PAUL CARVALHO

Biological and Environmental Sciences
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EDUCATION

PhD — *University of Rhode Island,* Kingston, RI. ***Present*** **(expected August 2020)**.
Department of Biological and Environmental Sciences
Advisor: Dr. Austin Humphries
Thesis: "Adaptive gear-based management for multispecies coral reef fisheries."

MS — *California Polytechnic State University*, San Luis Obispo, CA. **2016**.
Department of Biological Sciences - graduated with distinction.
Advisor: Dr. Crow White
Thesis: "The effectiveness of periodically-harvested closures in meeting ecological and socioeconomic fisheries objectives."

BS — *California Polytechnic State University*, San Luis Obispo, CA. **2014**.
Department of Biological Sciences.
Advisor: Dr. Sean Lema
Thesis: "Molecular responses to acute salinity challenge in the Amargosa pupfish *(Cyprinodon nevadensis amargosae)*."

RESEARCH EXPERIENCE

2020 — Rhode Island Department of Environmental Management, Jamestown, RI
Division of Marine Fisheries - Graduate Research Internship
Mentor: Dr. Conor McManus

- Analyzing fisheries quota program for the black sea bass and summer flounder commercial fisheries in Rhode Island.
- Preparing technical document that reviews various temporal aggregate quotas (e.g., daily, weekly, etc.).

2012-2014 — Cal Poly Biology Department, San Luis Obispo, CA
CA Collaborative Fisheries Research Program - Research Technician
Supervisor: Dr. Dean Wendt

- Monitored the effectiveness of MPAs for conservation and resource management.

2012-2014 Cal Poly Biology Department, San Luis Obispo, CA
Office of Naval Research, Non-Toxic Marine Coatings - Research Technician
Supervisor: Dr. Dean Wendt

- Examined the effectiveness of non-toxic marine coatings in biofouling inhibition.
- Analyzed data and compiled lab reports for principal investigators.

WORKSHOPS AND WORKING GROUPS

2019 National Socio-Environmental Synthesis Center, "Teaching Socio-Environmental Synthesis with Case Studies," Annapolis, Maryland.

2018 United States Agency for International Development (USAID) Indonesia, "Training on scientific communication – essentials of writing scientific articles and research proposals," Bogor, Indonesia.

2017 National Socio-Environmental Synthesis Center, "Graduate student workshop on socio-environmental synthesis," Annapolis, Maryland.

2015 Cal Poly San Luis Obispo / Wildlife Conservation Society, "Periodically-harvested closures in Melanesia," Big Sur, California.

2014 Wildlife Conservation Society, "Vulnerability index of coral reef fishes," Glasgow, Scotland.

PUBLICATIONS

Gorospe, K.D., **Carvalho, P.G.**, Josephs, L.I., and Humphries, A.T. (2019). Sustainable seafood certification labels: the case for and against Atlantic menhaden. *National Socio-Environmental Synthesis Center's Teaching Socio-Environmental Synthesis with Case Studies*. 43 pp. https://www.sesync.org/sustainable-seafood-certification-labels-the-case-for-and-against-menhaden

Carvalho, P.G., Jupiter, S.D., Januchowski-Hartley, F.A., Goetze, J., Claudet, J., Weeks, R., Humphries, A. and White, C. (2019). Optimized fishing through periodically-harvested closures. *Journal of Applied Ecology*. doi:10.1111/1365-2664.13417

Humphries, A.T., Gorospe, K.D., **Carvalho, P.G.**, Yulianto, I., Kartawijaya, T., Campbell, S.J. (2019). Catch composition and selectivity of fishing gears in a multi-species Indonesian coral reef fishery. *Frontiers in Marine Science*. 6:378. doi:10.3389/fmars.2019.00378

Lema, S.C., Washburn, E.H., Crowley, M.E., **Carvalho, P.G.**, and Egelston, J.N. (2019). Evidence for a role of arginine vasotocin (AVT) receptors in the gill during salinity acclimation by a euryhaline teleost fish. *American Journal of Physiology-Regulatory, Integrative and Comparative Physiology*. 316, R735-R750.

Lema, S.C., **Carvalho, P.G.**, Egelston, J.N., Kelly, J.T., and McCormick, S.D. (2018). Dynamics of gene expression responses for ion transport proteins and aquaporins in the gill of a

euryhaline pupfish during freshwater and high salinity acclimation. *Physiological and Biochemical Zoology*. 91(6), 1148-1171.

MANUSCRIPTS IN PREPARATION

Carvalho, P.G., Setiawan, F., Fahlevy, K., Subhan, B., Madduppa, H., and Humphries, A. Fishing and habitat quality differentially affect size spectra of coral reef fishes *(in review).*

Carvalho, P.G., Zhu, G., Iba, I., Kaye, M., and Humphries, A. Fishing gear selectivity of coral reef fishes *(in review)*.

Carvalho, P.G. and Humphries, A. Effectiveness of gear-based management in meeting conservation and socioeconomic objectives *(in prep)*.

Koch, A., **Carvalho**, **P.G.**, Cuttler, E., Smith, K., Janes, S., Baker, D. Hurricanes, ecological change, and public discourse: A synthesis of remote sensing and newspaper content analysis in Charlotte Harbor, Florida *(in review)*.

Jane, S., Kayla, S., Baker, D., Koch, A., Cutlet, E., and **Carvalho, P.G**. Media stars and nobodies: the unseen impacts of hurricanes to coastal aquatic fauna *(in review).*

TEACHING AND MENTORING EXPERIENCE

Teaching Assistant. "Marine Ecology" Biology 457, University of Rhode Island (Spring 2019).

Teaching Assistant. "Principles of Biology II" Biology 104, University of Rhode Island (Spring 2018, 2019).

Mentor. Assisted undergraduate student with ecological modeling and statistics for coral reef fisheries in Indonesia to fulfill independent research credits (Spring 2017).

Teaching Assistant. "Fisheries Science and Resource Management" Biology/Marine Science 439, California Polytechnic State University, San Luis Obispo, Professor Crow White (Spring 2016).

Lab Instructor. "Introduction to Organismal Form and Function" Biology 162, California Polytechnic State University, San Luis Obispo, Professor Emily Taylor (Winter 2015).

Lab Assistant. "Marine Botany – Phycology" MSCI 437, California Polytechnic State University, San Luis Obispo, Professor Lisa Needles (Spring 2013).

PRESENTATIONS

Carvalho, P.G. and Humphries, A.H. 2017. "The potential for gear-based solutions in coral reef fisheries conservation and management." 24th Coastal and Estuarine Research Federation Conference. Providence, Rhode Island.

Carvalho, P.G., Jupiter, S.D., Januchowski-Hartley, F.A., Goetze, J., Claudet, J., Langlois, T., Weeks, R., and White, C. 2016. "Periodically harvested closures emerge as optimal fisheries management strategies when fish behavior is considered." 35th AAUS Diving for Science Symposium. Narragansett, Rhode Island.

Carvalho, P.G., Jupiter, S.D., Januchowski-Hartley, F.A., Goetze, J., Claudet, J., Weeks, R., and White, C. 2016. "Periodically harvested closures emerge as optimal fisheries management strategies when fish behavior is considered." 13th International Coral Reef Symposium. Honolulu, Hawaii.

Carvalho, P.G., Jupiter, S.D., Januchowski-Hartley, F.A., Goetze, J., Claudet, J., Langlois, T., and White, C. 2015. "Periodically harvested closures: potential optimal fisheries management strategies." 27th International Conference for Conservation Biology. Montpellier, France.

Carvalho, P.G., Januchowski-Hartley, F.A., Jupiter, S.D., and White, C. 2014. "Effectiveness of periodically harvested closures in meeting fisheries and cultural objectives." Western Society of Naturalists. Tacoma, Washington.

Egelston, J.N., **Carvalho, P.G.**, and Lema, S.C. 2013. "Molecular responses to acute salinity challenge in the Amargosa pupfish *(Cyprinodon nevadensis amargosae).*" Cal Poly College of Science Math - Student Research Conference. San Luis Obispo, California.

GRANTS, FELLOWSHIPS AND AWARDS

2020	Fulbright Student Research Award – Philippines
2019	National Socio-Environmental Synthesis Center (SESYNC) Graduate Research Fellow ($2,000)
2017	The Nature Conservancy, Global Marine Initiative Fellowship Award ($24,000)
2016	Cal Poly State University Graduate Presentation Award ($500)
2015	National Science Foundation Graduate Research Fellowship Award (~$180,000)
2014	Cal Poly State University Graduate Presentation Award ($500)
2014	California State University Grant ($6,700)
2014	Tenera Environmental Inc. Scholarship ($600)

SOCIETY MEMBERSHIP

American Association for the Advancement of Science
American Academy of Underwater Sciences
American Society of Naturalist
Central Coast Biology Society
Coastal and Estuarine Research Federation
International Society for Reef Studies
Society for Conservation Biology
Western Society of Naturalist

ADDITIONAL EXPERIENCE, KNOWLEDGE, AND SKILLS

- Reviewer for *Journal of Applied Ecology*
- Member of the University of Rhode Island Diving Control Board
- American Academy of Underwater Sciences (AAUS) certified research diver.
- Proficient at a variety of software applications: statistics and modeling (Matlab, R, Python), programing languages (Java and C), and the Microsoft Office suite.
- Volunteer for Science and Math Investigative Learning Experiences (SMILE) program at the University of Rhode Island, teaching marine biology to fourth graders.
- Volunteer for Cal Poly Pier Open House – public outreach to share biological sciences with the community.