Timothy James Pusack, Ph.D.

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EDUCATION

Oregon State University — **Corvallis, OR**
Doctor of Philosophy in Zoology, Advisor Dr. Mark Hixon — May, 2013
Dissertation: "Coral-reef fishes: insights into larval dispersal and invasion ecology"
Minor in Statistics, Advisor Dr. Paul Murtaugh

Colgate University — **Hamilton, NY**
Bachelor of Arts, Marine and Freshwater Sciences, Honors, *Cum laude* — June, 2005
Honors Thesis: "The optimum pH of the green snow algae, *Chloromonas tughillensis* and *C. chenagoensis*"
Minor in Philosophy

PROFESSIONAL EXPERIENCE

2017 – present	**Assistant Professor** Williams College, Williams-Mystic Maritime Studies Program, Mystic, CT
2014 – 2017	**Postdoctoral Scholar** University of South Florida, St. Petersburg, FL
Fall 2016	**Adjunct Instructor** University of Tampa, Tampa, FL
Fall 2015	**Lab Instructor** University of South Florida Saint Petersburg Campus, St. Petersburg, FL
Winter 2014 – Spring 2014	**Postdoctoral Research Associate** Oregon State University, Corvallis, OR
Fall 2013 – Spring 2014	**Honors Introductory Biology Lecturer and Lab Instructor** Oregon State University, Corvallis, OR
Summer 2013	**Ecology Lecturer** Oregon State University, Corvallis, OR
Fall 2012 – Winter 2013	**Mentor Lab Instructor** Oregon State University, Corvallis, OR
Winter 2009 – Winter 2013	**Introductory Biology Lab Instructor** Oregon State University, Corvallis, OR
Spring 2013	**Marine Ecology Lecturer** Oregon State University, Corvallis, OR
Spring 2008 – Spring 2012	**Marine Ecology Lab Instructor** Oregon State University, Corvallis, OR
Fall 2005 – Summer 2007	**Research Technician** Harvard Medical School, Boston, MA
Spring 2002 – Spring 2005	**Lab Technician** Colgate University, Hamilton, NY

TEACHING EXPERIENCE

Course, Credit hours	*Title*	*Enrollment*	*Student Evaluation*	*Term/Year*
MAST 311/BIOL213	Marine Ecology & Lab	11	5.5/7	Spring 2023
MAST 311/BIOL213	Marine Ecology & Lab	9	5.5/7	Fall 2022
MAST 311/BIOL213	Marine Ecology & Lab	7	6.2/7	Fall 2021
MAST 268	Debating Ocean Science	18	6.4/7	Spring 2021
MAST 265	Global Oceans	18	5.6/7	Spring 2021
MAST 265	Coral Reef Conservation	20	6.1/7	Fall 2020
MAST 263	Global Oceans	19	6.4/7	Fall 2020
MAST 311/BIOL213	Marine Ecology & Lab	7	5.8/7	Spring 2020
MAST 311/BIOL 231	Marine Ecology & Lab	9	6.8/7	Fall 2019
MAST 311/BIOL 231	Marine Ecology & Lab	11	6.4/7	Spring 2019
MAST 311/BIOL 231	Marine Ecology & Lab	9	5.6/7	Fall 2018
MAST 311/BIOL 231	Marine Ecology & Lab	10	5.8/7	Spring 2018
MAST 311/BIOL 231	Marine Ecology & Lab	10	5.9/7	Fall 2017
BIO 112, 3	Environmental Science	30	NA	Fall 2016
BIO 112, 3	Environmental Science	30	NA	Fall 2016
PCB 3043L, 3	Ecology Lab	24	NA	Fall 2015
BI 213H, 4	Intro Biology, Honors	47	5.2/6	Spring, 2014
BI 213H, 4	Intro Biology Lab, Honors	24	4.9/6	Spring, 2014
BI 212H, 4	Intro Biology, Honors	48	5.1/6	Winter 2014
BI 212H, 4	Intro Biology Lab, Honors	24	5.0/6	Winter 2014
BI 211H, 4	Intro Biology, Honors	48	5.2/6	Fall 2013
BI 211H, 4	Intro Biology, Honors	24	5.2/6	Fall 2013
BI 370, 3	Ecology	17	5.6/6	Summer 2013
Z 351, 3	Marine Ecology	95	5.0/6	Spring 2013
BI 212, 3	Intro Biology Lab	39	5.1/6	Winter 2013
BI 211, 3	Intro Biology Lab	39	5.3/6	Fall 2012
BI 213, 3	Intro Biology Lab	42	5.1/6	Summer 2012
Z 352, 2	Marine Ecology Lab	22	5.1/6	Spring 2012
BI 212, 3	Intro Biology Lab	34	5.5/6	Winter 2012
BI 211, 3	Intro Biology Lab	39	5.1/6	Fall 2011
Z 352, 2	Marine Ecology Lab	20	5.6/6	Spring 2011
BI 211, 3	Intro Biology Lab	40	5.1/6	Fall 2010
Z 532, 2	Marine Ecology Lab	20	5.5/6	Spring 2010
Z 352, 2	Marine Ecology Lab	18	5.1/6	Spring 2009
BI 212, 3	Intro Biology Lab	44	5.0/6	Winter 2009
Z 352, 2	Marine Ecology Lab	15	4.4/6	Spring 2008

Other Teaching Assignments

Assignment	*Course Title*	*Term/Year*

Guest Lecturer	MAST 267 Coastal Climate Justice	Fall 2020
Guest Lecturer	GEOS 104 Oceanography	Spring 2018
Guest Lecturer	Fish Biology	Spring 2015
Advanced A&P TA training	GTA Professional Development	Winter 2014 – Summer 2014
Graduate Teaching Mentor	Introductory Biology Lab	Fall 2012 – Winter 2013
Graduate Teaching Fellowship	Graduate TA Orientation	Fall 2012
Guest Lecturer	Marine Ecology	Spring 2011
Guest Lecturer	Ecology	Fall 2011
Guest Lecturer	Marine Ecology	Spring 2010

Field Seminar Participation at Williams-Mystic (16 total)

Fall 2022, (2 total), I was the **lead** for the 11-day offshore field seminar, which had a cruise track in Caribbean and Atlantic Waters with a home port of St. Croix.

Spring 2022, (1 total), I was the **lead** for the 11-day offshore field seminar, which had a cruise track in Caribbean and Atlantic Waters with a home port of St. Croix.

Fall 2021, (3 total), I was the **lead** for the 11-day offshore field seminar, which had a cruise track through the Gulf of Maine, Cape Cod Bay, and Buzzards Bay. I was also the **co-lead** on a 1-day field seminar that discussed the ecology of rocky and sandy beaches, the management of resources extraction, and the history and current use of a WWII bunker. I also help to organize a

collaborative, team-driven Field seminar to Maine, a first. as well as the policy of the hightide mark

Spring 2020, (0 total) I was the **lead** on the California Field Seminar to Central California. While this field seminar did not occur due to COVID-19, I had to still organize and contact all of the contacts to schedule the 8-day seminar including four new contacts.

Fall 2019, (2 total) I was the **lead** on the Alaska Field Seminar the visited Glacier Bay, AK, Sitka, AK, and Seattle WA. I also participated in the offshore field seminar that sailed from Rockland, ME, to the Gulf Stream, and then into New London, CT.

Spring 2019, (2 Total) I patriated in the Offshore field seminar that sailed from Puerto Rico to St. Croix and participated in the West Coast field seminar to Northern California.

Fall 2018, (2 total) I was the **Co-lead** of the West Coast field seminar to the Pacific Northwest and also participated in the Louisiana field seminar. I also **lead** a second scouting trip to Sitka, AK.

Summer 2018, I was part of the first scouting team to assess the possibility of having Sitka, AK and Juneau, AK as a field seminar.

Spring 2018, (3 total) I participated in all three of the field seminars. I was a **Co-lead** for the Tall Ship sailing seminar the circumnavigated Puerto Rico and was a faculty participant for the Van Tour of Northern California and Van Tour of Southern Louisiana.

Fall 2017, (3 total) I participated in all three field seminars including Sailing aboard the U.S. Brig *Niagara*, Van Tour of Northern California, and Van Tour of Southern Louisiana. I also participated in a trip to New Bedford.

RESEARCH EXPERIENCE

Environmental Change in the Mystic River, 2021 to present

I am reviewing all of the student research projects from 1977 to present, 45 years, to organize and centralize all of the environmental data. I will describe the temporal patterns of salinity, temperature, nutrients, pH, dissolve oxygen, and other chemical/physical parameters of the mystic river estuary.

CPL 2020 to present

I continue to expand the Coral Propagation Lab at Williams Mystic. This lab is intended as a research and teaching platform for undergraduate students. Students will be able to conduct research on ways to more effectively grow corals and promote sustainable aquarium practices.

Double-crested cormorant diet, 2020 to present

Double-created cormorants are a conspicuous predator in Southern New England Waters. They feed on fishes throughout the local waters around the Mystic River Estuary. They then rest on emergent rocks where they regurgitate pellets which contains undigested parts of their prey. These include fish otoliths, ear bones. Otoliths have unique shapes to each species and thus allow for an estimate of the

cormorant's prey species composition. In this project I am processing a collection of pellets from the 2000's and collecting new pellets to look for changes in prey species composition over time.

Marsh and Fiddler Crab population dynamics, Summer 2018 to 2019

I established long-term monitoring sites to describe long-term population dynamics of these two species in the Mystic-River Estuary. I describe the overall size of marshes as well as the growth, biomass, and density of *Spartina alternifora*. I also conduct annual mark-recapture students of the fiddler crabs to estimate changes in demographic rates.

Enhanced oyster recruitment by mud crab burrows, Summer 2016 to 2018

The burrowing behavior of mud crabs (Xanthidae species) may facilitate oyster (*Crassostrea virginica*) recruitment by exposing new settlement habitat beneath oyster clusters. To study this phenomenon, I conducted multiple field surveys to describe the effect that burrow size and mud crab demographics, sex, size, and abundance, have on oyster recruitment compared to oyster clusters without a mud crab burrow. I am currently analyzing this data.

Community Ecology of Northern Florida Oyster Reefs, Summer 2014 to 2018

As part of a collaborative team, I documented the effect of multiple predator species, e.g. Crown Conch (*Melongena corona*) and Southern Oyster Drill (*Thais haemastoma*), on Eastern Oysters (*C. virginica*) from both the Gulf and Atlantic Coasts of Florida. Using both lab and manipulative field experiments, I quantified predator feeding rates (daily and per capita) as well as seasonal variation of oyster mortality across a salinity and predator gradient. During this two-year project I also extended a seven year, long-term data set on oyster reef demography through 2016. The data from this project is currently being analyzed and composed into various manuscripts.

Training graduate teaching assistants to improve undergraduate education, Winter 2014 – Spring 2014

I worked with two other professors to evaluate training workshops intended to improve undergraduate education through the training of Graduate Teaching Assistants (GTAs). We measured improvement by GPA, retention, D/F/W grades, and student evaluations. One project, funded by Howard Hughes Medical Institute (HHMI), examined the effect of professional development in a structure seminar format for GTA's early in their graduate careers. The other project, funded by NSF, investigated whether a self-directed project designed by more advanced and experienced GTAs will improve undergraduate education. I left this project before it finish, due to the Post Doctorate position I accepted at USF.

Characteristics and Effects of Invasive Lionfish in the Bahamas; Summer 2008 to Summer 2012

I studied invasive lionfish (*Pterois volitans*) on Tropical, Western Atlantic coral reefs located near the Caribbean Marine Science Center on Lee Stocking Island, Bahamas. I found that while survivorship of lionfish was not affected by a native predator, the Nassau Grouper (*Epinephelus straitus*), higher densities of Nassau Grouper likely reduced the negative effect that lionfish can have on small, prey-sized reef fishes. This negative effect can be substantial, as I document local extirpations of a native prey species, the bridled goby (*Coryphopterus glaucofraenum*), due to disruption of density-dependent mortality that has led to population regulation. I also collaborated with other scientists to describe the crepuscular behavior and rapid growth of invasive lionfish, which can grow roughly twice as fast as lionfish from the native range. I am also still involved in the long-term monitoring of lionfish populations

in the Bahamas. Two manuscripts have been published and three are in prep from my work with lionfish.

Marine metapopulation dynamics of a common coral-reef fish, Summer 2007 to Summer 2008

As part of a five-person team, I investigated the metapopulation dynamics of a common coral-reef fish, the bicolor damselfish (*Stegastes partitus*) in Exuma Sound, Bahamas. Over a four year period, we combined demographic monitoring with population genetic techniques. While I performed tasks in both areas, I used population genetic techniques to describe larval dispersal patterns. Importantly, I documented that a Marine Protected Area not only generated individuals that returned to reefs within the protected area, but also exported larvae to unprotected areas. My work from this projects has resulted in two published manuscripts, one that is in review.

Genomics and potential therapies of muscular dystrophy, Fall 2005 to Summer 2007

As a research assistant at Harvard Medical School, I used zebrafish (*Danio rerio*) as a model organism to identify candidate genes that cause Muscular Dystrophy, and researched potential therapies using muscle stem cells. My tasks included genetic mapping, tissue culture, cell isolation, cell transplantation, RNA/DNA extraction and sequencing, immunohistochemistry, and aquarium husbandry. I was involved in a variety of projects, and my collaborative work resulted in four published manuscripts.

Physiological Ecology of Snow Algae, Fall 2003 to Spring 2005

I documented the optimum pH of two snow algae from Upstate New York. I studied three strains of both *Cloromonas tughillensis* and *Cr. Chenagoensis*, and found that each species of snow algae had a different pH optima. Importantly *Cr. chenagoensis* was the first documented snow algae with an alkaline optima. These findings have been published in *Arctic, Antarctic, and Alpine Research*.

PUBLICATIONS

Pusack TJ, CD Stallings, MA Albins, CE Benkwitt, KE Ingeman, TL Kindinger, MA Hixon (2022) Protracted recovery of long-spined urchin (*Diadema Antillarum*) in the Bahamas. *Coral Reefs* https://doi.org/10.1007/s00338-022-02321-z

Booth HS, **TJ Pusack**, JW White, CH Stallings, DL Kimbro (2018) Intraspecific predator inhibition, not a prey size refuge, enables oyster population persistence during predator outbreaks. *Marine Ecology Progress Series* 602: 155-167

Johnson DW, MR Christie, **TJ Pusack**, CD Stallings, MA Hixon (2018) Integrating larval connectivity with local demography reveals region dynamics of a marine metapopulation. *Ecology* 99: 1419-1429

Pusack TJ, JW White, HG Tillotson, DL Kimbro, CD Stallings (2018) Size-dependent predation and intraspecific inhibition of an estuarine snail feeding on oysters. *Journal of Experimental Marine Biology and Ecology* 501: 74-82

Pusack TJ, DL Kimbro, JW White, CD Stallings (2018) Predation on oysters is inhibited by intense or chronically mild, low salinity events. *Limnology and Oceanography* doi: 10.1002/lno.11020

Benkwitt CS, MA Albins, KL Buch, KE Ingeman, TL Kindinger, **TJ Pusack**, CD Stallings, MA Hixon (2017) Is the lionfish invasion waning? Evidence from the Bahamas. *Coral Reefs* 36 1255-1261

Kimbro DL, JW White, H Tillotson, N Cox, M Christopher, O Stokes-Cawley, S Yuan, **TJ Pusack**, CD Stallings (2017) Local and region stressors interact to drive a salinization-induced outbreak of

predators on oyster reefs. *Ecosphere* 8: 1-15 e01992

Tzadik OE, Curtis JS, Granneman JE, Kurth BN, **Pusack TJ**, Wallace AA, Hollander DJ, Peebles EB, CD Stallings (2017) Chemical archives in fisher beyond otoliths: A review on the use of other body parts as chronological recorders of microchemical constituents for expanding interpretations of environmental, ecological, and life history changes. *Limnology and Oceanography Methods* 15: 238-263

Pusack TJ, CE Benkwitt, K Cure, TL Kindinger (2016) Invasive Red Lionfish (*Pterois volitans*) grow faster in the Atlantic Ocean than in their native Pacific Range. *Environmental Biology of Fishes* 99: 571-579

Johnson DW, MR Christie, CD Stallings, **TJ Pusack**, MA Hixon (2015) Using post-settlement demography to estimate larval survivorship: a coral reef fish example. *Oecologia* 179: 729-739

Raymond WW, MA Albins, and **TJ Pusack** (2015) Competitive interactions for shelter between invasive Pacific red lionfish and native Nassau grouper. *Environmental Biology of Fishes* 98: 57-65

Pusack TJ, MR Christie, DW Johnson, CD Stallings, MA Hixon (2014) Spatial and temporal patterns of larval dispersal in a coral-reef fish metapopulation: evidence of variable reproductive success. *Molecular Ecology* 23: 3396-3408

Cure K, CE Benkwitt, TK Kindinger, E Pickering, **TJ Pusack**, J McIlwain, MA Hixon (2012) Comparison of lionfish (*Pterois volitans*) activity between the Pacific and Atlantic Oceans. *Marine Ecology Progress Series* 467: 181-192.

Alexander MS, G Kawahara, AT Kho, MS Howell, **TJ Pusack**, J Myers, F Montanaro, LI Zon, JR Guyon LM Kunkel (2011) Isolation and trascriptome analysis of adult zebrafish cells enriched for skeletal muscle progenitors. *Muscle and Nerve* 43: 741-750.

Pusack TJ, R Graham (2009) Threatened fishes of the world: *Epinephelus itajara* Lichtenstein 1822. *Environmental Biology of Fishes* 86: 293.

Guyon JR, J Goswami, S Jun, M Thorne, M Howell, **TJ Pusack**, G Kawahara, LS Steffen, M Galdzicki, LM Kunkel (2009) Genetic isolation and characterization of a splicing mutant of zebrafish dystrophin. *Human Molecular Genetics* 18: 202-211.

Steffen LS, JR Guyon, ED Vogel, R Beltre, **TJ Pusack**, Y Zhou, LI Zon, LM Kunkel (2007) Zebrafish orthologs of human muscular dystrophy genes. *BMC Genomics* 8: 79

Guyon JR, LS Steffen, MH Howell, **TJ Pusack**, C Lawrence, LM Kunkel (2007) Modeling Human Muscle Disease in Zebrafish. *Biochemica et Biophysica Acta – Molecular Basis for Disease* 2: 1772.

Hoham RW, RW Filbin, FM Frey, **TJ Pusack**, JB Ryba, PD McDermott, RA Fields (2007) The optimum pH of the green snow algae, *Chloromonas tughillensis* and *Chloromonas chenangoensis*, from Upstate New York, *Arctic, Antarctic, and Alpine Research* 39: 65-73.

PROFESSIONAL CONFERENCES

Attended Virtual Larval Fish and Larval Biology Conference – Remote 2021

Attended Virtual Ecological Society of America Meeting – Remote, 2021

Attended Virtual Southern New England American Fisheries Society Meeting – Remote, 2021

Attended Virtual Larval Fish and Larval Biology Conference – Remote 2020

Attended Virtual Ecological Society of America Meeting – Remote, 2020

Predation on oysters is inhibited by intense or chronically mild low salinity events, Benthic Ecology Meeting – Corpus Christie TX, March 2018

Emergent predatory effects of aggregative feeding by the southern oyster drill (*Thais haemastoma*) on the Eastern Oyster (*Crassostrea virginica*), Ecological Society of America – Fort Lauderdale FL, August 2016

Growth and Survival of juvenile oysters, *Crassostrea virginica*, among black mangroves, oyster bars, and saltmarsh habitats, Mangrove and Macrobenthos Meeting – St. Augustine FL, July 2016

Competitive Communal Feeding of the Southern Oyster Drill (*Thais haemastoma*) on the Eastern Oyster (*Crassostrea virginica*), Benthic Ecology Meeting – Portland ME, March 2016

Invasive Indo-Pacific lionfish (*Pterois volitans*) causes local extinction of a native coral reef fish (*Coryphopterus glaucofraenum*), Benthic Ecology Meeting – Québec City, Québec CA, March 2015

Nassau grouper reduce the negative effects of lionfish predation, Ecology and Evolutionary Ethology of Fishes – Corvallis OR, June 2014

Spatial and temporal variability in larval dispersal in a coral-reef fish metapopulation, Benthic Ecology Meeting – Savannah GA, March 2013

Relative effects of invasive Pacific lionfish vs. native Atlantic grouper on mortality of bridled goby, Ecological Society of America – Portland OR, August 2012

Relative effects of invasive Pacific lionfish vs. native Atlantic grouper on mortality of bridled goby, Western Society of Naturalists – San Diego CA, November 2011

Can Nassau grouper save invaded coral reefs from lionfish, International Marine Conservation Congress – Vancouver BC, May 2011

Can Nassau grouper save invaded coral reefs from lionfish, Benthic Ecology Meeting – Mobile AL. March 2011

Larval dispersal in a metapopulation of a coral-reef fish, Western Society of Naturalists – San Diego CA, November 2010

MENTORING AND ADVISING

SJ Brusini (Williams College), Summer 2021, Williams College Summer Science Research Intership. SJ and I researched the effect of eelgrass beds in the mystic river estuary and Fisher's Island Sound on the pH of the water. We also attempted to quantify the amount of carbon stored in the above ground and below ground biomass of eelgrass beds. However the carbon quantification proved challenging.

Patrick Hodgeson (Williams College), Summer 2020, Williams College Summer Science Research Internship. Patrick assisted me on my project to identify the prey composition of the Double-Crested Cormorant, *Phalacrocorax auritus*. Patrick visually identified of fish otoliths dissected from the cormorant pellets. Over the summer he processed 100's of pellets.

Maggie Zhang (Carnegie Mellon University), Summer 2020. I mentored Maggie on aquarium husbandry. Her project over the summer was to maintain and care for the Coral Propagation Lab in the Carlton Marine Science Center. Her duties included feeding corals and fish, maintaining proper water chemistry,

and trouble shooting any issues that came up. We also had weekly discussion on the ecology of the species in the system.

Cristina Mancilla (Williams College), Spring 2018 – Summer 2018, Williams Mystic Program, Williams College Summer Science Research Fellow. Cristina conducted weekly tows for comb jellyfish (*Mnemiopsis leidyi*) across a geographic gradient in the Mystic River Estuary. She also testing our various aquarium set-ups that could hold comb jellies in the lab for future experimentation. In addition to figures, she created a guide to comb jellies, *The Comb Jelly Manual*, for future students to use when conducting lab experiments. Together we conducted the plankton tows and I advised her on the aquarium set-up for the comb jellies. I also provided feedback on her experimental design and *Comb Jelly Manual*.

Shelby Hoogland (Bryn Mawr), Spring 2018 – Summer 2018, Williams Mystic Program, Bryn Mawr LILAC Summer Intern. Shelby performed a controlled manipulative lab experiment to test how increasing temperatures affect both the feeding rate and growth of the European Green crab, *Carcinus maenas*. I advised her on the experimental set-up, sample collections, and data analysis. This project is being worked up as a scientific poster hopefully in the spring of 2019.

Nicole Peckham, Summer 2016 – Summer 2017, Northeastern University, Undergraduate research assistant. Nicole performed mesocosm experiments to quantify the feeding rates (daily and per capita) of mud crabs (Xanthidae species) on juvenile Eastern Oysters (*C. virginica*). I advised her on the experimental design, data collection, and analysis. The culmination of this project will be a capstone review paper, as well as a manuscript that is currently in prep with Matt Farnum (see below).

Harriet Booth, Summer 2016 – Fall 2017, Northeastern University, Masters student. I advised and helped to develop her master's thesis experiments on the feeding rates (daily and per capita) and size preference of Crown Conch (*M. corona*) on adult Eastern Oysters (*C. virginica*). Harriet will describe the functional response of crown conch and try to incorporate size preference data into the functional response analysis. This work will culminate in her master thesis defense and a manuscript.

Kali Burkhardt, Fall 2015 – Spring 2016, Oregon State University, Undergraduate student. I served on Kali's honors thesis committee. Kali compared the use of various antibiotic treatments for inner ear infections between rural Argentina and Oregon, USA. As a committee member, I provided feedback on data analysis, comments on the final written paper, and evaluation of her project with two other committee members. Kali successfully defended her honors thesis.

Matt Farnum, Spring 2015 – Fall 2016, University of South Florida, research technician. While Matt worked for me to maintain mesocosm experiments and to assist me in the field, I advised him on his project investigating the effect of habitat complexity on the feeding rate of mud crabs (Xanthidae species) and Southern Oyster Drills (*T. haemastoma*). His work will be combined with Nicole Peckham's research in a collaborative manuscript.

Sarah Spangler, Fall 2012, Oregon State University, Undergraduate Teaching Intern. I counseled and mentored Sarah to develop her teaching skills, such as facilitating discussions and creating student

assessment in a laboratory setting. Sarah led a biology lab period, including quiz creation and grading as the culmination of this experience.

Wendel Raymond, Summer 2010 – Spring 2012, the Perry Institute for Marine Science and Oregon State University, Field assistant and Undergraduate Teaching Intern. I mentored Wendel in two capacities. He was an integral member of our 2010summer field team. While in the field, I advised Wendel on his HHMI project on the interaction between lionfish and Nassau grouper, which resulted in a manuscript published in the *Environmental Biology of Fishes*. Additionally, at OSU I mentored Wendel as an undergraduate teaching intern for two terms (Fall 2011, Winter 2012) in the Introductory Biology Lab. As his mentor, I provided feedback on his teaching skills, as well as his ability to facilitate discussions and present biological facts. Wendel led a biology lab period, including quiz creation and grading as the culmination of this experience.

Alex Davis, Summer 2011, Perry Institute for Marine Science, Field Assistant. I served as an advisor to Alex as she investigated the predatory behavior of lionfish towards bridled gobies. She quantified the gap limit of lionfish with bridled goby as the prey species as well as the strike efficiency of lionfish. This project complemented one of my dissertation chapters and is included in a prepared manuscript from my dissertation.

Julia Lawson, Summer 2010, Perry Institute for Marine Science, Field Assistant. I advised Julia on a project comparing the functional responses between invasive lionfish and coney groupers.

Melissa Errend, Fall 2009 – Spring 2011, Oregon State University, Lab Technician. I mentored Melissa as she analyzed and processed genotype files that contributed to a description of larval dispersal patterns of bicolor damselfish in the Exuma Sound Bahamas. This portion contributed to the overall objective of linking genetics and local demography to describe metapopulation dynamics.

Marybeth Head, Summer 2009, Oregon State University, Lab Technician. I served as an advisor to Marybeth as she analyzed and processed genotype files that contributed to the overall analysis of the Hixon Lab's metapopulation study on the bicolor damselfish.

Emily Pickering, Summer 2009, Perry Institute for Marine Science, Field Assistant. I advised Emily on her HHMI summer research project on the diurnal activity patterns of lionfish. The results of this project were combined with research from other colleagues and was published in *Marine Ecology Progress Series*.

PROFESSIONAL DEVELOPMENT

Course/Workshop; Department; Year/Term; Description

National Association of Marine Laboratories, Fall 2021, Discussion of Diversity, Equity, and Inclusion in the Marine Sciences.

National Center for Faculty Development & Diversity, Faculty Success Program; Summer 2019. I participated in a 12-week, online program that helps professors improve their time management, productivity, and growth as a college professor. The group consisted of four professors from colleges around the country as well as a trained coach. We went through daily writing assignments, weekly

exercises, and weekly meetings to discuss topics related to increasing productivity and satisfaction in higher education.

Course AHE 507 – GTA training and development; OSU, Adult Education and Higher Education Leadership; Fall 2011, Winter 2011, Fall 2010. These workshops instructed participants on designing syllabi, developing learning outcomes, facilitating class discussions, generating assessments, and managing the classroom. Through weekly seminars and assignments teaching assistants discussed topics related to instruction, and provided feedback and consultation to one another.

Course Z 599 – Teaching and lab design; OSU, Department of Zoology; Fall 2009; This weekly seminar taught the tenets of active learning. Also each participant redeveloped a lab for the Introductory Biology Lab at OSU. The goal was to convert a traditional workbook lab into a student-centered lab that used discovery-based learning. The lab topic that I worked on was evolution. My redesigned lab used various yeast strains grown on different agar mediums to demonstrate evolution through adaptive advantage with varying environmental conditions.

Course MB 699 – Success in the College Classroom; OSU, Department of Microbiology; Winter 2011; This weekly seminar discussed the responsibility of academic positions. The topics addressed included classroom management, examination creation, syllabus design, discussion facilitation, and teaching philosophies.

Workshop – Dynamic lecture design; OSU, Center for Teaching and Learning; Fall 2010; This workshop discussed the aspects of dynamic power point presentations.

Workshop – Active learning; OSU, Center for Teaching and Learning; Fall 2010; This workshop discussed various ways to enhance active learning and increase student participation in class.

AWARDS AND SPECIAL RECOGNITION

1st Place Student Oral Presentation 19th Ecology and Evolutionary Ethology of Fishes, Spring 2014

1st Place Student Oral Presentation 42nd Benthic Ecology Meetings, Spring 2013

NSF Pre-Doctoral Graduate Research Fellowship Program Honorable Mention, Spring 2009

NSF Pre-Doctoral Graduate Research Fellowship Program Honorable Mention, Spring 2008

Biology Award, Colgate University, Spring 2005

GRANT PROPOSALS AND FELLOWSHIPS

Coral Propagation System, Williams College Class of 1963 Sustainability Development Fund; Spring 2018, $13,000; Funded

Gag recruitment and spawning aggregations, *CO-I*; NOAA; Fall 2016, $450,000; Not Funded

Efficiency of a lionfish trap fishery, *CO-I*; Gulf Coast Community Foundation; Summer 2015, $25,000; Funded

Gag Life History and Dispersal, *CO-I*; NOAA; Fall 2015, $495,282; Not funded

Attraction vs. Production, *CO-I*; Florida Sea Grant; Winter 2015, $200,000; Not funded

Effective Population size of Gag Grouper, PI; Disney Worldwide Conservation Fund; Winter, 2015 $20,000, Not funded

Gag Life History and Dispersal, *CO-I*; NOAA; Fall 2014, $430,560; Not funded

Travel Grant; OSU Foundation; Spring 2013, $500; Funded

ZoRF; OSU Dept of Zoology; Spring 2012, $400; Funded

ZoRF; OSU Dept of Zoology; Spring 2011, $933; Funded

Travel Grant; OSU Foundation; Spring 2011, $500; Funded

ZoRF; OSU Dept of Zoology; Fall 2010, $500; Funded

Lionfish recruitment dynamics; NSF; Fall 2009 – Fall 2012, $40,500/year; Not funded

ZoRF; OSU; Dept of Zoology; Spring 2009, $500; Funded

Larval Connectivity; NSF; Fall 2008 – Fall 2011, $40,500/year; Not funded

SERVICE

Reviewed manuscripts from the following journals: *Biological Invasions*, *Caribbean Journal of Science*, *Coral Reefs, Environmental Biology of Fishes*, *Gulf and Caribbean Research*, *Hydrobiology, Journal of Applied Ecology, Journal of Experimental Marine Biology and Ecology, Marine Biology*, *Marine Ecology Progress Series, Pan-American Journal of Aquatic Sciences, PLoS ONE*

A Working group to consider The Williams-Mystic Ocean and Coastal Studies Program Fall 2020-Spring 2021 headed by John Gerry

Textbook and Academic Authors Association Judge 2020 2021

Summer Science Program at Williams College 2017, 2018, 2019, 2020, 2021, 2022

Representative on Mystic Seaport Museum Sustainability Committee 2018, 2019

Williams Mystic Oceanographic Processes Hiring Committee 2022

Williams Mystic Assistant Director of Admission and Enrollment Hiring Committee 2021

Williams Mystic Assistant Director of Admission and Communications Hiring Committee 2021

Williams Mystic Literature of the Sea Hiring Committee 2019

Williams Mystic History of the Sea Hiring Committee 2019

Williams Mystic Literature of the Sea Hiring Committee 2017

Williams Mystic History of the Sea Hiring Committee 2017

Zoology Graduate Student Co-President 2010-2011

Promotion and Tenure Committee Fall 2010

Coalition of Graduate Employment, Zoology Graduate Student Representative 2008, 2009, 2010

Graduate Seminar Committee 2009

Biological Graduate Student Symposium; 2008 Food Organizer, 2009 Treasurer, 2010 Treasurer

OUTREACH

Spring 2020, Mystic Seaport Museum, Ran an interactive public presentation of fisheries management to illustrate the ways various regulations affect the long-term sustainability of fish populations.

Fall 2019, Mystic Seaport Museum and the Groton Middle School, Dr. Lisa Gilbert and I are working with these two entities to create an experiential learning activity to quantify the amount of plastic, micro and macro, found in the waters and animals of the Mystic River Estuary.

Summer 2018, The Brooks School, I worked with Tobey Smith a high school student who was interested in finding out what a marine biologist does. He participated in various research projects throughout the summer.

Summer 2018, Williams College Summer Lunch Lecture Series, I presented my research on invasive lionfish

Summer 2018, SECONN Dive Club, I presented my research on invasive lionfish to the Southeastern Connecticut Dive Club.

Spring 2018, I had Ginette Boyce, a middle school student shadow me for a day to see what it is like to be a Marine Biologist.

Fall 2014, 2015, 2016, ScienceFest. I performed outreach activities for local middle and high schoolers to teach them about the lionfish invasions and life history traits of various Gulf of Mexico fish species. Saint Petersburg, FL.

Winter 2013, 2014 delivered a presentation about coral reef ecology to a 4th grade class at Ashbrook Elementary School, Corvallis OR.

Summer 2012, featured in an article by Oregon State University about my teaching experience and work as a Graduate Teaching Fellow, August 24, 2012 (http://oregonstate.edu/dept/ncs/lifeatosu/2012/gta-training-helps-new-teachers-get-grounded/)

Summer 2012, featured in a video clip by Sea Grant to promote Marine Research opportunities at Oregon State University. (https://www.youtube.com/watch?v=GIoJEBYpDWY)

Summer 2011, featured in a nature documentary entitled "Expansion of the lionfish" as part of a Canadian TV series called "1000 Days for the Planet." (http://sedna.radio-canada.ca/en/adventure/photos-videos/2133)

Summer 2010, featured in an online video lab activity on invasive lionfish for elementary, middle, and high school students, produced by Schoolyard Films, "Invasion of the Alien Fish" (http://www.schoolyardfilms.org/syf-films-and-study-guides/)

Fall 2011, co-presented a workshop on food webs in an Ecology and Evolution Workshop for local High School students.

Fall 2011, delivered a presentation about the lionfish invasion a local conchologist club.

Professional Associations

Ecological Society of America

National Marine Educators Association

American Fisheries Society

CERTIFICATIONS

SCUBA diving: Open water, Advanced, Dry Suit Nitrox

Scientific Diving (American Academy of Underwater Sciences)

CPR and First Responder