KELSI M. RUTLEDGE, M.Sc.

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EDUCATION

Sept 2018-Present **Ph.D. in Ecology and Evolutionary Biology** **University of California Los Angeles**
Advisors: Malcolm Gordon, Donald Buth, Jeff Eldredge
Thesis: *Nasal morphology and hydrodynamics of olfaction in batoid fishes*
Pertinent Coursework: Fluid Mechanics

2018 **M.Sc. in Biology** **University of California Los Angeles**
Advisor: Donald Buth
Thesis: *Guitarfish comparative morphology*
Pertinent Coursework: Advanced Evolution, Advanced Animal Behavior, Systematics, Biostatistics, Advanced Ichthyology
Workshops: Introduction to R, Teaching in the Sciences, Introduction to Phylogenetics
Clubs and Societies: UCLA Marine Science Grad Student Network

2016 **B.S. Marine Biology*** **University of North Carolina Wilmington**
2016 **B.S. Environmental Science** **University of North Carolina Wilmington**
Advisors: Troy Alphin, Martin Posey, Thomas Lankford
Honors Thesis: *Fish Use of Created vs. Natural Oyster Reefs (Crassostrea virginica)*
***Honors in Marine Biology, *magna cum laude*
Pertinent Coursework: Ecology, Limnology, Introduction to Environmental GIS, Ichthyology, Fisheries Biology, Environmental Geology, Biological Research Methods, Statistics, Calculus, Physics, Organic Chemistry, Environmental Chemistry
Clubs and Societies: Ecology Club, Scuba Club, Coastal Society, Honors Society

PRESENTATION AWARDS

2019 **2nd place**: Best Graduate Student Poster Award, Annual Biology Research Symposium, UCLA
2018 **1st place**: Best Graduate Student Poster Award, Annual Biology Research Symposium, UCLA
2017 **3rd place:** Best Graduate Student Poster Award, Annual Biology Research Symposium, UCLA
2017 **1st place:** AIFRB Best Poster Award, Southern California Academy of Sciences Annual Conference
2016 Honorable Mention: Poster Award, Student Research and Creativity CSURF Showcase, UNCW

GRANTS & RESEARCH AWARDS >$14,000

2019	University of California Los Angeles Travel Grant	**$2,300**
2019	University of California Los Angeles Research Grant	**$1,000**
2019	Sigma Xi Grant in Aid of Research	**$1,000**
2019	UCLA Faculty Women's Club Scholarship and Departmental Nominee	**$3,000**
2019	Grant in Aid of Research (GIAR) Society for Integrative and Comparative Biology	**$1,000**
2018	Friday Harbor Laboratories Wainwright Fellowship	**$2,700**
2018	University of California Los Angeles Research Grant	**$2,000**
2018	Society for Integrative and Comparative Biology Housing and Travel Grant	
2017	University of California Los Angeles Fellowship	**$750**
2017	American Society of Ichthyologists and Herpetologists Travel Grant	**$600**

RESEARCH EXPERIENCE

July 2018-August 2018 **Fish Biomechanics Research Course** Friday Harbor Labs, San Juan Island, WA
Title of Research Project: Killing them softly: the structure and function of the jaws of a durophagous freshwater river ray (*Potamotrygon leopoldi*) through ontogeny
Mentored by: Matthew Kolmann, Adam Summers, Alice Gibb

June 2013-2016 **Research Assistant**, Benthic Ecology Lab Center for Marine Science, Wilmington, NC
Description: Work on a variety of lab projects including, but not limited to, sorting dredged sand samples, benthic infaunal assessment and analysis, oyster reef restoration metrics, oyster population health assessment, fish egg surveys, NOAA Poplar Island Restored Marsh Analysis; Cape Fear River Monitoring- taking sediment grabs along salinity gradients

2015-2016 **Honors Thesis Project** Center for Marine Science, Wilmington, NC
Description: Fish utilization of created fringing oyster reefs compared to natural oyster reefs; deploy breder traps and seine net to catch resident and transient nekton; compare abundance and richness to determine if significant difference; write scientific paper and present findings in front of a committee
Mentored by: Troy Alphin, Martin Posey

2015-2016 **St. James Coastal Erosion Intern** St. James Plantation, Southport, NC
Description: Build and manage a bagged oyster reef as a "living shoreline" to prevent wetland erosion on the intracoastal waterway; monthly sampling of bagged reef to determine nekton utilization and infaunal assessment; deploy and retrieve cultch bags for monthly analysis, measuring grass growth of *Spartina*, seine and sweep net along reef to determine community

2013-2014 **Directed Independent Study** Center of Marine Science, Wilmington, NC
Description: Beach Nourishment effects on key infauna; sort nourished and non-nourished sand samples for ampipods, copepods, polycheates, isopods, and bivalves; found ash-free dry weight using ashing furnace to determine biomass contribution between nourished and non-nourished sites

2014-2016 **Ichthyology Lab Intern** Center of Marine Science, Wilmington, NC
Description: Sediment sorting, identifying invertebrates, fish identification, gill net, seine net, assist with the process of fish preservation for university museum; *Squalus acanthias*, *Rhizoprionodon terraenovae*, and *Carcharodon carcharias* dissections

TEACHING EXPERIENCE

Teaching Associate, UCLA
Winter 2019 Animal Physiology Lab
Winter 2018 Vertebrate Morphology Lab
Spring 2018 Systematics

Teaching Assistant, UCLA
Fall 2017 Introduction to Marine Science Lab
Spring 2017 Introduction to the Oceans
Winter 2017 Ecology, Evolution and Biodiversity
Summer 2017 Ecology, Evolution and Biodiversity
Fall 2016 Introduction to Marine Science

Undergraduate Teaching Assistant, UNC-Wilmington
Spring 2016 Ichthyology Lab
Fall 2016 Ichthyology Lab
Spring 2015 Ichthyology Lab

MarineQuest Instructor, Center for Marine Science, Wilmington, NC
June 2014- August 2014
Marine Biology Summer Camp: teaching and developing interactive marine science lesson plans

OUTREACH AND MENTORSHIP

Undergraduates mentored: Melissa Vasquez (3 yrs)

2018- Present **Building Engineers and Mentors (BEAM)** Los Angeles, CA
Description: Weekly visits to underrepresented elementary student's classroom to teach fun science and engineering based activities

2017-Present **Minds Matter Mentor** Los Angeles, CA
Description: Mentor a female high school minority student interested in pursuing STEM in college, teaching lab protocol and introduction to coding

November 4th 2018 **Exploring Your Universe with BNC**; EEB UCLA Booth Los Angeles, CA
Description: Largest UCLA Science Festival open to the public, catered towards elementary and middle school kids

April 9th 2018 **iDigBio** UCLA representative Los Angeles, CA
Description: NSF funded Broadening Diversity workshop with the goal of introducing undergraduate students, especially those in underrepresented populations, to museum and biodiversity science careers

2017-2018 **Rainbow Tutoring Educator** Los Angeles, CA
Description: Tutor high school students in science related subjects and SAT/ACT test prep

2014-2016 **Coastal Erosion Outreach Intern** Wilmington, NC
Description: Inform the public and local benefactors of coastal erosion issues and marsh ecosystem services; lead citizen scientists on oyster reef building event

2013-2014 **Aquarium Education Volunteer** Fort Fisher Aquarium, Fort Fisher, NC
Description: Supervise select exhibits and basic marine life care; teach guests about marine life throughout the aquarium

PROFESSIONAL MEMBERSHIPS

2019-Present Sigma Xi Associate Member
2019-Present Graduate Women in Science (GWIS)
2018-Present Society for Experimental Biology (SEB)
2018-Present Society for Integrative and Comparative Biology (SICB)
2017-Present American Elasmobranch Society (AES)
2017-Present American Society of Ichthyologists and Herpetologists (ASIH)
2017-Present Southern California Academy of Sciences (SCAS)

PRESENTATIONS & POSTERS

+INVITED SPEAKER **AWARD GIVEN

2019	UCLA Annual Biology Research Symposium**	Los Angeles, CA
2019	Southern California Academy of Sciences Annual Conference	Los Angeles, CA
2019	SICB DVM Dwight Davis Award Competition	Tampa, FL
2018	FHL Fish Biomechanics Research Project	Friday Harbor Labs, San Juan Island
2018	UCLA Annual Biology Research Symposium**	UCLA
2017	Southern California District Board AIFRB Annual Meeting+	Los Angeles, CA
2017	Joint Meeting of Ichthyologists and Herpetologists	Austin, TX
2017	UCLA Annual Biology Research Symposium**	UCLA
2017	Southern California Academy of Sciences Annual Conference**	Los Angeles, CA
2016	Student Research and Creativity CSURF Showcase**	UNC-Wilmington

EDITORAL EXPERIENCE

Reviewed a manuscript for publication and made comments for these journals:
Journal of Fish Biology (2019), *Copeia* (2018), *Journal of Neotropical Ichthyology* (2018)

SKILLS

6 years working in a formal scientific lab setting

Programming Languages: R Studio, Matlab
Software: 3D Slicer, Fiji, Adobe Illustrator, Microsoft products
Methodologies: Data management, intermediate statistics, morphology/meristics, morphometric analyses, 2nd moment of area analysis
Museum and Collections Experience: Maintaining UCLA research and teaching ichthyology collection, collaboration with LACM, Scripps, Bell Museum, Harvard Museum
Technologies: CT and uCT scanning, 3-D printing, experience with: Arduino, florometer, sediment grabber, particle sizer
Field Skills: Fish sampling techniques: seining/gill netting/trawling, familiar with dissecting and identifying coastal fishes, benthic assessment and live history (i.e. spat racks, quadrats), oyster reef restoration: metrics and condition indices, building and maintaining created oyster reefs, identification of oyster reef and surf zone associated invertebrate fauna, water quality monitoring TSS and chl-a, comfortable on/driving a boat
Science Communication: Weekly visits to underserved elementary school to lead lessons on science and technology (ex. building robots and coding them in Scratch), blog posts written on current research: https://fishandfreckles.com/featured-fish-facts/f/amazon-river-stingrays-have-weird-jaws-to-eat-specialized-prey

CERTIFICATIONS

CPR/First Aid adult and child certified
Padi Open Water Dive Certified
Lab Safety Formaldehyde Course
North Carolina Large State Vehicle Driving Course

MEDIA ATTENTION

2019 Forbes covered research on stingray jaws (See #2 in Publications): https://www.forbes.com/sites/melissacristinamarquez/2019/06/02/stingrays-eat-food-that-is-harder-than-their-own-jaws/#5cb6b9f2340c

PUBLICATIONS

4. Gordon, M.S., Lauritzen, D.V., Wiktorowicz, A.M., **Rutledge, K.M.** Aracaniform Swimming: A Swimming Mode Used By Deep-Water Boxfishes (Teleostei: Tetraodontiformes: Aracanidae). *Physiological And Biochemical Zoology Special Issue: Biomechanics* (Under review since 4/10/19)

3. **Rutledge, K.M.** 2019. A new guitarfish from the Gulf of California (Batoidea: Rhinobatidae). *Copeia*. (In press)

2. **Rutledge, K.M.**, Summers, A. P., Kolmann, M.A. 2019. Killing them softly: ontogeny of jaw mechanics and stiffness in mollusk-feeding freshwater stingrays. *Journal of Morphology*, 280: 796– 808. https://doi.org/10.1002/jmor.20984

1. **Rutledge, K. M.**, Alphin, T. & Posey, M. 2018. Fish Utilization of Created vs. Natural Oyster Reefs (*Crassostrea virginica*). *Estuaries and Coasts*, 41 (8), 2426-2432. https://doi.org/10.1007/s12237-018-0433-4