

M. Wing Goodale, Ph.D.

Biodiversity Research Institute (BRI)

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BRI Position:

Senior Science Director – Support and coordinate 25 scientific staff and 12 programs.
Research focused on offshore wind energy development and wildlife.

UMaine Positions:

Adjunct Faculty, School of Marine Sciences

Adjunct Research Professor, Advanced Structures & Composites Center

Education:

2018	PhD, UMass Amherst, Environmental Conservation
2001	MPhil, College of the Atlantic, Human Ecology
1996	BA, Colorado College, Biology

Fellowships:

2016	Fellow, Switzer Foundation
2013/2014	Associate/Fellow, UMass National Science Foundation IGERT, Offshore Wind Energy Program
2005	National Fellow, Explorers Club

Selected Boards:

2021-present	Co-Chair Maine Offshore Wind Roadmap, Env. & Wildlife Working Grp.
2021-present	Research Advisor for the Responsible Offshore Science Alliance (ROSA)
2019-present	Committee Member, Maine Audubon PACE
2010-2014	Board of Directors, Casco Bay Estuary Partnership
2006-2013	Board Member, Maine Board of Environmental Protection
2006-2008	Committee Member, Falmouth Conservation Commission
2004-2005	Chair, Membership Committee, Waterbirds Society
2002-2005	Board of Directors, Natural Resources Council of Maine

BRI Employment:

2020-present	Senior Science Director
2016-2020	Senior Deputy Director, Center for Ecology & Conservation Research Director
2009-2016	Deputy Director, Conservation Biologist
2005-2009	Senior Research Biologist, Coastal Bird Program Director
2001-2005	Research Biologist

Recent Renewable Energy Related Work Experience:

2013-present	Support permitting of multiple offshore wind energy projects on the US Atlantic Outer Continental Shelf (project manager and lead scientist)
2018-present	Support state agencies and onshore wind developers identify and complete bird and bat mitigations measures (project manager and lead scientist)
2017	University of Maine , Support permitting and outreach related to Maine <i>Aqua Ventus</i> (project manager and lead scientist)
2016	Pacific Northwest National Laboratory , Field testing of a thermal stereo-optic camera system to track birds and bats (project manager)
2016, 2014	Maine Coastal Program , Analysis of boat survey data (project manager)
2014-2015	Support environmental non-governmental organization develop offshore wind and wildlife policies and information
2014	Department of Energy , Stereo-optic high definition imaging: A new technology to understand bird and bat avoidance of wind turbines (principle investigator)
2011- 2013	U.S. Fish and Wildlife Service , Red-throated loon, gannet, and scoter satellite tracking in the mid-Atlantic (project manager)
2013	Great Lakes Commission , Pelagic Bird Survey Phase II, Data Analysis and Delivery Project (co-project manager) Maine Sea Grant , Developing wildlife monitoring capabilities for weather buoys in the Gulf of Maine (project manager) U.S. Fish and Wildlife Service , Management of satellite telemetry data for Sea Duck Joint Venture and U.S. Fish and Wildlife Service (project manager)
2009-2013	Private and public foundations (Maine Community Foundation, Oak Foundation, Davis Foundation, An Environmental Trust Inc, Maine Outdoor Heritage Fund), Wildlife Science and Marine Wind Energy Initiative (project manager)
2012	Maryland Department of Natural Resources , High definition aerial surveys and boat-based surveys of wildlife in the mid-Atlantic Wind Energy Areas (co-project manager)
2011	U.S. Department of Energy , Mid-Atlantic bird, marine mammal, and turtle surveys within Wind Energy Areas (co-project manager)

Field Research Experience

2010-2012	Saw-whet owl banding, BRI
2002-2008	Various Songbird surveys, BRI
2002-2008	Various bird mercury studies, BRI
2006-2008	Contaminants in Maine birds studies, BRI
2001-2008	Wildlife web-cameras, BRI
1999-2000	Herring gull feeding study, College of the Atlantic
1990-1998	Various seasonal bird studies in Maine, New York, California, Hawaii, Costa Rica, Mexico

Publicly Available Offshore Wind Related Publications:

- 2020 Stenhouse, I. J., A. M. Berlin, A. T. Gilbert, **M. W. Goodale**, C. E. Gray, W. A. Montevecchi, L. Savoy, and C. S. Spiegel. 2020. Assessing the exposure of three diving bird species to offshore wind areas on the U.S. Atlantic Outer Continental Shelf using satellite telemetry. *Div. and Dist.* n/a. doi: 10.1111/ddi.13168
- Goodale, M.W.** and A. Milman. 2020. Assessing cumulative exposure of Northern Gannets to offshore wind farms. *Wildlife Society Bulletin* 44: 252-259
- 2019 **Goodale, M.W.**, A. Milman. 2019. Assessing the cumulative exposure of wildlife to offshore wind energy development. *Journal of Environmental Management* 235:77-83
- Goodale, M.W.**, A. Milman, and C. Griffin. 2019. Assessing the cumulative adverse effects of offshore wind energy development on seabird foraging guilds along the East Coast of the United States. *Environmental Research Letters*. <https://doi.org/10.1088/1748-9326/ab205b>
- 2018 Epsilon and Associates. Vineyard Wind Draft Construction and Operation Plan. <https://www.boem.gov/Vineyard-Wind-Cop-Vol-II/>
- Goodale, M.W.**, 2018. Doctoral Dissertations. Cumulative Adverse Effects of Offshore Wind Energy Development on Wildlife, vol. 1343 Environmental Conservation. University of Massachusetts. https://scholarworks.umass.edu/dissertations_2/1343
- 2017 Spiegel, C. S., A.M. Berlin, A.T. Gilbert, C.O. Gray, W.A. Montevecchi, I.J. Stenhouse, S.L. Ford, G.H. Olsen, J.L. Fiely, L. Savoy, M.W. **Goodale**, and C. M. Burke. 2017. Determining Fine- scale Use and Movement Patterns of Diving Bird Species in Federal Waters of the Mid- Atlantic United States Using Satellite Telemetry. Sterling (VA): U.S. Department of the Interior, Bureau of Ocean Energy Management. OCS Study BOEM 2017-069
- Adams, E., Burns, S., Dorr C., Duron M., Gilbert A., **Goodale M.W.**, Moratz R., and Robinson M. 2017. Stereo-Optic High Definition Imaging: A New Technology to Understand Bird and Bat Avoidance of Wind Turbines: Final Technical Report. DOE: DE-EE0006803
- 2016 **Goodale, M. W.** and I. J. Stenhouse. 2016. A conceptual model for determining the vulnerability of wildlife populations to offshore wind energy development. *Human-Wildlife Interactions* 10:53-61 (1)
- 2015 Williams, K., E. Adams, E. Connelly, A. Gilbert, W. **Goodale**, C. Gray, S. Johnson, I. Stenhouse, and J. Tash. 2015. Estimating Costs Associated with Executing the New York State Offshore Wind Wildlife Research Plan. A report submitted to NYSEDA (1)
- 2014 **Goodale, M. W.** and A. Milman. 2014. REVIEW PAPER: Cumulative adverse effects of offshore wind energy development on wildlife. *Journal of Environmental Planning and Management*. DOI: 10.1080/09640568.2014.973483
- [NYSEDA] New York State Energy Research and Development Authority. 2014. A Preliminary Goals Document for Wildlife and Marine Wind Energy Environmental Assessments Offshore of New York State. NYSEDA Report 14-48. Prepared by Wing **Goodale** and Kate Williams (Biodiversity Research Institute)
- [NYSEDA] New York State Energy Research and Development Authority. 2014. NYSEDA Environmental Research Program Plan Research Area 3: Marine Wind and Wildlife. NYSEDA Report 14-49, prepared by the Biodiversity Research Institute. Portland, ME. Retrieved from nyseda.ny.gov/publications.
- Goodale, M. W.**, I. Stenhouse, and K. Williams. 2014. Reducing the Adverse Effects of Offshore Wind Development on Waterbirds in the Great Lakes: A Proposed Four-Step Approach. Report BRI 2014-23. Report to the Great Lakes Commission, Ann Arbor, Michigan. 72 pp.

2009 **Goodale W. and T. Divoll.** 2009. Birds, Bats and Coastal Wind Farm Development in Maine: A Literature Review. Biodiversity Research Institute, Gorham, Maine.

Offshore Wind and Wildlife Lectures and Presentations

“Offshore wind in Maine”

- Camden Public Library, February 2021
- Maine Governor’s Energy Office, February & March 2021

“Floating offshore wind and wildlife”

- AFloat, October 2020

“Offshore wind and wildlife: ecology and policy”

- UMaine Darling Marine Lab, August 2016
- College of the Atlantic, February 2015
- UMass Amherst, January 2015, September 2016

“Cumulative adverse effects of offshore wind energy development on wildlife”

- NYSERDA State of the Science conference, November 2020
- NYSERDA State of the Science conference, November 2018
- UMass REU seminar, July 2015
- Gulf of Maine Seabird Working Group, April 2014
- UMass IGERT seminar, March 2014
- UMass ECO seminar, 2014

“Offshore wind energy and birds”

- Waterbirds society, August 2015
- Great Lakes Commission, May 2014
- Northeastern Migratory and Monitoring Network, March 2011, 2012
- Northeastern Fish and Wildlife Conference, April 2010 (discussion group)
- Maine Coastal Waters Conference, October 2009 (poster)
- Gulf of Maine Seabird Working Group, August 2009
- Maine Public Television, Maine Watch, May 2009
- Ocean Energy Task Force, May 2009

“Offshore wind in Puerto Rico”

- Delft University, Netherlands, May 2013
- Prospective developers, San Juan, Puerto Rico, March 2013