

CVOW-C Proposed Rulemaking Reference List

- A.I.S., Inc. 2020. Protected Species Monitoring Final Report: Protected species monitoring services during pile driving for OCS-A 0497. Jan de Nul Dredging N.V. https://media.fisheries.noaa.gov/2021-01/Dominion_CVOW_2020IHA_MonRep_OPR1.pdf?null=
- Allen, A.N., J.J. Schanze, A.R. Solow, and P.L. Tyack. 2014. Analysis of a Blainville's beaked whale's movement response to playback of killer whale vocalizations. *Marine Mammal Science*, 30(1): 154-168. <https://doi.org/10.1111/mms.12028>
- André, M., M. Solé, M. Lenoir, M. Durfort, C. Quero, A. Mas, A. Lombarte, M. Van Der Schaar, M. López-Bejar, M. Morell, and S. Zaugg. 2011. Low-frequency sounds induce acoustic trauma in cephalopods. *Frontiers in Ecology and the Environment* 9 (9): 489-493 <https://doi.org/10.1890/100124>
- ANSI (American National Standards Institute). 1986. *Methods of Measurement for Impulse Noise 3 (ANSI S12.7-1986)*. Acoustical Society of America, Woodbury, NY.
- ANSI. (American National Standards Institute). 1995. *Bioacoustical Terminology (ANSI S3.20- 1995)*. Acoustical Society of America, Woodbury, NY.
- ANSI. (American National Standards Institute). 2005. *Measurement of Sound Pressure Levels in Air (ANSI S1.13-2005)*. Acoustical Society of America, Woodbury, NY.
- Astrup, J. 1999. Ultrasound detection in fish - a parallel to the sonar-mediated detection of bats by ultrasound sensitive insects? *Comparative Biochemistry and Physiology, Part A*, 124: 19–27. [https://doi.org/10.1016/S1095-6433\(99\)00093-8](https://doi.org/10.1016/S1095-6433(99)00093-8)
- Astrup, J., and B. Mohl. 1993. Detection of Intense Ultrasound by the Cod *Gadus Morhua*. *Journal of Experimental Biology*, 182: 71–80. <https://doi.org/10.1121/1.421612>
- Au, W. W. L. 1993. *The Sonar of Dolphins*. New York: Springer-Verlag.
- Au, W.W.L. and M.C. Hastings. 2008. *Principles of Marine Bioacoustics*. Springer, New York.
- Au, D. W. K., and W. L. Perryman. 1985. Dolphin habitats in the eastern tropical Pacific. *Fishery Bulletin*, 83: 623–643.
- Au, W. W. L., R. W. Floyd, R. H. Penner, & A. E. Murchison. 1974. Measurement of echolocation signals of the Atlantic bottlenose dolphin, *Tursiops truncatus* Montagu, in open waters. *Journal of the Acoustical Society of America*, 56 (4): 1280–1290. <https://doi.org/10.1121/1.1903419>

- Austin, M. E., S.L. Denes, J.T. MacDonnell, and G.A. Warner. 2016. Hydroacoustic Monitoring Report: Anchorage Port Modernization Project Test Pile Program. Version 3.0. Technical report by JASCO Applied Sciences for Anchorage Port Modernization Project Test Pile Program. Anchorage, AK
- Bailey, H., B. Senior, D. Simmons, J. Rusin, G. Picken, and P. M. Thompson. 2010. Assessing underwater noise levels during pile-driving at an offshore windfarm and its potential effects on marine mammals. *Marine Pollution Bulletin* 60:888-897. <https://doi.org/10.1016/j.marpolbul.2010.01.003>
- Baird, R.W., D.L. Webster, G.S. Schorr, D.J. McSweeney, and J. Barlow. 2008. Diel variation in beaked whale diving behavior. *Marine Mammal Science* 24 (3): 630-642. DOI: 10.1111/j.1748- 7692.2008.00211.x
- Barber, J.R., K.M. Fristrup, C.L. Brown, A.R. Hardy, L.M. Angeloni, and K.R. Crooks. 2009. Conserving the wild life therein—protecting park fauna from anthropogenic noise. *Park Science* 26: (3). <http://www.nature.nps.gov/ParkScience/index.cfm?ArticleID=370&Page=1>
- Barco, S.G., W.A. McLellan, J.M. Allen, R. Asmutis-Silvia, E. M. Meagher, D.A. Pabst, J. Robbins, R.E. Seton, W. M. Swingle, M.T. Weinrich, P.J. Clapham. 2002. Population identity of humpback whales (*Megaptera novaeangliae*) in the waters of the US mid-Atlantic states. *Journal of Cetacean Research Management* 4(2): 135-141.
- Barkaszi, M.J., and C.J. Kelly. 2019. Seismic survey mitigation measures and protected species observer reports: synthesis report. U.S. Department of the Interior, Bureau Ocean Energy Management, Gulf of Mexico OCS Region, New Orleans, LA. Contract No.: M17PD00004. OCS Study BOEM 2019 012. 220 pp.
- Barkaszi, M.J., M. Butler, R. Compton, A. Unietis, and B. Bennet. 2012. Seismic survey mitigation measures and marine mammal observer reports. OCS Study BOEM 2012-015, Bureau of Ocean Energy Management, 51 pp.
- Barlow, J., G.S. Schorr, E.A. Falcone, and D. Moretti. 2020. Variation in dive behavior of Cuvier’s beaked whales with seafloor depth, time-of-day, and lunar illumination. *Marine Ecology Progress Series* 644: 199-214. DOI: <https://doi.org/10.3354/meps1335>
- Beauchamp, G., and B. Livoreil. 1997. The effect of group size on vigilance and feeding rate in spice finches (*Lonchura punctulata*). *Canadian Journal of Zoology*, 75 (9): 1526-1531. <https://doi.org/10.1139/z97-77>
- Bednekoff, P. A., and S. L. Lima. 1998. Randomness, chaos and confusion in the study of antipredator vigilance. *Trends in Ecology & Evolution*, 13 (7): 284-287. [https://doi.org/10.1016/S0169-5347\(98\)01327-5](https://doi.org/10.1016/S0169-5347(98)01327-5)

- Bejder, L., A. Samuels, H. Whitehead, N. Gales, J. Mann, R. Connor, et al. 2006. Decline in relative abundance of bottlenose dolphins exposed to long-term disturbance. *Conservation Biology* 20 (6): 1791-1798. <https://doi.org/10.1111/j.1523-1739.2006.00540.x>
- Bejder, L., A. Samuels, H. Whitehead, H. Finn, & S. Allen. 2009. Impact assessment research: Use and misuse of habituation, sensitisation and tolerance in describing wildlife responses to anthropogenic stimuli. *Marine Ecology Progress Series* 395: 177-185. <https://doi.org/10.3354/meps07979>
- Bellmann, M.A. 2014. Overview of existing Noise Mitigation Systems for reducing Pile Driving Noise. *InterNoise 2014*, Melbourne, Australia. 11 pp.
- Bellmann, M. A. 2019. Results from noise measurements in European offshore wind farms. Presentation at Orsted Underwater Noise Mini Workshop.in Orsted Underwater Noise Mini Workshop, Washington, D.C.
- Bellmann M. A., J. Brinkmann, A. May, T. Wendt, S. Gerlach, and P. Remmers. 2020. Underwater noise during the impulse pile-driving procedure: Influencing factors on pile-driving noise and technical possibilities to comply with noise mitigation values. Supported by the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (Bundesministerium für Umwelt, Naturschutz und nukleare Sicherheit (BMU)), FKZ UM16 881500. Commissioned and managed by the Federal Maritime and Hydrographic Agency (Bundesamt für Seeschifffahrt und Hydrographie (BSH)), Order No. 10036866. Edited by the itap GmbH.
- Bergström, L., L. Kautsy, T. Malm, R. Rosenberg, M. Wahlberg, N.A. Capetillo, and D. Wilhemsson. 2014. Effects of offshore wind farms on marine wildlife - a generalized impact assessment. *Environmental Research Letters* 9: 034012. <https://doi.org/10.1088/17489326/9/3/034012>
- Bettridge, S., C.S. Baker, J. Barlow, P.J. Clapham, M. Ford, D. Gouveia, et al. 2015. Status review of the humpback whale (*Megaptera novaeangliae*) under the Endangered Species Act. NOAA Technical Memorandum NMFS-SWFSC-540, National Marine Fisheries Service: 263.
- Blackwell, S.B., J.W. Lawson, and M.T. Williams. 2004. Tolerance by ringed seals (*Phoca hispida*) to impact pipe-driving and construction sounds at an oil production island. *Journal of the Acoustical Society of America* 115 (5): 2346. <https://doi.org/10.1121/1.1701899>
- Blackwell, S. B., C. S. Nations, T. L. McDonald, A. M. Thode, D. Mathias, K. H. Kim, C. R. Greene, Jr., and A. M. Macrander. 2015. Effects of airgun sounds on bowhead whale calling rates: evidence for two behavioral thresholds. *PLoS ONE* 10 (6): e0125720. <https://doi.org/10.1371/journal.pone.0125720>

- Blecha, F. 2000. Immune system response to stress. Pages 111-122 in G.P. Moberg & J.A. Mench, eds. *The Biology of Animal Stress: Basic Principles and Implications for Animal Welfare*. CABI Publishing, Oxon, United Kingdom.
- Boehlert, G.W. and A.B. Gill. 2010. Environmental and ecological effects of ocean renewable energy development. *Oceanography* 23 (2): 68-81. <https://doi.org/10.5670/oceanog.2010.46>
- BOEM (Bureau of Ocean Energy Management). 2019. Guidelines for providing information on fisheries for renewable energy development on the Atlantic outer continental shelf pursuant to 30 CFR Part 585. Available online at <https://www.boem.gov/sites/default/files/renewable-energy-program/Regulatory-Information/BOEM-Fishery-Guidelines.pdf>. Accessed on 27 April 2023.
- Bolle, L. J., C. A. de Jong, S. M. Bierman, P. J. van Beek, O. A. van Keeken, P. W. Wessels, C. J. van Damme, H. V. Winter, D. de Haan and R. P. Dekeling. 2012. Common sole larvae survive high levels of pile-driving sound in controlled exposure experiments. *PLoS One* 7 (3): e33052. <https://doi.org/10.1371/journal.pone.0033052>
- Bonar, P.A.J., I.G. Bryden, and A.G.L. Borthwick. 2015. Social and ecological impacts of marine energy development. *Renewable and Sustainable Energy Reviews* 47: 486- 495. <https://doi.org/10.1016/j.rser.2015.03.068>
- Booman, C., J. Dalen, H. Leivestad, A. Levsen, T. van der Meeren, and K. Toklum. 1996. Effects of airguns on eggs, larvae, and fry. Experiments at the Institute for Marine Research and Zoological Laboratory, University of Bergen (in Norwegian, English Summary, and Figure Legends), Institute of Marine Research.
- Booth, C., Donovan, C., Plunkett, R., & Harwood, J. 2016. Using an interim PCoD protocol to assess the effects of disturbance associated with US Navy exercises on marine mammal populations Final Report (SMRUC-ONR-2016-004).
- Booth, C., J. Harwood, R. Plunkett, S. Mendes, and R. Walker. 2017. Using the Interim PCoD framework to assess the potential impacts of offshore wind developments in Eastern English Waters on harbour porpoises in the North Sea (Natural England Joint Publication JP024).
- Bowles, A.E., M. Smultea, B. Wursig, D.P. DeMaster, and D. Palka. 1994. Relative abundance and behavior of marine mammals exposed to transmissions from the Heard Island feasibility test. *Journal of the Acoustical Society of America* 96 (4): 2469-2484. <https://doi.org/10.1121/1.410120>
- Boyd, I., D. Claridge, C. Clark, & B. Southall. 2008. BRS 2008 Preliminary Report. U.S. Navy NAVSEA PEO IWS 5, ONR, U.S. Navy Environmental Readiness Division, NOAA, SERDP.

- Brandt, M. J., A. Diederichs, K. Betke, and G. Nehls. 2011. Responses of harbour porpoises to pile driving at the Horns Rev II offshore wind farm in the Danish North Sea. *Marine Ecology Progress Series* 421:205-216. <https://doi.org/10.3354/meps08888>
- Brandt, M.J., A. Diederichs, K. Betke, and G. Nehls. 2012. Effects of offshore pile driving on harbor porpoises (*Phocoena phocoena*). In *The Effects of Noise on Aquatic Life* (pp. 281- 284). Springer, New York, NY.
- Brandt, M.J., S. Hansen, A. Diederichs, and G. Nehls. 2014. Do man-made structures and water depth affect the diel rhythms in click recordings of harbor porpoises (*Phocoena phocoena*)?. *Marine Mammal Science* 30(3): 1109-1121. <https://doi.org/10.1111/mms.12112>
- Brandt, M.J., A.C. Dragon, A. Diederichs, A. Schubert, V. Kosarev, G. Nehls, V. Wahl, A. Michalik, A. Braasch, C. Hinz, and C. Ketzer. 2016. Effects of offshore pile driving on harbour porpoise abundance in the German Bight. Assessment of noise effects. Report by BioConsult SH, IBL Umweltplanung GmbH, and Institute of Applied Ecology (IfAO).
- Brandt, M.J., Dragon, A.C., Diederichs, A., Bellmann, M.A., Wahl, V., Piper, W., Nabe-Nielsen, J. and Nehls, G., 2018. Disturbance of harbour porpoises during construction of the first seven offshore wind farms in Germany. *Marine Ecology Progress Series*, 596: 213-232.
- Branstetter, B. K., and J. J. Finneran. 2008. Comodulation masking release in bottlenose dolphins (*Tursiops truncatus*). *The Journal of the Acoustical Society of America*, 1: 625–633. <https://doi.org/10.1121/1.2918545>
- Branstetter, B.K., J.S. Trickey, and H. Aihara. J.J. Finneran, and T.R. Liberman. 2013. Time and frequency metrics related to auditory masking of a 10 kHz tone in bottlenose dolphins (*Tursiops truncatus*). *J. Acoust. Soc. Am.* 134 (6):4556- 4565. <https://doi.org/10.1121/1.4824680>
- Branstetter, B.K., K.L. Bakhtiari, J.S. Trickey, and J.J. Finneran. 2016. Hearing mechanisms and noise metrics related to auditory masking in bottlenose dolphins (*Tursiops truncatus*). p. 109-116 In: A.N. Popper and A. Hawkins (eds.), *The effects of noise on aquatic life II*. Springer, New York, NY. 1292 p.
- Brasseur, S.M.J.M., G. Aarts, E. Meesters, T. van Polanen Petel, E. Dijkman, J. Cremer, and P. Reijnders. 2012. Habitat preferences of harbour seals in the Dutch coastal area: analysis and estimate of effects of offshore wind farms. Report C043-10.
- Braun, C. B., and T. Grande. 2008. Evolution of Peripheral Mechanisms for the Enhancement of Sound Reception. Pgs. 99-144 In: J.F. Webb, R.R. Fay, and A.N. Popper (eds.) *Fish Bioacoustics*, Springer New York, NY, 322. <https://doi.org/10.1007/978-0-387-73029-5>

- Brenowitz, E.A. 1982. The active space of red-winged blackbird song. *Journal of Comparative Physiology*, 147:511–522.
- Brenowitz, E.A. 2004. Plasticity of the adult avian song control system. *Annals of the New York Academy of Science* 1016: 560–585. <https://doi.org/10.1196/annals.1298.006>
- Bruintjes, R., J. Purser, K. A. Everley, S. Mangan, S. D. Simpson, & A. N. Radford. 2016. Rapid recovery following short-term acoustic disturbance in two fish species. *Royal Society - Open Science* 3(1): 150686. <https://doi.org/10.1098/rsos.150686>
- Brumm, H. 2004. Causes and consequences of song amplitude adjustment in a territorial bird: a case study in nightingales. *Anais da Academia Brasileira de Ciências* 76(2): 289-295. <https://doi.org/10.1590/S0001-37652004000200017>
- Budelmann, B. U. 1992. Hearing in non arthropod invertebrates. In D. B. Webster, R. R. Fay, and A. N. Popper (Eds.), *Evolutionary Biology of Hearing* (pp. 141–155). New York, NY: Springer-Verlag. DOI: 10.1007/978-1-4612-2784-7_10
- Budelmann, B. U., and R.O.D.D.Y. Williamson. 1994. Directional sensitivity of hair cell afferents in the Octopus statocyst. *Journal of Experimental Biology* 187(1): 245-259. <https://doi.org/10.1242/jeb.187.1.245>
- CALTRANS (California Department of Transportation). 2015. Technical Guidance for Assessment and Mitigation of the Hydroacoustic Effects of Pile Driving on Fish. Division of Environmental Analysis; Environmental Engineering; Hazardous Waste, Air, Noise, Paleontology Office.
- Carroll, A. G., R. Przeslawski, A. Duncan, M. Gunning, & B. Bruce. 2017. A Critical Review of the Potential Impacts of Marine Seismic Surveys on Fish & Invertebrates. *Marine Pollution Bulletin* 114: 16. <https://doi.org/10.1016/j.marpolbul.2016.11.038>
- Carroll, B., Cooper, B., Dewey, N., Whitehead, P., Dolphin, T., Rees, J., Judd, A., Whitehouse, R. and Harris, J., 2010. A further review of sediment monitoring data. Cowrie ScourSed-09, Southampton, UK, 106.
- Casper B.M., A.N. Popper, F. Matthews, T.J. Carlson, and M.B. Halvorsen. 2012. Recovery of barotrauma injuries in Chinook salmon, *Oncorhynchus tshawytscha* from exposure to pile driving sound. *PLOS ONE* 7: e39593. doi:10.1371/journal.pone.0039593. PubMed: 22745794
- Casper, B. M., M.B. Halvorsen, F. Matthews, T.J. Carlson, and A.N. Popper. 2013a. Recovery of barotrauma injuries resulting from exposure to pile driving sound in two sizes of hybrid striped bass. *PloS one* 8(9): e73844. <https://doi.org/10.1371/journal.pone.0073844>

- Casper, B.M., M.E. Smith, M.B. Halvorsen, H. Sun, T.J. Carlson, and A.N. Popper. 2013b. Effects of exposure to pile driving sounds on fish inner ear tissues. *Comparative Biochemistry and Physiology Part A* 166: 352-360. <https://doi.org/10.1016/j.cbpa.2013.07.008>
- Cerchio, S., S. Strindberg, T. Collins, C. Bennett, and H. Rosenbaum. 2014. Seismic surveys negatively affect humpback whale singing activity off northern Angola. *PLoS ONE* 9 (3): e86464. <https://doi.org/10.1371/journal.pone.0086464>
- CETAP (Cetacean and Turtle Assessment Program). 1982. A characterization of marine mammals and turtles in the mid- and north Atlantic areas of the U.S. outer continental shelf, final report. Bureau of Land Management, Washington, DC. #AA551-CT8-48. 538pp.
- Chen, X., Y. Liu, Q. Wang, J. Lv, J. Wen, X. Chen, C. Kang, S. Cheng, and M.B. McElroy. 2021. Pathway toward carbon-neutral electrical systems in China by mid-century with negative CO₂ abatement costs informed by high-resolution modeling. *Joule* 5 (10): 2715-2741. <https://doi.org/10.1016/j.joule.2021.10.006>
- Cholewiak, D., D. Palka, S. Chavez-Rosales, G. Davis, E. Josephson, S. Van Parijs and S. Weiss. 2018. Updates on sei whale (*Balaenoptera borealis*) distribution, abundance estimates, and acoustic occurrence in the western North Atlantic. Unpublished Scientific Committee meeting document SC/67B/NH07. International Whaling Commission. Cambridge, UK.
- Christiansen, F. and Lusseau, D. 2015. Linking behavior to vital rates to measure the effects of non-lethal disturbance on wildlife. *Conservation Letters* 8 (6): 424–431. <https://doi.org/10.1111/conl.12166>
- Christiansen, F., S.M. Dawson, J.W. Durban, H. Fearnbach, C.A. Miller, L. Bejder, M. Uhart, M. Sironi, P. Corkeron, W. Rayment, and E. Leunissen. 2020. Population comparison of right whale body condition reveals poor state of the North Atlantic right whale. *Marine Ecology Progress Series* 640: 1-16. <https://doi.org/10.3354/meps13299>
- Christiansen N., U. Daewel, B. Djath, and C. Schrum. 2022. Emergence of large-scale hydrodynamic structures due to atmospheric offshore wind farm wakes. *Front. Mar. Sci.* 9: doi: 10.3389/fmars.2022.818501
- Clark C.W. and G.C. Gagnon. 2002. Insights from IUSS detections, locations and tracking from 1992 to 1996. *J. Underwater Acoustics*. 52: 609–640.
- Clark, C.W., Ellison, W.T., Southall, B.L., Hatch, L., Van Parijs, S.M., Frankel, A. and Ponirakis, D., 2009. Acoustic masking in marine ecosystems: intuitions, analysis, and implication. *Marine Ecology Progress Series* 395: 201-222. <https://doi.org/10.3354/meps08402>

- Clyne H. 1999. Computer simulations of interactions between the North Atlantic right whale (*Eubalaena glacialis*) and shipping. Masters thesis in Software Technology, Napier University, Edinburgh.
- Clark, C.W., W.T. Ellison, B.L. Southall, L. Hatch, S.M. Van Parijs, A. Frankel, and D. Ponirakis. 2009. Acoustic masking in marine ecosystems: intuitions, analysis, and implication. *Marine Ecology Progress Series* 395: 201-222. <https://doi.org/10.3354/meps08402>
- Coates, J.H., K.A. Hovel, J.L. Butler, and A.J. Bohonak. 2014. Recruitment and recovery of pink abalone (*Haliotis corrugata*) in a historically overexploited kelp forest: Are local populations self-sustaining? *Journal of Experimental Marine Biology and Ecology* 460:184-192. <https://doi.org/10.1016/j.jembe.2014.07.004>
- Cody, A.R. and B.M. Johnstone. 1981. Acoustic trauma: Single neuron basis for the "half-octave shift". *The Journal of the Acoustical Society of America* 70 (3): 707-711. <https://doi.org/10.1121/1.386906>
- Committee on Taxonomy. 2022. List of marine mammal species and subspecies. Available online at <https://marinemammalscience.org/science-and-publications/list-marine-mammal-species-subspecies>. Accessed on 27 April 2023.
- Conn, P. B., and G. K. Silber. 2013. Vessel speed restrictions reduce risk of collision-related mortality for North Atlantic right whales. *Ecosphere*: 4 (4): 1-15. <https://doi.org/10.1890/ES1300004.1>
- Connor, R.C. and M.R. Heithaus. 1996. Approach by great white shark elicits flight response in bottlenose dolphins. *Marine Mammal Science* 12 (4): 602-606. <https://doi.org/10.1111/j.1748-7692.1996.tb00074.x>
- Cooke, J.G. 2020. *Eubalaena glacialis* (errata version published in 2020). The IUCN Red List of Threatened Species 2020: e.T41712A178589687. <https://dx.doi.org/10.2305/IUCN.UK.2020-2.RLTS.T41712A178589687.en>. Accessed on 25 April 2023.
- Corkeron, P., R.M. Rolland, K.E. Hunt, and S.D. Kraus. 2017. A right whale pootree: classification trees of faecal hormones identify reproductive states in North Atlantic right whales (*Eubalaena glacialis*). *Conservation Physiology* 5 (1): cox006. <https://doi.org/10.1093/conphys/cox006>
- Costa, D.P., D.E. Crocker, J. Gedamke, P.M. Webb, D.S. Houser, S.B. Blackwell, et al. 2003. The effect of a low-frequency sound source (acoustic thermometry of the ocean climate) on the diving behavior of juvenile northern elephant seals, *Mirounga angustirostris*. *Journal of the Acoustical Society of America* 113 (2): 1155-1165. <https://doi.org/10.1121/1.1538248>
- Cotter, M. P. 2019. Aerial Surveys for Protected Marine Species in the Norfolk Canyon Region: 2018 Annual Progress Report. in U.S. Fleet Forces Command, editor., Virginia Beach, VA.

- Cowlshaw, G., M. J. Lawes, M. Lightbody, A. Martin, R. Pettifor, and J. M. Rowcliffe. 2004. A simple rule for the costs of vigilance: empirical evidence from a social forager. *Proceedings of the Royal Society of London. Series B: Biological Sciences* 271 (1534): 27- 33. <https://doi.org/10.1098/rspb.2003.2522>
- Cox, T.M., T.J. Ragen, A.J. Read, E. Vos, R.W. Baird, K. Balcomb, J. Barlow, J. Caldwell, T. Cranford, L. Crum, A. D'Amico, G.D. Spain, A. Fernandez, J. Finneran, R. Gentry, W. Gerth, F. Gulland, J. Hildebrand, D. Houser, T. Hullar, P.D. Jepson, D. Ketten, C. D. MacLeod, P. Miller, S. Moore, D. Mountain, D. Palka, P. Ponganis, S. Rommel, T. Rowles, B. Taylor, P. Tyack, D. Wartzok, R. Gisiner, J. Mead and L. Benner 2006. Understanding the impacts of anthropogenic sound on beaked whales. *J. Cetacean Res. Manage.* 7 (3): 177-187.
- Crocker, S.E., and F.D. Fratantonio. 2016. Characteristics of sounds emitted during high resolution marine geophysical surveys. NUWC-NPT Technical Report 12,203, Naval Undersea Warfare Center Division: 265.
- Croll, D.A., C.W. Clark, J. Calambokidis, W.T. Ellison, and B.R. Tershy. 2001. Effect of anthropogenic low-frequency noise on the foraging ecology of Balaenoptera whales. *Animal Conservation* 4 (1): 13-27. <https://doi.org/10.1017/S1367943001001020>
- Cummings, E.W., D.A. Pabst, J.E. Blum, S.G. Barco, S.J. Davis, V.G. Thayer, N. Adimey, and W.B. McLellan. 2014. Spatial and temporal patterns of habitat use and mortality of the Florida manatee (*Trichechus manatus latirostris*) in the mid-Atlantic states of North Carolina and Virginia from 1991-2012. *Aquatic Mammals* 40 (2): 126-138. DOI 10.1578/AM.40.2.2014.126
- Cummings, W.C., and P.O. Thompson. 1971. Gray whales, *Eschrichtius robustus*, avoid the underwater sounds of killer whales, *Orcinus orca*. *Fish Bull* 69: 525–530.
- Curé C, L.D. Sivle, F. Visser, P.J. Wensveen, et al. 2015. Predator sound playbacks reveal strong avoidance responses in a fight strategist baleen whale. *Mar Ecol Prog Ser* 526: 267–282.
- Curé, C., S. Isojunno, F. Visser, P.J. Wensveen, L.D. Sivle, P.H. Kvasdheim, F.P.A. Lam, and P.J. Miller. 2016. Biological significance of sperm whale responses to sonar: comparison with anti-predator responses. *Endangered Species Research*, 31, pp.89-102. <https://doi.org/10.3354/esr00748>
- Daan, S., C. Deerenberg, and C. Dijkstra. 1996. Increased daily work precipitates natural death in the kestrel. *Journal of Animal Ecology*: 539-544. <https://doi.org/10.2307/5734>
- Dähne, M., A. Gilles, K. Lucke, V. Peschko, S. Adler, K. Krügel, J. Sundermeyer, and U. Siebert. 2013. Effects of pile-driving on harbour porpoises (*Phocoena phocoena*) at the first offshore wind farm in Germany. *Environmental Research Letters* 8(2): 025002. <https://doi.org/10.1088/1748-9326/8/2/025002>

- Dähne, M., J. Tougaard, J. Carstensen, A. Rose, and J. Nabe-Nielsen. 2017. Bubble curtains attenuate noise from offshore wind farm construction and reduce temporary habitat loss for harbour porpoises. *Marine Ecology Progress Series* 580:221-237. <https://doi.org/10.3354/meps12257>
- Dalen, J. and G. M. Knutsen. 1987. Scaring effects in fish and harmful effects on eggs, larvae and fry by offshore seismic explorations. *Progress in Underwater Acoustics*. H. M. Merklinger. Boston, MA, Springer.
- D'Amico, A., R.C. Gisiner, D.R. Ketten, J.A. Hammock, C. Johnson, P.L. Tyack, and J. Mead. 2009. Beaked whale strandings and naval exercises. *Aq. Mamm.* 35(4): 452-472. DOI: 10.1578/AM.35.4.2009.452
- Daoust, P.Y., E.L. Couture, T. Wimmer, and L. Bourque. 2017. Incident Report: North Atlantic Right Whale Mortality Event in the Gulf of St. Lawrence, 2017. Collaborative Report Produced by: Canadian Wildlife Health Cooperative, Marine Animal Response Society, and Fisheries and Oceans Canada. 256 pp.
- David, J.A. 2006. Likely sensitivity of bottlenose dolphins to pile-driving noise. *Water and Environment Journal* 20 (1): 48-54. <https://doi.org/10.1111/j.1747-6593.2005.00023.x>
- Davis, K.T.A. and S.W. Brillant. 2019. Mass human-caused mortality spurs federal action to protect endangered North Atlantic right whales in Canada. *Marine Policy* 104: 157-162. <https://doi.org/10.1016/j.marpol.2019.02.019>
- Davis G.E., M.F. Baumgartner, J.M. Bonnell, J. Bell, C. Berchok, J.B. Thornton, et al. 2017. Long-term passive acoustic recordings track the changing distribution of North Atlantic right whales (*Eubalaena glacialis*) from 2004 to 2014. *Scientific Reports* 7 (1): 13460. <https://doi.org/10.1038/s41598-017-13359-3>
- Davis, G.E., M.F. Baumgartner, P.J. Corkeron, J. Bell, C. Berchok, J.M. Bonnell, J. Bort Thornton, S. Brault, G.A. Buchanan, D.M. Cholewiak, and C.W. Clark. 2020. Exploring movement patterns and changing distributions of baleen whales in the western North Atlantic using a decade of passive acoustic data. *Global Change Biology* 26 (9): 4812-4840. <https://doi.org/10.1111/gcb.15191>
- Deecke, V. B., P. J. B. Slater, & J. K. B. Ford. 2002. Selective habituation shapes acoustic predator recognition in harbour seals. *Nature* 420(14 November): 171–173. DOI: 10.1038/nature01030
- DeRuiter, S.L. and K.L. Doukara. 2012. Loggerhead turtles dive in response to airgun sound exposure. *Endangered Species Research* 16(1): 55-63. <https://doi.org/10.3354/esr00>
- DeRuiter, S.L., B.L. Southall, J. Calambokidis, W.M.X. Zimmer, D. Sadykova, E.A. Falcone, A.S. Friedlaender, J.E. Joseph, D. Moretti, G.S. Schorr, L. Thomas, and P.L. Tyack. 2013. First direct measurements of behavioural responses by Cuvier's beaked whales to mid-frequency active sonar. *Biology Letters* 9: 20130223. <https://doi.org/10.1098/rsbl.2013.0223>

- DeRuiter, S.L., R. Langrock, T. Skirbutas, J.A. Goldbogen, J. Calambokidis, A.S. Friedlaender, and B.L. Southall. 2017. A multivariate mixed hidden Markov model for blue whale behaviour and responses to sound exposure. *The Annals of Applied Statistics* 11(1): 362-392. DOI: 10.1214/16-AOAS1008
- de Soto, N. A. 2016. Peer-Reviewed Studies on the Effects of Anthropogenic Noise on Marine Invertebrates: From Scallop Larvae to Giant Squid. In A. N. Popper & A. Hawkins (Eds.), *The Effects of Noise on Aquatic Life II* (pp. 10). New York: Springer Science.
- Di Iorio, L. and C.W. Clark. 2009. Exposure to seismic survey alters blue whale acoustic communication. *Biology Letters* 6 (3): 334-335. <https://doi.org/10.1098/rsbl.2009.0651>
- Discovery of Sounds in the Sea (DOSITS). 2023. Discovery of Sounds in the Sea. Available at: <https://dosits.org/> (Accessed February 1, 2023).
- Doksaeter, L., O. R. Godo, N. O. Handegard, P. H. Kvadsheim, F. P. A. Lam, C. Donovan, and P. J. O. Miller. 2009. Behavioral responses of herring (*Clupea harengus*) to 1-2 and 6-7 kHz sonar signals and killer whale feeding sounds. *The Journal of Acoustical Society of America* 125 (1): 554–564. <https://doi.org/10.1121/1.3021301>
- Doksaeter, L., N. O. Handegard, O. R. Godo, P. H. Kvadsheim, and N. Nordlund. 2012. Behavior of captive herring exposed to naval sonar transmissions (1.0–1.6 kHz) throughout a yearly cycle. *The Journal of Acoustical Society of America* 131 (2): 1632–1642. <https://doi.org/10.1121/1.3675944>
- Dominion Energy. 2020. Dominion Coastal Virginia Offshore Wind (CVOW) Commercial Project 2020 High-Resolution Geophysical and Geotechnical Survey Request for Increased Level B Incidental Take of Spotted Dolphins.
- Dominion Energy. 2021. Dominion Coastal Virginia Offshore Wind (CVOW) Commercial Project 2020 High-Resolution Geophysical and Geotechnical Survey Request for Increased Level B Incidental Take of Common Dolphins.
- Dominion Energy. 2022. Coastal Virginia Offshore Wind Commercial Project Draft Environmental Impact Statement Volume 1. Available online at <https://www.boem.gov/renewable-energy/state-activities/cvow-cdeisvolume-i>. Accessed on 01 May 2023.
- Dominion Energy. 2023. Construction and Operations Plan: Coastal Virginia Offshore Wind Commercial Project. Prepared by TetraTech, Inc. Available online at <https://www.boem.gov/renewable-energy/state-activities/cvow-construction-and-operations-plan>. Accessed on 27 April 2023.

- Dooling, R.J. 2004. Audition: Can Birds Hear Everything They Sing? *Nature's Music: The Science of Birdsong*. P. Marler and H. Slabbekoorn, Eds., pp 206-225. Elsevier-Academic Press, San Diego.
- Dorrell R. M., C.J. Lloyd, B.J. Lincoln, T.P. Rippeth, J.R. Taylor, C.C.P. Caulfield, et al. 2022. Anthropogenic mixing in seasonally stratified shelf seas by offshore wind farm infrastructure *Front. Mar. Sci.* 9, 830927. doi: 10.3389/fmars.2022.830927/abstract
- Dukas, R. 2002. Behavioural and ecological consequences of limited attention. *Philosophical Transactions of the Royal Society of London. Series B: Biological Sciences* 357 (1427): 15391547. <https://doi.org/10.1098/rstb.2002.1063>
- Dunlop, R. A. 2016. The effect of vessel noise on humpback whale, *Megaptera novaeangliae*, communication behaviour. *Animal Behaviour* 111: 13–21. <https://doi.org/10.1016/j.anbehav.2015.10.002>
- Dunlop, R.A., D.H. Cato, and M.J. Noad. 2010. Your attention please: increasing ambient noise levels elicits a change in communication behaviour in humpback whales (*Megaptera novaeangliae*). *Proceedings of the Royal Society B: Biological Sciences* 277 (1693): 2521-2529. <https://doi.org/10.1098/rspb.2009.2319>
- Dunlop, R. A., D.H. Cato, and M.J. Noad. 2014.. Evidence of a Lombard response in migrating humpback whales (*Megaptera novaeangliae*). *The Journal of the Acoustical Society of America* 136(1): 430–437. DOI: 10.1016/j.marpolbul.2015.12.044
- Dunlop, R.A., M.J. Noad, R.D. McCauley, E. Kniest, R. Slade, D. Paton, and D.H. Cato. 2017a. The behavioural response of migrating humpback whales to a full seismic airgun array. *Proceedings of the Royal Society B: Biological Sciences* 284 (1869): 20171901. <https://doi.org/10.1098/rspb.2017.1901>
- Dunlop, R.A., M.J. Noad, R.D. McCauley, L. Scott-Hayward, E. Kniest, R. Slade, D. Paton, and D.H. Cato. 2017b. Determining the behavioural dose–response relationship of marine mammals to air gun noise and source proximity. *Journal of Experimental Biology* 220 (16): 2878-2886. <https://doi.org/10.1242/jeb.160192>
- Dunlop, R.A., M.J. Noad, R.D. McCauley, E. Kniest, R. Slade, D. Paton, and D.H. Cato. 2018. A behavioural dose-response model for migrating humpback whales and seismic air gun noise. *Marine Pollution Bulletin* 133: 506-516. <https://doi.org/10.1016/j.marpolbul.2018.06.009>
- Dunlop, R.A., J. Braithwaite, L.O. Mortensen, and C.M. Harris. 2021. Assessing populationlevel effects of anthropogenic disturbance on a marine mammal population. *Frontiers in Marine Science* 8: 624981. <https://doi.org/10.3389/fmars.2021.624981>

- Edren, S.M., S.M. Andersen, J. Teilmann, J. Carstensen, P.B. Harders, R. Dietz, and L.A. Miller. 2010. The effect of a large Danish offshore wind farm on harbor and gray seal haul-out behavior. *Marine Mammal Science* 26 (3): 614-634. <https://doi.org/10.1111/j.1748-7692.2009.00364.x>
- Edwards, E.F., C. Hall, T.J. Moore, C. Sheredy, and J.V. Redfern. 2015. Global distribution of fin whales *Balaenoptera physalus* in the post-whaling era (1980-2012). *Mammal Review* 45: 197-214. <https://doi.org/10.1111/mam.12048>
- Ellison, W.T., B.L. Southall, C.W. Clark, and A.S. Frankel. 2012. A new context-based approach to assess marine mammal behavioral responses to anthropogenic sounds. *Conservation Biology* 26 (1): 21-28. <https://doi.org/10.1111/j.1523-1739.2011.01803.x>
- Elzinga, J., A. Mesu, E. van Eekelen, M. Wochner, E. Jansen, and M. Nijhof. 2019. Installing Offshore Wind Turbine Foundations Quieter: A Performance Overview of the First Full- Scale Demonstration of the AdBm Underwater Noise Abatement System.
- Erbe, C. 2008. Critical ratios of beluga whales (*Delphinapterus leucas*) and masked signal duration. *Journal of the Acoustical Society of America* 124 (4): 2216-2223. <https://doi.org/10.1121/1.2970094>
- Erbe, C. and Farmer, D. M. 2000. A software model to estimate zones of impact on marine mammals around anthropogenic noise. *The Journal of the Acoustical Society of America* 108(3): 1327-1331. <https://doi.org/10.1121/1.1288939>
- Erbe, C., C. Reichmuth, K. Cunningham, K. Lucke, and R. Dooling. 2016. Communication masking in marine mammals: a review and research strategy. *Marine Pollution Bulletin* 103:15- 38. <https://doi.org/10.1016/j.marpolbul.2015.12.007>
- Eschmeyer, W. N., and J. D. Fong. 2016. *Species by Family/Subfamily in the Catalog of Fishes*. San Francisco, CA: California Academy of Sciences.
- ESRI. 2017. ArcGIS Desktop: Release 10.6.1. Environmental Systems Research Institute., Redlands, California.
- Fair, P.A. and P.R. Becker. 2000. Review of stress in marine mammals. *Journal of Aquatic Ecosystem Stress and Recovery* 7 (4): 335-354. <http://dx.doi.org/10.1023/A:1009968113079>
- Falcone, E. A., G. S. Schorr, S. L. Watwood, S. L. DeRuiter, A. N. Zerbini, R. D. Andrews, R. P. Morrissey, and D. J. Moretti. 2017. Diving behaviour of Cuvier's beaked whales exposed to two types of military sonar. *Royal Society Open Science* 4 (170629): 1–21. <https://doi.org/10.1098/rsos.170629>
- Farmer, N.A., K. Baker, D.G. Zeddies, S.L. Denes, D.P. Noren, L.P. Garrison, A. Machernis, E.M. Fougères, and M. Zykov. 2018. Population consequences of disturbance offshore oil and gas activity for endangered

- sperm whales (*Physeter macrocephalus*). *Biological Conservation* 227: 189-204.
<https://doi.org/10.1016/j.biocon.2018.09.006>
- Fay, R.R. 2009. Soundscapes and the sense of hearing of fishes. *Integrative Zoology* 4: 26-32.
<https://doi.org/10.1111/j.1749-4877.2008.00132.x>
- Fay, R.R., A.N. Popper, and J.F. Webb. 2008. Introduction to fish bioacoustics. In: Webb, J.F., R.R. Fay, and A.N. Popper, eds. *Fish Bioacoustics*. Springer Handbook of Auditory Research 32, 1-15. DOI: 10.1007/978-0-387-73029-5_1
- Feare, C. J. 1976. Desertion and abnormal development in a colony of Sooty Terns *Sterna fuscata* infested by virus-infected ticks. *Ibis* 118 (1): 112-115. <https://doi.org/10.1111/j.1474919X.1976.tb02015.x>
- Fewtrell, J. L., and R. D. McCauley. 2012. Impact of air gun noise on the behaviour of marine fish and squid. *Marine Pollution Bulletin* 64 (5): 984–993. <https://doi.org/10.1016/j.marpolbul.2012.02.009>
- Fields, D.M., N.O. Handegard, J. Dalen, C. Eichner, K. Malde, O. Karlsen, A.B. Skiftesvik, C.M.F. Durif, and H.I. Browman. 2019. Airgun blasts used in marine seismic surveys have limited effects on mortality, and no sublethal effects on behaviour or gene expression, in the copepod *Calanus finmarchicus*. *ICES Journal of Marine Science* 76 (7): 2033-2044. doi:10.1093/icesjms/fsz126
- Finneran, J.J. 2015. Noise-induced hearing loss in marine mammals: A review of temporary threshold shift studies from 1996 to 2015. *Journal of the Acoustical Society of America* 138 (3): 1702-1726.
<https://doi.org/10.1121/1.4927418>
- Finneran, J.J., 2018. Conditioned attenuation of auditory brainstem responses in dolphins warned of an intense noise exposure: Temporal and spectral patterns. *The Journal of the Acoustical Society of America* 143(2): 795-810. <https://doi.org/10.1121/1.5022784>
- Finneran, J.J., R. Dear, D.A. Carder, and S.H. Ridgway. 2003. Auditory and behavioral responses of California sea lions (*Zalophus californianus*) to single underwater impulses from an arc-gap transducer. *Journal of the Acoustical Society of America* 114 (3): 1667. <https://doi.org/10.1121/1.1598194>
- Finneran, J. J., C.E. Schlundt, D. A. Carder, J. A. Clark, J. A. Young, J. B. Gaspin, and S. H. Ridgway. 2000. Auditory and behavioral responses of bottlenose dolphins (*Tursiops truncatus*) and a beluga whale (*Delphinapterus leucas*) to impulsive sounds resembling distant signatures of underwater explosions. *Journal of the Acoustical Society of America* 108: 417-431. <https://doi.org/10.1121/1.429475>

- Finneran, J. J., R. Dear, D. A. Carder, and S. H. Ridgway. 2002. Auditory and behavioral responses of California sea lions (*Zalophus californianus*) to single underwater impulses from an arc-gap transducer. *Journal of the Acoustical Society of America* 114(3): 1667. <https://doi.org/10.1121/1.1598194>
- Fish J.F. and J.S. Vania. 1971. Killer whale, *Orcinus orca*, sounds repel white whales, *Delphinapterus leucas*. *Fish Bull* 69: 531–536.
- Foote, A.D., R.W. Osborne, and A.R. Hoelzel. 2004. Whale-call response to masking boat noise. *Nature* 428: 910. <https://doi.org/10.1038/428910a>
- Ford, J.K. and R.R. Reeves. 2008. Fight or flight: antipredator strategies of baleen whale. *Mammal Review* 38(1): 50-86. <https://doi.org/10.1111/j.1365-2907.2008.00118.x>
- Forney, K. A., B. L. Southall, E. Slooten, S. Dawson, A. J. Read, R. W. Baird, and R. L. Brownell, Jr. 2017. Nowhere to go: noise impact assessments for marine mammal populations with high site fidelity. *Endangered Species Research* 32: 391–413. <https://doi.org/10.3354/esr00820>
- Francis, C. and J. Barber. 2013. A framework for understanding noise impacts on wildlife: An urgent conservation priority. *Frontiers in Ecology and the Environment* 11: 10.1890/120183.
- Frankel, A.S. and C.W. Clark. 2000. Behavioral responses of humpback whales (*Megaptera novaeangliae*) to full-scale ATOC signals. *Journal of the Acoustical Society of America* 108 (4): 1930-1937. <https://doi.org/10.1121/1.1289668>
- Frankel, A. S., W. T. Ellison and J. Buchanan. 2002. Application of the Acoustic Integration Model (AIM) to predict and minimize environmental impacts. *IEEE Oceans 2002*:1438-1443. Available online at https://www.marineacoustics.com/wp-content/uploads/2020/07/Frankel-et-al.-2002_AIM_IEEE.pdf. Accessed on 27 April 2023.
- Frid, A., and Dill, L. 2002. Human-caused disturbance stimuli as a form of predation risk. *Conservation Ecology* 6 (1): 11. DOI:10.5751/ES-00404-060111
- Friedlaender, A. S., E. L. Hazen, J. A. Goldbogen, A. K. Stimpert, J. Calambokidis, and B. L. Southall. 2016. Prey-mediated behavioral responses of feeding blue whales in controlled sound exposure experiments. *Ecological Applications* 26 (4): 1075–1085. <https://doi.org/10.1002/15-0783>
- Frings, H. and M. Frings. 1967. Underwater sound fields and behavior of marine invertebrates. *Marine bio-acoustics* 2: 261-282.

- Fristrup, K. M., L. T. Hatch and C. W. Clark. 2003. Variation in humpback whale (*Megaptera novaeangliae*) song length in relation to low-frequency sound broadcasts. *The Journal of Acoustical Society of America* 113 (6): 3411–3424. <https://doi.org/10.1121/1.1573637>
- Fritz, H., M. Guillemain, and D. Durant. 2002. The cost of vigilance for intake rate in the mallard (*Anas platyrhynchos*): an approach through foraging experiments. *Ethology Ecology & Evolution* 14 (2): 91-97. <https://doi.org/10.1080/08927014.2002.9522748>
- Gailey, G., B. Wursig, and T.L. McDonald. 2007. Abundance, behavior, and movement patterns of western gray whales in relation to a 3-D seismic survey, northeast Sakhalin Island, Russia. *Environmental Monitoring and Assessment* 134 (1-3): 75-91. DOI: 10.1007/s10661-007-9812-1
- Gailey, G., O. Sychenko, T. McDonald, R. Racca, A. Rutenko, and K. Bröker. 2016. Behavioural responses of western gray whales to a 4-D seismic survey off northeastern Sakhalin Island, Russia. *Endangered Species Research* 30: 53–71. <https://doi.org/10.3354/esr00713>
- Gallagher, C.A., V. Grimm, L.A. Kyhn, C.C. Kinze, and J. Nabe-Nielsen. 2021. Movement and seasonal energetics mediate vulnerability to disturbance in marine mammal populations. *The American Naturalist* 197 (3): 296-311. DOI: 10.1086/712798
- Ganley, L.C., S. Brault, and C.A. Mayo. 2019. What we see is not what there is: estimating North Atlantic right whale *Eubalaena glacialis* local abundance. *Endang Species Res.* 38:101– 113. <https://doi.org/10.3354/esr00938>
- Gende, S. M., A. N. Hendrix, K. R. Harris, B. Eichenlaub, J. Nielsen, and S. Pyare. 2011. A Bayesian approach for understanding the role of ship speed in whale-ship encounters. *Ecological Applications* 21 (6): 2232–2240. <https://doi.org/10.1890/10-1965.1>
- Gerke, P. and M. Bellmann. 2012. “Offshore Windpark Riffgat.” Messung der Bauschallimmissionen. Itap Projekt Nr.: 1924-12-e-pg, 40 S, commissioned by Offshore-Windpark Riffgat GmbH & Co KG.
- Gervaise, C., N. Roy, Y. Simard, B. Kinda, and N. Menard. 2012. Shipping noise in whale habitat: characteristics, sources, budget, and impact on belugas in Saguenay-St. Lawrence Marine Park hub. *J. Acoust. Soc. Am.* 132 (1):76-89. <https://doi.org/10.1121/1.4728190>
- Gilles A., M.Scheidat, and U. Siebert. 2009. Seasonal distribution of harbour porpoises and possible interference of offshore windfarms in the German North Sea. *Marine Ecology Progress Series* 383: 295–307. doi: 10.3354/meps08020.

- Goldbogen, J. A., B. L. Southall, S. L. DeRuiter, J. Calambokidis, A. S. Friedlaender, E. L. Hazen, E. A. Falcone, G. S. Schorr, A. Douglas, D. J. Moretti, C. Kyburg, M. F. McKenna, and P. L. Tyack. 2013a. Blue whales respond to simulated mid-frequency military sonar. *Proc Biol Sci* 280(1765): 20130657. doi:10.1098/rspb.2013.0657
- Goldbogen, J. A., A.S. Friedlaender, J. Calambokidis, M.F. McKenna, M. Simon, and D.P. Nowacek. 2013b. Integrative approaches to the study of baleen whale diving behavior, feeding performance, and foraging ecology. *Bioscience* 63: 90–100. doi: 10.1525/bio.2013.63.2.5
- Gomez, C., J.W. Lawson, A.J. Wright, A.D. Buren, D. Tollit, and V. Lesaged. 2016. A systematic review on the behavioural responses of wild marine mammals to noise: the disparity between science and policy. *Canadian Journal of Zoology* 94 (12): 801-819, <https://doi.org/10.1139/cjz-2016-0098>.
- Goold, J. 1996. Acoustic Assessment Of Populations Of Common Dolphin *Delphinus Delphis* In Conjunction With Seismic Surveying. *J. Mar. Biol. Ass. U.K.* 76: 811-820. <https://doi.org/10.1017/S0025315400031477>
- Gordon, J., D. Gillespie, J. Potter, A. Frantzis, M.P. Simmonds, R. Swift, and D. Thompson. 2003. A review of the effects of seismic surveys on marine mammals. *Marine Technology Society Journal* 37(4): 16-34. <https://doi.org/10.4031/002533203787536998>
- Götz, T., G. Hastie, L.T. Hatch, O. Raustein, B.L. Southall, M. Tasker, and F. Thomsen. 2009. Overview of the impacts of anthropogenic underwater sound in the marine environment. OSPAR Commission, 134 pp.
- Gowan, T. A., J.G. Ortega-Ortiz, J.A. Hostetler, P.K. Hamilton, A.R. Knowlton, K.A. Jackson, R.C. George, C.R. Taylor, and P.J. Naessig. 2019. Temporal and demographic variation in partial migration of the North Atlantic right whale. *Scientific Reports* 9 (1): 353 Article 353. <https://doi.org/10.1038/s41598-018-36723-3>
- Graham, I.M., N.D. Merchant, A. Farcas, T.R. Barton, B. Cheney, S. Bono, and P.M. Thompson. 2019. Harbour porpoise responses to pile driving diminish over time. *Royal Society Open Science* 6 (6): 190335. <https://doi.org/10.1098/rsos.190335>
- Gulland, J. Hildebrand, D. Houser, T. Hullar, P.D. Jepson, D. Ketten, C. D. MacLeod, P. Miller, S. Moore, D. Mountain, D. Palka, P. Ponganis, S. Rommel, T. Rowles, B. Taylor, P. Tyack, D. Wartzok, R. Gisiner, J. Mead and L. Benner 2006. Understanding the impacts of anthropogenic sound on beaked whales. *J. Cetacean Res. Manage.* 7 (3): 177-187.
- Haelters, J., V. Dulière, L. Vigin, and S. Degraer. 2015. Towards a numerical model to simulate the observed displacement of harbour porpoises, *Phocoena phocoena*, due to pile driving in Belgian waters. *Hydrobiologia* 756 (1): 105-116. <https://doi.org/10.1007/s10750-014-2138-4>

- Hain, J.H.W., M.A. Hyman, R.D. Kenney and H.E. Winn. 1985. The role of cetaceans in the shelf-edge region of the northeastern United States. *Mar. Fish. Rev.* 47:13–17.
- Hain, J.H.W., M.J. Ratnaswamy, R.D. Kenney, and H.E. Winn. 1992. The fin whale, *Balaenoptera physalus*, in waters of the northeastern United States continental shelf. *Reports of the International Whaling Commission* 42:653B669.
- Halpin, P.N., A.J. Read, E. Fujioka, B.D. Best, B. Donnelly, L.J. Hazen, C. Kot, K. Urian, E. LaBrecque, A. Dimatteo, J. Cleary, C. Good, L.B. Crowder, and K.D. Hyrenbach. 2009. OBIS-SEAMAP: The world data center for marine mammal, sea bird, and sea turtle distributions. *Oceanography* 22:104–115.
- Halvorsen, M. B., B.M. Casper, F. Matthews, T.J. Carlson, and A.N. Popper. 2012a. Effects of exposure to piledriving sounds on the lake sturgeon, Nile tilapia and hogchoker. *Proceedings of the Royal Society of London B: Biological Sciences* 279 (1748): 4705-4714. <https://doi.org/10.1098/rspb.2012.1544>
- Halvorsen, M. B., B.M. Casper, C.M. Woodley, T.J. Carlson, and A.N. Popper. 2012b. Threshold for onset of injury in Chinook salmon from exposure to impulsive pile driving sounds. *PLoS One* 7(6): e38968. <https://doi.org/10.1371/journal.pone.0038968>
- Hamilton P.K., A.R. Knowlton, M.N. Hagbloom, K.R. Howe, M.K. Marx, H.M. Pettis, A.M. Warren, and M.A. Zani. 2021. Maintenance of the North Atlantic right whale catalog, whale scarring and visual health databases, anthropogenic injury case studies, and near real-time matching for biopsy efforts, entangled, injured, sick, or dead right whales. Woods Hole (MA): U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Northeast Fisheries Science Center. 105 p.
- Hammond, P.S., P. Berggren, H. Benke, D.L. Borchers, A. Collet, M.P. Heide-Jørgensen, S. Heimlich, A.R. Hiby, M.F. Leopold, and N. Øien. 2002. Abundance of harbour porpoise and other cetaceans in the North Sea and adjacent waters. *Journal of Applied Ecology* 39 (2): pp.361- 376. <https://doi.org/10.1046/j.1365-2664.2002.00713.x>
- Hamre, L., S.F. Khankandi, P.J. Strøm, and C. Athanasiu. 2011. Lateral behaviour of large diameter monopiles at Sheringham Shoal Wind Farm. *Frontiers in offshore geotechnics II*, pp.575-580.
- Harris, C.M., ed. 1998. *Handbook of Acoustical Measurements and Noise Control*. Acoustical Society of America, Woodbury, NY.
- Harris, C. M., L.J. Wilson, C.G. Booth, and J. Harwood. 2017. Population consequences of disturbance: A decision framework to identify priority populations for PCoD modelling. Paper presented at the 22nd Biennial Conference on the Biology of Marine Mammals, Halifax, Nova Scotia, Canada, October 21-28, 2017.

- Harwood, J., and C. Booth. 2016. The application of an interim PCoD (PCoD Lite) protocol and its extension to other marine mammal populations and sites Final Report (SMRUCONR-2016004).
- Hastie, G., D. J. F. Russell, B. McConnell, S. Moss, D. Thompson, and V. M. Janik. 2015. Sound exposure in harbour seals during the installation of an offshore wind farm: predictions of auditory damage. *Journal of Applied Ecology* 52:631-640. <https://doi.org/10.1111/1365-2664.12403>
- Hastings, M.C., and A.N. Popper. 2005. Effects of sound on fish. Prepared by Jones & Stokes for the California Department of Transportation: 82.
- Hatch, L.T., C.W. Clark, S.M. van Parijs, A.S. Frankel, and D.W. Ponirakis. 2012. Quantifying loss of acoustic communication space for right whales in and around a U.S. National Marine Sanctuary. *Conservation Biology* 26 (6): 983-994. <https://doi.org/10.1111/j.1523-1739.2012.01908.x>
- Hawkins, A.D. and A.D.F. Johnstone. 1978. The hearing of the Atlantic salmon, *Salmo salar*. *Fish Biology* 13: 655-673. <https://doi.org/10.1111/j.1095-8649.1978.tb03480.x>
- Hayes, S.A., E. Josephson, K. Maze-Foley, and P. Rosel. 2021 (eds). US Atlantic and Gulf of Mexico Marine Mammal Stock Assessments: 2020. NOAA Technical Memorandum NMFS-NE-271, National Marine Fisheries Service: 403.
- Hayes, S.A., E. Josephson, K. Maze-Foley, P.E. Rosel, and J. Wallace (eds). 2022. U.S. Atlantic and Gulf of Mexico marine mammal stock assessments: 2021. NOAA Technical Memorandum NMFS-NE-271, National Marine Fisheries Service: 386.
- HDR. 2019. Field Observations during Wind Turbine Operations at the Block Island Wind Farm, Rhode Island. Final Report to the U.S. Department of the Interior, Bureau of Ocean Energy Management, Office of Renewable Energy Programs. OCS Study BOEM 2019-028. 281pp.
- Hemilä, S., S. Nummela, A. Berta, and T. Reuter. 2006. High-frequency hearing in phocid and otariid pinnipeds: An interpretation based on inertial and cochlear constraints. *Journal of the Acoustical Society of America* 120 (6): 3463-3466. <https://doi.org/10.1121/1.2372712>
- Henderson, D., B. Hu, and E. Bielefeld. 2008. Patterns and mechanisms of noise-induced cochlear pathology. In *Auditory trauma, protection, and repair* (pp. 195-217). Springer, Boston, MA.
- Henderson, E.E., S.W. Martin, R. Manzano-Roth, and B.M. Matsuyama. 2016. Occurrence and habitat use of foraging Blainville's beaked whales (*Mesoplodon densirostris*) on a US Navy range in Hawaii. *Aquatic Mammals* 42(4): 549. DOI 10.1578/AM.42.4.2016.549

- Hermanssen, L., J. Tougaard, K. Beedholm, J. Nabe-Nielsen, and P.T. Madsen. 2014. High frequency components of ship noise in shallow water with a discussion of implications for harbor porpoises (*Phocoena phocoena*). *J. Acoust. Soc. Am.* 136 (4): 1640-1653. <https://doi.org/10.1121/1.4893908>
- Hildebrand, J. A. 2009. Anthropogenic and natural sources of ambient noise in the ocean. *Marine Ecology Progress Series* 395: 5–20. <https://doi.org/10.3354/meps08353>
- Holberton, R. L., B. Helmuth, B., and J.C. Wingfield. 1996. The corticosterone stress response in gentoo and king penguins during the non-fasting period. *The Condor* 98 (4): 850-854. <https://doi.org/10.2307/1369869>
- Holt, M.M., D.P. Noren, V. Veirs, C. K. Emmons, and S. Veirs. 2009. Speaking up: Killer whales (*Orcinus orca*) increase their call amplitude in response to vessel noise. *The Journal of the Acoustical Society of America* 125 (1): EL27-EL32. <https://doi.org/10.1121/1.3040028>
- Holt, M. M., D. P. Noren, and C. K. Emmons. 2011. Effects of noise levels and call types on the source levels of killer whale calls. *The Journal of the Acoustical Society of America*, 130(5): 3100–3106. <https://doi.org/10.1121/1.3641446>
- Holt, M.M., D.P. Noren, R.C. Dunkin, and T.M. Williams. 2015. Vocal performance affects metabolic rate in dolphins: implications for animals communicating in noisy environments. *The Journal of Experimental Biology* 218 (11): 1647-1654. <https://doi.org/10.1242/jeb.122424>
- Holt, M.M., J.B. Tennesen, E.J. Ward, M.B. Hanson, C.K. Emmons, D.A. Giles, and J.T. Hogan. 2021. Effects of vessel distance and sex on the behavior of endangered killer whales. *Frontiers in Marine Science* 7: 582182. <https://doi.org/10.3389/fmars.2020.582182>
- Hood, L. C., P.D. Boersma, and J.C. Wingfield. 1998. The adrenocortical response to stress in incubating Magellanic penguins (*Spheniscus magellanicus*). *The Auk*: 76-84. <https://doi.org/10.2307/4089113>
- Houser, D. S., S.W. Martin, and J.J. Finneran. 2013a. Behavioral responses of California sea lions to mid-frequency (3250-3450 Hz) sonar signals. *Marine Environmental Research* 92: 268- 278. <https://doi.org/10.1016/j.marenvres.2013.10.007>
- Houser, D. S., S.W. Martin, and J.J. Finneran. 2013b. Exposure amplitude and repetition affect bottlenose dolphin behavioral responses to simulated mid-frequency sonar signals. *Journal of Experimental Marine Biology and Ecology* 443: 123-133. <http://dx.doi.org/10.1016/j.jembe.2013.02.043>
- Houser, D.S. and P.W. Moore. 2014. Report on the current and future status of underwater hearing research. Report NMMF-001-14, National Marine Mammal Foundation: 46 pp.

- Hu, M., H. Y. Yan, W. S. Chung, J. C. Shiao, and P. P. Hwang. 2009. Acoustical evoked potentials in two cephalopods inferred using the auditory brainstem response (ABR) approach. *Comparative Biochemistry and Physiology Part A: Molecular and Integrative Physiology*, 153, 278-283.
<https://doi.org/10.1016/j.cbpa.2009.02.040>
- ICES. 1995. Underwater noise of research vessels: review and recommendations. ICES Cooperative Research Report No. 209. pp. 61. <https://doi.org/10.17895/ices.pub.5317>.
- ISO (International Organization for Standardization). 2003. Acoustics – Description, Measurement and Assessment of Environmental Noise – Part 1: Basic Quantities and Assessment Procedures (ISO 1996-1:2003(E)). International Organization for Standardization, Geneva.
- ISO (International Organization for Standardization). 2017. Underwater Acoustics ISO 18405. Geneva, Switzerland: International Organization for Standardization.
- Isojunno, S., C. Curé, P.H. Kvadsheim, F.P.A. Lam, P.L. Tyack, P.J. Wensveen, and P.J.O.M Miller. 2016. Sperm whales reduce foraging effort during exposure to 1–2 kHz sonar and killer whale sounds. *Ecological Applications* 26 (1): 77-93. <https://doi.org/10.1890/15-0040>
- Jacobs, S.R. and J.M. Terhune. 2002. The effectiveness of acoustic harassment devices in the Bay of Fundy, Canada: seal reactions and a noise exposure model. *Aquatic Mammals* 28 (2): 147-158.
- Jansen, E., and C.D. Jong. 2016. Underwater noise measurements in the North Sea in and near the Princess Amalia Wind Farm in operation, in *Proceedings from InterNois, Hamburg, 2016*.
- Jefferson, T.A., M.A. Webber, and R. Pitman. 2015. *Marine mammals of the world: a comprehensive guide to their identification*. Elsevier.
- Jensen, A. S., and G. K. Silber. 2003. Large Whale Ship Strike Database. Retrieved from:
<http://www.nmfs.noaa.gov/pr/overview/publicat.html>
- Jessop, T. S., A.D. Tucker, C.J. Limpus, and J.M. Whittier. 2003. Interactions between ecology, demography, capture stress, and profiles of corticosterone and glucose in a free-living population of Australian freshwater crocodiles. *General and comparative endocrinology* 132 (1): 161-170.
[https://doi.org/10.1016/S0016-6480\(03\)00078-9](https://doi.org/10.1016/S0016-6480(03)00078-9)
- Johnson T.L., J.J. van Berkel, L.O. Mortensen, M.A. Bell, I. Tiong, B. Hernandez, D.B. Snyder, F. Thomsen, and O. Svenstrup Petersen. 2021. Hydrodynamic modeling, particle tracking and agent-based modeling of larvae in the U.S. mid-Atlantic bight. Lakewood (CO): US Department of the Interior, Bureau of Ocean Energy

- Management. OCS Study BOEM 2021-049. 232 p. https://espis.boem.gov/final%20reports/BOEM_2021-049.pdf
- Jones, I.T., J.A. Stanley, and T.A. Mooney. 2020. Impulsive pile driving noise elicits alarm responses in squid (*Doryteuthis pealeii*). *Marine pollution bulletin* 150: 110792.
<https://doi.org/10.1016/j.marpolbul.2019.110792>
- Jørgensen, R., K. K. Olsen, I. B. Falk-Petersen, & P. Kanapthippilai. 2005. Investigations of Potential Effects of Low Frequency Sonar Signals on Survival, Development and Behaviour of Fish Larvae and Juveniles. Tromsø, Norway: University of Tromsø.
- Juanes, F., K. Cox, & L. Brennan. 2017. The effect of anthropogenic and biological noise on fish behavior and physiology: A meta-analysis. *Journal of the Acoustic Society of America* 141 (3862).
<https://doi.org/10.1111/gcb.14106>
- Kaifu K., T. Akamatsu, and S. Segawa. 2008. Underwater sound detection by cephalopod statocyst. *Fisheries Sci* 74: 781–86. DOI:10.1111/j.1444-2906.2008.01589.x
- Kane, A. S., J. Song, M. B. Halvorsen, D. L. Miller, J. D. Salierno, L. E. Wysocki, D. Zeddies, and A. N. Popper. 2010. Exposure of fish to high intensity sonar does not induce acute pathology. *Journal of Fish Biology* 76 (7): 1825–1840. <https://doi.org/10.1111/j.10958649.2010.02626.x>
- Kastelein, R.A., D. de Haan, N. Vaughan, C. Staal, and N.M. Schooneman. 2001. The influence of three acoustic alarms on the behaviour of harbour porpoises (*Phocoena phocoena*) in a floating pen. *Marine Environmental Research* 52 (4): 351-371. [https://doi.org/10.1016/S01411136\(01\)00090-3](https://doi.org/10.1016/S01411136(01)00090-3)
- Kastelein, R. A., L. Helder-Hoek, S. Van de Voorde, S. de Winter, S. Janssen, and M. A. Ainslie. 2018. Behavioral responses of harbor porpoises (*Phocoena phocoena*) to sonar playback sequences of sweeps and tones (3.5-4.1 kHz). *Aquatic Mammals* 44 (4): 389–404. <https://doi.org/10.1578/AM.44.4.2018.389>
- Kastelein, R.A., N. Jennings, W.C. Verboom, D. de Haan, and N.M. Schooneman. 2006a. Differences in the response of a striped dolphin (*Stenella coeruleoalba*) and a harbour porpoise (*Phocoena phocoena*) to an acoustic alarm. *Marine Environmental Research* 61 (3): 363-378.
<https://doi.org/10.1016/j.marenvres.2005.11.005>
- Kastelein, R.A., S. van der Heul, J.M. Terhune, W.C. Verboom, and R.J. V. Triesscheijn. 2006c. Deterring effects of 8-45 kHz tone pulses on harbor seals (*Phoca vitulina*) in a large pool. *Marine Environmental Research* 62 (5): 356-373. <https://doi.org/10.1016/j.marenvres.2006.05.004>

- Kastelein, R. A., W. C. Verboom, M. Muijsers, N. V. Jennings, and S. van der Heul. 2005. Influence of acoustic emissions for underwater data transmission on the behaviour of harbour porpoises (*Phocoena phocoena*) in a floating pen. *Marine Environmental Research* 59: 287–307.
<https://doi.org/10.1016/j.marenvres.2004.05.005>
- Kastelein, R.A., P. Wensveen, L. Hoek, and J.M. Terhune. 2009. Underwater hearing sensitivity of harbor seals (*Phoca vitulina*) for narrow noise bands between 0.2 and 80 kHz. *Journal of the Acoustical Society of America* 126 (1):476-483. <https://doi.org/10.1121/1.3132522>
- King, S. L., R.S. Schick, C. Donovan, C.G. Booth, M. Burgman, L. Thomas, . . . C. Kurle 2015. An interim framework for assessing the population consequences of disturbance. *Methods in Ecology and Evolution* 6 (10): 1150–1158. doi:10.1111/2041-210x.12411
- Knowlton, A.R. and S.D. Kraus. 2001. Mortality and serious injury of northern right whales (*Eubalaena glacialis*) in the western North Atlantic Ocean. *Journal of Cetacean Research and Management Special Issue* 2:193-208.
<https://doi.org/10.47536/jcrm.vi.288>
- Knowlton, A. R., F. T. Korsmeyer, J. E. Kerwin, H. Wu, and B. Hynes. 1995. The hydrodynamic effects of large vessels on right whales. Pages 62 in Eleventh Biennial Conference on the Biology of Marine Mammals, Orlando, Florida.
- Knowlton, A.R., P.K. Hamilton, M.K. Marx, H.M. Pettis and S.D. Kraus. 2012. Monitoring North Atlantic right whale *Eubalaena glacialis* entanglement rates: A 30 year retrospective. *Mar. Ecol. Prog. Ser.* 466: 293–302. <https://doi.org/10.3354/meps09923>
- Knowlton, A.R., Clark, J. S., Hamilton, P.K., Kraus, S.D., Pettis, H.M., Rolland, R.M., and R.S. Schick. 2022. Fishing gear entanglement threatens recovery of critically endangered North Atlantic right whales. *Conservation Science and Practice*, 4(8): e12736. <https://doi.org/10.1111/csp2.12736>
- Koschinski, S., and K. Lüdemann. 2013. Development of Noise Mitigation Measures in Offshore Wind Farm Construction. Commissioned by the Federal Agency for Nature Conservation (Bundesamt für Naturschutz, BfN). Original report (in German) published Jul 2011, updated Feb 2013. Nehnten and Hamburg, Germany.
- Kostyuchenko, L. P. 1973. Effect of elastic waves generated in marine seismic prospecting on fish eggs in the Black Sea. *Hydrobiological Journal* 9: 45-48.
- Kraus, S.D., R.D Kenney, and L. Thomas. 2019. A framework for studying the effects of offshore wind development on marine mammals and turtles. Report prepared for the Massachusetts Clean Energy Center, Boston, MA, 2110.

- Kraus, S.D., S. Leiter, K. Stone, B. Wikgren, C.A. Mayo, P. Hughes, R.D. Kenney, C.W. Clark, A.N. Rice, et al. 2016. Northeast Large Pelagic Survey Collaborative Aerial and Acoustic Surveys for Large Whales and Sea Turtles. OCS Study BOEM 2016-054, Bureau of Ocean Energy Management: 110.
- Krausman, P.R., L.K. Harris, C.L. Blasch, K.K.G. Koenen, and J. Francine. 2004. Effects of military operations on behavior and hearing of endangered Sonoran pronghorn. *Wildlife Monographs* 157: 1-41. DOI:10.2193/0084-0173(2004)157[1:EOMOOB]2.0.CO;2
- Krone, R., L. Gutow, T.J. Joschko, and A. Schröder. 2013. Epifauna dynamics at an offshore foundation- Implications of future wind power farming in the North Sea. *Marine Environmental Research* 85: 1-12. <https://doi.org/10.1016/j.marenvres.2012.12.004>
- Krumpel, A., A. Rice, K.E. Frasier, F. Reese, J.S. Trickey, A.E. Simonis, J.P. Ryan, S.M. Wiggins, A. Denzinger, H.U. Schnitzler, and S. Baumann-Pickering. 2021. Long-Term Patterns of Noise from Underwater Explosions and Their Relation to Fisheries in Southern California. *Frontiers in Marine Science* 8. <https://doi.org/10.3389/fmars.2021.796849>
- Kryter, K.D., W.D. Ward, J.D. Miller, and D.H. Eldredge. 1966. Hazardous exposure to intermittent and steady-state noise. *Journal of the Acoustical Society of America* 39 (3): 451- 464. <https://doi.org/10.1121/1.1909912>
- Krzystan, A. M., Gowan, T. A., Kendall, W. L., Martin, J., Ortega-Ortiz, J. G., Jackson, K., Knowlton, A. R., Naessig, P., Zani, M., Schulte, D. W., and Taylor, C. R. 2018. Characterizing residence patterns of North Atlantic right whales in the southeastern USA with a multistate open robust design model. *Endangered Species Research* 36: 279-295. <https://doi.org/10.3354/esr00902>
- Kvadsheim, P. H., and E. M. Sevaldsen. 2005. The potential impact of 1-8 kHz active sonar on stocks of juvenile fish during sonar exercises. Forsvarets Forskningsinstitut, Norwegian Defence Research Establishment, P.O. Box 25, NO-2027 Kjeller, Norway.
- LaBrecque, E., C. Curtice, J. Harrison, S.M. Van Parijs, and P.N. Halpin. 2015. Biologically Important Areas for Cetaceans within US Waters: Gulf of Mexico region. *Aquatic Mammals* 41 (1): 30-38. <http://dx.doi.org/10.1578/AM.41.1.2015.1>
- Ladich, F., and R. R. Fay. 2013. Auditory evoked potential audiometry in fish. *Reviews in Fish Biology and Fisheries* 23 (3): 317–364. DOI: 10.1007/s11160-012-9297-z
- Ladich, F., and A. N. Popper. 2004. Parallel Evolution in Fish Hearing Organs. In G. A. Manley, A. N. Popper & R. R. Fay (Eds.), *Evolution of the Vertebrate Auditory System*, Springer Handbook of Auditory Research. New York, NY: Springer-Verlag

- Ladich, F., and T. Schulz-Mirbach. 2016. Diversity in Fish Auditory Systems: One of the Riddles of Sensory Biology. *Frontiers in Ecology and Evolution*, 4, 26. <https://doi.org/10.3389/fevo.2016.00028>
- Laist, D. W., A. R. Knowlton, J. G. Mead, A. S. Collet, and M. Podesta. 2001. Collisions between ships and whales. *Marine Mammal Science* 17 (1): 35–75. <https://doi.org/10.1111/j.1748-7692.2001.tb00980.x>
- Lambrechts, M. M. 1996. Organization of bird song and constraints on performance. - In: Kroodsma, D. E. and Miller, E. H. (eds). *Ecology and evolution of acoustic communication in birds*. Cornell Univ. Press, Ithaca and London, pp. 305-320.
- Langhamer, O., 2012. Artificial reef effect in relation to offshore renewable energy conversion: state of the art. *The Scientific World Journal*, 2012.
- Langhamer, O. and D. Wilhelmsson. 2009. Colonisation of fish and crabs of wave energy foundations and the effects of manufactured holes- a field experiment. *Marine Environmental Research* 68 (4): 151-7. <https://doi.org/10.1016/j.marenvres.2009.06.003>
- Lankford, S. E., T.E Adams, R.A. Miller, and J.J. Cech Jr. 2005. The cost of chronic stress: impacts of a nonhabituating stress response on metabolic variables and swimming performance in sturgeon. *Physiological and Biochemical Zoology* 78 (4): 599-609. <https://doi.org/10.1086/430687>
- Lesage, V., C. Barrette, M.C. Kingsley, and B. Sjare. 1999. The effect of vessel noise on the vocal behavior of belugas in the St. Lawrence River estuary, Canada. *Marine Mammal Science*, 15 (1): 65-84. DOI:10.1111/J.1748-7692.1999.TB00782.X
- Lillis, A., D. D. Bohnenstiehl, and D. Eggleston. 2014. Soundscape manipulation enhances larval recruitment of a reef-building mollusk. *PeerJ*, 3, 10.7717/peerj.999.
- Lindeboom, H.J., H.J. Kouwenhoven, M.J.N. Bergman, S. Bouma, S.M.J.M. Brasseur, R. Daan, R.C. Fijn, D. De Haan, S. Dirksen, R. Van Hal, and R.H.R. Lambers. 2011. Short-term ecological effects of an offshore wind farm in the Dutch coastal zone; a compilation. *Environmental Research Letters* 6 (3): 035101.
- Liu, M., L. Dong, M. Lin, and S. Li. 2017. Broadband ship noise and its potential impacts on Indo-Pacific humpback dolphins: Implications for conservation and management. *The Journal of the Acoustical Society of America* 142 (5): 2766. <https://doi.org/10.1121/1.5009444>
- Lohr, B., T.F. Wright, and R.J. Dooling. 2003. Detection and discrimination of natural calls in masking noise by birds: estimating the active space of a signal. *Animal Behaviour* 65 (4): 763- 777. <https://doi.org/10.1006/anbe.2003.2093>

- Lovell, J. M., M.M. Findlay, R.M. Moate, and H.Y. Yan. 2005. The hearing abilities of the prawn *Palaemon serratus*. *Comparative Biochemistry and Physiology Part A: Molecular & Integrative Physiology* 140 (1): 89-100. <https://doi.org/10.1016/j.cbpb.2004.11.003>
- Lucke, K., S. Storch, J. Cooke, and U. Siebert. 2006. Literature Review of offshore wind farms with regard to marine mammals. *Ecological Research on Offshore Wind Farms: International Exchange of Experiences. Part B: Literature Review of Ecological Impacts*, pp.199-284.
- Lucke, K., M. Dähne, S. Adler, A. Brandecker, K. Krügel, J.K. Sundermeyer, and U. Siebert. 2012. Evaluating the effects of offshore pile driving on *Phocoena phocoena* (harbor porpoises) by using passive acoustic monitoring. In *The Effects of Noise on Aquatic Life* (pp. 285-287). Springer, New York, NY.
- Lusseau, D., and L. Bejder. 2007. The Long-term Consequences of Short-term Responses to Disturbance Experiences from Whalewatching Impact Assessment. *International Journal of Comparative Psychology* 20: 228-236. DOI:10.46867/IJCP.2007.20.02.04
- Madsen, P.T., M. Johnson, P.J.O. Miller, N.A. Soto, J. Lynch, and P. Tyack. 2006. Quantitative measures of air-gun pulses recorded on sperm whales (*Physeter macrocephalus*) using acoustic tags during controlled exposure experiments. *Journal of the Acoustical Society of America* 120 (4): 2366- 2379. <https://doi.org/10.1121/1.2229287>
- Malette, S.D., G.G. Lockhart, J. Robbins, A. Rabon, K. Rayfield, N. Mathies, P. Stevick, T. Fernald, J. Allen, J. Aschettino, M. Swingle, J. B. Thornton, M. Pepe, A Engelhaupt, and S. Barco. 2017. Seasonality and site-fidelity of humpback whales off the mid-Atlantic region of the U.S. 2nd Biennial Conference on the Biology of Marine Mammals, Halifax, Nova Scotia.
- Malme, C.I., P.R. Miles, C.W. Clark, P. Tyack, and J.E. Bird. 1983. Investigations of the Potential Effects of Underwater Noise from Petroleum Industry Activities on Migrating Gray Whale Behaviour. Final Report for the Period of 7 June 1982-31 July 1983. Bolt, Beranek and Newman Incorporated
- Malme, C. I., P.R. Miles, C.W. Clark, P. Tyack, and J.E. Bird. 1984. Investigations of the potential effects of underwater noise from petroleum-industry activities on migrating gray-whale behavior. Phase 2: January 1984 migration (No. PB-86-218377/XAB; BBN5586). Bolt, Beranek and Newman, Inc., Cambridge, MA (USA).
- Mann, D. A. 2016. Acoustic Communications in Fishes and Potential Effects of Noise. In A. N. Popper & A. D. Hawkins (Eds.), *The Effects of Noise on Aquatic Life II* (pp. 673–678). New York, NY: Springer.
- Mann, D. A., A. N. Popper, and B. Wilson. 2005. Pacific herring hearing does not include ultrasound. *Biology Letters* 1: 158–161. <https://doi.org/10.1098/rsbl.2004.0241>

- Marten, K., and P. Marler. 1977. Sound transmission and its significance for animal vocalization. *Behavioral ecology and sociobiology* 2 (3): 271-290.
- Matthews, L. 2017. Harbor seal (*Phoca vitulina*) reproductive advertisement behavior and the effects of vessel noise. Ph.D. Thesis, Syracuse University. 139 p.
- Mayo, C.A, L. Ganley, C.A. Hudak, S. Brault, M.K. Marx, E. Burke, and M.W. Brown. 2018. Distribution, demography, and behavior of North Atlantic right whales (*Eubalaena glacialis*) in Cape Cod Bay, Massachusetts, 1998–2013. *Mar. Mam. Sci.* 34 (4): 979–996. <https://doi.org/10.1111/mms.12511>.
- McCauley, R. D., J. Fewtrell, A. J. Duncan, C. Jenner, M. N. Jenner, J. D. Penrose, R. I. T. Prince, A. Adhitya, J. Murdoch, and K. McCabe. 2000. Marine seismic surveys—A study of environmental implications. *Australian Petroleum Production Exploration Association Journal*, 692–708.
- McCauley, R.D., R. Day, K.M. Swadling, Q.P Fitzgibbon, R.A. Watson, and J.M. Semmens. 2017. Widely used marine seismic survey air gun operations negatively impact zooplankton. *Nature Ecology & Evolution* 1: 0195. DOI: 10.1038/s41559-017-0195
- McDonald, M. A., J. A. Hildebrand, and S. C. Webb. 1995. Blue and fin whales observed on a seafloor array in the Northeast Pacific. *The Journal of Acoustical Society of America* 98 (2): 712–721. <https://doi.org/10.1121/1.413565>
- McDonald, M. A., J. A. Hildebrand, S. M. Wiggins, D. W. Johnston, and J. J. Polovina. 2009. An acoustic survey of beaked whales at Cross Seamount near Hawaii. *The Journal of the Acoustical Society of America*, 125(2): 624–627. DOI: 10.1121/1.305031
- McFadden D. 1986. The curious half-octave shift: evidence for a basalward migration of the traveling-wave envelope with increasing intensity. In: Salvi RJ, Henderson D, Hamernik RP, Coletti V (eds) *Basic and applied aspects of noise-induced hearing loss*, vol 111. *Proceedings of a NATO advanced studies institute on applied and basic aspects of noise-induced hearing loss*, held September 23–29, 1985, in Lucca. NATO ASI Series A, Life Sciences edn. Plenum, New York, pp 295–312.
- McHuron, E.A., L.K. Schwarz, D.P. Costa, and M. Mangel. 2018. A state-dependent model for assessing the population consequences of disturbance on income-breeding mammals. *Ecological Modeling* 385: 133-144. DOI: 10.1016/j.ecolmodel.2018.07.016
- Melcón, M. L., A. J. Cummins, S. M. Kerosky, L. K. Roche, S. M. Wiggins, and J. A. Hildebrand. 2012. Blue whales respond to anthropogenic noise. *PLoS ONE*: 7 (2): 1-6. <https://doi.org/10.1371/journal.pone.0032681>

- Meyer-Gutbrod, E., C. Greene, K. Davies, and D. Johns. 2021. Ocean regime shift is driving collapse of the North Atlantic right whale population. *Oceanography* 34 (3): 22-31. <https://doi.org/10.5670/oceanog.2021.308>
- Meyer-Gutbrod, E.L., Davies, K.T.A., Johnson, C.L., Plourde, S., Sorochan, K.A., Kenney, R.D., Ramp, C., Gosselin, J., Lawson, J.W., and Greene, C.H. 2022. Redefining North Atlantic right whale habitat-use patterns under climate change. *Limnology and Oceanography* 9999: 1-16. <https://doi.org/10.1002/lno.12242>
- Miksis-Olds, J.L. 2006. Manatee Response to Environmental Noise. A Dissertation Submitted in Partial Fulfillment of the Requirements for the Degree of Doctor of Philosophy in Oceanography. University of Rhode Island, 2006
- Miller, J.D. 1974. Effects of noise on people. *Journal of the Acoustical Society of America* 56 (3): 729- 764. <https://doi.org/10.1121/1.1903322>
- Miller, P.J.O., N. Biassoni, A. Samuels, and P.L. Tyack. 2000. Whale songs lengthen in response to sonar. *Nature* 405 (6789): 903. DOI: 10.1038/35016148
- Miller, P. J. O., M. P. Johnson, P. T. Madsen, N. Biassoni, M. Quero, and P. L. Tyack. 2009. Using at-sea experiments to study the effects of airguns on the foraging behavior of sperm whales in the Gulf of Mexico. *Deep Sea Research I* 56 (7): 1168–1181. DOI: 10.1016/j.dsr.2009.02.008
- Milliman, J. 1972. Atlantic Continental Shelf and Slope of the United States: Petrology of the Sand Fraction of Sediments, Northern New Jersey to Southern Florida. U.S. Geological Survey Professional Paper 529-J. <https://doi.org/10.3133/pp529J>
- Mitchell, E. 1975. Preliminary report on Nova Scotia fishery for sei whales (*Balaenoptera borealis*). *Rep. Int. Whal. Comm.* 25:218–225.
- Mitchell, E. and D.G. Chapman. 1977. Preliminary assessment of stocks of northwest Atlantic sei whales (*Balaenoptera borealis*). *Rep. Int. Whal. Comm. (Special Issue)* 1:117–120.
- Moberg, G. P. 1987. A model for assessing the impact of behavioral stress on domestic animals. *Journal of Animal Science* 65 (5): 1228-1235. <https://doi.org/10.2527/jas1987.6551228x>
- Moberg, G. P., and J. A. Mench. 2000. *The Biology of Animal Stress; Basic Principles and Implications for Animal Welfare*. London, UK: CAB International.
- Mooney, T. A., R.T. Hanlon, J. Christensen-Dalsgaard, P.T. Madsen, D.R. Ketten, and P.E. Nachtigall. 2010. Sound detection by the longfin squid (*Loligo pealeii*) studied with auditory evoked potentials: sensitivity to low-

- frequency particle motion and not pressure. *Journal of Experimental Biology* 213 (21): 3748-3759.
<https://doi.org/10.1242/jeb.048348>
- Moore, J.E. and J.P. Barlow. 2013. Declining abundance of beaked whales (Family Ziphiidae) in the California current large marine ecosystem. *PLoS One* 8: (1) p.e52770. <https://doi.org/10.1371/journal.pone.0052770>
- Moore, M. J., Rowles, T. K., Fauquier, D. A., Baker, J. D., Biedron, I., Durban, J. W., Hamilton, P. K., Henry, A. G., Knowlton, A. R., McLellan, W. A., Miller, C. A., Pace, R. M., Pettis, H. M., Raverty, S., Rolland, R. M., Schick, R. S., Sharp, S. M., Smith, C. R., Thomas, L., . . . Ziccardi, M. H. 2021. Assessing North Atlantic right whale health: threats, and development of tools critical for conservation of the species. *Diseases of Aquatic Organisms*, 143, 205-226. <https://doi.org/10.3354/dao03578>
- Morano, J.L., D.P. Salisbury, A.N. Rice, K.L. Conklin, K.L. Falk, and C.W. Clark. 2012. Seasonal changes in fin whale song in the western North Atlantic Ocean. *Journal of the Acoustical Society of America* 132 (2): 1207-1212. <https://doi.org/10.1121/1.4730890>
- Morgan, L.W. J.A. Musick, and C.W. Potter. 2002. Temporal and geographic occurrences of cetacean strandings and manatee sightings in Virginia, with notes on adverse human-cetacean interactions, from 1983-1989. *Journal of the North Carolina Academy of Science* 118(1): 12-26. <https://www.jstor.org/stable/24336394>
- Morton, A.B. and H.K. Symonds. 2002. Displacement of *Orcinus orca* (L.) by high amplitude sound in British Columbia, Canada. *ICES Journal of Marine Science* 59 (1): 71-80. <https://doi.org/10.1006/jmsc.2001.1136>
- Mueller-Blenkle, C., P.K. McGregor, A.B. Gill, M.H. Andersson, J. Metcalfe, V. Bendall, P. Sigray, D.T. Wood, and F. Thomsen. 2010. Effects of Pile-driving Noise on the Behaviour of Marine Fish. COWRIE Ref: Fish 06-08, Technical Report 31st March 2010.
- Müllner, A., K. E. Linsenmair, and M. Wikelski. 2004. Exposure to ecotourism reduces survival and affects stress response in hoatzin chicks (*Opisthocomus hoazin*). *Biological Conservation* 118 (4): 549-558.
- Nabe-Nielsen, J., F.M. van Beest, V. Grimm, R.M. Sibly, J. Teilmann, and P.M. Thompson. 2018. Predicting the impacts of anthropogenic disturbances on marine populations. *Conserv. Lett.* 11:e12563. doi: 10.1111/conl.12563
- Nachtigall, P.E. and A. Supin. 2008. A false killer whale adjusts its hearing when it echolocates. *Journal of Experimental Biology* 211(11): 1714-1718.
- Nachtigall P.E. and A.Y.A. Supin. 2013. False killer whales reduce their hearing sensitivity if a loud sound is preceded by a warning. *Journal of Experimental Biology* 216: 3062–70. <https://doi.org/10.1242/jeb.085068>

- Nachtigall P.E. and A.Y.A. Supin. 2015. Conditioned frequency dependent hearing sensitivity reduction in the bottlenose dolphin (*Tursiops truncatus*) Journal of Experimental Biology 218: 999–1005.
<https://doi.org/10.1242/jeb.114066>
- Nachtigall P.E., A.Y.A. Supin, J.A. Esteban, and A.F. Pacini. 2016a. Learning and extinction of conditioned hearing sensation change in the beluga whale (*Delphinapterus leucas*). Journal of Comparative Physiology A 202: 105–13. <https://doi.org/10.1111/1749-4877.12286>.
- Nachtigall P.E., A.Y.A. Supin, A.B. Smith, and A.F. Pacini. 2016b. Expectancy and conditioned hearing sensation level in the bottlenose dolphin (*Tursiops truncatus*). Journal of Experimental Biology 219: 844–50.
<https://doi.org/10.1242/jeb.133777>.
- Nachtigall P.E., A.Y.A. Supin, A.H. Pacini, and R. Kastelein. 2016c. Conditioned sensitivity change in the harbour porpoise (*Phocoena phocoena*) Journal of the Acoustical Society of America 140: 960–67.
<https://doi.org/10.1121/1.4960783>
- Nachtigall, P.E., A.Y. Supin, A.F. Pacini, and R.A. Kastelein. 2018. Four odontocete species change hearing levels when warned of impending loud sound. Integrative Zoology, 13 (2): pp.160-165.
<https://doi.org/10.1111/1749-4877.12286>
- Nachtsheim, D.A., S. Viquerat, N.C. Ramírez-Martínez, B. Unger, U. Siebert, and A. Gilles. 2021. Small cetacean in a human high-use area: trends in harbor porpoise abundance in the North Sea over two decades. Frontiers in Marine Science: 7: 606609. <https://doi.org/10.3389/fmars.2020.606609>
- NAS (National Academies of Sciences). 2017. Approaches to Understanding the Cumulative Effects of Stressors on Marine Mammals.
- Nedelec S.L., A.N. Radford, S.D. Simpson, B. Nedelec, D. Lecchini, and S.C. Mills. 2014. Anthropogenic noise playback impairs embryonic development and increases mortality in a marine invertebrate. Scientific Reports 2831. <https://doi.org/10.1038/srep05891>
- Nedwell, J. R., B. Edwards, A. W. H. Turnpenny, and J. Gordon. 2004. Fish and marine mammal audiograms: A summary of available information (Subacoustech Report ref: 534R0214). Hampshire, UK.
- Nehls, G., A. Rose., A. Diederichs, M.A. Bellmann, and H. Pehlke. 2016. Noise mitigation during pile driving efficiently reduces disturbance of marine mammals. In A. N. Popper & A. D. Hawkins (Eds.), The Effects of Noise on Aquatic Life II (2015/11/28 ed., Vol. 875, pp. 755- 762). New York: Springer.
- New, L.F., J. Harwood, L. Thomas, C. Donovan, J.S. Clark, G. Hastie, P.M. Thompson, B. Cheney, L. Scott-Hayward, and D. Lusseau. 2013. Modelling the biological significance of behavioural change in coastal

- bottlenose dolphins in response to disturbance. *Funct Ecol* 27: 314-322. <https://doi.org/10.1111/1365-2435.12052>
- New, L. F., J.S. Clark, D.P. Costa, E. Fleishman, M.A. Hindell, T. Klanjscek, et al. 2014. Using short-term measures of behaviour to estimate long-term fitness of southern elephant seals. *Mar. Ecol. Prog. Ser.* 496, 99–108. doi: 10.3354/meps10547
- Ng, S.L. and S. Leung. 2003. Behavioral response of Indo-Pacific humpback dolphin (*Sousa chinensis*) to vessel traffic. *Marine Environmental Research* 56 (5): 555. [https://doi.org/10.1016/S0141-1136\(03\)00041-2](https://doi.org/10.1016/S0141-1136(03)00041-2)
- NIOSH (National Institute for Occupational Safety and Health). 1998. Criteria for a Recommended Standard: Occupational Noise Exposure. United States Department of Health and Human Services, Cincinnati, OH.
- NMFS (National Marine Fisheries Service). 2018. 2018 revision to: Technical guidance for assessing the effects of anthropogenic sound on marine mammal hearing (Version 2.0). NOAA Technical Memorandum NMFS-OPR-59, National Marine Fisheries Service: 178.
- NMFS (National Marine Fisheries Service). 2020. User Spreadsheet Tool (Version 2. 1) for: 2018 Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing (Version 2.0): Underwater Thresholds for Onset of Permanent and Temporary Threshold Shifts. Silver Spring, Maryland: Office of Protected Resources, National Marine Fisheries Service.
- NMFS (National Marine Fisheries Service). 2005. Recovery plan for the North Atlantic right whale (*Eubalaena glacialis*). National Marine Fisheries Service, Silver Spring, MD.
- NOAA Fisheries. 2005b. Endangered fish and wildlife: Notice of intent to prepare an environmental impact statement. *Federal Register* 70: 1871–1875.
- NOAA Satellite and Information Service. 2020. U.S. Coastal Relief Model. 1999 to 2005. Available online at: <https://www.ngdc.noaa.gov/mgg/coastal/crm.html>. Accessed 27 April, 2023.
- NOAA n.d. B. “National Center for Environmental Information, NWA Regional Climatology.” Available online at https://www.nodc.noaa.gov/OC5/regional_climate/nwa-climate/. Accessed on 01 May 2023.
- Noren, D.P., M.M. Holt, R.C. Dunkin, and T.M. Williams. 2020. The metabolic cost of whistling is low but measurable in dolphins. *Journal of Experimental Biology* 223 (11): .jeb224048. <https://doi.org/10.1242/jeb.224048>
- Noren, D.P., Holt, M.M., Dunkin, R.C., Thometz, N.M. and Williams, T.M. 2017. July. Comparative and cumulative energetic costs of odontocete responses to anthropogenic disturbance. In *Proceedings of Meetings on Acoustics 4ENAL* (Vol. 27, No. 1, p. 040011). Acoustical Society of America.

- Nowacek, D.P., M.P. Johnson, and P.L. Tyack. 2004. North Atlantic right whales (*Eubalaena glacialis*) ignore ships but respond to alerting stimuli. *Proceedings of the Royal Society of London B: Biological Sciences* 271 (1536): 227-231. <https://doi.org/10.1098/rspb.2003.2570>
- Nowacek, D.P., L.H. Thorne, D.W. Johnston, and P.L. Tyack. 2007. Responses of cetaceans to anthropogenic noise. *Mammal Review* 37 (2): 81-115. <https://doi.org/10.1111/j.1365-2907.2007.00104.x>
- NRC (National Research Council). 2003. Ocean noise and marine mammals. National Academy of Sciences: 220. DOI: <https://doi.org/10.17226/10564>
- National Research Council (NRC). 2005. Marine mammal populations and ocean noise. Washington, D.C.: National Academies Press. DOI: <https://doi.org/10.17226/11147>
- National Research Council (NRC). 2017. Approaches to understanding the cumulative effects of stressors on marine mammals. National Academy of Sciences, Engineering, and Medicine, Washington, D.C: The National Academies Press. <https://doi.org/10.17226/23479>
- O'Brien, O., D.E. Pendleton, L.C. Ganley, K.R. McKenna, R.D. Kenney, E. Quintana-Rizzo, C.A. Mayo, S.D. Kraus, and J.V. Redfern. 2022. Repatriation of a historical North Atlantic right whale habitat during an era of rapid climate change. *Nature* 12: 12407. <https://doi.org/10.1038/s41598-022-16200-8>
- Oleson, E.M., J. Baker, J. Barlow, J.E. Moore, and P. Wade. 2020. North Atlantic Right Whale Monitoring and Surveillance: Report and Recommendations of the National Marine Fisheries Service's Expert Working Group. NOAA Tech. Memo. NMFSF/OPR-64, 47 p. <https://doi.org/10.25923/xnwj-5629>
- Pace, R.M., and G. Silber. 2005. Simple analyses of ship and large whale collisions: Does speed kill? Pages 1 In National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Office of Protected Resources.
- Pace, R.M., P.J. Corkeron, and S.D. Kraus. 2017. State space estimates reveal a recent decline in abundance of North Atlantic right whales. *Ecol Evol* 7: 8730–8741. <https://doi.org/10.1002/ece3.3406>
- Pace, R. M., R. Williams, S.D. Kraus, A.R. Knowlton, and H.M. Pettis. 2021. Cryptic mortality of North Atlantic right whales. *Conservation Science and Practice*, 3(2), Article e346. <https://doi.org/10.1111/csp2.346>
- Packard, A., H.E. Karlsen, and O. Sand. 1990. Low frequency hearing in cephalopods. *Journal of Comparative Physiology A* 166 (4): 501-505. <https://doi.org/10.1007/BF00192020>
- Palka, D. L., S. Chavez-Rosales, E. Josephson, D. Cholewiak, H. L. Haas, L. Garrison, M. Jones, D. Sigourney, G. Waring, M. Jech, E. Broughton, M. Soldevilla, G. Davis, A. DeAngelis, C. R. Sasso, M. V. Winton, R. J. Smolowitz, G. Fay, E. LaBrecque, J. B. Leiness, Dettloff, M. Warden, K. Murray, and C. Orphanides.

2017. Atlantic Marine Assessment Program for Protected Species: 2010-2014. OCS Study BOEM 2017-071, Washington, D.C.
- Papale, E., M. Gamba, M. Perez-Gil, V.M. Martin, and C. Giacoma. 2015. Dolphins adjust species-specific frequency parameters to compensate for increasing background noise. PLoS ONE 10(4):e0121711. <https://doi.org/10.1371/journal.pone.0121711>
- Parks, S. E. 2009. Assessment of acoustic adaptations for noise compensation in marine mammals. Paper presented at the 2009 Office of Naval Research Marine Mammal Program Review. Alexandria, VA.
- Parks, S.E., M. Johnson, D. Nowacek, and P.L. Tyack. 2011. Individual right whales call louder in increased environmental noise. Biol. Lett. 7 (1): 33-35. <https://doi.org/10.1098/rsbl.2010.0451>
- Parks, S.E., D.R. Ketten, J.T. O'Malley, and J. Arruda. 2007. Anatomical predictions of hearing in the North Atlantic right whale. The Anatomical Record 290 (6): 734-744. <https://doi.org/10.1002/ar.20527>
- Patricelli, G. L. and J.L. Blickley. 2006. Avian communication in urban noise: causes and consequences of vocal adjustment. The Auk 123 (3): 639-649. <https://doi.org/10.1093/auk/123.3.639>
- Payne, P.M. and D. W. Heinemann 1990. A distributional assessment of cetaceans in the shelf and shelf edge waters of the northeastern United States based on aerial and shipboard surveys, 1978–1988. Report to NMFS: 253.
- Payne, J.F. 2004. Potential effect of seismic surveys on fish eggs, larvae and zooplankton. DFO Can. Sci. Advis. Sec. Res. Doc. 2004/125.
- Pearson, W. H., J. R. Skalski, S. D. Sulkin and C. Malme. 1994. Effects of seismic energy releases on the survival and development of zoeal larvae of Dungeness Crab (*Cancer magister*). Marine Environmental Research 38: 93-113. [https://doi.org/10.1016/0141-1136\(94\)90003-5](https://doi.org/10.1016/0141-1136(94)90003-5)
- Pettis, H.M., R.M. Pace III, and P.K. Hamilton. 2022. North Atlantic right whale consortium 2021 annual report card. Report to the North Atlantic Right Whale Consortium. Accessed on 25 April 2023 at: <https://www.narwc.org/report-cards.html>
- Pijanowski, B., L. Villanueva-Rivera, S. Dumyahn, A. Farina, B. Krause, B. Napoletano, . . . N. Pieretti. 2011. Soundscape Ecology: The Science of Sound in the Landscape. BioScience 61 (3): 203-216. doi:10.1525/bio.2011.61.3.6
- Pirotta, E., C. G. Booth, D. P. Costa, E. Fleishman, S. D. Kraus, D. Lusseau, D. Moretti, L. F. New, R. S. Schick, L. K. Schwarz, S. E. Simmons, L. Thomas, P. L. Tyack, M. J. Weise, R. S. Wells, and J. Harwood. 2018a. Understanding the population consequences of disturbance. Ecology and Evolution 8 (19): 9934–9946. <https://doi.org/10.1002/ece3.4458>

- Pirotta, E., M. Mangel, D.P. Costa, B. Mate, J.A. Goldbogen, D.M. Palacios, L.A. Hüeckstädt, E.A. McHuron, L. Schwarz, and L. New. 2018b. A dynamic state model of migratory behavior and physiology to assess the consequences of environmental variation and anthropogenic disturbance on marine vertebrates. *The American Naturalist* 191 (2): pp.E40-E56. <https://doi.org/10.1086/695135>
- Pirotta, E., C.G. Booth, D.E. Cade, J. Calambokidis, D.P. Costa, J.A. Fahlbusch, A.S. Friedlaender, J.A. Goldbogen, J. Harwood, E.L. Hazen, and L. New. 2021. Context-dependent variability in the predicted daily energetic costs of disturbance for blue whales. *Conservation Physiology* 9 (1): p.coaa137. <https://doi.org/10.1093/conphys/coaa137>
- Pittman, S., B. Costa, C. Kot, D. Wiley, and R.D. Kenney. 2006. Cetacean distribution and diversity. Pgs. 265-326 In: *An ecological characterization of the Stellwagen Bank National Marine Sanctuary Region: oceanographic, biogeographic, and contaminants assessment* (eds. T. Battista, R. Clark, and S. Pittman). NOAA Technical Memorandum NCCOS 45.
- Popper, A. N., and R. R. Fay. 2011. Rethinking sound detection by fishes. *Hearing Research* 273(1–2): 25–36. <https://doi.org/10.1016/j.heares.2009.12.023>
- Popper, A.N. and M.C. Hastings. 2009a. The effects of human-generated sound on fish. *Integrative Zoology* 4: 43–52. <https://doi.org/10.1111/j.1749-4877.2008.00134.x>.
- Popper, A. N., R. R. Fay, C. Platt, and O. Sand. 2003. Sound detection mechanisms and capabilities of teleost fishes. In S. P. Collin & N. J. Marshall (Eds.), *Sensory Processing in Aquatic Environment*. New York, NY: Springer-Verlag.
- Popper, A. N., J. Ramcharitar, and S. E. Campana. 2005. Why Otoliths? Insights from Inner Ear Physiology and Fisheries Biology. *Marine and Freshwater Research* 56: 8. <https://doi.org/10.1071/MF04267>
- Popper, A. N., M. B. Halvorsen, A. Kane, D. L. Miller, M. E. Smith, J. Song, P. Stein, and L. E. Wysocki. 2007. The effects of high-intensity, low-frequency active sonar on rainbow trout. *The Journal of Acoustical Society of America* 122 (1): 623–635. <https://doi.org/10.1121/1.2735115>
- Popper, A. N., A. D. Hawkins, R. R. Fay, D. A. Mann, S. M. Bartol, T. J. Carlson, S. Coombs, W. T. Ellison, R. L. Gentry, M. B. Halvorsen, S. Løkkeborg, P. H. Rogers, B. L. Southall, D. G. Zeddies, and W. N. Tavolga. 2014. *Sound Exposure Guidelines for Fishes and Sea Turtles*. Springer Cham, 76 pp. <https://doi.org/10.1007/978-3-319-06659-2>
- Popper, A. N., J. A. Gross, T. J. Carlson, J. Skalski, J. V. Young, A. D. Hawkins, and D. G. Zeddies. 2016. Effects of exposure to the sound from seismic airguns on pallid sturgeon and paddlefish. *PLoS ONE* 11 (8): e0159486. <https://doi.org/10.1371/journal.pone.0159486>

- Popper, A.N., A.D. Hawkins, and M.B. Halvorsen. 2019. Anthropogenic sounds and fishes. WSDOT Research Report, WA-RD 891.1, 170 pp.
- Posner, M. I. 1994. Attention: the mechanisms of consciousness. *Proceedings of the National Academy of Sciences* 91 (16): 7398-7403. <https://doi.org/10.1073/pnas.91.16.7398>
- Pumphrey, R.J. 1950, January. Hearing. In *Symposia of the Society for Experimental Biology* (Vol. 4, pp. 3-18). UNIV CAMBRIDGE DEPT ZOOLOGY, DOWNING ST, CAMBRIDGE CB2 3EJ, CAMBS, ENGLAND: COMPANY BIOLOGISTS LTD.
- Purser, J. and A.N. Radford. 2011. Acoustic noise induces attention shifts and reduces foraging performance in three-spined sticklebacks (*Gasterosteus aculeatus*). *PLoS ONE* 6 (2): e17478. <https://doi.org/10.1371/journal.pone.0017478>
- Quintana-Rizzo, E., S. Leiter, T.V.N. Cole, M.N. Hagbloom, A.R. Knowlton, P. Nagelkirk, O. O'Brien, C.B. Khan, A.G. Henry, P.A. Duley, L.M. Crowe, C.A. Mayo, and S.D. Kraus. 2021. Residency, demographics, and movement patterns of North Atlantic right whales *Eubalaena glacialis* in an offshore wind energy development area in southern New England, USA. *Endangered Species Research* 45: 251-268. <https://doi.org/10.3354/esr01137>
- Record, N.R., J.A. Runge, D.E. Pendleton, W.M. Balch, K.T.A. Davies, A.J. Pershing, C.L. Johnson, K. Stamieszkin, R. Ji, Z. Feng, S.D. Kraus, R.D. Kenney, C.A. Hudak, C.A. Mayo, C. Chen, J.E. Salisbury, and C.R.S. Thompson. 2019. Rapid climate-driven circulation changes threaten conservation of endangered North Atlantic right whales. *Oceanography* 32 (2): 162169. <https://doi.org/10.5670/oceanog.2019.201>
- Reed, J., R. Harcourt, L. New, and K. Bilgmann. 2020. Extreme Effects of Extreme Disturbances: A Simulation Approach to Assess Population Specific Responses. *Frontiers in Marine Science*. 7:519845. <https://doi.org/10.3389/fmars.2020.519845>
- Reed, J., L. New, P. Corkeron, and R. Harcourt. 2022. Multi-event modeling of true reproductive states of individual female right whales provides new insights into their decline. *Frontiers in Marine Science*, 994481. <https://doi.org/10.3389/fmars.2022.994481>
- Reeves, R.R., B.S. Stewart, P.J. Clapham, and J.A. Powell. 2002. *Guide to Marine Mammals of the World*. National Audubon Society.
- Reichmuth, C. and M.M. Holt. 2013. Comparative assessment of amphibious hearing in pinnipeds. *Journal of Comparative Physiology A: Neuroethology, Sensory, Neural and Behavioral Physiology* 199 (6): 491-507. DOI: 10.1007/s00359-013-0813-y

- Reichmuth, C., J.M. Sills, J. Mulsow, and A. Ghoul. 2019. Long-term evidence of noise- induced permanent threshold shift in a harbor seal (*Phoca vitulina*). *Journal of the Acoustical Society of America* 146: 2552–2561. <https://doi.org/10.1121/1.5129379>
- Remmers, P., and M.A. Bellman. 2021. Coastal Virginia Offshore Wind: Acoustic statement of the expected underwater noise during vibro piling. Institute for Technical and Applied Physics GmbH, Marie-Curie-Straße 8, D- 26129 Oldenburg, 12 pp.
- Reubens, J.T., S. Degraer, and M. Vincx. 2013. The ecology of benthopelagic fishes at offshore wind farms: a synthesis of 4 years of research. *Hydrobiologia* 727: 121-236. DOI: 10.1007/s10750-013-1793-1
- Richardson, A.J.,R.J. Matear, and A. Lenton. 2017. Potential impacts zooplankton of seismic surveys. CSIRO, Australia. 34pp.
- Richardson, W.J., C.R. Greene, C.I. Malme, and D.H. Thomson. 1995. *Marine Mammals and Noise*. Academic Press, Inc., San Diego, California.
- RI-CRMC. 2010. Rhode Island Ocean Special Area Management Plan. Adopted by the RI CRMC on October 19, 2010.
- Ridgway, S.H., D.A. Carder, R.R. Smith, T. Kamolnick, C.E. Schlundt, and W.R. Elsberry. 1997. Behavioral responses and temporary shift in masked hearing threshold of bottlenose dolphins, *Tursiops truncatus*, to 1-second tones of 141 to 201 dB re 1 μ Pa. Technical Report 1751, Naval Command, Control and Ocean Surveillance Center: 32.
- Risch, D., P. J. Corkeron, W. T. Ellison, and S. M. Van Parijs. 2012. Changes in humpback whale song occurrence in response to an acoustic source 200 km away. *PLoS ONE* 7(1): e29741. <https://doi.org/10.1371/journal.pone.0029741>
- Risch, D., C.W. Clark, P.J. Dugan, M. Popescu, U. Siebert and S.M. VanParijs. 2013. Minke whale acoustic behavior and multi-year seasonal and diel vocalization patterns in Massachusetts Bay, USA. *Mar. Ecol. Prog. Ser.* 489:279–295. <https://doi.org/10.3354/meps10426>
- Risch, D., M. Castellote, C.W. Clark, G.E. Davis, P.J. Dugan, L.E.W. Hodge, A. Kumar, K. Lucke, D.K. Mellinger, S.L. Niekirk, C.M. Popescu, C. Ramp, A.J. Read, A.N. Rice, M.A. Silva, U. Siebert, K.M. Stafford, H. Verdatt, and S.M. Van Parijs. 2014. Seasonal migrations of North Atlantic minke whales: novel insights from large-scale passive acoustic monitoring networks. *Movement Ecology* 2:24. <https://doi.org/10.1186/s40462-014-0024-3>

- Roberts, J.J., and Halpin, P.N. 2022. Updated habitat-based cetacean density models for the U.S. Atlantic and Gulf of Mexico. Available at: <https://seamap.env.duke.edu/models/Duke/EC/>
- Roberts, J.J., B.D. Best, L. Mannocci, E. Fujioka, P.N. Halpin, D.L. Palka, L.P. Garrison, K.D. Mullin, T.V.N. Cole, C.B. Khan, W.A. McLellan, D.A. Pabst and G.G. Lockhart. 2016. Habitat based cetacean density models for the US Atlantic and Gulf of Mexico. *Sci. Rep.* 6: 22615. DOI: 10.1038/srep22615
- Rolland, R. M., S. E. Parks, K. E. Hunt, M. Castellote, P. J. Corkeron, D. P. Nowacek, S. K. Wasser, and S. D. Kraus. 2012. Evidence that ship noise increases stress in right whales. *Proceedings of the Royal Society B: Biological Sciences* 279 (1737): 2363–2368. <https://doi.org/10.1098/rspb.2011.2429>
- Romano, T., M. Keogh, and K. Danil. 2002a. Investigation of the effects of repeated chase and encirclement on the immune system of spotted dolphins (*Stenella attenuata*) in the eastern tropical Pacific. Administrative Report LJ-02-35C, National Marine Fisheries Service: 37.
- Romano, T. A., J.A. Olschowka, S.Y. Felten, V. Quaranta, S.H. Ridgway, and D.L. Felten. 2002b. Immune response, stress, and environment: Implications for cetaceans. Pages 253-279 In *Molecular and Cell Biology of Marine Mammals*. Krieger Publishing Co., Malabar, Florida.
- Romano, T.A., M.J. Keogh, C. Kelly, P. Feng, L. Berk, C.R. Schlundt, et al. 2004. Anthropogenic sound and marine mammal health: Measures of the nervous and immune systems before and after intense sound exposure. *Canadian Journal of Fisheries and Aquatic Sciences* 61:1124-1134. <https://doi.org/10.1139/f04-055>
- ROSA (Responsible Offshore Science Alliance). 2021. Resources. Available at <https://www.rosascience.org/offshore-wind-and-fisheries-resources>. Accessed on 27 April 2023.
- RPS. 2018. Protected Species Observer Report: Final report. TerraSond. https://media.fisheries.noaa.gov/dam-migration/1_dominion_energy_cvow_pso_final_report-1-23-19.pdf
- RPS. 2021. Dominion Energy geophysical survey 2020-2021 IHA protected species observer report: Final. Dominion Energy. https://media.fisheries.noaa.gov/2022-04/DominionCVOW_2020IHA_MonRep_OPR1_0.pdf
- Ruppel, C.D, T.C. Weber, E.R. Staaterman, S.J. Labak, and P.E. Hart. 2022. Categorizing active marine acoustic sources based on their potential to affect marine animals. *Journal of Marine Science and Engineering* 10: 1-46. <https://doi.org/10.3390/jmse10091278>.
- Russell, D.J., G.D. Hastie, D. Thompson, V.M. Janik, P.S. Hammond, L.A. Scott-Hayward, J. Matthiopoulos, E.L. Jones, and B.J. McConnell. 2016. Avoidance of wind farms by harbour seals is limited to pile driving activities. *Journal of Applied Ecology* 53(6): 1642-1652. <https://doi.org/10.1111/1365-2664.12678>

- Saetre, R. and E. Ona. 1996. The effects of seismic surveys on fish eggs and larvae. *Fiskens Og Havet* 8: 24.
- Saino, N. 1994. Time budget variation in relation to flock size in carrion crows, *Corvus corone corone*. *Animal Behaviour* 47 (5): 1189-1196. <https://doi.org/10.1006/anbe.1994.1157>
- Salisbury, D., C.W. Clark, and A.N. Rice. 2016. Right whale occurrence in Virginia coastal waters: Implications of endangered species presence in a rapidly developing energy market. *Mar. Mamm. Sci.* 32: 508–519. DOI: 10.1111/mms.12276.
- Samson, J.E., T.A. Mooney, S.W. Gussekloo, and R.T. Hanlon. 2014. Graded behavioral responses and habituation to sound in the common cuttlefish *Sepia officinalis*. *Journal of Experimental Biology* 217 (24): 4347-4355. <https://doi.org/10.1242/jeb.113365>
- Scheifele, P. M., S. Andrew, R.A. Cooper, M. Darre, F.E. Musiek, and L. Max. 2005. Indication of a Lombard vocal response in the St. Lawrence River beluga. *The Journal of the Acoustical Society of America* 117 (3): 1486-1492. <https://doi.org/10.1121/1.1835508>
- Schlundt, C. E., J. J. Finneran, D. A. Carder, and S. H. Ridgway. 2000. Temporary shift in masked hearing thresholds of bottlenose dolphins, *Tursiops truncatus*, and white whales, *Delphinapterus leucas*, after exposure to intense tones. *Journal of the Acoustical Society of America* 107: 3496-3508. <https://doi.org/10.1121/1.429420>
- Schorr, G.S., E.A. Falcone, D.J. Moretti, and R.D. Andrews. 2014. First long-term behavioral records from Cuvier's beaked whales (*Ziphius cavirostris*) reveal record breaking dives. *PloS one* 9(3): e92633. <https://doi.org/10.1371/journal.pone.0092633>
- Schultze, L.K.P., L.M. Merckelbach, J. Horstmann, S. Raasch, and J.R. Carpenter. 2020. Increased mixing and turbulence in the wake of offshore wind farm foundations. *Journal of Geophysical Research: Oceans* 125(8): e2019JC015858. <https://doi.org/10.1029/2019JC015858>.
- Schultz-von Glahn, M., K. Betke, and G. Nehls. 2006. Underwater noise reduction of pile driving for offshore wind turbines – Evaluation of several techniques under offshore conditions. UFOPLAN Ref. No. 205 53 113, final report. The Federal Environment Agency (Umweltbundesamt), Berlin.
- Selye, H. 1950. Stress and the general adaptation syndrome. *British Medical Journal* June 17: 1383-1392. Doi: 10.1136/bmj.1.4667.1383
- Sharp, S.M., W.A. McLellan, D.S. Rotstein, A.M. Costidis, S.G. Barco, K. Durham, T.D. Pitchford, K.A. Jackson, P.Y. Daoust, T. Wimmer, E.L. Couture, L. Bourque, T. Frasier, B. Frasier, D. Fauquier, T.K. Rowles, P.K. Hamilton, H. Pettis, and M.J. Moore. 2019. Gross and histopathologic diagnoses from North Atlantic right

- whale *Eubalaena glacialis* mortalities between 2003 and 2018. *Diseases of Aquatic Organisms* 135: 1-31. <https://doi.org/10.3354/dao03376>
- Silber, G. K., J. Slutsky, and S. Bettridge. 2010. Hydrodynamics of a ship/whale collision. *Journal of Experimental Marine Biology and Ecology* 391: 10–19. <https://doi.org/10.1016/j.jembe.2010.05.013>.
- Simpson S. D., J. Purser and A. N. Radford. 2014. Anthropogenic noise compromises antipredator behaviour in European eels. *Global Change Biology* 21: 586– 593. <https://doi.org/10.1111/gcb.12685>.
- Sivle, L. D., P. H. Kvadsheim, and M. A. Ainslie. 2014. Potential for population-level disturbance by active sonar in herring. *ICES Journal of Marine Science* 72 (2): 558–567. <https://doi.org/10.1093/icesjms/fsu154>.
- Sivle, L. D., P. H. Kvadsheim, and M. A. Ainslie. 2014. Potential for population-level disturbance by active sonar in herring. *ICES Journal of Marine Science* 72 (2): 558–567. <https://doi.org/10.1093/icesjms/fsu154>
- Sivle, L. D., P. H. Kvadsheim, C. Curé, S. Isojunno, P. J. Wensveen, F. A. Lam, F. Visser, L. Kleivane, P. L. Tyack, C. M. Harris, and P. J. O. Miller. 2015. Severity of expert-identified behavioural responses of humpback whale, minke whale, and northern bottlenose whale to naval sonar. *Aquatic Mammals* 41(4): 469–502. <http://dx.doi.org/10.1578/AM.41.4.2015.469>.
- Sivle, L. D., P. J. Wensveen, P. H. Kvadsheim, F. P. A. Lam, F. Visser, C. Curé, C. M. Harris, P. L. Tyack, and P. J. O. Miller. 2016. Naval sonar disrupts foraging in humpback whales. *Marine Ecology Progress Series* 562: 211–220. <https://doi.org/10.3354/meps11969>
- Skeate, E.R., M.R. Perrow, and J.J. Gilroy. 2012. Likely effects of construction of Scroby Sands offshore wind farm on a mixed population of harbour (*Phoca vitulina*) and grey (*Halichoerus grypus*) seals. *Marine pollution bulletin* 64 (4): 872-881. <https://doi.org/10.1016/j.marpolbul.2012.01.029>
- Slabbekoorn, H., N. Bouton, I. van Opzeeland, A. Coers, C. ten Cate, and A. N. Popper, A. N. 2010. A noisy spring: the impact of globally rising underwater sound levels on fish. *Trends in Ecology & Evolution* 25 (7): 419-427. <https://doi.org/10.1016/j.tree.2010.04.005>
- Smith, M. E. 2016. Relationship Between Hair Cell Loss and Hearing Loss in Fishes. In A. N. Popper & A. Hawkins (Eds.), *The Effects of Noise on Aquatic Life II* (pp. 8). New York: Springer.
- Smith, M. E., A.B. Coffin, L.D. Miller, and A.N. Popper. 2006. Anatomical and functional recovery of the goldfish (*Carassius auratus*) ear following noise exposure. *Journal of Experimental Biology* 209 (21): 4193-4202. <https://doi.org/10.1242/jeb.02490>
- Smith, T.D., J. Allen, P.J. Clapham, P.S. Hammond, S. Katona, F. Larsen, J. Lien, D. Mattila, P.J. Palsboll, J. Sigurjonsson, P.T. Stevick and N. Øien. 1999. An ocean-basin-wide mark recapture study of the North

- Atlantic humpback whale (*Megaptera novaeangliae*). *Mar. Mamm. Sci.* 15: 1–32.
<https://doi.org/10.1111/j.1748-7692.1999.tb00779.x>
- Solé, M., M. Lenoir, M. Durfort, M. López-Bejar, A. Lombarte, M. Van Der Schaar, and M. André. 2013. Does exposure to noise from human activities compromise sensory information from cephalopod statocysts?. *Deep Sea Research Part II: Topical Studies in Oceanography* 95: pp.160-181.
<https://doi.org/10.1016/j.dsr2.2012.10.006>
- Solé, M., P. Sigray, M. Lenoir, M. Van der Schaar, E. Lalander, and M. André. 2017. Offshore exposure experiments on cuttlefish indicate received sound pressure and particle motion levels associated with acoustic trauma. *Scientific Reports* 7 (45899): 1–13. Doi: 10.1038/srep45899
- Sorochan, K. A., Plourde, S., Morse, R., Pepin, P., Runge, J., Thompson, C., and Johnson, C. L. 2019. North Atlantic right whale (*Eubalaena glacialis*) and its food: (II) interannual variations in biomass of *Calanus* spp. on western North Atlantic shelves. *Journal of Plankton Research* 41(5): 687-708.
<https://doi.org/10.1093/plankt/fbz044>.
- Southall, B.L., A.E. Bowles, W.T. Ellison, J.J. Finneran, R.L. Gentry, C.R. Greene, et al. 2007. Marine mammal noise exposure criteria: Initial scientific recommendations. *Aquatic Mammals* 33(4): 411-521.
<https://doi.org/10.1080/09524622.2008.9753846>.
- Southall, B. L., P. L. Tyack, D. Moretti, C. Clark, D. Claridge, and I. Boyd. 2009. Behavioral responses of beaked whales and other cetaceans to controlled exposures of simulated sonar and other sounds. Paper presented at the 18th Biennial Conference on the Biology of Marine Mammals, Quebec City, Canada.
- Southall, B., J. Calambokidis, P. Tyack, D. Moretti, J. Hildebrand, C. Kyburg, R. Carson, A. Friedlaender, E. Falcone, G. Schorr, A. Douglas, S. DeRuiter, J. Goldbogen, & J. Barlow. 2011. Biological and Behavioral Response Studies of Marine Mammals in Southern California, 2010 (“SOCAL-10”). Pearl Harbor, HI: U.S. Navy Pacific Fleet.
- Southall, B.L., J.J. Finneran, C.J. Reichmuth, P.E. Nachtigall, D.R. Ketten, A.E. Bowles, W.T. Ellison, D.P. Nowacek, and P.L. Tyack. 2019a. Marine Mammal Noise Exposure Criteria: Updated Scientific Recommendations for Residual Hearing Effects. *Aquatic Mammals* 45(2): 125-232.
<https://doi.org/10.1578/AM.45.2.2019.125>.
- Southall, B.L., S. L. DeRuiter, A. Friedlaender, A.K. Stimpert, J.A. Goldbogen, E. Hazen, C. Casey, S. Fregosi, D.E. Cade, A.N. Allen, and C.M. Harris. 2019b. Behavioral responses of individual blue whales (*Balaenoptera musculus*.) *Journal of Experimental Biology* 222:1-15.

- Southall, B. L., D. Moretti, B. Abraham, J. Calambokidis, S.L. DeRuiter, and P.L. Tyack. 2012. Marine Mammal Behavioral Response Studies in Southern California: Advances in Technology and Experimental Methods. *Marine Technology Society Journal* 46(4): 46-59. <https://doi.org/10.4031/MTSJ.46.4.1>.
- Southall, B.L., D.P. Nowacek, A.E. Bowles, V. Senigaglia, L. Bejder, and P.L. Tyack. 2021. Marine Mammal Noise Exposure Criteria: Assessing the Severity of Marine Mammal Behavioral Responses to Human Noise. *Aquatic Mammals* 47 (5): 421-464. DOI 10.1578/AM.47.5.2021.421.
- Stanley, J.A., C.A. Radford, and A.G. Jeffs. 2011. "Behavioural Response Thresholds in New Zealand Crab Megalopae to Ambient Underwater Sound." *PLoS ONE* 6 (12):e28572. <https://doi.org/10.1371/journal.pone.0028572>
- Steimle, F. and C. Zetlin. 2000. Reef Habitats in the Middle Atlantic Bight: Abundance, Distribution, Associated Biological Communities, and Fishery Resource Use. *Marine Fisheries Review* 62 (2): 2442.
- Stevick, P.T., J. Allen, P.J. Clapham, N. Friday, S.K. Katona, F. Larsen, J. Lien, D.K. Mattila, P.J. Palsbll, J. Sigurjónsson, T.D. Smith, N. Øien and P.S. Hammond. 2003. North Atlantic humpback whale abundance and rate of increase four decades after protection from whaling. *Mar. Ecol. Prog. Ser.* 258: 263–273. Doi:10.3354/meps258263
- Stewart, J.D., J.W. Durban, A.R. Knowlton, M.S. Lynn, H. Fearnbach, J. Barbaro, W.L. Perryman, C.A. Miller, and M.J. Moore. 2021. Decreasing body lengths in North Atlantic right whales. *Current Biology* 31 (14): 3174-3179. <https://doi.org/10.1016/j.cub.2021.04.067>
- Stewart, J.D., J.W. Durban, H. Fearnbach, P.K. Hamilton, A.R. Knowlton, M.S. Lynn, C.A. Miller, W.L. Perryman, B.W. Tao, and M.J. Moore. 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. <https://doi.org/10.3354/meps14040>.
- Stöber U, and F. Thomsen. 2021. How could operational underwater sound from future offshore wind turbines impact marine life? *J Acoust Soc Am.* 2021 Mar;149 (3):1791. doi: 10.1121/10.0003760.
- Stone, C. J. 2015. Marine mammal observations during seismic surveys from 1994–2010. JNCC Rep. No. 463a. 64 p.
- Stone, G. S., L. Cavagnaro, A. Hutt, S. Kraus, K. Baldwin, and J. Brown. 2000. Reactions of Hector's dolphins to acoustic gillnet pingers. *New Zealand Department of Conservation*: 28.

- Stone, K.M., S.M. Leiter, R.D. Kenney, B.C. Wikgren, J.L. Thompson, J.K.D. Taylor, and S.D. Kraus. 2017. Distribution and abundance of cetaceans in a wind energy development area offshore of Massachusetts and Rhode Island. *Journal of Coastal Conservation* 21: 527 -543. <https://doi.org/10.1007/s11852-017-0526-4>.
- Stone, C. J. 2015. Marine mammal observations during seismic surveys from 1994–2010. JNCC Rep. No. 463a. 64 p.
- Sutherland, W. J., and N. J. Crockford. 1993. Factors affecting the feeding distribution of redbreasted geese *Branta ruficollis* wintering in Romania. *Biological Conservation*, 63 (1): 61- 65.
- Swingle, W.M., S.G. Barco, T.D. Pitchford, W.A. McLellan, and D.A. Pabst. 1993. Appearance of juvenile humpback whales feeding in the nearshore waters of Virginia. *Marine Mammal Science* 9(3): 309-315. <https://doi.org/10.1111/j.1748-7692.1993.tb00458.x>
- Tal, D., H. Shachar-Bener, D. Hershkovitz, Y. Arieli, and A. Shupak. 2015. Evidence for the initiation of decompression sickness by exposure to intense underwater sound. *Journal of Neurophysiology* 114 (3): 1521-1529. <https://doi.org/10.1152/jn.00466.2015>
- Taylor, B.L., R. Baird, J. Barlow, S.M. Dawson, J. Ford, J.G. Mead, G. Notarbartolo Di Sciara, P. Wade, And R.L. Pitman. 2008. *Physeter macrocephalus*. In IUCN Red List of Threatened Species. Version 2010.4. <http://www.iucnredlist.org>.
- Techer, D., S. Milla, and D. Banas. 2017. Sublethal Effect Assessment of a Low-power and Dual-frequency Anticyanobacterial Ultrasound Device on the Common Carp (*Cyprinus carpio*): a Field Study. *Environmental Science and Pollution Research* 24: 10. <https://doi.org/10.1007/s11356-016-8305-6>
- Teilmann, J. and J. Carstensen. 2012. Negative long term effects on harbour porpoises from a large scale offshore wind farm in the Baltic—evidence of slow recovery. *Environmental Research Letters* 7 (4): 045101. DOI 10.1088/1748-9326/7/4/045101
- Teilmann, J., J. Tougaard, L. A. Miller, T. Kirketerp, K. Hansen, and S. Brando. 2006. Reactions of captive harbor porpoises (*Phocoena phocoena*) to pinger-like sounds. *Marine Mammal Science* 22 (2): 240–260. <https://doi.org/10.1111/j.1748-7692.2006.00031.x>
- Tennessen, J.B. and Parks, S.E., 2016. Acoustic propagation modeling indicates vocal compensation in noise improves communication range for North Atlantic right whales. *Endangered Species Research* 30: 225-237. <https://doi.org/10.3354/esr00738>
- Thode, A.M., S. B. Blackwell, A.S. Conrad, K.H. Kim, T. Marques, L. Thomas, C.S. Oedekoven, D. Harris, and K. Bröker. 2020. Roaring and repetition: How bowhead whales adjust their call density and source level

- (Lombard effect) in the presence of natural and seismic airgun survey noise. *The Journal of the Acoustical Society of America* 147 (3): 2061-2080. <https://doi.org/10.1121/10.0000935>
- Thompson, P.M., G.D. Hastie, J. Nedwell, R. Barham, K.L. Brookes, L.S. Cordes, H. Bailey, and N. McLean. 2013. Framework for assessing impacts of pile-driving noise from offshore wind farm construction on a harbour seal population. *Environmental Impact Assessment Review* 43: pp.73-85. <https://doi.org/10.1016/j.eiar.2013.06.005>
- Thomsen, F., K. Lüdemann, R. Kafemann, and W. Piper. 2006. Effects of offshore wind farm noise on marine mammals and fish, biola, Hamburg, Germany on behalf of COWRIE Ltd. https://tethys.pnnl.gov/sites/default/files/publications/Effects_of_offshore_wind_farm_noise_on_marine-mammals_and_fish-1-.pdf
- Tougaard, J., O.D. Henriksen, and L.A. Miller. 2009. Underwater noise from three types of offshore wind turbines: Estimation of impact zones for harbor porpoises and harbor seals. *The Journal of the Acoustical Society of America* 125 (6): 3766-3773. <https://doi.org/10.1121/1.3117444>
- Tougaard et al., 2020. How loud is the underwater noise from operating offshore wind turbines? *J. Acoust. Soc. Am.* 148: (5) (2020): 2885 <https://asa.scitation.org/doi/10.1121/10.0002453>
- Treves, A. 2000. Theory and method in studies of vigilance and aggregation. *Animal Behaviour* 60 (6): 711-722. <https://doi.org/10.1006/anbe.2000.1528>
- Tyack, P. L. 2000. Functional aspects of cetacean communication. In J. Mann, R. C. Connor, P. L. Tyack, and H. Whitehead (Eds.), *Cetacean societies: Field studies of dolphins and whales*. Chicago, IL: University of Chicago Press.
- Tyack, P.L., C. Clark, J. Bird, and V. Rowntree. 1983. Effects of underwater noise on migrating gray whales off the coast of California. *The Journal of the Acoustical Society of America* 74 S54; <https://doi.org/10.1121/1.2021028>.
- Tyack, P.L., W.M.X. Zimmer, D. Moretti, B.L. Southall, D.E. Claridge, J.W. Durban, C.W. Clark, A. D'Amico, N. DiMarzio, S. Jarvis, E. McCarthy, R. Morrissey, J. Ward, and I.L. Boyd. 2011. Beaked whales respond to simulated and actual Navy sonar. *PLOS One* 6(3): e17009. doi:10.1371/journal.pone.0017009.
- Urick, R. J. 1972. Noise signature of aircraft in level flight over and hydrophone in the sea. *Journal of Acoustical Society of America* 52: 993.
- Urick, R.J. 1983. *Principles of Underwater Sound*. 3rd Edition, McGraw-Hill, New York.

- Vallejo, G.C., K. Grellier, E.J. Nelson, R.M. McGregor, S.J. Canning, F.M. Caryl, and N. McLean. 2017. Responses of two marine top predators to an offshore wind farm. *Ecology and Evolution* 7 (21): 8698-8708. <https://doi.org/10.1002/ece3.3389>
- Vanderlaan, M. S. A., and T. C. Taggart. 2007. Vessel collisions with whales: the probability of lethal injury based on vessel speed. *Marine Mammal Science* 23 (1): 144–156. <https://doi.org/10.1111/j.1748-7692.2006.00098.x>
- Van Parijs, S.M. 2015. Letter of introduction to Biologically Important Areas issue. *Aquatic Mammals* 41(1): 1. <http://dx.doi.org/10.1578/AM.41.1.2015.1>
- Van Parijs, S.M., K. Baker, J. Carduner, J. Daly, G.E. Davis, C. Esch, S. Guan, A. ScholikSchlomer, N.B. Sisson, and E. Staaterman. 2021. NOAA and BOEM Minimum Recommendations for Use of Passive Acoustic Listening Systems in Offshore Wind Energy Development Monitoring and Mitigation Programs. *Frontiers in Marine Science* 8: 760840. <https://doi.org/10.3389/fmars.2021.760840>
- van Rij, N. G. 2007. Implicit and explicit capture of attention: what it takes to be noticed. Thesis. University of Canterbury.
- Villegas-Amtmann, S., L.K., Schwarz, J.L. Sumich, and D.P. Costa. 2015. A bioenergetics model to evaluate demographic consequences of disturbance in marine mammals applied to gray whales. *Ecosphere* 6 (10): doi:10.1890/es15-00146.
- Visser, F., C. Cure, P. H. Kvadsheim, F. P. Lam, P. L. Tyack, and P. J. Miller. 2016. Disturbance-specific social responses in long-finned pilot whales, *Globicephala melas*. *Scientific Reports* 6: 28641. <https://doi.org/10.1038/srep28641>
- von Pein, J.; T. Lippert, S. Lippert, and O. von Estorff. 2022. Scaling laws for unmitigated pile driving: Dependence of underwater noise on strike energy, pile diameter, ram weight, and water depth. *Applied Acoustics* 198: 108986.
- Ward, W.D. 1997. Effects of high-intensity sound. Pages 1497-1507 in M.J. Crocker, ed. *Encyclopedia of Acoustics, Volume III*. John Wiley & Sons, New York.
- Waring, G.T., E. Josephson, K. Maze-Foley, and P.E. Rosel. U.S. Atlantic and Gulf of Mexico marine mammal stock assessments- 2013. NOAA Technical Memorandum NMFS-NE-228, 475 pp.
- Wartzok, D. and D.R. Ketten. 1999. Marine mammal sensory systems. Pages 117-175 in J.E. Reynolds and S.A. Rommel, eds. *Biology of Marine Mammals*. Smithsonian Institution Press, Washington.

- Wartzok, D., A.N. Popper, J. Gordon, and J. Merrill. 2003. Factors affecting the responses of marine mammals to acoustic disturbance. *Marine Technology Society Journal* 37 (4): 6- 15.
<https://doi.org/10.4031/002533203787537041>
- Watkins, W. A. 1986. Whale reactions to human activities in Cape Cod waters. *Marine Mammal Science* 2 (4): 251–262. <https://doi.org/10.1111/j.1748-7692.1986.tb00134.x>
- Watkins, W.A., P.L. Tyack, K.E. Moore, and J.E. Bird. 1987. The 20-Hz signals of finback whales (*Balaenoptera physalus*). *Journal of the Acoustical Society of America* 82 (6): 1901-1912.
<https://doi.org/10.1121/1.395685>.
- Watwood, S. L., J. D. Iafate, E. A. Reyier, and W. E. Redfoot. 2016. Behavioral Response of Reef Fish and Green Sea Turtles to Mid-Frequency Sonar. In A. N. Popper & A. Hawkins (Eds.), *The Effects of Noise on Aquatic Life II* (pp. 1213–1221). New York, NY: Springer New York.
- Wensveen, P. J., P. H. Kvadsheim, F.-P. A. Lam, A. M. Von Benda-Beckmann, L. D. Sivle, F. Visser, C. Curé, P. Tyack, and P. J. O. Miller. 2017. Lack of behavioural responses of humpback whales (*Megaptera novaeangliae*) indicate limited effectiveness of sonar mitigation. *The Journal of Experimental Biology* 220: 1–12. <https://doi.org/10.1242/jeb.161232>
- Wensveen, P.J., S. Isojunno, R.R. Hansen, A.M. von Benda-Beckmann, L. Kleivane, S. van IJsselmuide, F.P.A. Lam, P.H. Kvadsheim, S.L. DeRuiter, C. Curé, and T. Narazaki. 2019.
- Wiley, D.N., R.A. Asmutis, T.D. Pitchford and D.P. Gannon. 1995. Stranding and mortality of humpback whales, *Megaptera novaeangliae*, in the mid-Atlantic and southeast United States, 1985-1992. *Fish. Bull.* 93:196–205.
- Wilhelmsson, D., T. Malm, and M.C. Öhman. 2006. The influence of offshore windpower on demersal fish. *ICES Journal of Marine Science* 63 (5): 775-784. <https://doi.org/10.1016/j.icesjms.2006.02.001>
- Williams, R., C. W. Clark, D. Ponirakis, and E. Ashe. 2013. Acoustic quality of critical habitats for three threatened whale populations. *Animal Conservation* 17 (2): 174–185. <https://doi.org/10.1111/acv.12076>
- Wilson, L.J., J. Harwood, C.G. Booth, R. Joy, and C.M. Harris. 2020. A decision framework to identify populations that are most vulnerable to the population level effects of disturbance. *Conservation Science and Practice* 2 (2): e149. <https://doi.org/10.1111/csp2.149>
- Yazvenko, S.B., T.L. McDonald, S.A. Blokhin, S.R. Johnson, H.R. Melton, M.W. Newcomer, et al. 2007. Feeding of western gray whales during a seismic survey near Sakhalin Island, Russia. *Environmental Monitoring and Assessment* 134 (1-3): 93-106. <https://doi.org/10.1007/s10661-007-9810-3>

- Zaitseva, K. A., V.P. Morozov, and A.I. Akopian. 1980. Comparative characteristics of spatial hearing in the dolphin *Tursiops truncatus* and man. *Neuroscience and behavioral physiology* 10(2): 180-182. <https://doi.org/10.1007/BF01148460>
- Zelick, R., and D.A. Mann. 1999. Acoustic communication in fishes and frogs. In: Fay, R.R. and A.N. Popper, eds. *Comparative hearing: Fishes and amphibians*. Springer-Verlag, New York.
- Zhang, T., B. Tian, D. Sengupta, L. Zhang, and Y. Si. 2021. Global offshore wind turbine dataset. *Scientific Data* 8 (1): 191. <https://doi.org/10.1038/s41597-021-00982-z>
- Zimmer, W.M.X., and P.L. Tyack. 2007. Repetitive shallow dives pose decompression risk in deep-diving beaked whales. *Marine Mammal Science* 23 (4): 888-925. <https://doi.org/10.1111/j.1748-7692.2007.00152.x>