

Marisa S. McDonald

Department of Marine Biology
University of Hawai'i at Mānoa
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USA

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Primary Research Interests

Dissertation work focuses on the physiology and anatomy of the visual system of larval of mantis shrimp (stomatopods) with a focus ultraviolet (UV) vision.

Education

University of Hawai'i at Mānoa, Honolulu, HI 2016-Present

Marine Biology Ph.D. Student. Advisor: Dr. Megan Porter

Graduate Specialization: Ecology, Evolution, and Conservation Biology Program

The University of Miami, Coral Gables, FL 2012-2016

B.S. with departmental honors in Marine Science and Biology

Minors in Chemistry and English Literature

Honors Thesis: *The effect of serotonin on spontaneously active pedal neural cells of *Aplysia californica**

Advisor: Dr. Lynne Fieber

Intercultural Outreach Initiative, Galapagos, Ecuador Spring 2015

UGalapagos Study Abroad Program

Publications

- **McDonald, M.**, Porter, M.L. (2018) Evolution and Physiology of Animal Visual Systems. In: Cell Physiology Source Book Fifth Edition. Elsevier Publishing Company. (Accepted)
- Skowronska, M., **McDonald, M.**, Park, M., Toborek, M. (2017) Methamphetamine increases HIV infectivity in neural progenitor cells. *The Journal of Biological Chemistry*. 293(1), 296–311

Presentations

- **McDonald, M.S.**, Feller, K.D., Porter, M.L. Evidence of Ultraviolet Vision in Larval Stomatopod Crustaceans Through Eye Ultrastructures. 9th International Crustacean Congress, Washington D.C., May 2018.
- **McDonald, M.S.**, Feller, K.D., Porter, M.L. Preliminary Evidence for Ultraviolet Vision in Larval Stomatopod Crustaceans. 43rd Annual Albert L. Tester Memorial Symposium, Honolulu, HI, April 2018.
- **McDonald, M.S.**, Porter, M.L. Crazy Baby Eyes: Exploring the Larval Transition of the Visual Systems of Stomatopods. 42nd Annual Albert L. Tester Memorial Symposium, Honolulu, HI, April 2017.

Research Experience

Vision in larval stomatopod crustaceans 2016-Present

University of Hawai'i at Mānoa- Advisor: Dr. Megan Porter

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- Conducting research on the visual system of larval stomatopods. My dissertation aims to understand the visual system ecology and capabilities of larval stomatopods through transmission electron microscopy (TEM), spectral sensitivity, and behavior.

Bioluminescence Research Cruise

July 2016, July 2017

University of Hawai'i at Mānoa-Advisor: Dr. Megan Porter
F.G Walton Smith, Miami, Fl

- Participated in a two-year NSF funded investigating bioluminescent shrimp in the Florida Straits. Samples were brought back to UH Mānoa for further investigation including stomatopod larvae, which are currently being used for biodiversity studies and TEM investigation of larval eyes.

Effects of methamphetamine on HIV infectivity in neural stem cells

2015-2016

Miller School of Medicine- Advisor: Dr. Michal Toborek

- Research Assistant: Investigated the effects of the enhancement of the HIV virus through the application of methamphetamine in-vitro in various human and mouse cell types. The work was published in 2017: Skowronska, M., **McDonald, M.**, Park, M., Toborek, M. (2017) Methamphetamine increases HIV infectivity in neural progenitor cells. *The Journal of Biological Chemistry*. 293(1), 296–311
- Lab Manager: Performed duties integral to the laboratory, including but not limited to: purchase requisitions, external correspondence, lab maintenance, and the editing of grant proposals and publication manuscripts.

Effect of serotonin on spontaneously active pedal neural cells of *A. californica*.

2014-2016

RSMAS (University of Miami)-Advisor: Lynne Fieber

- Conducted research on the nervous system of the California Sea Hare (*Aplysia californica*) through a series of electrophysiological techniques exploring the effects of serotonin on the fully removed pedal motoneurons for undergraduate senior thesis.

Teaching and Leadership Experience

Marine Biology Graduate Representative

Fall 2016-Present

University of Hawai'i at Mānoa

- Representative at faculty meetings, and responsible for running weekly “Pau hana” events on Friday afternoons to facilitate interaction between faculty and graduate students following weekly seminars.

Teaching Assistant: Introduction to Biology Laboratory

Fall 2016-Spring 2017

University of Hawai'i at Mānoa

Fall 2017

- Taught two full laboratory sections per semester (40 students). Responsible for weekly lectures, assisting in laboratory activities, and all grading and course assessment.

Teaching Assistant: Advanced Topics in Marine Biology

Spring 2018, Fall 2018

University of Hawai'i at Mānoa

- Teacher's assistant responsible for organizing weekly guest lectures, paper discussions, grading and assessment for an undergraduate senior capstone course (20 students). Dr. Les Watling was the primary instructor.

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Scholarships and Grants

Heiligenberg Student Travel Award \$750

- Travel award received to attend the International Congress for Neuroethology in Brisbane, Australia, July 2018 (International Society of Neuroethology, 2018)

The Charles H. and Margaret B. Edmondson Research Fund \$2000

- Fund awarded to develop dissertation research utilizing TEM (University of Hawai'i at Mānoa, 2018)

Graduate Student Organization Award 17-10-11 \$991

- Award to fund training and preliminary TEM data collection (University of Hawai'i at Mānoa, 2017)

The University Scholarship \$96,000

- Four year \$24,000 scholarship to partially fund undergraduate tuition (University of Miami, 2012-2016)

Honors

University of Miami

- Provost's Honors List Fall 2014, Spring 2015, Fall 2015
- Dean's List Fall 2012, Fall 2014, Spring 2015, Fall 2015

Other Qualifications

AAUS Scientific Research Diver, certified June 12th, 2017.