

# Curriculum vitae

## Ryan Jordan Woodland

### Chesapeake Biological Laboratory

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### I. Education

1999 B.Sc. Marine Safety & Env. Protection, Massachusetts Maritime Academy

2001 Biological Sciences, Colorado State University (*course work*)

2005 M.Sc. Fisheries Science, University of Maryland College Park

2010 Ph.D. Fisheries Science, University of Maryland College Park

### II. Professional Background

2010-2011 Postdoctoral Research Fellow, Université du Québec à Trois-Rivières, Trois-Rivières, Québec, Canada

2011-2014 Postdoctoral Research Fellow, Water Studies Centre, Monash University, Clayton, Victoria, Australia

2014-2015 Senior Research Officer, Water Studies Centre, Monash University, Clayton, Victoria, Australia

2015-present Assistant Professor, Chesapeake Biological Laboratory, University of Maryland Center for Environmental Science, Solomons, MD

### III. Research

#### A. Areas of professional expertise

Trophic ecology of aquatic, estuarine and marine consumers; Ecology of estuarine and coastal fishes, Nutrient cycling in estuaries; Human influences on estuarine ecosystems; Natural abundance stable isotope ecology

#### B. Peer-Reviewed Publications and Technical Reports <sup>1</sup>

##### 1. Papers in Peer-Reviewed Journals or Books

Cook, P.L.M., V. Evrard and **R.J. Woodland**. 2015. Factors controlling nitrogen fixation in temperate seagrass beds. *Marine-Ecology Progress Series*, 525:41-51.

Boon, P., P.L.M. Cook, and **R.J. Woodland**. 2015. The Gippsland Lakes: management challenges posed by long-term environmental change. *Marine & Freshwater Research*, [dx.doi.org/10.1071/MF14222](https://doi.org/10.1071/MF14222).

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<sup>1</sup> † Graduate student publications, \* Undergraduate publications, ¶ Postdoc publications

- Woodland, R.J.**, P. Reich, V. Evrard, F. Y. Wary, J. P. Walker, and P. L.M. Cook. 2015. Nitrogen loads explain primary productivity in estuaries at the ecosystem scale. *Limnology and Oceanography*, 60:1751-1762.
- † Scicluna, T.R., **R.J. Woodland**, Y. Zhu, M.R. Grace, P.L.M. Cook. 2015. Deep dynamic pools of phosphorus in the sediment of a temperate lagoon with recurring blooms of diazotrophic cyanobacteria. *Limnology and Oceanography*, 60:2185-2196.
- Woodland, R.J.**, F.Y. Wary, V. Evrard, R.H. Clarke, P. Reich, and P.L.M. Cook. 2016. Evidence of niche-dependent trophic position distributions among primary, secondary and tertiary consumers. *Oikos*, 125:556-565.
- † Wary, F.J., P. Reich, **R.J. Woodland**, J. R Thomson, R. Mac Nally, and P.L.M. Cook. 2016. Nitrogen stable isotope values of large-bodied consumers reflect catchment urbanization at regional scales. *Marine Ecology Progress Series*, 542:25-37.
- † Wary, F.Y., P. Reich, P.L.M. Cook, R. Mac Nally, J.R. Thomson, and **R.J. Woodland**. 2016. Nitrogen loads influence trophic organization of estuarine fish assemblages. *Functional Ecology*, 30:1723-1733.
- Rowe, C.L., S. Funck, and **R.J. Woodland**. 2017. Maternal influences on hatchling metabolic rates are limited to the period of yolk-dependency in an estuarine turtle, the diamondback terrapin (*Malaclemys terrapin*). *Physiological and Biochemical Zoology, Part A*, 204:137-145.
- Testa, J.M, M. Kemp, L.A. Harris, **R.J. Woodland**, and W.R. Boynton. 2017. Challenges and directions for the advancement of estuarine ecosystem science. *Ecosystems*, 20:14-22.
- Woodland, R.J.**, C.L. Rowe and P.F.P. Henry. 2017. Changes in habitat availability for multiple life-stages of diamondback terrapin (*Malaclemys terrapin*) in response to sea level rise, DOI 10.1007/s12237-017-0209-2.
- Cook, P.L.M., F.Y. Wary, P. Reich, R. Mac Nally, and **R.J. Woodland**. 2018. Catchment land use in small estuaries is a better predictor of benthic vegetation than are nitrogen loads. *PeerJ*, 6:e4278 DOI 10.7717/peerj.4378.
- † Wary, F.Y., P. Reich, P.L.M. Cook, R. Mac Nally, and **R.J. Woodland**. 2018. The role of catchment land use and tidal exchange in structuring estuarine fish assemblages. *Hydrobiologia*, 811: 173-191.
- Jenkins, G.P., J.A. Kent, **R.J. Woodland**, F.Y. Wary, S.E. Swearer, P.L.M. Cook. 2018. Delayed timing of successful spawning of an estuarine dependent fish, black bream *Acanthopagrus butcheri*. *Journal of Fish Biology*, 93: 931–941.
- Lyubchich, V., and **R.J. Woodland**. 2019. Edge prediction in fish trophic networks, using data science techniques on isotope composition and other node features. *Statistics and Probability Letters*, 144:63-68.
- \* Nettore, O., E.W. Hamilton, **R.J. Woodland**, and R. Humston. 2019. Trophic ecology of smallmouth bass in hierarchical stream networks. Pages X-XX in *Managing Centrarchid Fisheries in Rivers and Streams*, M.J. Siepkner and J.W. Quinn, *editors*. *Managing Centrarchid Fisheries in Rivers and Streams Proceedings*, American Fisheries Society, Symposium 87, Bethesda, Maryland. 270 pgs.

- † Cortial, G., **R.J. Woodland**, R. Lasley-Rasher, G. Winkler. 2019. Phylogeography of *Neomysis americana* (Crustacea, Mysida), focusing on the St. Lawrence system. *Journal of Plankton Research*, doi.org/10.1093/plankt/fbz050.
- Woodland, R.J.**, F.Y. Warry; Y. Zhu, R. Mac Nally, P. Reich, G. Jenkins, D. Brehm, P.L.M. Cook. 2019. The role of benthic habitat structure and riverine connectivity in controlling the spatial distribution and ecology of estuarine fish. *Marine Ecology Progress Series*, 630:197-214.
- Najjar, R.G., M. Herrmann, S.M. Cintron Del Valle, J.R. Friedman, M.A.M. Friedrichs, L.A. Harris, E.H. Shadwick, E. Stets, **R.J. Woodland**. 2020. Alkalinity in tidal tributaries of the Chesapeake Bay. *Journal of Geophysical Research: Biogeosciences*, doi: 10.1029/2019JC015597
- Rowe, C.L., D. Liang, and **R.J. Woodland**. 2020. Effects of constant and fluctuating temperatures during incubation on hatching success and hatchling traits in the diamondback terrapin (*Malaclemys terrapin*) in the context of the warming climate. *Journal of Thermal Biology*, 88:102528. doi: 10.1016/j.jtherbio.2020.102528.
- † La Rosa, G.A., **R.J. Woodland**, C.L. Rowe. 2020. Latitudinal patterns in tissue lipid content and condition in black sea bass *Centropristis striata* along the Middle Atlantic Bight. *Marine Biology*, 167:77. doi: 10.1007/s00227-020-03688-9.
- \* Chapina, R., C.L. Rowe, and **R.J. Woodland**. 2020. Metabolic rate by *Neomysis americana* is affected by temperature but not salinity conditions. *Journal of Crustacean Biology*, 40:450-454.
- Woodland, R.J.**, and J. Testa. 2020. Response of benthic biodiversity to climate-sensitive regional and local conditions in a complex estuarine system. Pages 87-115 in *Quantitative Approaches to evaluating Climate Change Impacts in Socio-Environmental Systems, Public Health, and Insurance (Applied Environmental Statistics Series)*, Y.R. Gel, K.H. Kilbourne, V. Lyubchich, T.J. Miller, N.K. Newlands, and A.B. Smith, *editors*. CRC / Taylor & Francis Group, LLC.
- Auth, T., T. Arula, E. Houde, **R.J. Woodland**. 2020. Spatial ecology and growth in early-life stages of bay anchovy (*Anchoa mitchilli*) in Chesapeake Bay (USA). *Marine Ecology Progress Series*, 651:125-143. doi: 10.3354/meps13431.
- Keith, D.A., *et al.* (101 coauthors, including **R.J. Woodland**). 2020. The IUCN Global Ecosystem Typology v1.01: Descriptive profiles for Biomes and Ecosystem Functional Groups. WCC2020 Motion 074; <https://doi.org/10.2305/IUCN.CH.2020.13.en>.
- Kennedy, V.S., L. Bolognini, J. Dulčić, **R.J. Woodland**, M.J. Wilberg, and L.A. Harris. *In Press*. Fisheries of the Adriatic Sea and the Chesapeake Bay. Pages 203-227 in *Coastal Ecosystems in Transition: A Comparative Analysis of the Northern Adriatic and Chesapeake Bay*, T. Malone, A. Malej, and J. Faganeli, *editors*. American Geophysical Union.
- Testa, J.M., J. Faganeli, M. Giani, M.J. Brush, C. De Vittor, W.R. Boynton, S. Covelli, W.M. Kemp, N. Kovač, and **R.J. Woodland**. 2020. Advances in our understanding of pelagic-benthic coupling in the northern Adriatic Sea

and Chesapeake Bay. Pages 147-175 in *Coastal Ecosystems in Transition: A Comparative Analysis of the Northern Adriatic and Chesapeake Bay*, T. Malone, A. Malej, and J. Faganeli, *editors*. American Geophysical Union.

**Woodland, R.J.**, A. Buchheister, R. Latour, C. Lozano, E.D. Houde, C.J. Sweetman, M. Fabrizio and T. Tuckey. 2021. Environmental drivers of forage fishes and benthic invertebrates at multiple spatial scales in Chesapeake Bay. *Estuaries and Coasts*, 44: 921-938. doi: 10.1007/s12237-020-00835-9.

2. Papers in Press at Referred Journals or Books

3. Papers in Review at Referred Journals or Books

**Woodland, R.J.**, and J. Hagy III. *In Review*. Estuarine food webs. Pages X-XX in *Estuarine Ecology 3<sup>rd</sup> Edition*, B. Crump, J.M. Testa and K.H. Dunton, *editors*. Wiley-Blackwell.

**Woodland, R.J.**, L. Harris, E. Reilly, A. Fireman, E. Schott, and A. Heyes. *In Review*. Food web restructuring across an urban estuarine gradient. *Ambio*.

Rowe, C., and **R.J. Woodland**. *In Review*. Temperature elevation throughout larval development alters the expression of larval life history traits in a temperate population of the wood frog, *Lithobates sylvaticus*. *Oecologia*.

Wegner Koch, C., L.W. Cooper, J.M. Grebmeier, K.E. Frey, R. Stimmelmayer, T.A. Brown, and **R.J. Woodland**. *In Review*. Female Pacific walrus (*Odobenus rosmarus divergens*) show greater partitioning of sea ice organic carbon than males: Evidence from ice algae trophic markers. *PLOS One*.

4. Technical Reports

† Warry, F.Y., P. L.M. Cook, and **R.J. Woodland**. 2015. Understanding the relationship between nutrient inputs and the health of submerged vegetation in small estuaries draining to Port Phillip Bay and Western Port. Final Report for Melbourne Water, Monash University Water Studies Centre, Clayton, Victoria.

**Woodland, R.J.** and P. L.M. Cook. 2015. Review of indicators for use in the Victorian State Index of Estuarine Condition. Final Report for Department of Environment, Land, Water and Planning, Monash University Water Studies Centre, Clayton, Victoria.

\* Chapina, R., C.L. Rowe, and **R.J. Woodland**. 2016. Oxygen consumption by *Neomysis americana* under realistic summer temperatures and salinity conditions. Final Report for Maryland Sea Grant, NSF/Research Experience for Undergraduates Program, College Park, MD.

**Woodland, R.J.**, E.D. Houde, A. Buchheister, R. Latour, C. Lozano, C.J. Sweetman, M. Fabrizio and T. Tuckey. 2017. Environmental, Spatial and Temporal Patterns in Chesapeake Bay Forage Population Distributions and Predator Consumption. Final Report for Chesapeake Bay Trust, UMCES/Chesapeake Biological Laboratory, Solomons, MD.

- R.J. Woodland**, P. Billeter, C. McManus, R. Murphy, J. Molina, and D. Quill. 2017. Ecological connectivity of seagrass, reef and mangrove habitats in a tropical coastal lagoon. Final Report for Belize Fisheries (Permit number, 000022-17), UMCES/Chesapeake Biological Laboratory, Solomons, MD.
- \* Iacone, B.E., **R.J. Woodland**, and L. Harris. 2017. One cell at a time: Investigating grazing habits of *Neomysis americana* in the Patuxent River using flow-cytometry. Final Report for Maryland Sea Grant, NSF/Research Experience for Undergraduates Program, College Park, MD.
- R.J. Woodland** and H. Bi. 2018. Effectively sampling mysid shrimp in Chesapeake Bay: gear testing and preliminary data to support future studies. Final Report for Maryland Sea Grant (Project number, CBL2016-037MDSG), UMCES/Chesapeake Biological Laboratory, Solomons, MD.
- R.J. Woodland**, P. Billeter, D. Quill, T. Murphy, and K. Mattes. 2019. Building an ecological baseline in Ambergris Caye Lagoon, Belize. Final Report for Belize Fisheries (Permit number, 00013-18), UMCES/Chesapeake Biological Laboratory, Solomons, MD.
- \* Autrey, O.F., **R.J. Woodland**, L. Plough, and G. Winkler. 2019. Fecundity and genetic differences of *Neomysis americana* in two tributaries of Chesapeake Bay. Final Report for Maryland Sea Grant, NSF/Research Experience for Undergraduates Program, College Park, MD.
- Wainger, L., **R.J. Woodland**, T. Hollady. 2019. Evaluating costs and benefits of the Department of Defense Legacy Resource Management Program Final Report for Department of Defense (Project number, HQ0034-17-2-0003), UMCES/Chesapeake Biological Laboratory, Solomons, MD.
- Rowe, C., and **R.J. Woodland**. 2021. Overview: 2020 UMCES Terrapin Research at Naval Air Station – Patuxent River (NAS PAX). University of Maryland Center for Environmental Science, Chesapeake Biological Laboratory, Solomons, MD.
- Woodland, R.J.**, H. Bi, and E. North. 2021. Understanding the distribution and ecology of the mysid *Neomysis americana*, a key forage species in Chesapeake Bay. Final Report to Maryland Sea Grant, University of Maryland Center for Environmental Science, Chesapeake Biological Laboratory, Solomons, MD.

## C. Seminars and Presentations

### 1. Invited Seminars and Presentations

- Woodland, R.J.** 2016. From the ground up: linking submerged vegetation to changes in estuarine food webs. Seminar Series, IMET, Baltimore, MD, June 2016.
- Woodland, R.J.** 2016. From the ground up: linking submerged vegetation to changes in estuarine food webs. Seminar Series, Horn Point Laboratory, Cambridge, MD, September 2016.
- Woodland, R.J.**, E. Houde, A. Buchheister, R. Latour, C. Lozano, and C.J. Sweetman. Drivers of forage population trends and consumption patterns.

Sustainable Fisheries GIT Forage Action Team, Annapolis, MD, September 2016.

**Woodland, R.J.** 2016. From the ground up: linking submerged vegetation to changes in estuarine food webs. Seminar Series, Appalachian Laboratory, Frostburg, MD, October 2016.

**Woodland, R.J.**, E. Houde, A. Buchheister, R. Latour, C. Lozano, and C.J. Sweetman. Drivers of forage population trends and consumption patterns: environmental, spatial and temporal patterns in Chesapeake Bay forage population distributions and predator consumption. Chesapeake Bay Sustainable Fisheries GIT Forage Action Team 2017, Annapolis, MD.

**Woodland, R.J.** Foraging in the Chesapeake. Science for Citizens (public seminar series), CBL, Solomons, MD, April 2017.  
<http://facwebsrv1.cbl.umces.edu/outreach-seminar-series/04-25-17.html>.

**Woodland, R.J.**, E.D. Houde, A. Buchheister, R. Latour, C. Lozano, C.J. Sweetman, M. Fabrizio and T. Tuckey. Environmental drivers of forage in Chesapeake Bay. Sustainable Fisheries GIT Meeting, Chincoteague Bay Field Station, Wallops Island, VA, June 2017.

**Woodland, R.J.**, E.D. Houde, A. Buchheister, R. Latour, C. Lozano, C.J. Sweetman, M. Fabrizio and T. Tuckey. Drivers of fish and invertebrate forage in Chesapeake Bay: Integrating space, time and the environment. Sustainable Fisheries GIT Meeting, St. Mary's College of Maryland, St. Mary's City, MD, December 2017.

**Woodland, R.J.**, and E.D. Houde. Review of Chesapeake Bay forage data/monitoring gaps. Forage Action Team Biannual Meeting, CBL, Solomons, MD, May 2018.

**Woodland, R.J.** Ongoing and proposed forage-relevant research: Update on mysid research in Chesapeake Bay and an introduction to proposed benthic indicator research. Forage Action Team Biannual Meeting, CBL, Solomons, MD, August 2019.

Wainger, L., **R.J. Woodland**, and T. Hollady. Benefits assessment of the Department of Defense Legacy Resource Management Program. Department of Defense Legacy Resource Program, Alexandria, VA August 2019 (Oral presentation).

**Woodland, R.J.** Patuxent River Research Cruises: Building on a scientific & educational legacy. Science for Citizens (public seminar series), CBL, Solomons, MD, October 2020. <https://youtu.be/kz8H3gi0qA4>.

## 2. Contributed Seminars and Presentations <sup>2</sup>

<sup>†</sup>Warry, F.Y., P. Reich, P.L.M. Cook, R. Mac Nally, J.R. Thomson, and **R.J. Woodland**. Nitrogen loads influence trophic organization of estuarine fish assemblages. Estuarine Coastal Sciences Association 55th Meeting, London, UK September 2015 (Oral presentation).

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<sup>2</sup> <sup>†</sup> Graduate student presentation, \* Undergraduate presentation, <sup>¶</sup> Postdoc presentation

- \*Nettere, O.J., E.W. Hamilton, **R.J. Woodland**, and R. Humston. Assessing smallmouth bass (*Micropterus dolomieu*) trophic position in a hierarchical river network using stable isotope methods. Meeting of the Virginia and North Carolina Chapters of the American Fisheries Society, Danville, VA, 2016 (Oral presentation).
- Woodland, R.J.**, V. Evrard, R. Mac Nally, P. Reich, J. Thomson, J. Walker, F.Y. Warry, and P.L.M. Cook. Changes in food web structure and trophic niche of estuarine fish assemblages in response to a gradient of ecosystem eutrophication. 10th International Conference on the Application of Stable Isotopes to Ecological Studies (IsoEcol), Tokyo, Japan, April 2016 (Oral presentation).
- †McNaughton, C., P.L.M. Cook, **R.J. Woodland**, I. Cartwright, and J. Beardall. The role of groundwater derived nutrients in driving estuarine productivity, ASLO Summer Meeting, June 2016 (Oral presentation).
- Rowe, C.L., **R.J. Woodland**, and P.F.P. Henry. Assessing sea level rise and future habitat availability for diamondback terrapins in Maryland. American Society of Ichthyologists and Herpetologists, New Orleans, LA, July 2016 (Oral presentation).
- Rowe, C.L., **R.J. Woodland**, and P.F.P. Henry. Assessing sea level rise and future habitat availability for diamondback terrapins in Maryland. Diamondback Terrapin Working Group, Mobile, AL, October 2016 (Oral presentation).
- \*Chapina, R., C.L. Rowe, and **R.J. Woodland**. Oxygen consumption by *Neomysis americana* under realistic summer temperatures and salinity conditions. ASLO Aquatic Sciences Meeting, Honolulu, HI, February 2017 (Poster presentation).
- †Grégoire Cortial, G. Winkler, **R.J. Woodland**, and R. Lasley-Rasher. Genetic heterogeneity of the coastal forage species *Neomysis americana*. Canadian Society for Ecology and Evolution Meeting, Victoria, British Columbia, May 2017 (Poster presentation).
- †La Rosa, G. and **R.J. Woodland**. Spatial and temporal gradients of black sea bass (*Centropristis striata*) diet and condition in the Mid Atlantic Bight. Tidewater Chapter Meeting, Virginia Beach, VA, February 2017 (Poster presentation).
- Woodland, R.J.**, C. Lozano, E.D. Houde, R. Latour, C.J. Sweetman, A. Buchheister, M. Fabrizio and T. Tuckey. Environmental drivers of forage dynamics in Chesapeake Bay. Tidewater Chapter Meeting, Virginia Beach, VA, February 2017 (Oral presentation).
- †Sweetman, C.J., A. Buchheister, **Woodland, R.J.**, E.D. Houde, C. Lozano, M. Fabrizio, T. Tuckey, and R. Latour. Consumption Patterns of Chesapeake Bay Fishes. Tidewater Chapter Meeting, Virginia Beach, VA, February 2017 (Oral presentation).
- †La Rosa, G. and **R.J. Woodland**. Spatial and temporal gradients of black sea bass (*Centropristis striata*) diet and condition in the Mid Atlantic Bight. Coastal and Estuarine Research Federation 24nd Biennial Meeting, Providence, RI, November 2017 (Oral presentation).

- Woodland, R.J.**, C. Lozano, E.D. Houde, R. Latour, C.J. Sweetman, A. Buchheister, M. Fabrizio and T. Tuckey. Integrating space, time and the environment: drivers of fish and invertebrate forage in Chesapeake Bay. Coastal and Estuarine Research Federation 24th Biennial Meeting, Providence, RI, November 2017 (Oral presentation).
- Harris, L., R. Murphy, **R.J. Woodland**, R. Sabo, K. Eshleman, H. Walker, and D. Liang. Climate, Clams, and a Changing Watershed: A time series analysis to quantify the impact of management and climate on water quality in the Potomac Estuary. Coastal and Estuarine Research Federation 24th Biennial Meeting, Providence, RI, November 2017 (Oral presentation, EPA Scientific Inventory:  
[https://cfpub.epa.gov/si/si\\_public\\_record\\_Report.cfm?dirEntryId=338675](https://cfpub.epa.gov/si/si_public_record_Report.cfm?dirEntryId=338675)).
- †Basenback, N., E. Crandall, Z. Gotthardt, K. Martin, G. La Rosa, N. Peyronnin, M. Seopela, V. Kennedy L. Lapham, C. Mitchelmore, J. Testa, and **R.J. Woodland**. Long-term change in the Patuxent River Estuary. Maryland Water Monitoring Council 23<sup>rd</sup> Annual Conference, Linthicum, Maryland, December 2017 (Poster presentation).
- ‡Arula, T., **R.J. Woodland**, and E. Houde. Defining the trophic role of a key forage species in a large coastal ecosystem. Association for the Sciences of Limnology and Oceanography Aquatic Sciences Meeting, San Juan, Puerto Rico, Feb-Mar, 2019 (Oral presentation).
- Harris, L., C. Dahlenberg, E. Schott, and **R.J. Woodland**. Jump-starting scientific co-production in Baltimore: Results of the “Harbor Science” Workshop. Association for the Sciences of Limnology and Oceanography Aquatic Sciences Meeting, San Juan, Puerto Rico, Feb-Mar, 2019 (Oral presentation).
- \*Murphy, T., **R.J. Woodland**, D. Quill, P. Billeter, and C. Allen. Building an anthropogenic isoscape: *Thalassia testudinum* in Ambergris Caye Lagoon, BZ. Atlantic Estuarine Research Society Biannual Spring Meeting, Woodbridge, VA, April 2019 (Poster presentation).
- †Quill, D., and **R.J. Woodland**. Preliminary analysis of mysid habitat preference in the Chesapeake Bay. Atlantic Estuarine Research Society Biannual Spring Meeting, Woodbridge, VA, April 2019 (Poster presentation).
- Najjar, R., M. Herrmann, S.M. Cintrón Del Valle, J.R. Friedman, M.A.M. Friedrichs, L.A. Harris, E.H. Shadwick, E.G. Stets, and **R.J. Woodland**. Alkalinity in tidal tributaries of the Chesapeake Bay. Coastal and Estuarine Research Federation. Coastal and Estuarine Research Federation 24th Biennial Meeting, Mobile, AL, November 2019 (Oral presentation).
- \*Murphy, T., **R.J. Woodland**, D. Quill, P. Billeter, and C. Allen. Building an anthropogenic isoscape: *Thalassia testudinum* in Ambergris Caye Lagoon, BZ. Coastal and Estuarine Research Federation. Coastal and Estuarine Research Federation 24th Biennial Meeting, Mobile, AL, November 2019 (Oral presentation).
- †Quill, D., and **R.J. Woodland**. The distribution, abundance and trophic ecology of *Neomysis americana* in Chesapeake Bay. Coastal and Estuarine Research



Federation. Coastal and Estuarine Research Federation 24th Biennial Meeting, Mobile, AL, November 2019 (Oral presentation).

**Woodland, R.J.**, L. Harris, and E. Schott. Structural and functional patterns of demersal fish assemblages in an urbanized coastal landscape. Coastal and Estuarine Research Federation. Coastal and Estuarine Research Federation 24th Biennial Meeting, Mobile, AL, November 2019 (Oral presentation).

\*Autrey, O., **R.J. Woodland**, and L. Plough. Fecundity and genetic differences of *Neomysis americana* in two tributaries of Chesapeake Bay. Coastal and Estuarine Research Federation. Coastal and Estuarine Research Federation 24th Biennial Meeting, Mobile, AL, November 2019 (Poster presentation).

**Woodland, R.J.**, L. Harris, E. Schott, A. Fireman, and E. Reilly. Decoupling of benthic and pelagic trophic pathways supporting a demersal consumer across an urbanized coastal landscape. Chesapeake Community Research Symposium 2020. Virtual conference (previously to be held in Annapolis, MD), June 2020 (Oral presentation).

Najjar, R., M. Herrmann, S.M. Cintrón Del Valle, J.R. Friedman, M.A.M. Friedrichs, L.A. Harris, E.H. Shadwick, E.G. Stets, and **R.J. Woodland**. Alkalinity in tidal tributaries of the Chesapeake Bay. Chesapeake Community Research Symposium 2020. Virtual conference (previously to be held in Annapolis, MD), June 2020 (Oral presentation).

#### D. Symposia Organized/Chaired for Professional Meetings

**Woodland, R.J.**, S. Herzka and J. Hoffman (Session co-chairs). Natural and anthropogenic drivers of food web structure and productivity. Coastal and Estuarine Research Federation. Coastal and Estuarine Research Federation 24<sup>th</sup> Biennial Meeting, Providence, RI, November 2017.

Boesch, D.F. (Session chair), S. Malkin, J.M. Testa and **R.J. Woodland** (Session co-chairs). Inflection Point in Chesapeake Science: Retrospective Contributions, Prospective Opportunities. Coastal and Estuarine Research Federation. Coastal and Estuarine Research Federation 24<sup>th</sup> Biennial Meeting, Providence, RI, November 2017.

**Woodland, R.J.** and C.J. Bradley (Session co-chairs). Using natural biomarkers to study Chesapeake Bay food webs. Chesapeake Community Research & Modeling Symposium, Annapolis, MD, June 2018.

**Woodland, R.J.**, L. Harris, and E. Schott (Session co-chairs). Ecological processes, structures and functions in tidal urban ecosystems. Coastal and Estuarine Research Federation. Coastal and Estuarine Research Federation 24<sup>th</sup> Biennial Meeting, Mobile, AL, November 2019.

Defilippi, J. and **R.J. Woodland** (Committee co-chairs). Scientific Program Committee. American Fisheries Society, 2021 National Conference, Baltimore, MD, August 2021.

Lapham, L., Testa, J., **Woodland, R.J.**, and E. Hobbs (Session co-chairs). Methane and nitrous oxide sources and fates in coastal environments. Coastal and Estuarine Research Federation. Coastal and Estuarine Research Federation 25<sup>th</sup> Biennial Meeting, Baltimore, MD, November 2021.

## E. Active Membership in Professional Societies

American Fisheries Society (Tidewater Chapter)  
American Fisheries Society (2021 Scientific Program Committee co-chair)  
Association for the Sciences of Limnology and Oceanography  
Coastal and Estuarine Research Federation  
Atlantic Estuarine Research Society  
The Crustacean Society

## IV. Teaching and Training

### A. University System of Maryland Courses Taught

Course	Title	Inst.	Semester	Enrollment	Credits	Co-Instr.	Lect.
MEES609	Long-term Changes in the Patuxent Ecosystem	UMCES	Fall '17	8	2	Testa, Lapham, Mitchelmore	4
MEES660	Ecological Foundations	UMCES	Fall '16, Fall '18, Fall '20	10, 11, 19	4	Hilderbrand	15-16
MEES708I	Isotope Biogeochemical Modeling	UMCES	Spring '16	3	3	<i>guest lecture</i>	1
MEES632	Physiological Ecology of Animals	UMCES	Spring '17, '19	5	3	<i>guest lecture</i>	1
MEES708I	Estuarine Systems Ecology	UMCES	Spring '17	6	3	<i>guest lecture</i>	1

### B. Graduate Students Supervised as Major Advisor

#### 1. Degrees Completed

Warry, Fiona Y. Ph.D. School of Biological Sciences-School of Chemistry, Monash University, Australia. Co-supervised (25%) with P.L.M. Cook, P. Reich and R. Mac Nally. "Linking the trophic function of estuaries to characteristics of their catchments". 2017.

La Rosa, Ginni. M.S. Ecological Systems (MEES), UMCES/CBL. "Trophic ecology of black sea bass on the US Mid Atlantic Bight". 2018.

McNaughton, Caitlyn. Ph.D. School of Biological Sciences-School of Chemistry, Monash University, Australia. "The role of groundwater derived nutrients in

driving estuarine productivity”. Co-supervised (25%) with P.L.M. Cook, J. Beardall and I. Cartwright. 2019.

Fireman, Alexandra. M.S. Ecological Systems (MEES), UMCES/CBL. “Foraging and movement ecology of the Jumby Bay, Antigua (WI), hawksbill sea turtle nesting population”. Thesis submitted, Anticipated graduation: 2021.

## 2. Current Graduate Students

Quill, Danielle. M.S. Ecological Systems (MEES), UMCES/CBL. “Understanding the distribution and ecology of *Neomysis americana* in Chesapeake Bay”. Anticipated graduation: 2021.

Criscuoli, Meagan. M.S. Ecological Systems (MEES), UMCES/CBL. “Microplastics in fish in the Potomac and Anacostia rivers”. Anticipated graduation: 2023.

Hobbs, Edward. Ph.D. Earth & Ocean Systems/Ecological Systems (MEES), UMCES/CBL. “Ecological and environmental implications of shallow methane-gas in the Patuxent River Estuary” (tentative title). Anticipated graduation: 2024.

Santos, Nina. Ph.D. Ecological Systems (MEES), UMCES/CBL. “Planktonic Omnivores and Stable Isotopes: Developing, Validating and Field-testing a Multi-species Functional Response Model” (tentative title). Anticipated graduation: 2025.

## 3. Current Graduate Student Committee Memberships

Arai, Kohma. Ph.D. Ecological Systems (MEES), UMCES/CBL. “Using otolith chemistry to evaluate habitat connectivity of fish populations at different spatial scales and the consequences to the population dynamics”.

Schiano, Samantha. M.S. Ecological Systems (MEES), UMCES/CBL. “The impacts of alternative harvest control rules (HCR) on Atlantic menhaden and their predator, striped bass” (tentative title).

Green, Emma. M.S. Ecological Systems (MEES), UMCES/CBL. “Food web analysis in an Arctic marine ecosystem using compound-specific amino acid stable isotopes” (tentative title).

Rodriguez, Lauren. M.S. Ecological Systems (MEES), UMCES/CBL. “Acoustic approaches to studying dolphin ecology in Chesapeake Bay” (tentative title).

Smith, Shannon C.F. Ph.D. Department of Fisheries Science, Virginia Institute of Marine Science. “Multi-scale evaluation of habitat quality for juvenile fishes in Chesapeake Bay and coastal Virginia”.

### 3. Postdoctoral Fellows Supervised

Arula, Timo. 2018-2019 “Early life history trophic ecology of bay anchovy, *Anchoa mitchilli*, in Chesapeake Bay”. Co-supervised with Prof. Edward Houde, (Emeritus). Baltic-American Freedom Foundation Fellowship award.

### 4. Research Internships Supervised

Nicolle Ferreira	Ph.D. candidate, Universidade Federal de Santa Catarina, Florianopolis, Brazil	February 2014–January 2015	International Graduate Study Abroad Fellowship to N.F.	Eutrophication effects on trophic ecology of estuarine macrofauna
Joseph Molina	Undergraduate, College of Southern MD	Spring/Fall 2016	CSM internship	Techniques and methods in estuarine ecology
Rosaura Chapina	Undergraduate, University of Texas, El Paso	Summer 2016	Research Experience for Undergraduates	Metabolism of mysid shrimp
Brooke Iacone ( <i>co-mentored</i> )	Undergraduate, Rowan University	Summer 2017	Research Experience for Undergraduates	Tracking feeding of mysid shrimp via flow-cytometry
Theresa Murphy	Undergraduate, College of Southern MD	2017-present	CSM internship	Tracing human nutrients in a Belizean coastal system
Cameron Hoyt	Undergraduate, College of Southern MD	2017-2018	CSM internship	Tracing human nutrients in a Belizean coastal system
Nicholas Johnson	Undergraduate, College of Southern MD	Spring 2019	CSM internship	Chesapeake Bay mysid population ecology
Oliver Autrey ( <i>co-mentored</i> )	Undergraduate, Michigan State University	Summer 2019	Research Experience for Undergraduates	Mysid genetic and fecundity analysis
Brianna Douglas	Undergraduate, College of Southern MD	2019	CSM internship	Chesapeake Bay mysid population ecology
Ana E. Rios Morales	Undergraduate, Universidad Ana G. Méndez	Summer 2020 (virtual internship)	Research Experience for Undergraduates	Chesapeake Bay invertebrate ecology

Corinne Charney	Post-High School	Fall 2020 (virtual internship)	Pre-collegiate internship	Image analysis: mysid size distribution
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## V. Outreach and Service

### A. Federal/State/Local Government

Harbor Science and Stakeholder Workshop – co-organizer with E. Schott (Lead) and L. Harris (co-organizer); held November 2, 2018, at UMCES/Institute of Marine and Environmental Technology (<https://www.umces.edu/HarborScience>)

Maryland Sea Grant National Science Foundation Research Experience for Undergraduates selection panel – committee member, review applicants and select participants for the 2019 MDSG NSF REU program, January – May 2019.

Chesapeake Bay Program Forage Action Team (FAT) – team member, FAT leads the development of the forage fish management strategy associated with the forage fish outcome in the new Chesapeake Bay Watershed Agreement ([https://www.chesapeakebay.net/who/group/forage\\_action\\_team](https://www.chesapeakebay.net/who/group/forage_action_team)), 2016-present.

Middle Branch Waterfront - Science & Technology Advisory Committee – invited member, provide expert advice for The City and South Baltimore Gateway Partnership redevelopment plan (Middle Branch Master Plan, <https://sbgpartnership.org/about/>), June 2020-present.

NOAA Virtual Fish Habitat Workshop, Invited workshop expert to provide input on a Choptank River, MD, pilot fish habitat assessment, October 2020.

### B. UMCES and Laboratory

Course development team – Foundations in Ecology, foundational course under new MEES curriculum (2016).

Chesapeake Biological Laboratory Seawater Committee member (2015-2016).

Technical Review Committee member – Confocal microscope purchase (2016).

Chesapeake Biological Laboratory FRA promotion review committee member (2016-present).

Substitute M.Sc. Thesis Defense Committee member. Zaveta, Danielle R.  
“Development and application of nucleic acid-based index for growth of juvenile blue crabs” July, 2016.

Long-term Patuxent River Cruise Program Committee member (2017-present).

CTD instrumentation – purchasing & logistics for shared CBL/RFO SeaBird 19plus  
V2 SeaCAT profiler CTD (2016-present)

UMCES-CSM Internship Program – organized and oversaw participation by  
College of Southern Maryland community college student internships at  
CBL (23 interns total, 2016-2020).

UMCES Self Study Working Group 3 committee member – Standard III: Design  
and Delivery of the Student Learning Experience; Middle States  
Commission on Higher Education (2019-present).

Chesapeake Biological Laboratory Search Committee member: Assistant Faculty  
hire (2019-2020 – hiring postponed due to COVID-19 disruption).

Chesapeake Biological Laboratory Search Committee member: Assistant Research  
Scientist hire (2019).

### C. Other Professional Services

NOAA Restore Act Science Program, proposal reviewer (2017).

NOAA Coastal and Ocean Climate Applications, panelist (2020).

North Carolina Sea Grant Program, proposal reviewer (2017).

Natural Sciences and Engineering Research Council of Canada, proposal reviewer  
(2017).

National Science Foundation, panelist (2016, 2019).

Washington Sea Grant, proposal reviewer (2019).

Peer review for refereed journals: Aquatic Sciences, Ecosphere, PLOS One, Rapid  
Communications in Mass Spectrometry, Environmental Science &  
Technology, Marine Ecology Progress Series, Estuarine Coastal and  
Shelf Science, Estuaries and Coasts, Hydrobiologia, Canadian Journal of  
Fisheries and Aquatic Sciences, ICES Journal of Marine Science,  
Transactions of the American Fisheries Society, North American Journal  
of Fisheries Management, Fishery Bulletin, Environmental Biology of  
Fishes, Ambio, Ecology of Freshwater Fish

## VI. Press Coverage

Love our Lakes – Gippsland Lakes, Victoria, Australia; Water Quality Interview, 2015 (<http://www.loveourlakes.net.au/gippsland-lakes/page/2/>)

“Foraging in the Chesapeake Bay” – Calvert Beacon, May 1, 2017 (<https://www.calvertbeacon.com/foraging-chesapeake-bay/>).

“Who's Eating Whom in the Chesapeake”, Jeffrey Brainard, Chesapeake Quarterly, 2017 (<https://www.chesapeakequarterly.net/V16N2/main1/>).

“USING SOUND, SCIENTISTS SEARCH MURKY BAY WATERS”, Kristi Moore, University of Maryland Center for Environmental Science, 2018 (<https://www.umces.edu/research-highlights/using-sound-scientists-search-murky-bay-waters>).

“Terrapins: ‘Poster Child for Climate Change’”, Dick Myers, The Calvert County Times, September 5, 2019 (<https://countytimes.somd.com/socg/2019/09-sep/2019-09-05-socg.pdf>).

“What’s up, doc? How scientists are developing health charts for fish populations”, Oceanbites, Katherine Barrett, 2020 (<https://oceanbites.org/whats-up-doc-how-scientists-are-developing-health-charts-for-fish-populations/>).

“NSF AWARDS \$1 MILLION FOR COASTAL OCEAN RESEARCH TO UNDERSTAND THE ECOLOGY AT THE INTERFACE OF THE CHESAPEAKE BAY AND ATLANTIC OCEAN (UMCES)” Amy Pelsinsky, 2021 (<https://www.umces.edu/content/nsf-awards-1-million-for-coastal-ocean-research-to-understand-the-ecology-at-the-interface>)

University of Maryland Center for Environmental Science to map Chesapeake Bay nutrient plume”, Rachael Pacella, Annapolis Gazette, April 20, 2021 (<https://www.capitalgazette.com/environment/ac-cn-umces-bay-plume-study-20210420-z67jahgv5zdk7k4sx34mn2bmam-story.html>)