

## DANNIELLE H. KULAW

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### EDUCATION & PROFESSIONAL HISTORY

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

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

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

- Research Technician II, *Marine Genomics Lab*

**Louisiana State University**, Baton Rouge, Louisiana *Jan. 2014-Aug. 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- $\beta$  Estradiol and 17- $\beta$  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 (2010). Exposure of three generations of the estuarine sheepshead minnow, *Cyprinodon variegatus*, to the androgen 17 $\beta$ -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 $\beta$ -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 32<sup>nd</sup> Annual Meeting of the Louisiana Chapter of the American Fisheries Society 2011. **2<sup>nd</sup> Place Student Speaker Award**

- 1) Multigenerational exposure of the estuarine sheepshead minnow (*Cyprinodon variegatus*) to 17 $\beta$ -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) 32<sup>nd</sup> Annual Meeting of the Louisiana Chapter of the American Fisheries Society (AFS), 2<sup>nd</sup> 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 (3<sup>rd</sup> 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