

MARY ISABEL O'CONNOR

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EDUCATION

2008 Ph.D. Ecology, University of North Carolina – Chapel Hill
2000 B.Sc. Aquatic Biology, Brown University

PROFESSIONAL POSITIONS

2016 *Associate Professor*, Department of Zoology, University of British Columbia
2013 *Associate Director*, Biodiversity Research Centre, University of British Columbia
2011 *Assistant Professor*, Department of Zoology, University of British Columbia
2009 *Postdoctoral Associate*, National Center for Ecological Analysis and Synthesis

AWARDS AND DISTINCTIONS

International Professional Research Excellence (IRPE) Prize,
International Ecology Institute (€3000) 2016
Killam Research Prize, UBC (\$5000) 2016
Peter Wall Institute, Early Career Start-up Research Award (\$1000) 2013
National Science and Engineering Research Council (NSERC) top-up (\$5K) 2013

FELLOWSHIPS

Early Career Fellow, Ecological Society of America (ESA) 2016
Wall Scholars Research Award, Peter Wall Institute for Advanced Studies (\$20,000) 2015
Alfred P. Sloan Foundation, Sloan Fellowship for Ocean Sciences (\$50,000/yr) 2013
National Science Foundation, Graduate Research Fellowship (3-yr fellowship) 2004
UNC-Chapel Hill, Royster Fellowship (5-yr fellowship) 2003

RESEARCH GRANTS and AWARDS

Canadian Healthy Oceans Network II (CHONe II) (\$5M), Network Investigator 2016-2020
Canadian Foundation for Innovation, Leaders Opportunity Fund (\$250K) 2016-2019
Tula Foundation, Microbes to Macrophytes (\$55,000), Co-investigator 2014-2016
Canadian Institute for Ecology and Evolution (CIEE), O'Connor and Gonzalez 2015
German Center for Biodiversity Synthesis (iDiv), Supp, Dornelas and Gonzalez 2015
National Science and Engineering Council, RTI, Co-investigator 2015
National Center for Ecological Analysis and Synthesis (NCEAS), O'Connor and Greig 2012
Canadian Institute for Ecology and Evolution (CIEE), Greig and O'Connor 2012
Canadian Foundation for Infrastructure (CFI) (\$325,000) 2012
UBC Mobility Award (\$1500) 2012
Bamfield Marine Science Centre Research Grant (\$5000) 2012
National Science and Engineering Research Council (NSERC) Discovery Grant (\$110K) 2011
National Fish and Wildlife Association's Budweiser Conservation Scholarship (\$10K) 2007
Smith Research Grant, UNC-Chapel Hill (\$1000) 2006
UNC-Chapel Hill Travel Grant (\$475) 2005

Brown University, Hughes Fellowship: Grant for Undergraduate Research (\$800) 2000
 Brown University, Undergraduate Teaching / Research Assistantship: (\$2200) 1998

SYNTHESIS ACTIVITIES (selected)

Understanding recent biodiversity change across spatial and temporal scales. Working group jointly funded by Canadian Institute for Ecology and Evolution (CIEE), Quebec Center for Biodiversity Science (QCBS) and UBC's Biodiversity Research Centre. O'Connor and Gonzalez, organizers. 2015

sChange: Biodiversity change through time. Germany's Biodiversity Synthesis Centre (iDiv) 2016

Warming consumers and their prey: General principles and applications for how temperature affects trophic interactions, ESA Symposium, M. I. O'Connor, H. Greig organizers 2013

Synthesizing theory and databases to advance a general framework for how warming affects trophic interactions (NCEAS), M. O'Connor and H. Greig co-lead 2012-2013

Integrating body size and thermal scaling to understand the effects of temperature on food webs (CIEE), H. Greig and M. I. O'Connor co-lead. 2012

Zostera Experimental Network (ZEN), partner in global comparative experiment 2011-2013

Biodiversity and Ecosystem Function: Future Challenges working group (NCEAS), invited participant, led by Bradley Cardinale, David Hooper and Emmett Duffy, 2010 - 2012

Effects of Climate Change on Marine Systems working group (NCEAS), invited participant, led by Anthony Richardson and Elvira Poloczanska, 2009-2012

PUBLICATIONS (Peer-reviewed).

*products of O'Connor's NCEAS/CIEE working groups

undergraduate, graduate or postdoctoral research under O'Connor's supervision

= equal contributions among authors

O'Connor, M. I., A. Gonzalez, J. E. K. Byrnes, B. J. Cardinale, J. E. Duffy, L. Gamfeldt, J. Griffin, D. U. Hooper, B. Hungate, A. Paquette, P. Thompson, L. Dee, K. Dolan. *In press*. Toward predictive scaling coefficients for biodiversity and ecosystem functioning relationships. *Oikos*.

Gonzalez, A., B. J. Cardinale, J. E. K. Byrnes, F. Isbell, G. R. H. Allington, D. G. Brown, A. Endsley, D. U. Hooper, **M. I. O'Connor** and M. Loreau. 2016. The challenge of estimating global patterns of local biodiversity change: a critique of recent papers finding no net loss of local diversity. *Ecology*. *In press*.

Brown, C., **M. I. O'Connor**, E. S. Poloczanska, L. Buckley, M. Burrows, C. Duarte, B. Halpern, J. Pandolfi, C. Parmesan, A. J. Richardson. 2016. Ecological and methodological drivers of species' distribution and phenology responses to climate change. *Global Change Biology* 22(4) 1548-1560.

#Tseng, M. and **M. I. O'Connor**. 2015. Predation pressure accelerates evolutionary response of prey to temperature change. *Biology Letters* 11:20150798.

Bruno, J. F., L. A. Carr, and **M. I. O'Connor**. 2015. Marine Metabolic Ecology: Exploring the role of temperature in the ocean through metabolic scaling. *Ecology* 96(12): 3126-3140.

#Huang, A., M. Essak and **M. I. O'Connor**. 2015. Top-down control by great blue herons *Ardea Herodias* regulates seagrass-associated epifauna. *Oikos* 124(11): 1492-1501.

- Atkins, R. L., J. N. Griffin, C. Angelini, **M. I. O'Connor**, B. R. Silliman. 2015. Consumer-plant interaction strength: importance of body size, density and metabolic biomass. *Oikos* 124(10): 1274-1281.
- #Elahi, R., **M. I. O'Connor**, J. E. K. Byrnes, J. Dunic, B. K. Eriksson, M. J. S. Hensel, and P. J. Kearns. 2015. Recent trends in local-scale marine biodiversity reflect community structure and human impacts. *Current Biology* 25(14): 1938-1943.
- #Stafl, N. and **M. I. O'Connor**. 2015. American pikas' (*Ochotona princeps*) foraging response to hikers and sensitivity to heat in an alpine environment. *Arctic, Antarctic and Alpine Research* 47(3): 519-527.
- Duffy, J. E., P. L. Reynolds, C. Bostrom, J. A. Coyer, M. Cusson, S. Donadi, J. G. Douglass, J. Eklof, A. Engelen, B. K. Eriksson, S. Fredriksen, L. Gamfeldt, C. Gustafsson, G. Hoarau, M. Hori, K. Hovel, K. Iken, J. S. Lefcheck, P-O. Moksnes, M. Nakaoka, **M. I. O'Connor**, J. L. Olsen, J. P. Richardson, J. L. Ruesink, E. E. Sotka, J. Thormar, M. A. Whalen, J. J. Stachowicz. 2015. Biodiversity mediates top-down control in eelgrass ecosystems: A global comparative experiment. *Ecology Letters* 18:696-705.
- #Amundrud, S. L., D. S. Srivastava, and **M. I. O'Connor**. 2015. Indirect effects of predators control herbivore richness and abundance in a benthic eelgrass (*Zostera marina*) mesograzed community. *Journal of Animal Ecology* 84(4): 1092-1102.
- *DeLong, J., B. Gilbert, J. B. Shurin, V. M. Savage, C. F. Clements, A. I. Dell, H. S. Greig, C. D. G. Harley, P. Kratina, K. S. McCann, T. D. Tunney, D. A. Vasseur, **M. I. O'Connor**. 2015. The body size dependence of trophic cascades. *The American Naturalist*. 185: 354-366.
- #Knight, N. S., #C. Prentice, *M. Tseng, and **M. I. O'Connor**. 2015. A comparison of epifaunal invertebrate communities in native eelgrass *Zostera marina* and non-native *Zostera japonica* at Tsawwassen, B. C. *Marine Biology Research* 11(6): 564-571.
- O'Connor**⁺, **M. I.**, J. Holding⁺, C. V. Kappel, C. M. Duarte, K. Brander, C. J. Brown, J. F. Bruno, L. Buckley, M. T. Burrows, B. S. Halpern, W. Kiessling, P. Moore, J.M. Pandolfi, C. Parmesan, E. Poloczanska, D. Schoeman, W. Sydeman, A. J. Richardson. 2015. A Confidence Index for Attribution of Biological Impacts of Climate Change. *Global Ecology and Biogeography*. 24(1): 64-76. [OPEN ACCESS]
- *Gilbert, B., T. D. Tunney, K. S. McCann, J. P. DeLong, D. A. Vasseur, V. Savage, J. B. Shurin, A. I. Dell, B. T. Barton, C. D. G. Harley, H. M. Kharouba, P. Kratina, J. L. Blanchard, C. Clements, M. Winder, H. S. Greig and **M. I. O'Connor**. 2014. A bioenergetic framework for the temperature dependence of trophic interaction strength. *Ecology Letters*. 17: 902-914.
- Clarke, A. and **M. I. O'Connor**. 2014. Carnivores are cool: diet and body temperature in vertebrates. *Global Ecology and Biogeography*. 23: 1000-1008.
- Gerber, L. R., M. d. M. Mancha-Cisneros, **M. I. O'Connor** and E. R. Selig. 2014. Climate change impacts on connectivity in the ocean: Implications for conservation. *Ecosphere* 5(3) Article 33. [OPEN ACCESS]
- *Vasseur, D.A., J. P. DeLong, B. Gilbert, H.S. Greig, C. D. G. Harley, K.S. McCann, V. Savage, T.D. Tunney, and **M. I. O'Connor**. *Accepted*. Increased temperature variation poses a greater risk to species than climate warming. *Proceedings of the Royal Society*.
- Burrows, M. T., D. Schoeman, A. J. Richardson, J. G. Molinos, A. Hoffman, L. B. Buckley, P. Moore, C. J. Brown, J. F. Bruno, C. M. Duarte, B. S. Halpern, O. Hoegh-Guldberg, C. V. Kappel, W. Kiessling, **M. I. O'Connor**, J.M. Pandolfi, C. Parmesan, W. J. Sydeman, S.

- Ferrier, K. Williams, and E. S. Poloczanska. *Accepted Dec 31, 2013*. Climate velocity and geographical limits to shifts in species' distributions. *Nature*.
- Balvanera, P., I. Syddique, L. Dee, A. Paquette, F. Isbell, A. Gonzalez, J. Byrnes, **M. I. O'Connor**, B. A. Hungate, J. N. Griffin. 2014. Linking biodiversity and ecosystem services: current uncertainties and the necessary next steps. *Bioscience*. 64(1): 49-57.
- Poloczanska, E. S., C. J. Brown, W. J. Sydeman, W. Kiessling, D. S. Schoeman, P. J. Moore, K. Brander, J. F. Bruno, L. B. Buckley, M. T. Burrows, C. M. Duarte, B. S. Halpern, J. Holding, C. V. Kappel, **M. I. O'Connor**, J. M. Pandolfi, C. Parmesan, F. Schwing, S. A. Thompson, A. J. Richardson. 2013. Global Imprint of Climate Change in Marine Life. *Nature Climate Change* 3: 919-925.
- Gilbert, B. and **M. I. O'Connor**. 2013. Climate change and species interactions: Beyond local communities. *Annals of the New York Academy of Sciences*. 1297: 98-111.
- Leis, J. M., J. E. Caselle, I. R. Bradbury, T. Kristiansen, J. K. Llopiz, M. J. Miller, **M. I. O'Connor**, C. B. Paris, A. L. Shanks, S. M. Sogard, S. E. Swearer, E. A. Treml, R. D. Vetter, R. R. Warner. 2013. Does fish larval dispersal differ between high and low latitudes? *Proceedings of the Royal Society of London, B*. 280: 1759.
- Cuddington, K., M.-J. Fortin, L. Gerber, A. Hastings, A. Liebhold, **M. I. O'Connor**, C. Ray. 2013. Ecological management in a changing world requires process-based models. *Ecosphere*. 4(2).
- Klinger, D. H., M. Turnipseed, J. L. Anderson, F. Asche, L. Crowder, A. G. Guttormsen, B. S. Halpern, **M. I. O'Connor**, R. Sagarin, K. A. Selkoe, G. Schester, M. D. Smith, P. Tyedmers. 2012. Moving beyond the fished or farmed dichotomy. *Marine Policy*. 38:369-374.
- Hooper, D. U., E. C. Adair, B. J. Cardinale, J. E. K. Byrnes, B. A. Hungate, K. L. Matulich, A. Gonzalez, J. E. Duffy, L. Gamfeldt and **M. I. O'Connor**. 2012. A global synthesis reveals biodiversity loss as a major driver of ecosystem change. *Nature*. 486: 105-108.
- Wolkowich, E. M., J. Regetz, and **M. I. O'Connor**. 2012. Advances in global change research require open science at the individual-level. *Global Change Biology*. 18: 2102-2110.
- Long, Z. T., **M. I. O'Connor** and J. F. Bruno. 2012. Effects of predation on intraspecific aggregation of prey and prey diversity in a subtidal marine food web. *Journal of Experimental Marine Biology and Ecology*. 416: 115-120.
- O'Connor, M. I.**, E. R. Selig, M. L. Pinsky and Florian Altermatt. 2012. Toward a conceptual framework for climate change ecology. *Global Ecology and Biogeography*. 21: 693-703.
- Burrows, M. T., D. Schoeman, C. M. Duarte, **M. I. O'Connor**, L. B. Buckley, C. V. Kappel, C. Parmesan, B. S. Halpern, C. J. Brown, K. Brander, J. F. Bruno, J.M. Pandolfi, W. J. Sydeman, A. J. Richardson, E. S. Poloczanska. 2012. The Pace of Shifting Climate in Marine and Terrestrial Ecosystems. Letter: Response to Hulme. *Science*.
- Burrows, M. T., D. Schoeman, L. B. Buckley, P. Moore, E. S. Poloczanska, K. Brander, C. J. Brown, J. F. Bruno, C. M. Duarte, B. S. Halpern, J. Holding, C. V. Kappel, W. Kiessling, **M. I. O'Connor**, J.M. Pandolfi, C. Parmesan, F. B. Schwing, W. J. Sydeman, A. J. Richardson. 2011. The Pace of Shifting Climate in Marine and Terrestrial Ecosystems. *Science* 334: 652-655.
- O'Connor, M. I.**, B. Gilbert, and C. J. Brown. 2011. Theoretical predictions for how temperature affects the dynamics of interacting herbivores and plants. *The American Naturalist* 178(5): 626-638.
- Cardinale, B. J., K. Matulich, D. U. Hooper, J. E. Byrnes, J. E. Duffy, L. Gamfeldt, P. Balvanera, **M. I. O'Connor**, and A. Gonzalez. 2011. The functional role of producer diversity in ecosystems. *American Journal of Botany* 98(3): 572-592.

- Kordas, R., C. D. G. Harley, **M. I. O'Connor**. 2011. Community ecology in a warming world: thermal influence on interspecific interactions. *Journal of Experimental Marine Biology and Ecology* 400(1-2): 218-226.
- O'Connor, M. I.**, C. R. Violin, A. Anton, L. M. Ladwig and M. F. Piehler. 2011. Shoreline stabilization alters patterns of macroalgal primary production near salt marshes. *Wetlands Ecology and Management* 19:131-140 [OPEN ACCESS]
- Smith, M. D., C. A. Rohiem, L. B. Crowder, B. S. Halpern, M. Turnipseed, J. L. Anderson, F. Asche, L. Bourillon, A. G. Guttormsen, A. Khan, L. A. Liguori, A. McNevin, **M. I. O'Connor**, D. Squires, P. Tyedmers, C. Brownstein, K. Carden, D. H. Klinger, R. Sagarin, K. A. Selkoe. 2010. Sustainability and Global Seafood. *Science* 327: 784-786.
- Moran, E. R., P. L. Reynolds, L. M. Ladwig, **M. I. O'Connor**, Z. T. Long, and J. F. Bruno. 2010. Predation intensity is negatively related to plant species richness in a benthic marine community. *Marine Ecology Progress Series* 400: 277-282.
- O'Connor, M.I.**, M. F. Piehler, D. M. Leech, A. Anton and J.F. Bruno. 2009. Warming and resource availability shift metabolism of a marine food web. *PLoS Biology* 7(8) e1000178. [OPEN ACCESS]
- O'Connor, M.I.** and J.F. Bruno. 2009. Predator richness has no effect in a diverse marine food web. *Journal of Animal Ecology*. 78: 732-740.
*Featured as an *In Focus* article with commentary by S. Loreaux and M. Loreau. 2009. Disentangling multiple predator effects in biodiversity and ecosystem functioning research. *Journal of Animal Ecology* 78(4): 695-698.
- O'Connor, M.I.** 2009. Warming strengthens an herbivore-plant interaction. *Ecology* 90(2) 388-398.
- Sax, D. F., Stachowicz, J. J., Brown, J. H., Bruno, J. F., Dawson, M. N., Gaines, S. D., Grosberg, R. K., Hastings, A., Holt, R. D., Mayfield, M. M., **O'Connor, M.I.**, and Rice, W. R. 2007. Ecological and evolutionary insights from species invasions. *Trends in Ecology and Evolution* 22(9): 465-471.
- O'Connor, M.I.**, J.F. Bruno, S.D. Gaines, B.S. Halpern, S.E. Lester, B.P. Kinlan and J.M. Weiss. 2007. Temperature control of larval dispersal: implications for marine ecology, evolution and conservation. *Proceedings of the National Academy of Sciences of the United States of America* 104: 1266-1271. [OPEN ACCESS]
- Bruno, J.F. and **M.I. O'Connor**. 2005. Cascading effects of predator diversity and omnivory in marine food webs. *Ecology Letters*, 8: 1048-1056.
- McDonald, R., M. McKnight, D. Weiss, E. Selig, **M.I. O'Connor**, C. R. Violin, A. Moody. 2005. Species compositional similarity and ecoregions: Do ecoregion boundaries represent zones of higher species turnover? *Biological Conservation*, 126: 24-40.
* recommended by P. Kareiva to Faculty of 1000.
- Wonham, M., **M. O'Connor** and C. Harley. 2005. Positive effects of a dominant invader on introduced and native mudflat species. *Marine Ecology Progress Series*, 289: 109-116.

REPORTS, ARTICLES, BOOK CHAPTERS (selected)

- Jarvis, L., K. McCann, and **M. I. O'Connor**. *In press*. The asymmetrical impacts of climate change on food webs. In *Biodiversity and Climate Change, Vol II*. Edited by T. Lovejoy and L. Hannah.
- Hoegh-Guldberg, O., C. Ronghuo, P. B. Brewer, V. J. Fabry, K. Hilmi, S. Jung, E. Poloczanska, S. Sundby, J. Bell, C. J. Brown, M. T. Burrows, L. Cao, S. Donner, C. M. Eakin, A. Eide, B.

- Halpern, C. R. McClain, S. McKinnell, **M. I. O'Connor**, C. Parmesan, R. Ian Perry, A. J. Richardson, S. Schoeman, S. Signorini, W. Skirving, D. Stone, W. Sydeman, R. Zhang, R. van Hooidonk. *Chapter 30. The Ocean*. In: Climate Change 2014: Impacts, Adaptation and Vulnerability, Fifth Assessment Report (AR5), Intergovernmental Panel on Climate Change (IPCC). 2014.
- O'Connor, M. I.**, J. #Bernhardt, and N. °Caulk. 2015. Food webs. *Oxford Bibliographies in Ecology*. Ed: David Gibson. EIC: David Gibson. New York. Oxford University Press. June 29 2015.
- O'Connor, M. I.** and J. E. K. Byrnes. 2013. Biodiversity and Ecosystem Functioning. In *Marine Community Ecology and Conservation*, Edited by M. Bertness, B. Silliman, J. Stachowicz and J. Bruno. Sinauer.
- O'Connor, M. I.** and J. F. Bruno. 2012. Marine Invertebrates. In: *Metabolic Ecology*. Editors: Sibly, Brown and Kodric-Brown. Wiley Press, London.