

W. Ryan James

Postdoctoral Research Associate

Florida International University

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EDUCATION

- 2020** **PhD Environmental and Evolutionary Biology**
University of Louisiana at Lafayette (Advisor: James A. Nelson)
- 2016** **MS Biology**
University of Alabama at Birmingham (Advisor: James B. McClintock)
- 2013** **BS Biology**
University of Alabama (Advisor: Ryan L. Earley)

EMPLOYMENT

- 2020-Present** **Postdoctoral Research Associate** – Institute of the Environment
Florida International University, *Miami, FL* (Mentors: Dr. Rolando O. Santos, Dr. Jennifer S. Rehage)
- 2016-2020** **University Doctoral Fellow** – Ecosystem Ecology Lab
University of Louisiana at Lafayette, *Lafayette, Louisiana*
- 2019-2020** **Acoustic Telemetry Technician**
Jesco Environmental, *Portsmouth, New Hampshire*
- 2019-2020** **Menhaden Port Sampler**
Gulf States Marine Fisheries Commission, *Abbeville, Louisiana*
- 2016** **ACES Intern** – Lab for Advanced Sensing
NASA Ames Research Center, *Mountain View, California* (Mentor: Dr. Ved Chirayath)
- 2014-2016** **Graduate Teaching Assistant** – McClintock Lab
University of Alabama at Birmingham, *Birmingham, AL*
- 2012-2014** **Research Assistant** – Earley Animal Behavior Lab
University of Alabama, *Tuscaloosa, AL*

PUBLICATIONS

- Santos RO, **James WR**, Nelson JA, Rehage JS, Serafy J, Pittman SJ, & D Lirman (2022)
Influence of seascape spatial pattern on the trophic niche of an omnivorous fish.
Ecosphere <https://doi.org/10.1002/ecs2.3944>
- James WR**, Santos RO, Rehage JS, Doerr JC, & JA Nelson (2021) *E*-scape: consumer specific landscapes of energetic resources derived from stable isotope analysis and remote sensing. *Journal of Animal Ecology* <https://doi.org/10.1111/1365-2656.13637>
(Pre-print *bioRxiv* 2020 doi: <https://doi.org/10.1101/2020.08.03.234781>)

Rodemann JR, **James WR**, Santos RO, Furman BT, Fratto ZW, Bautista V, Hernandez JL, Viadero NM, Linenfelser JO, Lacy LA, Hall MO, Kelble CR, Kavanaugh C, & JS Rehage (2021) Impact of extreme disturbances on suspended sediment in Western Florida Bay: Implications for seagrass resilience. *Frontiers in Marine Science* <https://doi.org/10.3389/fmars.2021.633240>

**Special issue: Environmental Threats to the State of Florida—Climate Change and Beyond*

Gervasi CL, Santos RO, Rezek RJ, **James WR**, Boucek RE, Bradshaw C, Kavanagh C, Osborne J, & Rehage JS (2021) Bottom-up conservation: Using translational ecology to inform conservation priorities for a recreational fishery. *Canadian Journal of Fisheries and Aquatic Sciences* <https://doi.org/10.1139/cjfas-2021-0024>

Kimball ME, Connolly RM, Alford SB, Colombano DD, **James WR**, Kenworth MD, Norris GS, Ollerhead J, Ramsden S, Rehage JS, Sparks EL, Waltham NJ, Worthington TA, & Taylor MD (2021) Novel applications of technology for advancing tidal marsh ecology. *Estuaries & Coasts* doi: 10.1007/s12237-021-00939-w

**Special issue: Concepts and controversies in tidal marsh ecology revisited.*

Pittman SJ, Yates KL, Bouchet PJ,... **James WR**... (34 additional authors) (2021) Seascape ecology: Identifying research priorities for an emerging ocean sustainability science. *Marine Ecology Progress Series* <https://doi.org/10.3354/meps13661>

Nelson JA, Harris JM, Lesser JS, **James WR**, Suir SM, & WP Broussard III (2020) New mapping metrics to test functional response of food webs to coastal restoration. *Food webs* <https://doi.org/10.1016/j.fooweb.2020.e00179>

**Special issue: Restoration Initiatives Viewed Through a Lens of Food Web Structure and Dynamics*

Jones SF, Staggs CL, Yando ES, **James WR**, Buffington KJ, & MW Hester (2020) Stress gradients interact with disturbance to reveal alternative states in salt marsh: Multivariate resilience at the landscape scale. *Journal of Ecology* <https://doi.org/10.1111/1365-2745.13552>

**Special issue: Reconciling resilience across ecological systems, species and subdisciplines.*

Baker R, Taylor MD, Beck MW, Cebrian J, Colombano DD, Connolly RM, Currin C, Deegan LA, Feller IC, Gilby BL, Kimball ME, Minello TJ, Rozas LP, Simenstad C, Turner RE, Waltham NJ, Weinstein MP, Ziegler SL, zu Ermgassen PSE, ... **James WR**... (29

additional authors) (2020) Fisheries rely on threatened salt marshes. *Science* DOI: 10.1126/science.abe9332

James WR, Topor ZM, & RO Santos (2020) Seascape structure influences the community structure of marsh nekton. *Estuaries & Coasts* doi: 10.1007/s12237-020-00853-7
**Special issue: Concepts and controversies in tidal marsh ecology revisited.*

Harris JM[†], **James WR**[†], Lesser JS[†], Doerr JC, & JA Nelson (2020) Foundation species shift alters the energetic landscape of marsh nekton. *Estuaries & Coasts* doi: 10.1007/s12237-020-00852-8

[†]Contributed equally

**Special issue: Concepts and controversies in tidal marsh ecology revisited.*

Lesser JS, **James WR**, Stallings CD, Wilson RM, & JA Nelson (2020) Trophic niche size and overlap decrease with increasing ecosystem productivity. *Oikos* doi: 10.1111/oik.07026

James WR, JS Lesser, SY Litvin, & JA Nelson (2020) Assessment of food web recovery following restoration using resource use metrics. *Science of the Total Environment* doi: 10.1016/j.scitotenv.2019.134801.

Nelson JA, Lesser JS, **James WR**, Behringer DP, Furka V, & JC Doerr (2019) Food web response to foundation species change in a coastal ecosystem. *Food Webs* e00125
<https://doi.org/10.1016/j.fooweb.2019.e00125>

Eggenberger CW, Santos RO, Frankovich T, **James WR**, Madden C, Nelson JA, & JS Rehage (2019) Coupling telemetry and stable isotope techniques to unravel movement: Snook habitat use across variable nutrient environments. *Fisheries Research* 218:35-47
<https://doi.org/10.1016/j.fishres.2019.04.008>

James WR, Styga JM, White S, Marson KM, & RL Earley (2018) Developmentally plastic responses to predation threat in the mangrove rivulus fish (*Kryptolebias marmoratus*): behavior and morphology. *Evolutionary Ecology* 32:453-468
<https://doi.org/10.1007/s10682-018-9952-5>

James WR & JB McClintock (2017) Anti-predator responses of amphipods are more effective in the presence of conspecific chemical cues. *Hydrobiologia* 797:277-288 doi: 10.1007_s10750-017-3191-6

Smith KE, Aronson RB, Steffel BV, Amsler MO, Thatje S, Singh H, Anderson J, Brother CJ, Brown A, Ellis DS, Havenhand JN, **James WR**, Mosknes P, Randolph AW, Sayre-

McCord T, & JB McClintock (2017) Climate change and the threat of novel marine predators in Antarctica. *Ecosphere* 8(11):e02017. 10.1002/ecs2.2017

Manuscripts under review

James WR, Santos RO, Rodemann JR, Rezek RJ, Fratto ZW, Furman BT, Hall MO, Kelble CR, Rehage JS, & JA Nelson (*in revision*) Widespread seagrass die-off has no legacy effect on basal resource use of seagrass food webs in Florida Bay, USA.

James WR, Bautista V, Rezek RJ, Zink IC, Rehage JS, & RO Santos (*in review*) A review of the potential impacts of commercial inshore pink shrimp fisheries on recreational flats fisheries in Biscayne Bay, FL, USA.

Foster EM, **James WR**, Doerr JC, & JA Nelson (*in review*) Seasonal shifts in resource use alter niche size, niche overlap, and trophic position in salt marsh consumers.

Rezek RJ, **James WR**, Bautista V, Zink IC, Rehage JS, & RO Santos (*in review*) Temporal trends of Biscayne Bay pink shrimp fisheries catch and economic indicators.

Gervasi CL, Karnauskas M, Rios A, Santos RO, **James WR**, Rezek RJ, & JS Rehage (*in review*) Rapid approach for assessing an unregulated fishery using a series of data-limited tools.

Gervasi CL, Nelson JA, Swart PK, Santos RO, Rezek RJ, **James WR**, Jefferson AE, Drymon JM, Carroll J, Boucek RE, & JS Rehage (*in revision*) Otolith stable isotope micro-sampling to discriminate poorly studied stocks: Crevalle Jack in the eastern Gulf of Mexico.

FUNDING

2022

Seagrass seascape state, stability, and function in relation to water quality in Biscayne Bay – PI: Funded by US Environmental Protection Agency South Florida Geographic Program (2022-24), \$347,738

An examination of the risk of pharmaceuticals in South Florida: extent and pathways of exposure in a valuable recreational fishery, bonefish – Co-PI: Funded by US Environmental Protection Agency South Florida Geographic Program (2022-23), \$292,530

A Statewide survey of pharmaceutical exposure: Red Drum in 9 Florida estuaries – Co-PI: Funded by Bonefish and Tarpon Trust (2022), \$158,149

Quantifying ecological importance, historical threat exposure and resilience potential for coral reef Areas of Special Interest in Puerto Rico's Northeast

Marine Corridor to support efficient conservation goals – Co-PI: Funded by Puerto Rico Sea Grant College Program (2022-24), \$119,425

Redesign of the Everglades fishing guide reporting system – Co-PI: Funded by Everglades National Park (2022-2023), \$109,028

Role of coastal lakes as habitat for recreational fisheries – Co-PI: Funded by South Florida Water Management District (2022), \$85,000

An Examination of Wastewater Treatment in Miami-Dade and Monroe Counties: a focus on the removal of pharmaceuticals and potential threat to water quality in the Everglades and Biscayne Bay – Co-PI and REU mentor: Funded by National Science Foundation, Florida Coastal Everglades Long-term Ecological Research (DEB-2025954), Research Experiences for Undergraduates (REU) (2021), \$6,750

2021 FISHSCAPE Project (Fish In Seagrass Habitats: Seascape Connectivity Across Protected Ecosystems)– Postdoc and grant writer: Funded by NOAA National Centers for Coastal Ocean Science (2021-25), \$1,916,914

Biscayne Bay shrimp commercial harvest and its potential ecological impacts on the recreationally fish species – Co-PI: Funded by Bonefish and Tarpon Trust (2021), \$16,575

The effects of the legacies of a large-scale seagrass die-off on energy resources and foraging of a top consumer – Co-PI and REU mentor: Funded by National Science Foundation, Florida Coastal Everglades Long-term Ecological Research (DEB-2025954), Research Experiences for Undergraduates (REU) (2021), \$6,750

2016-2020 UL University Fellow; \$90,000

UL Graduate Student Organization Research Supply Grant; \$1060 total

2017-2019 UL Graduate Student Organization Travel Grant; \$1240 total

2017 Coastal and Estuarine Research Federation Travel Grant; \$300

2016 Ted Beaulieu Sr. Coastal Conservation Association Louisiana Scholarship; \$5000

2015 UAB Biology Department Travel Grant; \$400

Society for Integrative and Comparative Biology Grant in Aid of Research; \$850
Sigma Xi Grant in Aid of Research; \$400

Proposals pending or not selected for funding

2021 The influence of nearshore inputs (freshwater inflows) on the habitat use of an ecosystem indicator species: Spotted Seatrout in Florida Bay – Co-PI: Submitted to the US Coastal Research Program, \$279,158 (*Not selected for funding*)

Assessing the resilience of coastal fisheries through a comprehensive analysis of fisheries-dependent records: the Everglades as a case study – Co-PI: Submitted to the US Coastal Research Program, \$283,844 (*Not selected for funding*)

Quantifying coral demographic performance within a functional trait space to inform coastal ecosystem conservation – Co-PI: Submitted to the US Coastal Research Program, \$299,005 (*Not selected for funding*)

2020 Critical data for Dolphin (*Coryphaena hippurus*) fisheries sustainability: Assessing stock structure, properties, trends & vulnerabilities across U.S. jurisdictions – Co-PI: Submitted to NOAA Marine Fisheries Initiative, \$524,000 (*Not selected for funding*)

MENTORING

2020-Present Graduate and Undergraduate Student Research Mentor, Florida International University – Part of the lab leadership team that mentors 8 graduate students, 4 REUs, and 5 undergraduate research technicians

2016-2020 Undergraduate Student Research Mentor, University of Louisiana at Lafayette
Laura McDonald – *The energy storage of nekton species in coastal Louisiana habitats*

- Presented at the Coastal and Estuarine Research Federation meeting (CERF 2019) in Mobile, AL
- Presented research at the UL Biology undergraduate research conference
The effect of feeding mode on energy storage in three fish species
- Presented research at the UL honors program undergraduate research conference

Blake Kitchen - *The role of food quality in growth and energy storage in killifish*

2015-2016 Undergraduate Student Research Mentor, University of Alabama at Birmingham
Ciara Duncan - *Predators effect the foraging behavior of the amphipod *Hyaella azteca**

- Received 2nd place award for poster presentation at UAB Undergraduate Student Research Days

Keegan McFarland and Deontae Mitchell - *Transgenerational effects of predator exposure of the amphipod *Hyaella azteca**

TEACHING EXPERIENCE

Teaching Assistant

2020 *Fish Ecology and Management* – University of Louisiana at Lafayette

2019 *Introduction to R* – University of Louisiana at Lafayette

2018 *Fundamentals of Biology II Lab* – University of Louisiana at Lafayette

2017 *Landscape Ecology* – University of Louisiana at Lafayette

2014-2016 *Introductory Biology Lab* – University of Alabama at Birmingham

Guest Lectures

- 2021** “Intro into R: data types, loops, functions, random sampling, and plotting” (2 part), *Advanced Ecology: Populations and Communities*
“Habitat loss and fragmentation effects in seascapes”, *Biodiversity Across Ecosystems*
- 2020** “Introduction to food webs”, *Intro to Coastal Ecology*
- 2019** “Data wrangling in R” (2 part), *Quantitative Ecology*
“Effect of landscape pattern on ecological processes” (3 part), *Ecosystem landscape ecology*
“Maximum entropy ecological niche modeling in R”, *Ecological models and data*
- 2015** “Long distance prey finding”, *Chemical Ecology*

SELECTED PRESENTATIONS (*undergraduate mentee)

- 2021** **James WR**, A seascape approach to consumer movement, distribution, and resource use. Virtual Colloquium, Department of Biological Sciences Walla Walla University (Invited)
- James WR**, Rodemann JR, Rezek RJ, Fratto ZW, Furman BT, Rehage JS, & Santos RO. Using *E*-scapes to quantify the change in energetic resource distribution and foraging of seagrass consumers. Coastal and Estuarine Research Federation
- Ajavon A**, **James WR**, Rodemann JR, Rezek RJ, Fratto ZW, Furman BT, Rehage JS, & Santos RO. The role of seascape configuration on seagrass food web structure and function. Coastal and Estuarine Research Federation
- James WR**, Rehage JS, & Santos RO. Mapping energy flow: *E*-scapes as a system-level tool to evaluate restoration and ecosystem function. Greater Everglades Ecosystem Restoration
- 2019** **James WR**, Geary B, Karubian J, Leberg PL, & Nelson JA. Tracking foraging behavior using consumer-specific energetic landscapes. Coastal and Estuarine Research Federation; Mobile, AL
- McDonald L**, **James WR**, Robinson KL, & Nelson JA. The energy storage of nekton species across a continuum of coastal Louisiana habitats. Coastal and Estuarine Research Federation; Mobile, AL

Nelson JA, Lesser JS, & **James WR**. A new niche for isotope ecology: Combining MixSIAR and hypervolume metrics to understand resource use. Coastal and Estuarine Research Federation; Mobile, AL

James WR, Santos RO, Rodemann JR, Rehage JS, & JA Nelson. Consumer-specific energetic landscapes in Florida Bay: linking seagrass die off to economically valuable fisheries. Greater Everglades Ecosystem Restoration; Coral Springs, FL

2018 **James WR**, Lesser JS, Litvin SY & Nelson JA. Assessment of food web recovery following restoration using hypervolume analysis. Gulf Estuarine Research Society; Galveston, TX

Lesser JS, **James WR**, Doerr J & Nelson JA. Food web effects of mangrove encroachment on estuarine consumers. Gulf Estuarine Research Society; Galveston, TX

James WR, Santos RO, Rehage JS, Doerr J & Nelson JA. Consumer specific energetic landscapes derived from stable isotope analysis and habitat cover. LTER Network All Scientists' Meeting; Pacific Grove, CA

James WR, Litvin SY & Nelson JA. Measuring food web response to restoration in coastal ecosystems. State of the Coast; New Orleans, LA

2017 **James WR** & Nelson JA. Food Web Response to Habitat Restoration in Various Coastal Wetland Ecosystems. American Geophysical Union; New Orleans, LA

James WR, Deegan L, Garritt R & Nelson JA. Residence time of water in estuary alters resource use on multiple trophic levels. Coastal and Estuarine Research Federation; Providence, RI

2016 Adelson J, **James WR**, Chirayath V & Fringer O. A novel approach for estimating vertical profiles of suspended sediment concentration. Ocean Optics XXIII; Victoria, BC

AWARDS AND HONORS

2020 University of Louisiana Graduate School Research Showcase Paper Competition Winner
University of Louisiana Graduate School 'Say it in 6' Winner

- 2018** Louisiana Sea Grant Discovery, Integration, Application (LaDIA) Graduate Research Scholar
- 2017** Louisiana Sea Grant Coastal Connections 3 Minute Thesis Competition Winner
- 2016** National Science Foundation Antarctic Service Medal

PROFESSIONAL AND COMMUNITY SERVICE

- 2015-Present Peer review for:** *Estuarine, Coastal and Shelf Science, Scientific Reports, Marine Biology, Ecological Engineering, Proceedings of the Royal Society B, Biology Letters, Marine Ecology Progress Series, Thalassas, Invertebrate Biology, Aquatic Biology, Journal of Marine Science and Engineering, Marine Biology Research, Estuaries and Coasts, Wetlands, Applications in Plant Science, Diversity, Plos One, Water*
- 2021-Present Peer reviewer,** British Ecological Society Review College
- 2022 Judge,** Florida International University Biology Graduate Student Symposium
- 2021 Guest Reviewer,** Biodiversity Across Ecosystems Collaborative Online International Learning Student Research Proposals
- Judge,** Florida International University Biology Graduate Student Symposium
- 2018-2019 Off-campus representative,** Florida Coastal Everglades LTER Graduate Student Executive Board.
- 2017-2019 Organizing Committee,** UL Lafayette Graduate Student Symposium
- 2018 Workshop Organizer,** “Incorporating the spatial ecology of consumers into long-term research” at LTER Network All Scientists’ Meeting
- Reviewer,** Ecological Society of America Student Section Travel Award
- 2015 Science Fair Judge,** Avondale Elementary School Science Fair
- Student mentor,** Avondale Elementary School Science Fair
- Participant,** UAB in Antarctica

PROFESSIONAL DEVELOPMENT

- 2022 Movement Ecology in R,** Physalia Courses
- 2021 Advanced Ecological Niche Modeling Using R,** PR Statistics
- 2018 Louisiana Sea Grant Coastal Immersion Program,** Louisiana Sea Grant
- 2017 Small Boat Operations for Marine Scientists,** Louisiana Universities Marine Consortium (LUMCON)
- Use of Stable Isotopes & Fatty Acids in Aquatic Ecology: Theory & Practice,** Universidad de Antofagasta
- 2016 Advanced Computing for Earth Sciences,** University of Virginia

AFFILIATIONS

Florida Coastal Everglades Long Term Ecological Research Program – Postdoc

FIU Institute of Environment CREST Center for Aquatic Chemistry and Environment - Postdoc

SKILLS

Field: Small boat operation; NAUI Open Water Certified Diver; Acoustic telemetry- tagging, deploying, data download; Specimen collection- Seine, gillnet, longline, crab pots, trawl, drop samplers, hook and line

Computer Software: R, ArcGIS, QGIS, Python, MATLAB, ImageJ, Jwatcher