

Education

Ph.D. Candidate **Texas A&M University at Galveston, Galveston, Texas**
Marine Biology Department
Dissertation Title: A Trophic Analysis of Deep-Pelagic Micronekton
Assemblages in the Northern Gulf of Mexico
Advisor: Dr. R. J. David Wells

M.Sc. **Florida State University, Tallahassee, Florida**
Department of Biological Science, May 2014
Thesis Title: Trophic Dynamics of Spotted Seatrout (*Cynoscion nebulosus*) in a River-Dominated Coastal Estuary, Apalachicola Bay, Florida
Co-Advisors: Dr. R. Dean Grubbs and Dr. J. Kevin Craig

B.Sc. **Eckerd College, St. Petersburg, Florida**
Department of Biology, May 2007
Major: Marine Science

Publications

Richards, Travis M., J.M. Krebs, and C. C. McIvor. 2011. Microhabitat associations of a semi-terrestrial fish, *Kryptolebias marmoratus* Poey 1880 in a mosquito-ditched mangrove forest, west-central Florida. *Journal of Experimental Marine Biology and Ecology* 401: 48-56.

Briggs, Kevin B., J. K. Craig, S. Shivarudrappac, and **T.M. Richards**. 2017. Macrobenthos and megabenthos responses to long-term, large-scale hypoxia on the Louisiana continental shelf. *Marine Environmental Research* 123: 38-52.

Plumlee, Jeffrey D., K.M. Dance, P. Matich, J. A. Mohan, **T.M. Richards**, T. C. Tinhan, M.R. Fisher, and R.J.D. Wells. 2018. Community structure of elasmobranchs in estuaries along the northwest Gulf of Mexico. *Estuarine, Coastal and Shelf Science* 204: 103-113.

Richards, Travis M., E. E. Gipson, A. Cook, T. T. Sutton, and R.J.D. Wells. 2018. Trophic Ecology of Meso- and Bathypelagic Predatory Fishes in the Gulf of Mexico. *ICES Journal of Marine Science*.

Professional Research Experience

Texas A&M University at Galveston, Department of Marine Biology, Galveston, TX: 2016 – Present

Graduate Research Assistant

- Deep-Pelagic Nekton Dynamics of the Gulf of Mexico (DEEPEND)
 - Used natural dietary tracers (stable isotope analysis, compound specific isotope analysis, fatty acid analysis) to examine trophic structure and vertical connectivity of micronekton inhabiting the epi-, meso-, and bathypelagic zones in the northern Gulf of Mexico

University of Georgia, Warnell School of Forestry and Natural Resources, Athens, GA: 2014 - 2015

Laboratory Manager

- Development and testing of mechanistic fitness-based models to predict microhabitat selection by juvenile Chinook salmon, Arctic Grayling and Dolly Varden in the Arctic-Yukon-Kuskokwim region. PI: Gary Grossman
 - Responsible for overseeing laboratory feeding trials on live salmonids in order to create new, general, fitness-based foraging models.
 - Responsible for data analysis, specimen care and maintenance as well as organizing daily lab operations
- Responsible for conducting everyday laboratory operations including purchasing, hazardous materials inventory and disposal, completing permit applications and renewals, creation and implementation of animal use protocols (AUP)

Florida State University Coastal and Marine Laboratory, St. Teresa, FL: 2011-2014

Graduate Research Assistant

- Assessment of Ecosystem Services of Marsh Dominated Habitats in Apalachicola Bay: Towards a Model-based Toolset for Management Planning.
 - Conducted otter trawl surveys to determine spatial distribution of *L. xanthurus* in East Bay, Apalachicola Bay, Florida.
 - Responsible for managing a crew of three undergraduate assistants.
- Survey of coastal shark abundance in Florida's Big Bend.
 - Fished bottom longlines and gillnets targeting coastal sharks, collected muscle biopsies from all fish species captured and tissue samples from various elasmobranch species, fitted sharks with nylon dart tags, collected genetics samples
- Deepwater fish assemblages associated with DeSoto Canyon and continental slope waters in the eastern Gulf of Mexico.
 - Fished bottom longlines targeting demersal elasmobranch and teleost species in order to catalog and describe deep sea diversity in DeSoto Canyon
- Modeling Reproductive and Population Impacts of Hypoxia in the Northern Gulf of Mexico.
 - Responsible for deployment and retrieval of 40' balloon trawl, identification and enumeration of all fishes and macro-invertebrates
 - Served as chief fish biologist for cruise

Florida Fish and Wildlife Conservation Commission, Eastpoint, Florida: June 2010 – March 2013

Fisheries Technician

- Fisheries Independent Monitoring of the Apalachicola Bay Estuary.
 - Aided with monthly sampling of nekton and benthic invertebrates within Apalachicola Bay using otter trawls, beach seines and 600' haul seines
 - Responsible for identification of all post larval, juvenile and adult fishes and invertebrates

Marine Biological Laboratory, Woods Hole, Massachusetts: June – August 2008 and 2009

Research Assistant

- Population-Level Responses of the Mummichog, *Fundulus heteroclitus*, to Chronic Nutrient Enrichment in a New England Salt Marsh 2009. PI: Linda Deegan.

- Conducted mark recapture study of *F. heteroclitus* using elastomer paint tags
- Trophic Cascades and Interacting Control Processes in a Detrital Based Ecosystem (Plum Island Sound, MA). PI: Linda Deegan.
 - Helped with day to day operations of a large scale ecosystem manipulation experiment. Responsibilities included collecting and identifying benthic infauna samples, insect collection using litter bags, surveys of marsh plant communities, collection of benthic microalgae, bird surveys, water sampling and filtration

National Marine Fisheries Service, NOAA, Honolulu, Hawaii: August – December 2007

Biological Observer

- Pacific Islands Region Observer Program – Big Eye Tuna pelagic longline fishery
 - Responsible for identifying pelagic fish and elasmobranch species, seabirds, marine mammals and turtles

Mangrove Fish Ecology Lab, United States Geological Survey, St. Petersburg, Florida:

2006-2007

Biological Technician

- Microhabitat associations of a semi-terrestrial fish, *Kryptolebias marmoratus* Poey 1880 in a mosquito-ditched mangrove forest, west-central Florida. Co-PI: Carole McIvor and Justin Krebs
 - Designed and completed field study correlating the abundance of *K. marmoratus* to known microhabitat parameters
 - Responsible for site selection, construction and deployment of pitfall traps to collect *K. marmoratus*, *data collection and analysis*

Selected Conference Presentations

*Denotes presentation by an undergraduate researcher for whom I served as a graduate student mentor

Richards, T.M., Sutton, T., and Wells R.J.D. 2018. Trophic structure of deep-pelagic micronekton as revealed through bulk and compound-specific stable isotope analysis. 15th Deep-Sea Biology Symposium. Monterey, CA.

Judkins, H., Vecchione, M., Sosnowski, A., Timm, L., **Richards, T.M.**, Romero, I., Cook, A., and Sutton, T.T. 2018. DEEPEND: What Have We Learned Since 2011 about Cephalopods of the Northern Gulf of Mexico? Gulf of Mexico Oil Spill and Ecosystem Science Conference. New Orleans, Louisiana.

*Martinez, J. L., **Richards, T.M.**, Rooker, J.R., Wells, R.J.D. 2017. Ecology of the Sargassum Frogfish (*Histrio histrio*) in the Gulf of Mexico. Joint Meeting of Ichthyologists and Herpetologists. Austin, TX (Poster)

Plumlee, J. D., Dance, K. M., Matich, P., Mohan, J. A., **Richards, T. M.**, TinHan, T. C., Wells, R. J. D. 2017. Community structure of elasmobranchs in estuaries along the northwest Gulf of Mexico. Joint Meeting of Ichthyologists and Herpetologists. Austin, TX

Richards, T.M., Sutton, T., and Wells, R.J.D. 2017. Distribution and abundance of model meso- and bathypelagic micronekton in the northern Gulf of Mexico. Joint Meetings of the American Society of Ichthyologists and Herpetologists, Austin, TX.

Richards, T.M., T. Sutton, R.J.D. Wells. 2017. Trophic dynamics of meso- and bathypelagic micronekton in the northern Gulf of Mexico. Association of the Sciences for Limnology and Oceanography Ocean Sciences Meeting. Honolulu, Hawaii.

Richards, T.M., T. Sutton, R.J.D. Wells. 2017. Trophic dynamics of Meso- and bathypelagic micronekton in relation to mesoscale oceanographic features in the northern Gulf of Mexico. Gulf of Mexico Oil Spill and Ecosystem Science Conference. New Orleans, LA.

Richards, T.M. 2014. Determining the underlying nutrient source dynamics of an estuarine predator, *Cynoscion nebulosus*. Annual Meeting of the Southern Division of the American Fisheries Society. Charleston, South Carolina.

Richards, T.M., K. Craig. 2012. Trophic Dynamics of Spotted Seatrout in a River-Dominated Coastal Estuary. Annual Meeting of the Tidewater Chapter of the American Fisheries Society, Beaufort, North Carolina

Richards, T.M., K. Craig. 2011. Investigating the Relative Value of Seagrass Beds to Spotted Seatrout and Other Upper Trophic Level Nekton in Apalachicola Bay. Northern Gulf Institute Annual Meeting, Mobile, Alabama

Richards, T.M., J. M. Krebs, C. C. Mcivor. 2011. Microhabitat associations of a semi-terrestrial fish, *Kryptolebias marmoratus* (Poey 1880) in a mosquito-ditched mangrove forest, west-central Florida. Southern Division of the American Fisheries Society Spring Meeting, Tampa, Florida.

Richards, T.M., J. M. Krebs, C. C. Mcivor. 2007. A new method for collecting mangrove rivulus (*Kryptolebias marmoratus*) and assessing microhabitat associations. Annual meeting of the Florida Chapter of the American Fisheries Society, Ocala, Florida

Seminar Presentations

Richards, Travis M. 2013. Trophic dynamics of spotted seatrout in a river-dominated coastal estuary. Ecology and Evolutionary Biology Seminar Series, Florida State University.

Invited Guest Lectures

September 15th, 2015: Biostatistics (MARB 303)

Instructor: Dr. Hui Lui

September 17th, 2015: Biostatistics (MARB 303)

Instructor: Dr. Hui Lui

October 23rd, 2018: Introductory Biology II (BIOL 112)

Instructor: Dr. Philip Matich

November 14th, 2018: Fisheries Techniques (MARB 320)

Instructor: Dr. David Wells

November 20th, 2018: Marine Ecology (MARB 425)

Instructor: Dr. Michelle Zapp

November 27th, 2018: Introductory Biology II (BIOL 112)

Instructor: Dr. Philip Matich

Professional Teaching Experience

Texas A&M University at Galveston Department of Marine Biology

Teaching Assistant

- **Fisheries Techniques**, MARB 320 (Fall 2018)
 - Responsible for instruction and oversight of two laboratory sections and implementing the course goals of providing students with experience deploying, retrieving and analyzing data from commonly used fisheries sampling gears
 - Gear types included seine nets, otter trawls, experimental gill nets, backpack electroshocking, benthic sleds, and beam trawls.
- **Ichthyology**, MARB 311 (Spring 2017; Spring 2018)
 - Responsible for instruction and oversight of two ichthyology laboratory sections where the taxonomy, biology, physiology and ecology of fishes was explored

- Provided weekly lectures (~20 minutes) discussing various topics pertaining to ichthyology and assessed learning and retention through weekly quizzes and lab practicals

Broadreach Inc. Durham, NC (Summer 2014)

International Trip Leader

- **Sea Turtle Studies in Costa Rica** (3 college credits)
 - Served as academic leader for a high school biology trip focused on studying the ecology and biology of sea turtles and other tropical marine fauna
 - Responsible for lecture material and assessing knowledge retention through assignments and exams
- **Introductory Veterinary Science in Costa Rica** (3 college credits)
 - Served as Wilderness First Responder (WFR) for high school students traveling through Costa Rica to learn about wildlife veterinary medicine
 - Responsible for assessing health and well-being of students on the trip

Florida State University Department of Biological Science

Teaching Assistant

- **Asking and Answering Questions in Science**, BSC 2011 (Spring 2014)
 - Responsible for the instruction of two lab sections focused on hypothesis generating and testing, data analysis, and proper scientific writing techniques.
 - Major units within the course focused on developmental biology, genetics, evolution and ecology
- **Principles of Ecology**, BSC 3043 (Fall 2013)
 - Lecture assistant responsible for leading individual and group study and review sessions, grading, and facilitating communication between students and head lecturer
- **Animal Diversity Laboratory**, BSC 2011L (Fall 2010, Spring 2013)
 - Responsible for instruction of two lab sections/semester detailing the biology of all major animal phyla from Porifera to Chordata
 - Provided weekly lectures (~30min) regarding the biology of animal phyla and led class dissections
- **Biology of Fishes**, ZOO 4454 (Summer 2013)
 - Responsible for running laboratory sections exploring the biology and diversity of fishes and leading collection trips into local freshwater, brackish water, and marine habitats
 - Responsible for verifying correct identification of collected freshwater and marine fishes before entry into FSUCML collections

Public Outreach and Education

Florida State University Saturdays-at-the-Sea Public Outreach Program: 2010-2014

Science Instructor

- Responsible for leading groups of 5th-8th grade students from local schools on sampling trips into local saltmarsh, oyster reef and seagrass habitats to collect and examine local flora and fauna

Catalina Island Marine Institute at Toyon Bay: 2008-2010

Science Instructor

- Responsible for implementing inquiry based experiential programs in accordance with California state science teaching standards to school groups ranging from grades 5th-12th

- Classes taught included: Fish Biology (focus on functional morphology), Invertebrate Zoology (emphasis on biology and relationships between phyla), Elasmobranch Biology (focus on biology and sensory ecology), Plankton Lab (focus on ecology, biology and identification), Oceanography (focus on currents and physical properties of ocean water)

Professional Service

2018 – Peer Reviewer for ICES Journal of Marine Science

Scholarships, Awards and Grants

2015 – Texas A&M Galveston Marine Biology Interdisciplinary Development Program Award

2017 – Texas A&M Galveston Marine Biology Department mini-grant (\$500)

2017 – Gulf of Mexico Research Initiative (GoMRI) Scholar

2018 – Texas Chapter of the American Fisheries Society Scholarship (\$1500)

2018 – Texas A&M Galveston Marine Biology Department Mooney Travel Grant (\$500)

2018 – TAMUG - The Erma Lee and Luke Mooney Graduate Student Travel Grant (\$500)

Research Skills and Certifications:

- Trained in identification of juvenile and adult fishes and invertebrates
- Dissecting and compound microscopy
- Sample preparation for stable and radioisotope analyses
- Isotope sample processing and analysis (vertebrate and invertebrate tissue, primary producers) using EA Mass Spectrometer
- Dietary analysis of fishes
- Fisheries collection techniques: 15m and 20m bag seines, 160m haul seines, 7m otter trawls, 12m balloon trawls, neuston nets, bongo nets, 10-m² MOCNESS, flume nets, demersal longlines, experimental gillnets, minnow trapping, electroshocking (small streams)
- Fisheries tagging techniques: elastomer paint tags, individual coded wire tags, nylon dart tags, PIT tags
- Data analysis programs: R, Sigma Plot, PRIMER, ARC GIS
- Dive Certifications:
 - AAUS Dive Certified
 - Nitrox certified
 - Drysuit Diver certification
 - Advanced SCUBA certification (NAUI)
 - Certified rescue diver (NAUI)
- Boat operation and trailering (experience with boats up to 28')
- Certified Wilderness First Responder (Wilderness Medical Associates)
- At Sea Experience: 11 research cruises – 123 days at sea

References

Kevin Craig, Ph.D.

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National Oceanic and Atmospheric
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