John R Butler

Fish & Wildlife Research Institute
Florida Fish & Wildlife Conservation Commission
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Research Interests

- Design and construction of novel technologies and methodologies to monitor coastal ecosystems, particularly combining acoustic technologies with optical and environmental sensors
- Soundscape ecology, how soundscapes vary temporally and spatially, how anthropogenic impacts degrade and mask underwater soundscapes, how soundscapes interact with the communities from which they emanate
- Ecology, conservation, and restoration of near-shore benthic communities, particularly how habitat degradation affects ecological processes and how habitat restoration returns ecological functioning to these communities

Education

Ph.D., Ecological Sciences **2016**
Old Dominion University

B.S., Zoology **2009**
University of Florida

Experience

Research Associate **Sept 2018 – Present**

Fish & Wildlife Research Institute, Florida Fish & Wildlife Conservation Commission

Develop and construct a trap-mounted, long-term underwater camera system to better understand trap effects on targeted and non-targeted species, as well as trap effects on habitat. Develop and test an acoustic lionfish bait. Design and implement juvenile and adult spiny lobster population monitoring surveys. Communicate research results to stakeholders via various multimedia and in-person methods.

Postdoctoral Researcher **Sept 2016 – Sept 2018**

Scripps Institution of Oceanography

Develop and construct a paired long-term time lapse camera and passive acoustic monitoring system to determine how fish community structure and kelp forest soundscapes relate to one another. Examine how kelp die-offs off the coast of La Jolla, CA have affected the marine soundscape, particularly whether habitat degradation has altered the evening fish chorus

Biological Scientist **Jan – Sept 2016**

Florida Fish & Wildlife Research Institute

Examine the ecological effects of wide spread tropical marine sponge die-offs, and aid in establishing sponge nurseries as pools from which restoration efforts can draw sponges to outplant into degraded areas

Graduate Research Fellow **Jan 2014 – Jan 2016**

Department of Biological Sciences, Old Dominion University

Examine the effects of tropical marine sponge die-offs on Alpheid snapping shrimp populations using remote acoustic monitoring and distance sampling techniques. Model the sound propagation of Alpheid shrimp "snaps" to estimate distance to hydrophone receivers

Graduate Teaching Assistant **Jan 2012 – Jan 2013**

Department of Biological Sciences, Old Dominion University

Lead introductory biology lab courses (BIOL115/116) to guide undergraduate students through techniques of the scientific method to answer biological questions

Graduate Research Assistant **Aug 2010 – Jan 2012**

Butler Lab, Department of Biological Sciences, Old Dominion University

Assist in the design, implementation, and monitoring of field and lab ecological experiments, including disease ecology of blue crabs and Caribbean spiny lobsters, and the feasibility of tropical hard-bottom community restoration

Grants and Fellowships

Current & Past Grants:

Restoration of Florida Bay's sponge community: evaluating how current research techniques affect sponge ecological function ($30,572) 2017-2018

Florida Department of Environmental Protection

Examine how the role of current restoration techniques affect the return of natural sponge infaunal communities and sponge filtration rates

Modeling & Simulation Research Fellowship ($18,000) 2014-2015

Department of Biological Sciences, Old Dominion University

Fellowship provided by the Virginia Modeling and Simulation Center to graduate students using modeling and simulation techniques in their research

Grants in review:

Assessing Recreational Stone Crab Trap Use and Loss in Florida Waters ($95,000 requested)

National Oceanic & Atmospheric Administration, Marine Debris Program

Estimate areas of high recreational stone crab trap loss and educate recreational fishers on proper techniques and methods to reduce trap loss; create interactive online tools to educate fisherman and school-age children about trap loss and marine debris

Unfunded Grants:

Employing trap-deployable underwater camera systems to estimate fish bycatch mortality in lobster traps in the Florida Keys ($99,459 requested) 2019-2021

National Oceanic & Atmospheric Administration, Marine Fisheries Initiative

Estimate bycatch morality of snappers and groupers within lobster traps in the Florida Keys by employing a new trap-deployable camera system to make long-term observations of fishing traps and more accurately estimate the numbers of fishes dying within traps

Estimation of effects of ghost fishing wire-basket spiny lobster trawl lines: bycatch mortality, trap decay, and habitat impact ($174,373 requested) 2019-2021

National Oceanic & Atmospheric Administration, Marine Debris Program

Estimate fish bycatch mortality within ghost fishing wire-basket trawl lines used in the commercial spiny lobster fishery in the Florida Keys by using trap-deployable underwater cameras to measure fish death; estimate decay rates of wire-basket lobster traps and test methods to mitigate ghost fishing bycatch; measure the movement of and effects on habitat of ghost fishing trawl lines via diver-based and camera-based surveys

A tangled web: the role of soundscapes in structuring the kelp forest communities of southern California ($500,675)

National Science Foundation, Division of Ocean Sciences

Quantify the relationship among kelp forest soundscapes, habitat complexity, and biotic communities. Experimentally determine the role soundscapes play in structuring fish communities, and the relative influence of individual sounds

Scholarships and Awards

Virginia S. Bagley Endowed Scholarship ($6,000) **2013 - 2014**

Department of Biological Sciences, Old Dominion University

Harold G. Marshall and Vivian J. Marshall Scholarship ($6,000) **2013 - 2014**

Department of Biological Sciences, Old Dominion University

Graduate Travel Award ($500/conference; Total: $1500) **2013, 2015**

Student Enrollment and Engagement Services, Old Dominion University
Biology Graduate Student Organization, Old Dominion University

Peer-reviewed Publications

Silliman, B R, Q He, C Angelini, C S Smith, M L Kirwan, P Daleo, J J Renzi, **J Butler**, T Z Osborne, J C Nifong, and J van de Koppel (2019). Field experiments and meta-analysis reveal wetland vegetation as a crucial element in the coastal protection paradigm. *Current Biology 29:1-7.*

Butler, M, J Weisz, and **J Butler** (2018). The effects of environmental change on back-reef sponges in the Florida Keys, FL (USA). *Journal of Experimental Marine Biology and Ecology 503:92-99.*

Butler, C, **J Butler**, T Matthews (2018). Starvation reduces attractiveness of live bait lobsters and trap catch in the Caribbean spiny lobster (*Panulirus argus*) fishery in Florida. *Bulletin of Marine Science.*

Butler, J, H Gaff, and M Butler (2017). Snap, crackle, and pop: estimating the effects of a sponge die-off on snapping shrimp populations using remote acoustic recorders. *Ecological Indicators 77:377-385.*

Butler, J, J Stanley, and M Butler (2016). Underwater soundscapes in near-shore tropical habitats and the effects of environmental degradation and habitat restoration. *Journal of Experimental Marine Biology and Ecology 479: 89-96.*

Griffin, J, **J Butler**, N Soomdat, K Brun, Z Chejanovski, and B Silliman (2011). Top predators suppress rather than facilitate plants in a trait-mediated tri-trophic cascade. *Biology Letters 7(5): 710-713*.

Manuscripts in Review and Preparation

Pagniello, C, **J Butler**, E Parnell, J Jaffe, P Roberts, and A Širović (In revision) FishOASIS: an optical and passive acoustic sensor identification system to monitor coastal communities and link underwater soundscapes to ecological communities. *Methods in Ecology.*

Butler, J and M Butler (In prep) The effects of near-shore tropical hard-bottom habitat degradation and restoration on larval fish and invertebrate recruitment and the role of underwater soundscapes. *PLOS One*

Butler, M, **J Butler**, J A Stanley, D Behringer, S Donahue, K Kauffman, and J Spadaro (In prep) Bugs beneath the fabric of life: direct and indirect consequences of marine diseases.

Butler, J, E Parnell, J Jaffe, and A Širović (In prep) Diel and seasonal variability in kelp forest soundscapes off the Southern California coast. *Estuarine, coastal, and shelf science*.

Butler, J and M Butler (In prep) Restoring marine ecosystems: evaluating the success of the ecological restoration of marine habitats. *Restoration Ecology*.

Butler, J and T Matthews (In prep) TrapCam: a trap-mounted camera system for fisheries research. *Methods in Ecology*.

Presentations and Posters

Butler, J, E Parnell, J Jaffe, and A Širović. "Exploring kelp forest soundscapes using *ad-hoc* frequency-based metrics." Acoustical Society of America. San Diego, CA. Dec. 3rd, 2019.

Butler, J, C Pagniello E Parnell, J Jaffe, and A Širović. "Sights and sounds of the kelp forest: exploration of fish community dynamics through acoustic and photographic datasets." Ocean Sciences Meeting. Portland, OR. February 13th, 2018.

Butler, J, E Parnell, and A Širović. "Who's making all that racket? Seasonal variability in kelp forest soundscapes off La Jolla, CA." Acoustical Society of America. Boston, MA. June 28th, 2017.

Butler, J. "Sounds of Silence: how habitat degradation and restoration affect underwater soundscapes." Applied Ocean Sciences Seminar Series, Scripps Institution of Oceanography. La Jolla, CA. November 3rd, 2016.

Butler, J. "Evaluating the effects of marine habitat degradation on snapping shrimp populations using remote acoustic receivers." Modeling, Simulation, and Visualization Engineering Student Capstone Conference. Suffolk, VA. April 16th, 2015.

Butler, J and M Butler. "Bring the noise: sound playback increases species diversity on degraded hard-bottom habitat in the Florida Keys". 44th Benthic Ecology Meeting. Quebec, Quebec. March 7th, 2015.

Butler, J and M Butler. "Sponge community restoration hastens soundscape recovery". 43rd Benthic Ecology Meeting. Jacksonville, FL. March 20th, 2014.

Butler, J and M Butler. "Soundscapes differ among seascapes of Florida Bay, Florida (USA)". Poster session at: 42nd Benthic Ecology Meeting. Savannah, GA. March 21st, 2013.

Butler, J and M Butler. "Larval settlement in hard-bottom communities: a role for sound?". 41st Benthic Ecology Meeting. Norfolk,VA March 17th, 2012.

Butler, J, M Butler, D Behringer, A Baeza, J Anderson, M Dickson, A Spadaro, C Stall, N Truelove, E Yudelman, T Ziegler. "Sponge restoration research in the Everglades National Park and the Florida Keys National Marine Sanctuary". Poster session at: 40th Benthic Ecology Meeting. March 17th, 2011.

Education Outreach

Seminars to the public:

Butler, M, **J Butler,** and M Valentine. "The role of biocomplexity in the restoration of tropical hard-bottom sponge communities and

their ecosystem services." Coral Reef Ecosystem Restoration Workshop at the U.S. Coral Reef Task Force meeting, Aug 9th, 2017.

Butler, J and M Butler. "Restoration of shallow sponge communities in the Florida Keys." Keys Marine Laboratory *Winter Science Seminar Series*, April 8th, 2015.

Butler, J and M Butler. "Sponge restoration and underwater soundscape recovery." Presented at the Shallow Water Sponge Forum at the Marathon Government Center. Marathon, Florida. August 11th, 2014.

Butler, J and M Butler. "Restoration of sponge communities in the Florida Keys". Presented to the board of *Reef Relief*. November 4th, 2013.

Multimedia:

Butler, J. "Underwater soundscapes of Florida Bay." Film submitted to *Ocean180 Video Challenge.* March 31st, 2018. https://vimeo.com/263664333

C Butler and **J Butler**. "A little ditty about Florida Bay." Film submitted to *Beneath the Waves Film Festival*. March 20th, 2014. https://vimeo.com/86668997

Mentoring

Advised undergraduate/graduate research assistants:

Zachary Klouse, Summer 2011
Kurt Neufeld, Summer 2011
Jessica Miller, Summer 2012 – Spring 2014
Colin Howe, Summer 2012
Aaron Kaufman, Summer 2012
Michael Zehr, Summer 2012
Avery Bischof, Summer 2013
Jessica Vincent, Spring 2014 – Fall 2014
Jeri Wisman, Spring 2015 – Summer 2015
Annie Rosen, Summer 2017
Annette Brennan, Summer 2017
Adithya Balaji, Fall 2017
Addison Sherwood, Fall 2017 – Fall 2018
Helen Cai, Fall 2018
Kian Bagheri, Fall 2018

Advised presentations:

Pagniello, C, **J Butler**, A Rosen, A Brennan, and A Širović. "Trials and tribulations of a 'fishy' field season." Scripps Student Symposium. La Jolla, CA September 27th, 2017.

Brennan, A, **J Butler**, and A Širović. "Fish chorusing in the kelp forests off La Jolla, CA." Marine Physical Laboratory Summer Internship Program final presentation. La Jolla, CA August 23rd, 2017.

Spadaro, AJ, J Miller, **J Butler**, and M Butler. "Removal of macroalgae enhances coral reef fish communities". Poster session at: 43rd Benthic Ecology Meeting. Jacksonville, FL. March 20th, 2014.

Certifications and Experience

First Aid, CPR, and O_2 administration	**Current**
American Academy of Underwater Sciences, Scientific Diver	**2010 - Present**
NAUI Open Water SCUBA Diver	**2005**

Pathways to Scientific Teaching Certificate

Training to design and implement learner-centered science courses

Introduction to College Teaching Certificate Course

Training to design learning activities, assessments, and learning outcomes that promote student engagement, critical thinking, and knowledge synthesis

ArcGIS

Proficiency using ArcGIS to manage and analyze spatially referenced data, as well as create publication-quality figures

MATLAB

Proficiency using MATLAB to analyze large datasets, including acoustic data and species assemblage data, to automate data input, extraction, and analysis, and to build mathematical models from input data to simulate real-world scenarios

R

Proficiency using R to analyze and visualize large datasets, and to create interactive plots and apps based on data

Python

Experience using Python to build graphical user interfaces to explore large video and acoustic datasets, as well as annotate datasets for further analysis

SPSS

Proficiency using SPSS to statistically analyze datasets, and draw biological conclusions from data, including univariate and multivariate parametric and non-parametric analyses

Boating Experience

Several thousand hours of on-water boating experience captaining vessels up to 33'. Experience maintaining and repairing outboard engines, as well as experience repairing fiberglass

Miscellaneous

Experience using tractors and farming equipment
Experience with various power tools for construction
Experience designing and building ecological field research equipment, including marine electronics