GOV. MSG. NO. 598

KIM A FALINSKI, PHD, P.E.

[redacted]

SUMMARY: Environmental scientist and engineer. Investigating connectivity between land and sea for nature and people; land management and policy solutions to reduce sediment and nutrient inputs to coastal tropical systems; protecting coastal wetlands for ecological and climate resilience.

EDUCATION

UNIVERSITY OF HAWAI'I AT MĀNOA	Doctor of Philosophy, Tropical Plant and Soil Science, 2016 Title: "Predicting sediment export into tropical coastal ecosystems to support ridge to reef management" Completed M.S. coursework in Oceanography, Division of Marine Geology
CORNELL UNIVERSITY	Master of Science, Agricultural and Biological Engineering, 2009 Certificate in International Agriculture
MIT	Bachelor of Science, Electrical Science and Engineering, 2002
Professional Engineer	Civil Engineering (Water Resources), State of Hawaii License ID: PE-17867

AFFILIATIONS

UNIVERSITY OF HAWAII AT MANOA, WATER RESOURCE RESEARCH CENTER & EARTH SCIENCES, – AFFILIATE FACULTY

CURRENT PROFESSIONAL ROLES

THE NATURE CONSERVANCY, Honolulu, HI, August 2015-current
Coastal and Estuarine Scientist

- Investigate submarine groundwater from a small island atoll, Palmyra Atoll, that is undergoing restoration of the native forest using radon and other groundwater tracers.
- Collaborate with the National Estuarine Research Reserve to provide understand the ecohydrological impacts of He'eia agriculture and wetland restoration, including
  - Measuring sediment and nutrient retention in areas with removed invasive species and traditional Hawaiian taro fields,
  - Monitoring vegetation, fish and invertebrate populations within the estuary and watershed
- Develop quality assurance protocols and training materials to support statewide community based water quality programs, in collaboration with the Hawaii Department of Health for Maui, Hawai'i island and Maunalua Bay. (huiokawaiola.com, hawaiiwaiola.com)
- Identify wastewater-derived contaminants in coastal seepages and coral tissue

UNIVERSITY OF HAWAII AT MĀNOA, Honolulu, HI, 2010-current
Affiliate Faculty, Water Resources Research Center

- Created a decision support tool to map the impact of land use change on coral reef ecosystems in west Maui using modeling, field surveys and remote sensing data.
- Partnered with private owners, county and state officials to create an urban stormwater monitoring research program in Honokowai, west Maui.
- Led a team that designed retrofit for Honokowai #8 reservoir to reduce sedimentation on west Maui reef.

NALO MELI HONEY, Waimanalo, HI, 2007-current; www.nalomelihoney.com
Owner, Beekeeper

- Manage a honey company that produces honey on local farms and sells at farmers markets and restaurants.
- Collaborate with farmers for pollination services and value added products. Member of the Hawaiian Honeybee Coop and Hawai'i Farm Bureau.

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PREVIOUS PROFESSIONAL ROLES

TETRA TECH EMI, INC, Honolulu, HI, 2014-2015
Environmental Scientist III

- Created and executed a sediment sampling and analysis plan and quality assurance plan for a $1 million project to provide contaminant data for a federal, Hawaii-wide harbor dredging project.

OCEANIC INSTITUTE, Waimanalo, HI, 2007-2009
Research Assistant, Finfish Department

- Designed a 500L microalgae bioreactor to support Hawaiian aquacultured fish species, especially yellow tang and moi.

CAPE ELEUTHERA INSTITUTE, Deep Creek, Eleuthera, The Bahamas, 2004-2006
Research Assistant, Aquaponics and Constructed Wetlands

- Worked with students and the community to design recirculating systems to treat waste and grow food on an isolated part of Eleuthera Island
- Designed a semester long seminar in Sustainability

STUDENTS PARTNERSHIP WORLDWIDE, Pahli VDC, Nawalparasi, Nepal, 2003-2004
Community Advocate

- Assisted a remote community in Nepal with building a library, connecting with NGOs, and developing workshops on agricultural best management practices for rice/wheat systems

PUBLICATIONS AND PRESENTATIONS

MORE AT HTTPS://WWW.RESEARCHGATE.NET/PROFILE/KIM-FALINSKI

- Minton, D., **Falinski, K.**, Carr, R., Lynch, H., Rose, J., Conklin, E. (2022). Coral reef and water quality surveys of the Keōmuku Reef Tract, Lāna'i. Reported submitted to the National Fish and Wildlife Federation. (manuscript in prep).
- Gove, J, Williams, G, Lecky, J., **Falinski, K.** et al. Mitigating local human impacts promotes coral reef persistence under climate change, 06 August 2022, Nature, Preprint available at Research Square [https://doi.org/10.21203/rs.3.rs-1882733/v1]
- Wakwella, A, Wenger, A, Jupiter, S, **Falinski, K.** Managing watersheds for coral reefs and public health: Introduction and Scope. (2022). Technical Report.
- Panelo, J., Wiegner, T.N., Colbert, S.L., Goldberg, S., Abaya, L.M., Conklin, E., Couch, C., **Falinski, K.**, Gove, J., Watson, L., Wiggins, C., 2022. Spatial distribution and sources of nutrients at two coastal developments in South Kohala, Hawai'i. Mar. Pollut. Bull. 174, 113143.
- Geiger, E, Heron, S, Hernandez, W, Caldwell, J, **Falinski, K**, Callender, T, Greene, A, Liu, G., De La Cour, J, Armstrong, M., Donahue, M. (2021). Optimal Spatiotemporal Scales to Aggregate Satellite Ocean Color Data for Nearshore Reefs and Tropical Coastal Waters: Two Case Studies. Frontiers in Marine Science, 8(382).
- **Falinski, K.**, Minton, D., Most, R., Seidel, B. (2021) Survey of Fishpond Complex and Marine Resources at Kalāhuipua 'a, Hawai 'i (2018-2019). Report compiled for NOAA.
- Marrack, L. Wiggins, C., Marra, J., Genz, A., Most, R., **Falinski, K.**, Conklin, E. (2021) Assessing the spatial-temporal response of groundwater-fed anchialine ecosystems to sea-level rise for coastal zone management. Aquatic Conservation: Marine and Freshwater Ecosystem. 31(853-869).
- Winter, K. et al. (2020). Collaborative research to inform adaptive co-management: a framework for the He'eia National Estuarine Research Reserve. Ecology and Society. 25(4).

- Mezzacapo, M., Donahue, M., Smith, C., El-Kadi, A., **Falinski, K.**, Lerner, D. (2020). Hawai'i's Cesspool Problem: Review and Recommendations for Water Resources and Human Health. *Journal of Contemporary Water Research and Education*, 170(35-75).
- Winter, K., Lincoln, N., Berkes, F., Alegado, R., Kurashima, N., Frank, K., ..., **Falinski, K.,** McClatchey, W. (2020). Ecomimicry in Indigenous resource management: optimizing ecosystem services to achieve resource abundance, with examples from Hawai'i. *Ecology and Society, 25*(2).
- Oleson, K. L., Bagstad, K. J., Fezzi, C., Barnes, M. D., Donovan, M. K., **Falinski, K.** A., ... & Wong, T. M. (2020). Linking Land and Sea Through an Ecological-Economic Model of Coral Reef Recreation. *Ecological Economics, 177*, 106788.
- Barnes, M. D., Goodell, W., Whittier, R., **Falinski, K. A.**, Callender, T., Htun, H., et al. (2019). Decision analysis to support wastewater management in coral reef priority area. Marine Pollution Bulletin, *148*, 16-29, doi:https://doi.org/10.1016/j.marpolbul.2019.07.045.
- Zhou, L., Li, S., **Falinski, K.**, Wang, L., Zhang, Y., Yost, R., Wu., X., Wang, J. (2020) Rose Quality as Affected by Higher Air Temperatures Resulting from Poly-Tunnel Height in a Subtropical Region. Applied Engineering in Agriculture, 36(4):611-618.
- **Falinski**, K., Oleson, K., Lecky, J., Hamel, P., El-Kadi, A., Yost, R., El Kadi, A., Sutherland, R. (2017). Development of a subtropical, volcanic geology-specific model for sediment delivery in the Hawaiian Islands. Ecological Modeling and Software, Submitted Feb 2020.
- McMurtry, G. M., Dasilveira, L. A., **Falinski, K.**, & Fischer, T. (2019). VGAM: Compact and Low Power Mass Spectrometer-based Instrumentation for Volcanic Gas Monitoring. Geochemistry, Geophysics, Geosystems.
- Bremer, L. L., Wada, C. A., Medoff, S., Page, J., **Falinski, K.**, & Burnett, K. M. (2019). Contributions of native forest protection to local water supplies in East Maui. Science of The Total Environment, *688*, 1422-1432.
- **Falinski, K.**, T. Callander, E. Fielding, A. Hodges, R. Newbold, D. Reed, A. Yurkanin, Honda, M. (In review). Disentangling land-based influences on West Maui's coastal water quality through quality-assured long-term monitoring programs: the volunteer monitoring experience. Marine Policy.
- Barnes, M., Goodell, W., Whittier, R., **Falinski, K.**, Callander, T., Htun, H., Leviol, C., Slay, H., Oleson, K.L.L.."Decision analysis to support wastewater management in coral reef priority area." Marine Pollution Bulletin. Preprint: e27470v27471
- Bremer, L., **Falinski, K.**, Ching, C, Wada, C., Burnett, K., Kukea-Schultz, K, Reppun, N., Chun, G., Medoff, S, Oleson, K, Ticktin, T. (2018). Biocultural restoration of traditional agriculture: assessing the multiple outcomes of lo'i restoration in He'eia, O'ahu. Sustainability (Special Issue).
- Zou, L., **Falinski, K.**, Zhao, P., Li, S., Lu, L., Dai, M., Zhang, Y., Yost, R., Wang J. (2019). Current fertilization practice and phosphorus loading from soils near alpine lakes of Yunnan Province, China. Agronomy for Sustainable Development.
- Burnett, K. M., Ticktin, T., Bremer, L. L., Quazi, S. A., Geslani, C., Wada, C. A., Kurashima, N, **Falinski, K.** Winter, K. (2018). Restoring to the future: Environmental, cultural, and management trade-offs in historical versus hybrid restoration of a highly modified ecosystem. Conservation Letters, e12606.
- Weijerman, M, Veazey, L, Yee, S, Vache, K, Delevaux, J, Donovan, M, **Falinski, K**, Lecky, J, Oleson, K. (2018). Managing local stressors for coral reef condition and ecosystem services delivery under climate scenarios. Frontiers in Marine Science, Global Change and the Future Ocean.
- Delevaux, J., Jupiter, S., Stamoulis, K, Bremer, L, Wenger, A., Dacks, R., Garrod, P, **Falinski, K**, Ticktin, T. (2018). Scenario planning with linked land sea models inform where forest conservation actions will promote coral reef resilience. Scientific Reports, 8:12465.

- Wenger, A; Atkinson, S; Santini, T; **Falinski, K.**, Hutley, N, Albert, S, Horning, N, Watson, J, Mumby, P, Jupiter, S. (2018). Predicting the impact of logging activities on soil erosion and water quality in steep, forested tropical islands. Environmental Research Letters.
- **Falinski, K.**, Timmons, M, Callan, C, Laidley, M. (2018). Response of Tisochrysis lutea [Prymnesiophyceae] to aeration conditions in a bench-scale photobioreactor. Journal of Applied Phycology. 10.1007/s10811-018-1453-y.
- Wedding, L.M., Lecky, J., Gove, J.M., Walecka, H.R., Donovan, M.K., Williams, G.J., Jouffray, J.B., Crowder, L.B., Erickson, A., **Falinski, K.** and Friedlander, A.M., (2018). Advancing the integration of spatial data to map human and natural drivers on coral reefs. PloS One, *13*(3), p.e0189792.
- Oleson, K., **Falinski**, K. Audas, D., Coccia-Schillo, S., Groves, P., Teneva, L., Pittman, S. (2017). Linking landscape and seascape conditions: Science, tools and management. Seascape Ecology: Chapter 11, p 319-364.
- **Falinski**, K. Penn, D. (2017). Loss of reservoir capacity through sedimentation in Hawaii: management implications for the 21st century. Pacific Science 72:1.
- Rocha, A., Maria, R., Waite, U. S., Cassimo, U. A., **Falinski**, K., & Yost, R. (2017). Improving grain legume yields using local Evate rock phosphate in Gùrué District, Mozambique. African Journal of Agricultural Research, 12(22), 1889-1896.
- Hamel, P., **Falinski**, K, Auerbach, D, Frank, J, Sanchez-Canales, M. (2017) Sediment delivery modeling in practice: Comparing the effects of watershed characteristics and data resolution across hydroclimatic regions." Science of the Total Environment.
- Oleson, K. L. L.,**Falinski**, K, Lecky, J, Rowe, C, Kappel, C, Selkoe, K, White, C. (2017). "Upstream solutions to coral reef conservation: The payoffs of smart and cooperative decision-making." Journal of Environmental Management 191: 8-18.
- **Falinski**, K., Penn, D. (2015). An inventory of reservoir sedimentation in Hawaii using mixed methods. In the Proceedings for the 10th Annual Federal Interagency Conference on Hydrology and Sedimentation.
- Stock, J. **Falinski**, K. Callender, T. (2015). Reconnaissance sediment budget for selected watersheds of West Maui, Hawaii, USA. Open File Report, USGS.
- **Falinski**, K., Yost, R., Sampaga, E., Peard, J. (2014). Arsenic accumulation by edible aquatic macrophytes. Ecotoxicology and Environmental Safety, 99.

PRESENTED PAPERS AND CONFERENCE PRESENTATIONS (SELECTED):

- Falinski, K. (2022) Confounded stressors: persistent high coral cover on subtropical reef despite sedimentation and low fish biomass. International Coral Reef Society. Bremen, Germany.
- Falinski, K. (2021) *A Recipe for Success:* One way to cook up a Community-based Water Quality Sampling Program for Regulatory Purposes. Reef Resilience seminar.
- Falinski, K. (2019) Design Considerations In Using Wetland Taro Fields as Retention Basins. Pacific Water Conference.
- Falinski, K. (2017). Down in the weeds: Estimating sediment export to inform management. UH Manoa, Geology, Seminar Series.
- Falinski, K. (2017). Prioritizing green infrastructure options for water quality improvements on a watershed scale. UH Manoa NREM, Seminar Series, Promise to Pae'aina.
- Falinski, K., Oleson, K., Htun, H., Kappel, C, Lecky, J., Rowe, C., Selkoe, K., White, C. (2016). Using an ecosystem service decision support tool to support ridge to reef management: An example of sediment reduction in west Maui, Hawaii. ASLO Ocean Sciences, New Orleans, LA.
- Falinski, K., Penn. D. (2015) An inventory of reservoir sedimentation in Hawaii. SEDHyd in Reno, NV.

- Falinski, K., Oleson, K., Nielson, J. (2014) Evaluation of hydrologic models to predict sediment export with changing land use in leeward Hawaiian watersheds. American Geophysical Union in San Francisco, CA.
- Falinski, K., Oleson, K., Sutherland, R. (2014) Mauka to Makai: Modeling the effects of agricultural land use change on sediment yield in two Hawaiian watersheds. International Hydrology and Sedimentation Conference, Sediment to Sea in New Orleans, LA.

FUNDED GRANTS AND AWARDS

- 2022. Seagrant. **Characterizing network-wide, spatially explicit current and future stream temperature distribution in Ala Wai Watershed, $**92,000. co-PI with Dulai, Tsang
- 2021. National Fish and Wildlife Federation. **Assessing sedimentation, coral and fish resources in northeast Lāna'i**, $142,000. co-PI.
- 2020. Hawaii Department of Health, EPA 319 Non-point source pollution funding opportunity. **He'eia Watershed Ungulate-Exclusion Fencing for Erosion Control.** $248,000, lead PI
- 2020. Maui County Office of Economic Development. **Community development and stream water quality monitoring.** $148,000, lead PI
- 2019. National Fish and Wildlife Federation. **Wetlands Restoration for Ecosystem and Community Resilience in He'eia, O'ahu.** $768,000, co-PI
- 2018. Fish Habitat Partnership. **Utilizing traditional Hawaiian tributaries to maximize fish connectivity to streams and habitat.** $40,000, co-PI.
- 2017. NOAA Coastal Resilience. **Restoration of a Hawaiian wetland and stream in He'eia, O'ahu to increase ecosystem and community resilience**. $1,082,215, lead PI
- 2017. CWRM Water Security. **Lo`i Kalo as Retention Basins: A New Approach to Designing Constructed Wetlands in Hawai'i** $136,012, lead PI
- 2017. NOAA Habitat Blueprint. **Community and Coral Restoration and Resilience in the West Hawai'i Habitat Focus Area.** $1.3 million, co PI
- 2016, NFWF Coral Reef Conservation Fund. **Evaluating the Role of Herbivores in Mediating Impacts of Coral Bleaching on Reef Health and Coral Recruits**. $75,000, co-PI
- 2015. WRRC. **Managing for multiple ecosystem services in west Maui.** $40,000, co-PI
- 2014. NFWF Coral Reef Conservation Fund. **Nutrient and Sediment Contributions from Urban Storm Water.** $80,000, co-PI
- 2013. WRRIP. **Acquire sedimentation data to promote reservoir sustainability and advance watershed science**. $80,000, co-PI (and lead-PI at the end of the project)

SERVICE

- Hui o Honua – HOH808 – Board member
- Committee member: Casey McKenzie, Masters of Science, Earth Sciences
- **CITY AND COUNTY OF HONOLULU, STORMWATER UTILITY** – Advisory Council
- **SOCIETY OF WETLAND SCIENTISTS,** Western Chapter, Hawaii representative
- **CLEAN WATER NATURAL LANDS COMMISSION,** City and County of Honolulu, 2019-2020
- **BIG BROTHERS, BIG SISTERS,** Big Sister, 2015-2019

REFERENCES

Dr. Russell Yost [redacted], Former advisor
Eric Conklin, [redacted] The Nature Conservancy, supervisor
Tova Callender, [redacted], West Maui Ridge to Reef, and Hui o Ka Wai Ola