

DANNIELLE H. KULAW

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EDUCATION & PROFESSIONAL HISTORY

Texas A&M University Corpus Christi, Corpus Christi, Texas *December 2017-Present*
Harte Research Institute

- Project Coordinator, *Center for Sportfish Science and Conservation*

Texas A&M University Corpus Christi, Corpus Christi, Texas *September 2014-2017*
Department of Life Sciences

- Research Technician II, *Marine Genomics Lab*

Louisiana State University, Baton Rouge, Louisiana *January 2014-August 2014*
Department of Oceanography and Coastal Sciences

- Research Associate III, *Fisheries Science Laboratory*

Louisiana State University, Baton Rouge, Louisiana *Fall 2008-Summer 2012*
Department of Oceanography and Coastal Sciences

- Master of Science in Oceanography and Coastal Sciences
- Graduate research assistant, 05/09 to 08/12
- Graduate teaching assistant, 08/08 to 05/09
- Thesis title: Habitat- and region-specific reproductive biology of female red snapper (*Lutjanus campechanus*) in the Gulf of Mexico (168 pp.)

University of West Florida, Pensacola, Florida *Fall 2002-Spring 2006*
Department of Biology

- Bachelor of Science in Marine Biology, *Dean's List*
- Certified: Aquaculture and Fisheries Biology

Okaloosa Walton Community College, Niceville, Florida *Fall 1999-Spring 2001*

- Associate of Arts, *Honors*

Okaloosa Walton Collegiate High School, Niceville, Florida *Fall 1999-Spring 2001*

- High School Diploma

U.S. Environmental Protection Agency, Marine Biologist (contractor) *2006-2008*
Gulf Ecology Division

- U.S. Environmental Protection Agency, Student Services Contractor. Proteomics Task: Protein Profiling and Biomarker Identification in Aquatic Animals *June 2007-June 2008*
- U.S. Environmental Protection Agency, Student Services Contractor. Ecotoxicology Tasks: Fish 2-Generation Tests with 17- β Estradiol and 17- β Trenbolone *June 2006-June 2007*

RESEARCH EXPERIENCE

Laboratory

- Management of a university laboratory
 - Website design, development and upkeep
 - Development of a DNA barcoding system using barcode-generating software, for storing and organizing a tissue library comprised of thousands of fish and shark tissue samples
 - Generation, organization and storage of detailed laboratory purchasing and accounts records for auditable research

- Submission of genomic libraries for Illumina sequencing
- Regular care and troubleshooting of laboratory equipment
- Buffer/solution preparation for tissue DNA storage, gel electrophoresis and ddRAD genomic library preparation
- Generation of genomic libraries for leading-edge, next-generation ddRAD sequencing
 - Isolation and purification of genomic DNA extracted from fish tissues
 - Assessment of yield and quality of genomic DNA using agarose gel electrophoresis
 - Quantitation of genomic DNA
 - ddRAD: Annealing adapters, double-digestion, digest quantification, adapter ligation, pooling samples into corresponding indices, gel size-selection using Pippin Prep, and targeted index PCR amplification
- Development, organization and maintenance of database result summaries for high-profile, auditable studies
- Database entry and review for quality assurance
- Communication of preliminary research results to grant funders
- Dissemination of research results at annual fisheries meetings
- Collecting, analyzing and interpreting fisheries data for better understanding of population dynamics and to provide information for stock management
 - Measurement and comparative analysis of fish reproductive parameters useful for species stock assessment
 - Reproductive maturity
 - Gonadosomatic index (GSI)
 - Spawning phase
 - Batch fecundity
 - Spawning frequency
 - Annual fecundity
 - Index of reproductive importance (IRI)
 - Microscopic determination of oocyte stage development for *Lutjanus campechanus*, a multiple-spawning, heterochronal marine fish
 - Microscopic age determination of marine fishes from otolith annuli
- Ecotoxicology studies
 - Set-up, maintenance and break down of multiple chemical exposure experiments
 - Preparation of chemical dilutions and spikes
 - Solvent extraction of chemicals from seawater
 - Development of water chemistry readings using ELISA immunological assays
 - Dissection and preservation of liver and brain tissues and blood plasma
- Histological processing and examination of marine fish ovarian tissues
 - Basic fixation, cross-sectioning, preparation of histology cassettes and organized storage of fish tissues
 - Standard histological slide preparation
 - Vacuum infiltration
 - Paraffin wax embedding
 - Microtome slicing of embedded tissues
 - Mounting tissues to labeled slides, staining and counterstaining with hematoxylin and eosin (H & E)
 - Cover slipping
- Collection, enumeration and hatching fish cultures at a federal research laboratory for multiple spawning assessments
- Animal husbandry: Marine teleosts
 - Raising, surveying and maintaining lab-reared fish daily
 - Maintenance of flow-through and recirculating water systems for fifty 25-gallon tanks
 - Acclimation, quarantine and maintenance of wild-caught marine fish in laboratory flow-through water systems
 - Analysis of nitrate, nitrite and ammonia levels using colorimetric methods
 - Daily testing of salinity, dissolved oxygen and pH levels
- Guiding graduate students in the following:
 - Field work preparation
 - Sample collection and processing techniques

- Analyzing and presenting data at fisheries conferences and symposiums
- Training, and guidance/oversight of undergraduate student workers in the lab
- Training graduate students from multiple universities in the following:
 - Estimating fish reproductive biology parameters for fishery stock assessment purposes
 - Histological preparation procedures and interpretation of oocyte stages
 - Age and growth techniques

Field Experience

- Over 1,000 hours of ship time: research was conducted 80-100 miles offshore along the Gulf of Mexico (GoM) continental shelf-edge banks off Port Fourchon, Louisiana
- Offshore collection of various marine species in the GoM, but targeting mainly red snapper, *Lutjanus campechanus*, using vertical longlines and Chevron traps (see details below)
- Construction and use of vertical longlines according to National Marine Fisheries Service (NMFS) survey specifications for red snapper
- Systematic offshore deployment and retrieval of multiple baited Chevron traps of standard Marine Resources Monitoring, Assessment and Prediction (MARMAP) program configuration
- Identification of marine vertebrate and invertebrate species of coastal estuaries and the GoM using published field guides
- Seine net collections of thousands of wild estuarine minnows and live transport to the laboratory via marine vessel
- Measuring water parameters with Celerity Temperature Depth (CTD) sensor, YSI probes and refractometer
- Dockside collection of over 1,800 red snapper from 6 regional recreational fishing docks across the U.S. GoM
- Meristic measurement and preservation of marine teleost tissues and otoliths
- Detailed data recording for various government-, grant- and state-funded projects including the U.S. Environmental Protection Agency, the National Marine Fisheries Service, the Louisiana Department of Wildlife and Fisheries and Louisiana SeaGrant

Data Analysis

- Statistical Analysis Software (SAS)
- Image J software (for accuracy of meristic measurements)
- Microsoft Excel (management of data records and creating spreadsheets, graphs and charts)
- Microsoft Word
- Microsoft Powerpoint
- Geographic Information System (GIS) (limited training)
- Matrix Laboratory (MATLAB) (limited training)
- R (limited training)

PUBLICATIONS

- 3) Kulaw DH, Cowan JH Jr., Jackson MW (2017). Temporal and spatial comparisons of the reproductive biology of northern Gulf of Mexico (USA) red snapper (*Lutjanus campechanus*) collected a decade apart. PLoS ONE 12(3): e0172360. <https://doi.org/10.1371/journal.pone.0172360>
- 2) Cripe GM, Hemmer BL, Goodman LR, Raimondo S, Fournie JW, Kulaw DH, Vennari JC, Danner RL, Smith K, Manfredonia BR (2017). Exposure of three generations of the estuarine sheepshead minnow, *Cyprinodon variegatus*, to the androgen 17 β -trenbolone: effects on survival, development, and reproduction. Environmental Toxicology and Chemistry 29(9): 2079-2087.
- 1) Cripe GM, Hemmer BL, Goodman LR, Fournie JW, Raimondo S, Vennari JC, Danner RL, Smith K, Manfredonia BR, Kulaw DH, Hemmer MJ (2009). Multigenerational exposure of the estuarine sheepshead minnow (*Cyprinodon variegatus*) to 17 β -estradiol. I. Organismal-level effects over three generations. Environmental Toxicology and Chemistry 28(11): 2397-2408.

PRESENTATIONS

- 2) Habitat-specific fecundity of red snapper, *Lutjanus campechanus*, in the northern Gulf of Mexico. *Kulaw, D.H, Cowan, J.H. Jr. Oral presentation at 32nd Annual Meeting of the Louisiana Chapter of the American Fisheries Society 2011. **2nd Place Student Speaker Award**

- 1) Multigenerational exposure of the estuarine sheepshead minnow (*Cyprinodon variegatus*) to 17 β -estradiol. I. Organism-level effects over three generations. *Cripe, G.M., R.L Hemmer, L.R. Goodman, J.W. Fournie, S. Raimondo, J.C. Vennari, R.L. Danner, K. Smith, B.R. Manfredonia, D.H. Kulaw, and M.J. Hemmer. Oral presentation at Department of Ecology & Evolutionary Biology. Tulane University. Spring 2009.

AWARDS & HONORS

- 4) *Joseph Lipsey Senior Memorial Scholarship Award* for excellence in publications/research, teaching and service. Louisiana State University, Department of Oceanography and Coastal Sciences 2011
 3) 32nd Annual Meeting of the Louisiana Chapter of the American Fisheries Society (AFS), 2nd Place Student Speaker Award 2011
 2) *Dean's List*, University of West Florida undergraduate program
 1) *Honors*, Okaloosa-Walton Community College collegiate high school/undergraduate program

TEACHING EXPERIENCE

- 5) Academic Center for Student Athletes: Tutored student athletes for 4 hours per week. Louisiana State University. General Biology (BIOL 1002) Spring 2010
 4) Teaching Assistant: Introduction to Oceanography (OCS 1005) Fall 2008-Spring 2009
 3) Marine Resources. *Kulaw, D.H, Bargu, S. Lecture. Louisiana State University. Introduction to Oceanography (OCS 1005) Spring 2009
 2) Tunas: Torpedos of the Sea. * Kulaw, D.H, Bargu, S. Lecture. Louisiana State University. Introduction to Oceanography (OCS 1005) Spring 2009
 1) Marine Mammals. *Kulaw, D.H, White, J.R. Lecture. Louisiana State University. Introduction to Oceanography (OCS 1005) Fall 2008

RESEARCH INTERESTS

- Fishery stock assessment and management
- Marine biology & ecology
- Microbiology, molecular and cellular biology
- Ecotoxicology

CERTIFICATIONS

- Laboratory Safety (LSU's Office of Environmental Health and Safety):
 - Hazardous Waste 2014
 - Basic Laboratory Safety 2014
 - Emergency Response 2014
- Cardiopulmonary Resuscitation (CPR). American Heart Association. 1998, 2001, 2010
- Animal Care and Use 2006, 2007, 2008
- Aquaculture and Fisheries 2006

ORGANIZATIONS

- Coastal Bend Cactus & Succulent Society 2016
- American Fisheries Society (AFS) 2009, 2011, 2014
- Riverside Roadrunners Running Club 2012-2013
- Coastal Environmental Graduate Organization (CEGO) 2010-2012
- MER (Marine Environmental Researchers). Louisiana State University 2008-2010
- Fisheries Biology Club. University of West Florida 2006
- MERS (Marine Ecology Research Society). University of West Florida. 2002-2003, 2006
- Shotokan Karate Club 2005-2006

COMMUNITY OUTREACH

- **Coastal Bend Audubon Society 'Big Day' Event (3rd Place):** Part of a volunteer team of 4 who collectively identified 92 different bird species in 12 hours in the Corpus Christi area for documentation of local bird migrations 2014
- **Geaux Big LSU:** Campus lake and lakeside clean-up effort 2014
- **LSU Day:** Community Outreach for DOCS fisheries science research 2010

- **Earth Day:** Helped develop a booth designed to educate the public on ways to conserve Louisiana wetlands through every day household actions 2010
- **Exhibitor:** Louisiana Sea Grant Ocean Commotion 2009, 2010
- **Beach Sweep:** Cleaned areas around LSU lakes 2009
- **Fall Fest:** Community Outreach for DOCS 2009
- **Katrina Relief.** New Orleans/Baton Rouge Chapter of the Virginia Tech Alumni Association. Assisted with the Hurricane Katrina clean-up effort through a YMCA sponsored program in Poplarville, MS 2009

LEADERSHIP ACTIVITIES

- **Marine Environmental Researchers** (LSU Graduate Organization): Co-Chair, Education and Community Outreach Committee 2009-2010
- **LSU lakeside clean-up:** Organized 50 participants from 3 LSU departments, who combed 5 miles of shoreline around Campus, University and City Park lakes. 53 bags of trash, 10 bags of recyclable materials, 50-gallon plastic drum and 2 tires were collected 2009
- **Louisiana Sea Grant, Ocean Commotion:** Co-developed educational project and organized 15 volunteers to help educate over 700 K-8 students about bottlenose dolphins off of Louisiana's coast 2009
- **Louisiana Sea Grant, Ocean Commotion:** Helped educate several hundred K-8 students about subsidence of Louisiana's coast 2010
- **Baton Rouge Earth Day 2010:** Helped coordinate booth for LSU's Department of Oceanography and Coastal Sciences
- **Haiti earthquake disaster:** Raised over \$500 for American Red Cross International Response Fund 2010