

**COMMITTEE ON NATURAL RESOURCES**  
**118<sup>th</sup> Congress Disclosure Form**  
**As required by and provided for in House Rule XI, clause 2(g)(5)**

**Subcommittee on Water, Wildlife and Fisheries of the**  
**House Natural Resources Committee, Hearing on ‘RESCUE Whales Act’.**

**For Witnesses Representing Organizations:**

Name: Michael J Moore

Name of Organization(s) You are Representing at the Hearing: Woods Hole Oceanographic Institution

Business Address:

Business Email Address:

Business Phone Number:

\* \* \* \* \*

**For Nongovernment Witnesses ONLY:**

1. Please attach/include current curriculum vitae or resume.

**Michael J. Moore**

Senior Scientist, Biology Department, Marine Research Facility, MS#50

Director, Marine Mammal Center, Woods Hole Oceanographic Institution (WHOI)

<https://www2.whoi.edu/staff/mmoore/>

**RESEARCH INTERESTS**

Remote health assessment of marine mammals; forensic analysis of marine mammal mortalities; interaction of natural and man-made impacts on fish and marine mammal stocks; development of systems to enhance medical intervention with large whales; pathophysiology of marine mammal diving; mitigation of marine mammal bycatch; minimizing trauma of marine mammal tracking tags.

**PROFESSIONAL PREPARATION**

B.A. Pembroke College, University of Cambridge, England. 1979

Vet MB Department of Clinical Veterinary Medicine, U. of Cambridge, UK. 1983

PhD WHOI/MIT Joint Program in Biological Oceanography 1991

**RECENT HONORS AND AWARDS**

Stanley Watson Chair (WHOI) 2018

**EDUCATIONAL ACTIVITIES**

WHOI MIT Joint Program courses

Boston University Marine Program courses

Advised 5 PhD students and 4 Masters

**OTHER PROFESSIONAL ACTIVITIES**

Editor for aquatic mammals: Diseases of Aquatic Organisms (2008 to 2015, 2017 to present)

Guest Editor Endangered Species Research (2015 to 2016)

NOAA Atlantic Scientific Review Group (2012 to present)

NOAA Working Group Marine Mammal Unusual Mortality Events – (Chair Elect 2012 to 2015. Chair 2015 to present)

**RECENT PUBLICATIONS (168 TOTAL)**

## 2023

1. Corkeron, P., Bennett, K., and Moore, M. J. US budget riders compromise conservation Science, 379: 766-766.
2. Pirotta, E., R. S. Schick, P. K. Hamilton, C. M. Harris, J. Hewitt, A. R. Knowlton, S. D. Kraus, E. Meyer-Gutbrod, M. J. Moore, H. M. Pettis, T. Photopoulou, R. M. Rolland, P. L. Tyack and L. Thomas "Estimating the effects of stressors on the health, survival and reproduction of a critically endangered, long-lived species." *Oikos* n/a(n/a): e09801.
3. Moore, M. J. 2023. Policy enabling North Atlantic right whale reproductive health could save the species. ICES Journal of Marine Science. DOI: 10.1093/icesjms/fsac239.

## 2022

4. Stewart, J. D., Durban, J. W., Fearnbach, H., Hamilton, P. K., Knowlton, A. R., Lynn, M. S., Miller, C. A., et al. 2022. Larger females have more calves: influence of maternal body length on fecundity in North Atlantic right whales. *Marine Ecology Progress Series*, 689: 179-189.
5. Lonati GL, Zitterbart DP, Miller CA, Corkeron P, Murphy CT, Moore MJ (2022) Investigating the thermal physiology of Critically Endangered North Atlantic right whales *Eubalaena glacialis* via aerial infrared thermography. *Endangered Species Research* 48:139-154.
6. Pirotta, E., L. Thomas, D. P. Costa, A. J. Hall, C. M. Harris, J. Harwood, S. D. Kraus, P. J. O. Miller, M. J. Moore, T. Photopoulou, R. M. Rolland, L. Schwacke, S. E. Simmons, B. L. Southall and P. L. Tyack (2022). "Understanding the combined effects of multiple stressors: A new perspective on a longstanding challenge." *Science of The Total Environment* 821: 15332.
7. Murphy, C. T., M. Marx, W. N. Martin, H. Jiang, J. M. Lapseritis, A. N. French, N. B. Simmons and M. J. Moore (2022). "Feeling for food: Can rostro-mental hair arrays sense hydrodynamic cues for foraging North Atlantic right whales?" *The Anatomical Record* 305(3): 577-591.
8. Robuck AR, Hudak CA, Agvent L, Emery G, Ryan PG, Perold V, Powers KD, Pedersen J, Thompson MA, Suca JJ, Moore MJ, Harms CA, Bugoni L, Shield G, Glass T, Wiley DN, Lohmann R (2022) Birds of a Feather Eat Plastic Together: High Levels of Plastic Ingestion in Great Shearwater Adults and Juveniles Across Their Annual Migratory Cycle. *Frontiers in Marine Science* 8.

## 2021

9. Stewart JD, Durban JW, Knowlton AR, Lynn MS, Fearnbach H, Barbaro J, Perryman WL, Miller CA, Moore MJ (2021) Decreasing body lengths in North Atlantic right whales <https://doi.org/10.1016/j.cub.2021.04.067>. *Current Biology* 31:3174-3179.
10. Arregui M, Singleton EM, Saavedra P, Pabst D, Moore MJ, Sierra E, Rivero MA, Câmara N, Niemeyer M, Fahlman A (2021) Myoglobin Concentration and Oxygen Stores in Different Functional Muscle Groups from Three Small Cetacean Species. *Animals* 11:451.
11. Fahlman A, Moore MJ, Wells RS (2021) How Do Marine Mammals Manage and Usually Avoid Gas Emboli Formation and Gas Embolic Pathology? Critical Clues From Studies of Wild Dolphins. *Frontiers in Marine Science* 8:25.
12. Fire SE, Bogomolni A, DiGiovanni Jr RA, Early G, Leighfield TA, Matassa K, Miller GA, Moore KM, Moore M, Niemeyer M (2021) An assessment of temporal, spatial and taxonomic trends in harmful algal toxin exposure in stranded marine mammals from the US New England coast. *Plos one* 16:e0243570.
13. Moore MJ, Rowles TK, Fauquier DA, Baker JD, Biedron I, Durban JW, Hamilton PK, Henry AG, Knowlton AR, McLellan WA, Miller CA, Pace RM, III, Pettis HM, Raverty S, Rolland RM, Schick RS, Sharp SM, Smith CR, Thomas L, van der Hoop JM, Ziccardi MH (2021) REVIEW Assessing North Atlantic right whale health: threats, and development of tools critical for conservation of the species. *Dis Aquat Org* 143:205-226.
14. Fortune SM, Moore MJ, Perryman WL, Trites AW (2021) Body growth of North Atlantic right whales (*Eubalaena glacialis*) revisited. *Marine Mammal Science*:433-447.
15. Calderan, S.V., A. Black, T.A. Branch, M.A. Collins, N. Kelly, R. Leaper, S. Lurcock, B.S. Miller, M. Moore, P.A. Olson, A. Sirović, A.G. Wood, and J.A. Jackson, South Georgia blue whales five decades after the end of whaling. *Endangered Species Research*, 2020. **43**: p. 359-373.
16. Leslie M, Perkins-Taylor C, Durban J, **Moore M**, Miller C, Chanarat P, Bahamonde P, Chiang G, Apprill A (In press) Body size data collected non-invasively from drone images indicate morphologically distinct Chilean blue whale (*Balaenoptera musculus* Linnaeus 1758). *Endangered Species Research* 43:291-304.

2. Please list any federal grants or contracts (including subgrants or subcontracts) related to the subject matter

of the hearing that were received in the current year and previous two calendar years by you or the organization(s) you represent at this hearing, including the source and amount of each grant or contract.

M. Moore and WHOI Federal and Foreign Funding for NA Right Whale Research 2021-22-23

| Dept                | Investigator         | Funding | Agency                              | Title                                                                                                                                                                           | Project Dates             |
|---------------------|----------------------|---------|-------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|
| BIO                 | BAUMGARTNER, MARK F  | 446k    | NOAA Cooperative Institutes         | Sanctuary Soundscapes                                                                                                                                                           | 01-Jul-2018 - 30-Jun-2021 |
| Ocean & Engineering | ZITTERBART, DANIEL   | 750k    | Office of Naval Research (ONR)      | Development of the Next Generation Automatic Surface Whale Detection System for Marine Mammal Mitigation and Distribution Estimation                                            | 01-Aug-2019 - 01-Jul-2023 |
| BIO                 | BAUMGARTNER, MARK F  | 1.4m    | NOAA Cooperative Institutes         | Passive Acoustic Monitoring from Autonomous Platforms                                                                                                                           | 01-Aug-2019 - 30-Jun-2024 |
| BIO                 | MOORE, MICHAEL J     | 37k     | NOAA Cooperative Institutes         | North Atlantic Right Whale Health Assessment Workshop                                                                                                                           | 01-Aug-2019 - 31-Jul-2020 |
| Ocean & Engineering | ZITTERBART, DANIEL   | 156k    | Office of Naval Research (ONR)      | Offshore Thermal Imaging Whale Detection Test in Canadian Waters                                                                                                                | 21-Jul-2020 - 30-Apr-2022 |
| BIO                 | MOORE, MICHAEL J     | 415k    | University of St Andrews - Scotland | Towards an Understanding of the Cumulative Effects of Multiple Stressors on Marine Mammals – an Interdisciplinary Working Group with Case Studies – WHOI Subaward to St Andrews | 01-May-2020 - 31-Jan-2024 |
| Marine Policy       | KITE-POWELL, HAUKE L | 50k     | NOAA Cooperative Institutes         | A Decision Support Tool to Reduce Risk from Interactions Between Marine Aquaculture and Protected Species                                                                       | 01-Jul-2020 - 30-Jun-2024 |
| BIO                 | MOORE, MICHAEL J     | 143k    | NOAA Cooperative Institutes         | Health Assessment of North Atlantic Right Whales: An Annual                                                                                                                     | 01-Apr-2020 - 30-Jun-2024 |

|                     |                     |  |      |                                                                         |                                                                                                                                  |                           |
|---------------------|---------------------|--|------|-------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|---------------------------|
|                     |                     |  |      | Survey in Cape Cod Bay                                                  |                                                                                                                                  |                           |
| BIO                 | WIEBE, PETER H      |  | 288k | NOAA Cooperative Institutes                                             | Understanding Climate Impacts on Northern Right Whales using Continuous Plankton Recorder Observations in the Gulf of Maine      | 01-Jun-2020 - 31-May-2024 |
| Ocean & Engineering | ZITTERBART, DANIEL  |  | 400k | Fisheries and Oceans Canada                                             | Ship-strike Mitigation of Large Whales using Thermal Imaging                                                                     | 08-Sep-2020 - 31-Mar-2024 |
| Ocean & Engineering | ZITTERBART, DANIEL  |  | 400k | Fisheries and Oceans Canada                                             | Ship-strike Mitigation of Large Whales using Thermal Imaging                                                                     | 08-Sep-2020 - 31-Mar-2024 |
| BIO                 | WIEBE, PETER H      |  | 291k | NOAA Cooperative Institutes                                             | Understanding Climate Impacts on Northern Right Whales Using Continuous Plankton Recorder Observations in the Northwest Atlantic | 01-Aug-2021 - 30-Jun-2024 |
| BIO                 | MOORE, MICHAEL J    |  | 22k  | University of St Andrews - Scotland                                     | Assessing Population Effects of Offshore Wind Development on North Atlantic Right Whales                                         | 01-Oct-2021 - 30-Sep-2023 |
| BIO                 | BAUMGARTNER, MARK F |  | 125k | NERACOOS - Northeastern Regional Association of Coastal Ocean Observing | NERACOOS: A Responsive Ocean Observing System for the Changing Northeast Region                                                  | 01-Jul-2021 - 30-Jun-2026 |
| BIO                 | SOSIK, HEIDI M      |  | 7M   | National Science Foundation (NSF)                                       | LTER: Linking Pelagic Community Structure with Ecosystem Dynamics and Production Regimes on the Changing Northeast US Shelf      | 01-Sep-2017 - 29-Feb-2024 |
| BIO                 | BAUMGARTNER, MARK F |  | 175k | NERACOOS - Northeastern Regional Association of Coastal Ocean Observing | NERACOOS: A Responsive Ocean Observing System for the Changing Northeast Region                                                  | 01-Jul-2021 - 30-Jun-2026 |

|                            |                        |      |                                                    |                                                                                                                                       |                                |
|----------------------------|------------------------|------|----------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|
| CHEM                       | CHARETTE,<br>MATTHEW A | 89k  | National Oceanic & Atmospheric<br>Admin.(SeaGrant) | 2023 National Sea Grant<br>College Program Dean<br>John A. Knauss Marine<br>Policy Fellowship,<br>Sophia Ly                           | 01-Feb-2023 -<br>29-Feb-2024   |
| Ocean &<br>Engineeri<br>ng | ZITTERBART,<br>DANIEL  | 75k  | NOAA Cooperative Institutes                        | Can Dimethylsulfide be<br>used as a Proxy for North<br>Atlantic Right Whale<br>Presence and Support<br>Conservation?                  | 01-Jul-2022 -<br>30-Jun-2024   |
| BIO                        | ANDERSON,<br>DONALD M  | 39k  | NOAA Cooperative Institutes                        | URI-CINAR: Scat<br>Analysis of Right Whales<br>on the U.S. Northeast<br>Shelf                                                         | 01-Sep-2022 -<br>30-Jun-2024   |
| Ocean &<br>Engineeri<br>ng | Bonnell, Julien        | 150k | Office of Naval Research                           | Passive Acoustic Monitoring of ocean<br>sounds, meteorology, and marine mammals<br>from long-endurance expendable profiling<br>floats |                                |
| BIO                        | MOORE,<br>MICHAEL J    | 223k | University of St Andrews - Scotland                | North Atlantic Right<br>Whales Bud....                                                                                                | 01-May-2020;<br>01 Jan 31 2024 |
| BIO                        | MOORE,<br>MICHAEL J    | 123k | University of St Andrews - Scotland                | Multi-Stressor Working<br>Group                                                                                                       | 01-May-2020 -<br>31-Jan-2024   |
| BIO                        | MOORE,<br>MICHAEL J    | 53k  | University of St Andrews - Scotland                | PCoMS RW data<br>collation for the coarse-<br>scale model                                                                             | 18-Oct-2021 -<br>30-June-2022  |
| BIO                        | BAUMGARTNER,<br>MARK F | 600k | NOAA/BOEM                                          | Glider survey for<br>Soniferous fish                                                                                                  | 08/01/2019 -<br>06/30/2024     |
| BIO                        | BAUMGARTNER,<br>MARK F | 467k | Office of Naval Research                           | Whale-detection buoy<br>fabrication                                                                                                   | 08/13/2020 -<br>06/30/2023     |
| BIO                        | BAUMGARTNER,<br>MARK F | 720k | NOAA/Navy                                          | Glider sanctuary sound<br>survey                                                                                                      | 08/01/2019 -<br>06/30/2024     |
| BIO                        | BAUMGARTNER,<br>MARK F | 6k   | Dalhousie Univ                                     | Support for Ocean<br>Tracking Network                                                                                                 | 12/01/2022 -<br>03/31/2023     |

3. Please list any contracts or payments originating with a foreign government related to the subject matter of the hearing that were received in the current year and previous two calendar years by you or the organization(s) you represent at this hearing, including the amount and country of origin of each contract or payment.

None

4. Please disclose whether you are a fiduciary (including, but not limited to, a director, officer, advisor, or resident agent) of any organization or entity that has an interest in the subject matter of the hearing.

I am a member of the Board of Directors of the Island Foundation, Inc. (the "Island Foundation"), a private foundation that from time-to-time funds right whale conservation efforts as part of its grantmaking in a wide range of areas. However, I am not testifying in my role as an Island Foundation Director or otherwise on behalf of or in connection with the Island Foundation, which does not attempt to influence legislation and does not have a position on the legislation on which I have been invited to testify.

5. Please list any current or pending litigation against the Federal government to which you or your organization is a party. Please disclose as applicable case name, docket number, the court, and subject matter of the litigation.

None