

ROSANNA 'ANOLANI ALEGADO

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EDUCATION

2007 Ph.D., Microbiology & Immunology, Stanford University School of Medicine
2000 S. B. Biology, Massachusetts Institute of Technology
Minor in Toxicology and Environmental Health

PROFESSIONAL APPOINTMENTS

2019 - University of Hawai'i Mānoa, Associate Professor
Department of Oceanography and Sea Grant
Affiliate Faculty, Pacific Biosciences Research Center
Cooperating Graduate Faculty, Department of Zoology
Cooperating Graduate Faculty, Department of Microbiology
2013-2019 University of Hawai'i Mānoa, Assistant Professor
Department of Oceanography and Sea Grant
2012-2013 University of California Berkeley, Associate Specialist
Department of Molecular and Cellular Biology
2007-2012 University of California Berkeley, Postdoctoral Fellow
Department of Molecular and Cellular Biology, Advisor: Nicole King, Ph.D.

PUBLICATIONS

(* authors contributed equally, trainees, ^corresponding author)

1. Shuler C, Amato DW, Gibson V, Baker L, Olguin AN, Dulai H, Smith CM, **Alegado RA** (2019) Assessment of Terrigenous Nutrient Loading to Coastal Ecosystems Along a Human Land-Use Gradient, Tutuila, American Samoa. *Hydrology*, 6(1):18.
2. Mohlenkamp P, Beebe CK, McManus MA, Kawelo AH, Kotubetey K, Lopez-Guzman M, Nelson CE, **Alegado RA**^ (2019) Kū Hou Kuapā: Cultural Restoration Improves Water Budget and Water Quality Dynamics in He'eia Fishpond. *Journal of Sustainability*, 11(1):161
doi.org/10.3390/su11010161
3. Hynson N^, Frank K, **Alegado R**, Amend A, Arif M, Bennett G, Jani A, Medeiros M, Mileyko Y, Nelson C, Nguyen N, Nigro O, Pristic S, Takagi D, Wilson S, Yew J, Shin S. (2017) Synergy among microbiota and their hosts: leveraging the Hawaiian archipelago and local collaborative networks to address pressing questions in microbiome research. *mSystems*, 3:e00159-17.
doi.org/10.1128/mSystems.00159-17.
4. McCoy D, McManus MA, Kotubetey K, Kawelo AH, Young C, D'Andrea B, Ruttenberg KC, **Alegado RA**^ (2017) Large-scale climatic effects on a traditional Hawaiian fishpond. *PLoS One*, e0187951. doi:10.1371/journal.pone.0187951
5. Lynch JB^ and **Alegado RA**^ (2017) Spheres of hope, packets of doom: The good and bad of Outer Membrane Vesicles in interspecies and ecological dynamics. *Journal of Bacteriology*, 17 April, doi: 10.1128/JB.0012-17.
6. Xie G, Wang X, Ji J, Zhao A, Yan J, Chen W, Jiang R, Huang F, Zhang Y, Lei S, Ge K, Zheng X, **Alegado RA**, Liu J, Liu P, Nicholson J, Jia W, Jia W. (2017) Sex-dependent effects on gut microbiota regulate carcinogenic outcomes. *Scientific Reports*, Mar 27;7:45232. doi: 10.1038/srep45232.
7. Baker LJ, **Alegado RA**, Kemp PF. (2016) Response of diatom-associated bacteria to host growth state, nutrient concentrations, and viral host infection in a tripartite model system. *Environmental Microbiology Reports*, doi: 10.1111/1758-2229.12456.

8. Xie G, Wang X, Liu P, Chen W, Hernandez BY, **Alegado RA**, Dong B, Li D and Wei J. (2016) Alterations in gut microbial ecology and progression of liver pathology. *Oncotarget*, 7(15): 19355.
9. **Alegado, RA** and King N. Bacterial influences on animal origins. (2014) *Cold Spring Harbor Perspectives in Biology*, 6 (11): a016162.
10. Beemelmanns CB, Woznica SA, **Alegado RA**, King N, Clardy J. (2014). Synthesis of the rosette-inducing factor RIF-1 and analogs. *Journal of the American Chemical Society*, 136(29):10210-3.
11. **Alegado RA**, Grabenstatter JD, Zuzow R, Morris A, Huang S, Summons RE, King N. (2013) *Algoriphagus machipongonensis* sp. nov., co-isolated with a colonial choanoflagellate. *International Journal of Systematic and Evolutionary Microbiology* 63 (Pt 1): 163-168.
12. **Alegado RA***, Brown LW*, Cao S, Dermenjian RK, Zuzow R, Fairclough SR, Clardy J, King N. (2012) A bacterial sulfonolipid triggers multicellular development in the closest living relatives of animals. *eLife* 1:e00013
 - Selected by F1000
 - Featured in *Science News & Views*, *The Scientist*, *Discover Magazine's Not Exactly Rocket Science* blog, *The Naked Scientist* podcast
13. Dayel MJ, **Alegado RA***, Fairclough SR*, Levin T, Nichols SA, McDonald K, King N. (2011) Cell differentiation and morphogenesis in the colony-forming choanoflagellate *Salpingoeca rosetta*. *Developmental Biology* 357 (1): 73-82.
14. **Alegado RA^**, Ferriera S, Nusbaum C, Young SK, Zeng Q, Imamovic A, Fairclough SR, King N. (2011) Complete genome sequence of *Algoriphagus* sp. PR1, Bacterial Prey of a Colony-Forming Choanoflagellate. *Journal of Bacteriology* 193(6): 1485-1486.
15. **Alegado RA**, Chin, CY, Monack D, Tan MW. (2011) The two-component sensor kinase KdpD is required for *Salmonella typhimurium* colonization of *Caenorhabditis elegans* and survival in macrophages. *Cellular Microbiology* 13(10): 1618-1637
16. **Alegado RA** and Tan MW. (2008) Resistance to antimicrobial peptides contributes to persistence of *Salmonella typhimurium* in the *C. elegans* intestine. *Cellular Microbiology* 10(6): 1259-1273.
17. **Alegado RA**, Campbell MC, Chen WC, Slutz SS, Tan MW. (2003) Characterization of mediators of microbial virulence and innate immunity using the *C. elegans* host-pathogen model. *Cellular Microbiology* 5(7): 435-44.

FELLOWSHIPS & HONORS

2013	<i>eLife</i> Sciences, Selected Early Career Author
2009-2011	National Research Service Award, NIH Postdoctoral Training Fellowship
2011	Best Talk, UC Berkeley Genetics, Development and Molecular Evolution Supergroup Symposium
2011	American Society for Microbiology (ASM) Minority Mentor Newsletter, Profile
2010	ASM, Postdoctoral Travel Award
2003	Katherine McCormick Fund for Women, Travel Fellowship
2000-2003	Ford Foundation Predoctoral Fellowship
2000	National Science Foundation Graduate Research Fellowship, Honorable Mention

RESEARCH SUPPORT

Current

- US Department of the Interior, "Science Needs Assessment to Support Management of Loko I'a Resources and Practices Critical to the Native Hawaiian Community", 2019-2020. PI: Alegado.
- Hawai'i State Department of Health, Clean Water Branch "He'eia Fishpond Mangrove Removal and Water Quality Improvement," 2017-2019. PI: Walton (UH Mānoa), Co-I: Alegado
- NSF IOS01558169 "Deciphering the role of bacterial sphingolipids in host-microbe interactions," 2016-2019. PI: Alegado.
- NIH NCI 1U01CA188387-01A1 "Gut microbiota mediated bile acid alternations in hepatic carcinogenesis," 2015-2020. PI: Jia (UHM Cancer Research Center); Co-I: Alegado

Completed

- Gordon and Betty Moore Foundation. "The bacterial basis of larval recruitment for marine invertebrate animals," 2015-2019. PI: Hadfield (UH Mānoa), co-PIs: Nedved (UH Mānoa), Alegado, Cao (UH Hilo)
- USGS State Water Resources Research Institute Program "Influence of anthropogenic and climatic forcing on water quality within a tropical coastal ecosystem," 2016-2018. PI: Alegado
- USGS State Water Resources Research Institute Program "Likely hotspots for algal blooms: A multi-dimensional analysis to evaluate seasonal impacts of land-based sources of pollution on the health of American Samoa's coasts," 2016-2018. PI: Alegado co-PI: Smith (UH Mānoa)
- NOAA Sea Grant College Program NA09OAR4170060 "Water Budget and Pathogen Dynamics in He'eia Fishpond During Restoration Regimes". 2017-2018. PI: M. McManus (UH Mānoa), Co-PI: Alegado
- NOAA Joint Institute for Marine and Atmospheric Research, "Kilo lani: Reconstructing climate patterns in Hawai'i using traditional knowledge and dendrology." 2015-2016, PI: Alegado, co-PI: Timmerman (UH Mānoa)
- USGS State Water Resources Research Institute Program 2015HI449B. "Identifying future hotspots for algal blooms: A multi-dimensional analysis evaluating impacts of potential land-based sources of pollution on the health of American Samoa's coasts," 2015-2016. PI: Alegado co-PIs: Smith (UH Mānoa), Alvarez (UH Mānoa).
- Victoria S. and Bradley L. Geist Foundation, Hawaii Community Foundation 14CON-64550. "Elucidating the *de novo* bacterial sphingolipid biosynthetic pathway," 2014-2015. PI: Alegado
- NOAA Sea Grant College Program NA09OAR4170060. "The Role of Microbes in Nutrient Cycling in He'eia Fishpond," 2014-2015, PI: Alegado
- NOAA UH Sea Grant College Program "SOEST Maile Mentoring Bridge," 2014-2015, PI: Bruno (UH Mānoa); Co-I: Alegado, Choy (UH Mānoa)

INVITED TALKS

- 2020 SACNAS National Meeting, Society for Developmental Biology Symposium, Honolulu, HI
- 2019 Duke University, Microbiome Center, Chapel Hill, NC
- 2019 University of North Carolina Chapel Hill, Department of Microbiology, Chapel Hill, NC
- 2018 2nd 'Aimalama Lunar Conference, Maui, HI
- 2017 6th ASM Conference on Cell-Cell Communication in Bacteria, Athens, GA
- 2017 4th University of Hawai'i and University of Tokyo Joint Symposium on Ocean, Coastal and Atmospheric Sciences, Honolulu, HI
- 2017 University of British Columbia Department of Microbiology and Immunology, Vancouver, Canada
- 2017 ASLO 2017: Multicultural Program, Keynote, Honolulu, HI
- 2016 Eco-DAS X: Ecological Dissertations in the Aquatic Sciences. Honolulu, HI
- 2016 6th ASM Conference on Beneficial Microbes. Seattle, WA
- 2016 "Emergent Behaviors from Bacterial Interactions" Session, ASM Microbe. Boston, MA
- 2015 Developmental Biology Center Symposium, University of Minnesota, Minneapolis MN
- 2015 Gordon Research Conference on Animal-Microbe Symbioses, Waterville Valley, NH
- 2014 Society for Advancement of Hispanics/Chicanos and Native Americans in Science, 'Ilima Chapter Science Symposium (*Keynote*), Honolulu, HI
- 2014 eLife presenter, Howard Hughes Medical Institute Scientific Meeting. Bethesda, MD.
- 2014 Eco-DAS IX: Ecological Dissertations in the Aquatic Sciences. Honolulu, HI
- 2012 University of Hawai'i Department of Oceanography and Sea Grant College Program, HI
- 2012 "Symbiosis as a Driver of Ecology and Evolution" Session, 112th ASM General Meeting. San Francisco, CA.
- 2011 Society for General Microbiology Autumn 2011 Conference. York, UK

2008 Canadian Institute for Advanced Research, Integrated Microbial Diversity Division
Meeting. Lac Carling, Quebec, Canada

TEACHING EXPERIENCE

Instructor, Aquatic Pollution	Spring 2014, 2015, 2016, 2018,2019
Co-Instructor, Living Resources of the Sea	Fall 2015, 2016, Spring 2018,2019
Co-Instructor, Contemporary Issues in Coastal Microbial Oceanography	Fall 2016
Instructor, Microbial Physiology (Independent Study)	Spring 2015
Instructor, Geomicrobiology of He'eia Fishpond	Spring 2015

ADVISING & MENTORING

(* under-represented minority)

Graduate advisory committees

2019-	M. Ku'i Keli'ipule'ole* (MSc. Candidate, Marine Bio)
2019-	A. Nalani Olguin* (MSc. Candidate, Marine Bio) Hau'oli Mau Loa Graduate Fellowship, 2019-2021
2018-	Becca Lensing (Thesis advisor, PhD candidate, Marine Biology)
2017-	W. Hoaka Thomas* (MSc. Candidate, Marine Bio) Hau'oli Mau Loa Graduate Fellowship, 2017-2019
2016-	Charles Aka Beebe*, (Thesis advisor, MSc candidate, Oceanography) Hau'oli Mau Loa Graduate Fellowship, 2016-2018
2014-	Eric Tong*, MSc. (co-Thesis advisor, PhD candidate, Oceanography)
2017-2018	Paula Moehlenkamp, (co-Thesis advisor, MSc candidate, Oceanography)
2015-	Kaleonani Hurley*, MSc (Dissertation Committee, PhD candidate, Marine Bio)
2015-	Narrissa Spies*, MSc (Dissertation Committee, PhD candidate, Zoology)
2015-	Eric Koch, MSc (Dissertation Committee, PhD candidate, Zoology)
2017-2019	Kelsea Hosoda* (Dissertation Committee, PhD candidate, Library and Information Sciences)
2018	Gabrielle Weiss (Comprehensive Exam Committee, PhD candidate, Oceanography)
2014-2017	Lydia Baker, PhD (Dissertation Committee, Oceanography)
2016	Sarah Vasconcellos*, MSc (Dissertation Committee, PhD candidate, Botany)

Postdoctoral mentoring

2015-2016	Daniel Amato (currently Scientist, EnviroServices and Training Center)
2014-2016	Kiana Frank* (currently Assistant Professor, UH Mānoa) SOEST Young Investigator (2014-2016); NSF Postdoctoral Fellowship (2014-2016); Kamehameha First Nations Fellow (2015-2016)

Graduate student mentoring

Spring 2012	Rachel Hood (UC Berkeley, PhD candidate, rotation student)
Fall 2011	Arielle Woznica (UC Berkeley, PhD candidate, rotation student)
Winter 2005	Shumin Tan (Stanford, PhD candidate, rotation student)
Fall 2004	Gwen Liu (Stanford, PhD candidate, rotation student)

Undergraduate and high school mentoring

2016-	Caleb Hsu (UHM, GES Thesis)
2019-	Inny Mareko* (American Samoa Community College, NSF REU)
2017-2019	No'eau Machado* (UHM, GES Thesis)
2018	Shaun Wriston (UHM, NSF-REU Undergraduate)
2018	Alexis Oxley (Heritage Tribal College, NSF-REU Undergraduate)

- 2018 Keanu Rochette-Yu* (Kapiolani Community College, Native Hawaiian Science & Engineering Mentoring Program)
2017 Madison Miura (Williams College, NSF REU)
2017 Jaimie Archambault* (Sitting Bull Tribal College, NSF REU)
2016-2017 Nalani Olguin* (UHM)
Native Hawaiian Science & Engineering Mentoring Program
2013-2016 Mikela Branco* (UHM)
NSF Tribal REU; Hulili Career Development Grant; Ke Ola Mau Scholar; Native Hawaiian Science & Engineering Mentoring Program
2015-2016 Charles Aka Beebe* (UHM, GES Thesis)
Hulili Career Development Grant; Louis Stokes Alliance for Minority Participation Program; C-MORE Scholar; Native Hawaiian Science & Engineering Mentoring Program
2015-2016 Ryan Ueunten (UHM, GES Thesis)
2015 Leah Shizuru* (Kapi'olani Community College, NSF Tribal REU)
2015 Hope Ushiroda-Garma* (Kamehameha School, C-MORE Researcher)
2015 Kyle Yoshida* (Harvard College, NSF Tribal REU)
2014-2015 Akamu Jaber* (UHM, C-MORE Scholar)
2014 Damian Nakoa Farrant* (Harvard College, C-MORE Undergraduate Researcher)

OUTREACH & SERVICE

Departmental

- 2014- Global Environmental Science Major Steering Committee, Member
2014- Global Environmental Science Major, Undergraduate Advisor
2017- Development and Fundraising Committee, Member
2017 Strategic Plan, Research Coordinator
2017 "Hawaiian Fishponds" Interview on ThinkTech Hawai'i Show, Research at UH
2015 C-MORE NSF Science and Technology Center Review, Year 9
2014 UHM Sea Grant College Program External Review Site Visit, Presentation
2014 C-MORE NSF STC Review, Year 8. Washington D.C, Presentation
2014 Sea Grant Coastal Sustainability Hui Planning Retreat
2013 C-MORE Professional Development Series, Invited Presenter

SOEST

- 2013- SOEST Maile Mentoring Bridge, Faculty Advisor
2018- Principal Investigator
2018 Hana No'eau Workshop: Kihei making, Organizer
2017 NSF GEO-PATHS IUSE grant (pending), Key personnel
2014-2017 New Maile Mentor Training, Facilitator (2014-2017)
2016 Native Hawaiian Student Services New Student Orientation
2016 Honolulu Community College, Makawalu Transfer Conference, Host Lab
2016 Castle High School, College For Every Student Career Fair
2014 "The Joy of Geosciences" Interview on ThinkTech Hawai'i Show, SOEST Hour
2013 Kapi'olani Community College STEM Pa'ina, speaker
2013, 2015 SOEST Open House, Volunteer
2015 L. Stephen Lau Water Research Endowed Scholarship, Review Committee
2013 Sea Grant *Ka Pili Kai* Magazine, Contributor
2013 Sea Grant Training Academy, Participant

University

- 2013-2014, 2016-2017-2018 Kuali'i Native Hawaiian Advisory Council, SOEST Representative
Lā Pūko'a: promoting Native Hawaiian SOEST programs at HI legislature
Search Advisory Committee, Dean of Hawai'i inuiakea School of Hawaiian Knowledge
2017 Search Advisory Committee, UHM Native Hawaiian Program Officer
2015-2016 Search Advisory Committee, Dean of College of Natural Sciences
2015-2016 UH Strategic Plan, Native Hawaiian Task Force
2017-2017 Sea Grant Center of Excellence: Integrated Science, Knowledge and Culture
Kūlana Noi'i Research Workshop, He'eia Fishpond
2017 Kūlana Noi'i, Hawai'i Sea Grant Graduate Trainee Workshop
2018 Sea Grant Celebrates 50: A Ho'olaule'a of Knowledges, Organizing Committee
2018 UHM Center for Teaching Excellence Series "Why Place-based Research Matters", Coordinator
2018 SENCER 2nd Annual Grand Challenges Summer Institute (GC18) *Grand Challenges of Mālama 'Āina and Conservation*, Plenary Panelist
2017-2017 Lāhui Hawai'i Research Center, Faculty Advisory Board
Office of Hawaiian Affairs STEM Scholarship Committee
2017 5th Annual Hawai'i Sustainability in Higher Education Summit *Meeting of Wisdoms*, Panelist
2017 UHM Center for Teaching Excellence, "Connecting Science and Culture", Panelist
2016 UHM Graduate Women in Science Luncheon Series, Invited Speaker
2016 UHM Biocultural Initiative Panel, "Lands, Seas and Skies— Conversations with Science, Tradition and the Sacred", Moderator
2014-2015 Nā Pua No'eau Center for Gifted and Talented Hawaiian Children, Faculty collaborator
Malama Kanaloa, Host lab
2014 STEM Summer Institute, Host lab
2014 EH&S BSP2/Permitting Steering Committee, *Ad hoc* member

State of Hawai'i

- 2013-2014-2016 Kamehameha Schools
High School Science Fair, Judge
High School Marine Science class, Guest lecturer
2015 Summer Science Institute, Host lab
2013 Biotechnology Advisory Committee, Member
2013-2013- He'eia watershed (Ko'olaupoko, O'ahu)
Na Kilo Honua o He'eia— He'eia Coastal Ocean Observing System (nakilohonuaohceia.org)
2016- He'eia Science to Management Symposium, Participant/Session Moderator
2015 NOAA Hawai'i Sentinel Site Science to Management Symposium, Planning Group
2014- Paepae o He'eia (community stewards of the He'eia Fishpond)
2014- Science Night, Organizer and Speaker
2016- Research Coordinator
2014- Kua'āina Ulu 'Auamo (community-based advocacy organization)
2017 Hui Mālama Loko I'a Sensor Workshop, Participant
2014 Research Advisory Committee, Member
2014 Hui Mālama Loko I'a Water Quality Workshop, Presenter
2014 Loea Limu (Gathering of Traditional Limu Experts), Participant
2016 - 'Aimalama (Kaulana Mahina traditional practice, Kumu: Kalei Nu'uhiwa)
2016 Ko'olaupoko Training Workshop, Invited Participant
2018 Papa Ho'onui 'Ike – Teacher Training
2017- City and County of Honolulu Climate Change Commission
2017- Hawai'i Community Foundation, Medical Research Advisory Committee

- 2018 Highlighted in Hawai'i Business News "Native Hawaiian Culture is Science", April 2018
2017 March for Science Hawai'i, Speaker Organizing Committee
2011-2015 Native Hawaiian Health Care Systems Institutional Review Board
 2013-2015 Standing member
 2011-2013 *Ad hoc* reviewer
2010 Kaho'olawe Island Reserve Commission, *Ad hoc* consultant

National/International

- 2014- National Science Foundation, *Ad hoc* BIO-IOS and DEB grant reviewer
2014- International Journal of Systematic and Evolutionary Microbiology, *Ad hoc* reviewer
2014- Environmental Microbiology and Environmental Microbiology Reports, *Ad hoc* reviewer
2016- 7th ASM Beneficial Microbes Meeting, Organizing committee
2018 Science Magazine, *Ad hoc* reviewer
2017 Featured on Colors of STEM, I am STEM blog (<http://colorsofstem.org/ralegado/>)
2017 ASLO Aquatic Sciences Meeting Art Exhibition, Contributor
ASLO Aquatic Sciences Meeting "Flushing our Future" Town Hall, co-organizer
2017 4th U.S. National Climate Assessment report, Hawai'i and US-Affiliated Pacific Islands, Technical Contributor
2017 International Choanoflagellate Workshop, Session Chair
2017 Hūlili Journal, *Ad hoc* reviewer
2016 Highlighted in PNAS: Ravindran, Sandeep. "Inner Workings: Tiny organisms could reveal how animals evolved." *Proceedings of the National Academy of Sciences* 113.46 (2016): 12889-12890.
2016 American Indian Science and Engineering Society Annual Meeting, Featured Video Highlight (<https://vimeo.com/190948503>)