presentations. Additionally, Counseling Services provides training for faculty and staff, such as the recent Augie Tevents: “Recognize, Respond & Refer” and “Thriving during Difficult Times,” Youth Mental Health First Aid, and “Compassion Fatigue: Preventing Burnout and Managing Stress.”

For more information about Counseling Services, call 932-7465, email uhhcouns@hawaii.edu, or visit Student Services Center, Room E-203.

A common source of stress relief for many of our students continues to be exercise and physical activity. There’s no better place on campus to seek this out than the Student Life Center. As the Center approaches next year’s 10th anniversary, it continues to be a hub of recreation, fitness and socialization for the University ‘ohana with as many as 1,200 students, faculty and staff using the Center on peak days. Fitness activities have the largest participation, primarily due to the outstanding weight/fitness facility and access to over 40 Imua fitness classes. Intramural sports are also very popular with offerings such as basketball, volleyball, soccer, flag football and glow in the dark dodgeball. Another fun activity hosted by the Campus Recreation Department each year is whale watching excursions, which resumes this month, and where one excursion is reserved exclusively for faculty and staff. Dates and times will be determined by whale sightings. Check the Campus Recreation website https://hilo.hawaii.edu/rec/ for details.

Occasionally, students will find themselves in need of routine and/or urgent medical care. Student Medical Services has a variety of programs and services to support students’ medical needs. Direct services include family planning, urgent care, primary care, and immunizations. Select pharmacy services and medications are also available for family planning and students without insurance. Each semester, over 50 students from UH Hilo’s Pharmacy, Doctor of Nursing Practice (DNP) and Bachelor of Science in Nursing (BSN) programs complete their clinical rotation with Student Medical Services. Most recently, three graduates from the BSN program were hired by Hilo Medical Center to work in the OB/GYN, Emergency, and Medical departments. Student Medical Services is a proud collaborator and contributor in preparing UH Hilo students for the workforce.

For more information about Student Medical Services, call 932-7369, email uhhsms@hawaii.edu, or visit Campus Center, Room 212.

Bayanihan Club members with Augie T, keynote speaker, for Thriving during Difficult Times workshop during Suicide Prevention Month. Photo credit: Ginger Hamilton

(Left to right): Students Tyler Sumner, Alyssa Hoshide and Livia Carr were hired by Hilo Medical Center upon graduation from UH Hilo, Student Medical Services Nurse Practitioner Heather Hirata, Clinic Pharmacist George Karvas, and student staff. Photo credit: Gunner Fulcomer

Students in an afternoon Zumba class. Photo credit: Valerie Yamaki
UH Hilo Briefs

November

4  Vulcan Women’s Soccer vs. Chaminade University, 12:30 p.m., Kamehameha Schools Field
Vulcan Men’s Soccer vs. Chaminade University, 3 p.m., Kamehameha Schools Field

10  Holiday: Veterans’ Day

15  “I” Removal & Change of Grade Deadline: Instructor to Ofc of the Registrar
Last Day to Submit Credit-by-Exam Results to Ofc of the Registrar

   Abe Lagrimas, Jr. Jazz Trio, 7:30 p.m., PAC, Admission

19  Holiday Card to Hilo: The Festive Season, 7:30 p.m., PAC, Admission

23  Holiday: Thanksgiving Day

24  Non-Instructional Day

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Holiday Card to Hilo: The Festive Season is Nov. 19

The Kapili Choir and University Chorus, led by Amy Horst, join the Hilo Community Chorus, the ensemble VOICES, and the Orchid Isle Orchestra to perform a concert of seasonal and timeless favorites in Holiday Card to Hilo: The Festive Season on Sunday, November 19 at 7:30 p.m. in the UH Hilo Performing Arts Center.

Tom McAlexander conducts the Hilo Community Chorus, Mark Sheffield directs VOICES, and Cathy Young directs the Orchid Isle Orchestra. Walter Greenwood accompanies the UH Hilo choirs and the Hilo Community Chorus while Kanako Okita accompanies VOICES.

Tickets are reserved seating and priced at $20 General, $15 Discount and $7 UH Hilo/HawCC students (with a valid student ID) and children, up to age 17, pre-sale, and $25 General, $20 Discount and $12 UH Hilo/HawCC students (with a valid student ID) and children, up to age 17, at the door. Tickets are available by calling the UH Hilo Box Office at 932-7490, Tuesday – Friday, 10 a.m. – 2 p.m., or by ordering online at artscenter.uhh.hawaii.edu.

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Ka Lono Hanakahi is published by the Office of University Relations during the academic year for faculty and staff of the University of Hawai‘i at Hilo. News and submissions are welcome with priority given to current faculty and staff members. Deadlines are on the fifteenth of each month for the following first of the month publication. Contact Alyson Kakugawa-Leong, Director Media Relations, (808) 932-7669 or alyson@hawaii.edu.