LARKEN TALHE ROOT

4010 North 26th Street, Tacoma, WA, 98407 | (253) 468 - 2768 | larker@uw.edu

EDUCATION

University of California, Davis
PhD in Animal Biology **2021**
Dissertation: Molecular Physiology of Tilapia Salinity Tolerance: comparative proteome dynamics of *Oreochromis* species under high osmoregulatory stress
Received **Graduate Academic Certificate in Extension, Outreach, and Science Communication**

University of California, Davis
M.S. in International Agricultural Development **2016**
Thesis: Theory and Application of Aquaculture Research and Extension for International Development

University of Puget Sound
B.S. in Biology **2009**

TEACHING/RESEARCH EXPERIENCE

Postdoctoral Researcher **2022-present**
Conducting research comparing physiological and transcriptomic response of local clam species to acidic conditions as predicted to occur due to increased atmospheric carbon dioxide. Maintaining experimental populations and constructing experimental larval rearing chambers, analysis consisting of RNA-Seq of gametes and larval developmental stages, measures of reproductive and growth performance of both adults and larvae. Also involved in inducing sterility in economically important shellfish species by blocking germ line cell development in embryos.

Graduate Student Researcher **2014-2021**
Developed a collaborative project with state hatcheries to investigate bacterial infection in trout for improved diagnosis and management practices as M.S. student. Led collaborative genotype-to-phenotype research on tilapia salinity acclimation with researchers at the ARO of Israel. Contributed to white paper on fish food sources for nutrition in Mozambique prepared for GAIN International. Established a breeding program for critically endangered *Sarotherodon linnellii*. Managed and advised five undergraduate interns conducting lab experiments. Helped prepare NSF grants and reports.

Instructor - Introductory Aquaculture **2019**
Prepared and delivered three weekly lectures to a class of sixty. Responsible for all duties of a professor including directing a teaching assistant and leading field trips.

Teaching Assistant – Introductory Aquaculture **2015-2018**
Led weekly student discussion groups and aided in project design for course by Dr. Dietmar Kueltz.

WorldFish/USAID RIFA Intern and WorldFish Consultant **2016-2017**
Prepared and enacted a research protocol designed to evaluate the success of introduced technologies in decreasing fish post-harvest losses in Western Zambia. Retained as consultant on the development of several publications.

PUBLICATIONS AND PAPERS

Root, L. & Kültz, D. (2022) Gill proteome networks explain energy homeostasis during salinity stress in *Oreochromis mossambicus*. (in submission to *Molecular Ecology*) https://doi.org/10.22541/au.164433207.74361091/v1

Root, L., Campo, A., MacNiven, L., Con, P., Cnaani, A., & Kültz, D. (2021). Nonlinear effects of environmental salinity on the gill transcriptome versus proteome of Oreochromis niloticus modulate epithelial cell turnover. *Genomics*. 113:5. 3235-3249. https://doi.org/10.1016/j.ygeno.2021.07.016

Root, L., Campos, A., MacNiven, L., Con, P., Cnaani, A., Kültz, D. (2021) A data-independent acquisition (DIA) assay library for quantitation of environmental effects on the kidney proteome of *Oreochromis niloticus*. *Molecular Ecology Resources*. 21:7. 2486-2503. https://doi.org/10.1111/1755-0998.13445
Stewart, C., Kebreab, E., Root, L. (2021) "Animal Source Foods in Mozambique: Nutritional, Environmental, and Production Considerations." GAIN Discussion Paper n˚x.

Root, L., Kültz, D., Cnaani, A., & Con, P. (2018) "Intestinal proteome response to salinity stress in three tilapiine spp." *The FASEB Journal*, *32*(1_supplement), 586-3.

Root, L., Kaminski A., Cole, S., Maliko, M., Nsangu, D., Akabondo, N., Ward, A. (2017) "Improving livelihood security and gender relations in rural Zambia and Malawi through post-harvest fish value chain innovations and social change interventions- Report: Participatory Assessment of the Efficiency of Improved Fish Processing Technologies in Reducing Post-Harvest Losses in the Barotse Floodplain, Zambia."

Root, L. (2016) *Theory and Application of Aquaculture Research and Extension for International Development*. Master's Thesis, University of California, Davis.

Root, L. (2016) "Protein markers and mechanisms of Bacterial Cold Water Disease in Rainbow Trout (Oncorynchus mykiss) revealed using mass spectrometry proteomic analysis." *The FASEB Journal,* 30 (1 Supplement) 979.4

Root, L. (2008) "Improving Beekeeping on Unguja Island." Research project for completion of School of International Training course in Zanzibar, Tanzania. http://digitalcollections.sit.edu/isp_collection/563/

AWARDS

JASTRO research grant, $5,400 total **2019-2020**
Dept. of Animal Science Hart, Cole, Goss Fellowship, $22,250 total **2016-2020**
Research and Innovation Fellowship for Agriculture, USAID **2016**
Bob Bittner Scholarship, California Fly Fishers Unlimited (CFFU) **2016**
Honorable Mention, National Science Foundation Graduate Fellowship **2015**
President's Scholarship, University of Puget Sound **2006-2009**
National Merit Scholar **2004-2005**

RELATED EXPERIENCE

Whole Foods Market - Wynnewood, PA & Davis, CA **2011-2014**
Seafood Team Member
Duties included Team Trainer, Safety Officer, Sustainability Representative.

VOLUNTEERING

Insight Garden Program Aiding and instructing in the use of gardening for therapeutic rehabilitation of adult and adolescent inmates in two California prisons **2019-2020**
UC Davis Picnic Day Science communication with public for the Sturgeon Exhibit **2015-2016**

Nimbus Fish Hatchery	Science communication of salmon life cycle and conservation with student groups and drop-in visitors	**2015**

OTHER SKILLS

Language	French and Spanish CEFR level A2, basic Swahili
Computer	All MS Office applications, R Studio, Adobe Illustrator and Photoshop
Aquatic systems	Designing, building, and maintaining multiple fresh and salt-water fish tank systems