T. Aran Mooney

Assistant Scientist
Biology Department, Woods Hole Oceanographic Institution
Marine Research Facility – MS #50 ● Woods Hole, MA 02543, USA
(508) 289-3714 ● (508) 457-2089 (fax) ● amooney@whoi.edu

Current Position

Assistant Scientist, Woods Hole Oceanographic Institution 2010-present
Biology Department (tenure track position)

Education

Ph.D., Department of Zoology, Marine Biology specialization 2004-2008
University of Hawaii at Manoa, Honolulu, Hawaii
"Temporal effects of sound on the odontocete auditory system: an electrophysiological study"
Advisor: Paul Nachtigall

M.S., Department of Zoology, Marine Biology specialization 2001-2003
University of Hawaii at Manoa, Honolulu, Hawaii
"How acoustically enhanced gillnets reduce odontocete bycatch"
Advisor: Paul Nachtigall

B.S. in Biology, *magna cum laude*, Spanish minor 1996-2000
University of New Hampshire, Durham, New Hampshire

Positions Held

Postdoctoral Scholar, Woods Hole Oceanographic Institution 2008-2010
In collaboration with Darlene Ketten
Focusing on comparative hearing in whales, dolphins, fishes and cephalopods

Grass Postdoctoral Fellow, Marine Biological Laboratory May-Aug 2008
In collaboration with Roger Hanlon, Woods Hole, MA
Researching sensory capabilities and acoustic reflectivity of the squid, *Loligo pealeii*

Graduate Assistant, University of Hawaii 2001-2008
Research Advisor: Dr. Paul Nachtigall
Marine acoustics including effects of noise on marine mammals and fisheries target strength studies.

Scientific Consultant, e2M 2006-2007
Science Advisor for drafting U.S. Coast Guard Environmental Impact Statement (EIS)

Scientist, Atlantic Marine Mammal Survey, NMFS / NOAA April 2002
Acoustic survey of marine mammals (pairing acoustics with visual survey data).

Hatchery Assistant, Aquaculture, Breeding, and Genetics Center 2001
Virginia Institute of Marine Science, William and Mary College
Managed oysters field sites and stock for aquaculture.

Research Questions

I am interested in the sensory ecology and physiological ecology of key marine organisms in pelagic and reef environments, particularly using bioacoustics as means to address these overarching questions:

- *Which marine organisms utilize sound and what are the physiological and morphological adaptations they posses to hear and produce sound?*
- *How do these constraints relate to a species' ecological interactions?*
- *How does human behavior, such as climatic changes, increasing anthropogenic noise or fisheries interactions, impact an animal's use of sound?*

Peer-Reviewed Publications

1. **Mooney, TA,** Hanlon, RT, Christensen-Dalsgaard, J, Madsen, PT, Ketten, DR, Nachtigall, PE. 2012. "The potential for sound sensitivity in cephalopods." in: The Effects of Noise on Aquatic Life (eds). Popper, A, Hawkins A. Springer Science+Business Media, LLC, New York. pg 125-128.
2. **Mooney, TA,** Li, SH, Ketten, DK, Wang, K, and Wang D. 2011. Auditory temporal resolution and evoked responses to pulsed sounds for the Yangtze finless porpoises (*Neophocaena phocaenoides asiaeorientalis*). Journal of Comparative Physiology A. 197:1149–1158. doi: 10.1007/s00359-011-0677-y
3. **Mooney, TA**, Hanlon, RT, Christensen-Dalsgaard, J, Madsen, PT, Nachtigall, PE Ketten, DR. 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: 3748-3759.
4. **Mooney, TA**, Lee, WJ, and Hanlon, RT. 2010. Long-duration anesthetization of squid (*Doryteuthis pealeii*). Marine and Freshwater Behavior and Physiology. 43(4): 297–303
5. Apprill, A, **Mooney, TA**, Lyman, E, Stimpert, A, and Rappé, M. 2010. Bacterial communities associated with the skin of free-ranging and health-compromised humpback whales. 3:223-232. Environmental Microbiology and Environmental Microbiology Reports. doi: 10.1111/j.1758-2229.2010.00213.x
6. **Mooney, TA**, Pacini, AP, and Nachtigall, PE. 2009. False killer whale (*Pseudorca crassidens*) echolocation and acoustic disruption: Implications for long-line bycatch and depredation. 87: 726-733. Canadian Journal of Zoology.
7. **Mooney, TA**, Nachtigall, PE, Vlachos, S. 2009. Sonar-induced temporary hearing loss in dolphins. 5: 565-567. Biology Letters.
8. **Mooney, TA**, Nachtigall, PE, Breese, M, Vlachos, S, and Au, WWL. 2009. Predicting temporary threshold shifts in a bottlenose dolphin (*Tursiops truncatus*): the effects of noise level and duration. 125(3): 1816-1826. Journal of the Acoustical Society of America.
9. **Mooney, TA**, Nachtigall, PE, Taylor, KA, Rasmussen, MH, and Miller, LA. 2009. Auditory temporal resolution of a wild white-beaked dolphin (*Lagenorhynchus albirostris*). 195:375-384. Journal of Comparative Physiology A.
10. **Mooney, TA**, Nachtigall, PE, Castellote, M, Taylor, KA, Pacini, AP, and Esteban, JA. 2008. The hearing pathways and directional sensitivity of the beluga whale, *Delphinapterus leucas*. 362(2): 108-116 Journal of Experimental Marine Biology and Ecology.
11. Nachtigall, PE, **Mooney, TA**, Taylor, KA, Miller, LA, Rasmussen, MH, Akamatsu, T, Teilmann, J, Linnenschmidt, M, and Vikingsson, G. 2008. Shipboard measurements of the hearing of the white-beaked dolphin, *Lagenorhynchus albirostris*. 211(4): 642-647 Journal of Experimental Biology. ***Cover Article.***
12. Lammers, MO, Brainard, RE, Au, WWL, **Mooney, TA,** Wong, K. 2008. An ecological acoustic recorder (EAR) for long-term monitoring of biological and anthropogenic sounds on coral reefs and other marine habitats. 123(3): 1720-1228. Journal of the Acoustical Society of America.
13. **Mooney TA**, Au, WWL, Nachtigall PE, and Trippel, EA. 2007. Acoustic and stiffness properties of gillnets as they relate to small cetacean bycatch. 64(7): 1324-1332. ICES Journal of Marine Science.
14. Taylor, KA, Nachtigall, PE, **Mooney, TA**, Supin, AYa, and Yuen, MML. 2007. A portable system for the evaluation of the auditory capabilities of marine mammals. Aquatic Mammals. 33(1): 6-13.
15. Nachtigall, PE, **Mooney, TA**, Taylor, KA, Yuen, MMY. 2007. Hearing and auditory evoked potential methods as applied to Odontocete cetaceans. Aquatic Mammals. 33(1): 93-99. ***Cover Article.***
16. Nachtigall, PE, Supin A Ya, Amundin, M, Röken, B, Møller, T, **Mooney, TA,** Taylor, KA, and Yuen, MMY. 2007. Polar bear, (*Ursus maritimus*), hearing measured with auditory evoked potentials. Journal of Experimental Biology. 210(7): 1116-1122. ***Cover Article.***
17. **Mooney TA**, Nachtigall PE, Yuen MMY. 2006. Temporal resolution of the Risso's dolphin, *Grampus griseus,* auditory system. Journal of Comparative Physiology A. 192: 373-380.

18. Nachtigall, PE, Yuen, MMY, **Mooney TA**, Taylor KA. 2005. Hearing measurements from a stranded infant Risso's dolphin, *Grampus griseus.* Journal of Experimental Biology. 208: 4181-4188.

19. Mooney, TA, Nachtigall, PE, and Au, WWL. 2004. Target strengths of a nylon monofilament and an acoustically enhanced gillnet: Predictions of biosonar detection ranges. Aquatic Mammals. 30(2): 220-226.

In Press / In Prep / Submitted

1. Mooney, TA, Yamato, M, and Branstetter, BK. 20XX. Hearing in cetaceans: From natural history to experimental biology. *Submitted (invited review)* Advances in Marine Biology.

2. Mooney, TA, Hanlon, RT, Christensen-Dalsgaard, J, Madsen, PT, Nachtigall, PE Ketten, DR. 200X. Acoustic camouflage and squid detection of marine mammal predators. *In prep., to co-authors*.

3. Mooney, TA, Li, SH, Ketten, DK, Wang, K, and Wang D. 200X. Odontocetes do not all hear the same: Hearing pathways in the finless porpoise, *Neophocaena phocaenoides*. *In prep., to co-authors*.

4. Kaplan, M* and **Mooney, TA.** Effects of elevated CO2 conditions on squid (Loligo pealeii) development and early life. *In prep., to co-authors*.

5. Strobel, SM* and **Mooney, TA.** American sand lance, *Ammodytes americanus*, detection of low frequency tones and simulated humpback whale, *Megaptera novaeangliae*, megapclicks. *In prep., to co-authors*.

*denotes undergraduate student

Technical Reports / Theses

1. Mooney, TA. and Ketten, DK. 2010. Summary of harbor seal AEP hearing tests. Report to the Marine Animal Rehabilitation Center (MARC), University of New England. Sept 27, 2010. 8 pgs.

2. Mooney, TA and Ketten, DK. 2010. Initial AEP hearing measures on UNE- MARC 09--078 Pv "Beverly" Report to the Marine Animal Rehabilitation Center (MARC), University of New England. Mar 27, 2010. 2 pgs.

3. Mooney, TA. Li, S, Ketten, DK, Wang, D and Wang, K. Locations of auditory sensitivity and auditory temporal resolution of the finless porpoise. Report to the Chinese Institute of Hydrobiology. August, 2010. 7 pgs.

4. Mooney, TA. 2008. Temporal effects of sound on the odontocete auditory system: an electro-physiological study. Ph.D. Dissertation. Department of Zoology, University of Hawaii. 188 pages.
Advisor: Paul E. Nachtigall, Ph.D.

5. Mooney, TA, Nachtigall, PE, Pacini, AF. 2007. Acoustic deterrents reduce false killer whale (*Pseudorca crassidens*) echolocation abilities but only so much. Report to Western Pacific Fisheries Management Council and IFF4.

6. Mooney, TA. 2003. How do acoustically enhanced gillnets reduce bycatch: Measures of target strengths and flexural stiffness, and predictions of biosonar detection ranges. M.S. Report. Department of Zoology, University of Hawaii. 62 pages.
Advisor: Paul E. Nachtigall, Ph.D.

7. Mooney, TA. 2001. Tag retention and mortality rates for *Homarus americanus*. Bigelow Laboratories and University of New England. 24 pages.
Advisor: Richard Wahle, Ph.D.

8. Mooney, TA. 2000. Cytotoxic assay with two anti-neoplastic drugs using the soft-shell clam *Mya arenaria* as a model for studying acute myelocytic leukemia. Senior Thesis. 43 pages.
Advisor: Charles W. Walker, Ph.D.

9. Mooney, TA. 1998. Ganhaarr: Traditional knowledge of *Crocodylus perosis* and *Crocodylus johnstoni*. School for International Studies Independent Study.

Funding Received

Coastal Ocean Institute, 2012 (PI)
"Rapid application of PAM technology"

Office of Naval Research, 2012 (PI)

"Baseline hearing measurements in Alaskan belugas"
NOAA Sea Grant, 2012-2014 (PI)
"Passive acoustic monitoring of biological sounds and ambient noise levels at the Cape Wind site"
Ocean Life Institute, 2011-2013 (PI)
"Can squid really hear? Behavior, directional responses and hearing diversity in cephalopods
Ocean Life, and Ocean and Climate Change Institutes, 2011-2012 (PI)
"Measuring hearing in Alaskan belugas" (Jointly funded by both Institutes)
Office of Naval Research, 2011-2014 (PI)
"Acoustic behavior, baseline ecology and habitat use of odontocete species of concern"
Penzance Endowed Fellowship, 2010-13 ($57,530)
"Fund for Assistant Scientists"
Lawrence J. Pratt and Hall Fund for Interdisciplinary Research, 2010-12 (Co-PI) ($59,416)
"Direct measurements and modeling of auditory and sonar-related signals in toothed whales"
Andrew W. Mellon Fund for Innovative Research, 2009-11 (Co-PI) ($47,414)
"Form and function of the squid auditory system: Investigating hearing of the longfin squid"
Woods Hole Oceanographic Institute, Postdoctoral Scholarship, 2008-9 ($55,800 / year)
"Examination of the auditory diversity of odontocete marine mammals"
Grass Foundation Postdoctoral Fellowship, 2008 ($15,000)
"Examination of the auditory sensitivity of the squid (*Loligo pealeii*)"
Defense University Research Instrumentation Program (DURIP), 2007 (Co-PI) ($173,504)
"Rugged portable instrumentation package for marine mammal evoked potential hearing measures"
Arts and Sciences Advisory Council Award, 2007 ($2500)
"Hearing measurements of individual minke whales in Icelandic waters"
Office of Naval Research Graduate Research Assistantship, 2002-8 ($18,125 / year)
"Temporary threshold shift in odontocetes: Effects of noise duration, intensity, and frequency"
Western Pacific Regional Fisheries Management Council, 2006 (PI) ($17,836)
"False killer whale echolocation experiments to reduce long-line bycatch"
UH Graduate Student Organization ($984)
Conference travel
SEASPACE Scholarship Award, 2004 ($3000)
"Temporary threshold shifts in a bottlenose dolphin"
Arts and Sciences Advisory Council Award, 2004 ($1500)
"Characterization, context, and significance of sounds produced by three species of Azorean groupers"
Northeastern Consortium, 2004 ($4995)
"The acoustic reflectivity of iron oxide nets"
Fisheries and Oceans Canada, 2003 ($2143)
"The acoustic reflectivity of barium sulphate nets"
SEASPACE Scholarship Award, 2003 ($2000)
"A potential method of reducing dolphin and porpoise entanglement in fishing nets"
PADI Project AWARE Foundation, 2003 ($2000)
"Using acoustics for conservation"
Friday Harbor Laboratories, University of Washington, 2003 ($1000)
Marine Bioacoustics Workshop, "How killer whales acoustically differentiate salmon species"
Gulf of Maine Foundation, 2000 ($6000)
Summer Undergraduate Research Fellowship
"Tag retention and mortality rates in the American lobster, *Homarus americanus*"
University of New Hampshire, 1999 ($2500)
Center for Marine Biology
"Clam Leukemia: Developing a marine model for testing human anticancer drugs"

Invited Conference Presentations

1. **Mooney, TA**, Li, S, Ketten, DK, Wang, K, and Wang, D. Hearing pathways in the finless porpoise, *Neophocaena phocaenoides*, and implications for noise impacts. 161st Meeting of the Acoustical Society of America. Special Memorial Session in Honor of Ron Schusterman and Dave Kastak. Seattle, Washington, 23-27 May 2011.
2. Ketten DK, Williams, CR, **Mooney, TA**, Matassa, K, and Patchett, K. *In vivo* measures of hearing in seals via Auditory Evoked Potentials (AEP), Otoacoustic Emissions (OAE), and Computerized Tomography (CT). 161st Meeting of the Acoustical Society of America. Special Memorial Session in Honor of Ron Schusterman and Dave Kastak. Seattle, Washington, 23-27 May 2011.
3. **Mooney, TA**, Hanlon, RT, Christensen-Dalsgaard, J, Madsen, PT, Ketten, DR, and Nachtigall, PE. The hearing of the longfin squid (*Loligo pealeii*) and sensitivity to low frequency noise. 2nd International Meeting on "The Effects of Noise on Aquatic Life." Cork, Ireland, Aug 15-20, 2010.
4. **Mooney, TA**, Hanlon, RT, Christensen-Dalsgaard, J, Madsen, PT, Ketten, DR and Nachtigall, PE. Do squid hear echolocating predators? Acoustic sensitivity of the longfin squid, *Loligo pealeii*. 5th Animal Sonar Symposium. Kyoto, Japan. September 14-18, 2009.
5. **Mooney, TA**, Nachtigall, PE, Pacini, A. 2007. Acoustic masking to reduce false killer whale long-line bycatch. 4th International Fishers Forum. Puntarenas, Costa Rica. November 12-15, 2007.
6. **Mooney, TA**, Nachtigall, PE, Supin, YA, Yuen, MML, Taylor, KT. 2006. The need for speed: The utility of rapid hearing tests. 20th Conference of the European Cetacean Society. Gdynia, Poland. April 2-7, 2006.

Invited Lectures / Presentations

1. **Mooney, TA.** Marine mammal hearing and auditory evoked potentials. Department of Veterinary Medicine. National Chiayi University. December 16, 2011.
2. **Mooney, TA.** Eco-Physiology, bioacoustics and sensory ecology of marine animals. Department of Biology. National Cheng Kung University. December 15, 2011.
3. **Mooney, TA.** Detection of sound by the longfin squid. Duke University Marine Lab. March, 2011.
4. **Mooney, TA.** Hearing in marine animals: from dolphins to squid. Knight Fellows Lecture. Woods Hole Oceanographic Institution. September 13, 2010.
5. **Mooney, TA.** The hearing of odontocetes and their prey: Sensory ecology and anthropogenic impacts. University of North Florida, Biology Department. February 4, 2010.
6. **Mooney, TA**, Ketten, DR, Hanlon, RT, Christensen-Dalsgaard, J, Madsen, PT, and Nachtigall, PE. Squid hearing and their ability to detect echolocating predators. Office of Naval Research, Marine Mammals and Oceanography Program Review, December 7-10, 2009.
7. **Mooney, TA**. The hearing and travels of Icelandic white-beaked dolphins. WHOI Science Made Public Series. Woods Hole, MA. July 21, 2009.
8. **Mooney, TA**. How much sound is too much? Noise, naval sonar and the dolphin auditory system. Biology Department Seminar. Woods Hole Oceanographic Institution. April 9, 2009.
9. **Mooney, TA**. Predicting the effects of noise on odontocete cetaceans. Zoology Department Seminar. University of Hawaii. April 11, 2008.
10. **Mooney, TA**. A bit of the ecology of the white-beaked dolphin. 2007. Hanauma Bay Nature Preserve Community Education Lecture. Honolulu, HI. April 6, 2007.
11. **Mooney, TA**, Santos, PA, Nachtigall, PE, and Santos, R. 2005. Fish, dolphins and whales: Fish sounds and dolphin bycatch. University of the Azores, Horta, Faial, Pt. August 18, 2005.

Short Communications: Peer Reviewed Meetings

1. **Mooney, TA**, Hanlon, RT and Streets, A*. Physiological and behavioral responses to sound in the longfin squid (*Loligo pealeii*). Ocean Sciences Meeting. Salt Lake City, UT, February 20-14, 2012.
2. Kaplan, M* and **Mooney, TA**. Effects of elevated CO_2 conditions on paralarval longfin squid (Loligo pealeii) development and early life. Ocean Sciences Meeting. Salt Lake City, UT, Feb 2012.

3. **Mooney, TA**, Li, S, Ketten, D, Wang, K, and Wang, D. Hearing pathways of the finless porpoise: Form and function in an 'unrepresentative' species. 19th Biennial Conference on the Biology of Marine Mammals. Tampa, FL. November 27-December 2, 2011.
4. **Mooney, TA,** Ketten, DR, Nachtigall, PE, Williams, CR, and Matassa, K. Using auditory evoked potentials to examine hearing loss in aquatic animals: From marine mammals to squid. 34th Meeting of the Association for Research in Otolaryngology. Baltimore, MD, February 19-23, 2011.
5. Apprill, AM, **Mooney, TA**, Stimpert AK, Lyman E and Rappé, MS. Specific bacterial communities associate with the skin of free-ranging humpback whales. 110th General Meeting of the American Society for Microbiology. May 27-27, 2010.
6. **Mooney, TA**, Hanlon, RT, Christensen-Dalsgaard, J, Madsen, PT, Ketten, DR and Nachtigall, PE. What squid hear: An evoked potential study of the longfin squid (*Loligo pealeii*). 33rd Mid-Winter Meeting of the Association for Research in Otolaryngology. February 6-10, 2010.
7. **Mooney, TA**, Hanlon, RT, Christensen-Dalsgaard, J, Madsen, PT, Ketten, DR and Nachtigall, PE. Detecting echolocating odontocetes: Can squid hear toothed whale predators? 18th Biennial Conference on the Biology of Marine Mammals. Quebec, Canada. October 12-16, 2009.
8. Yamato, M**, **Mooney TA,** Ketten, DK, Cramer, S, and Arruda, S. Auditory Anatomy and Sound Reception in the beluga whale (*Delphinapterus leucas*) compared to the bottlenose dolphin (*Tursiops truncatus*). 18th Biennial Conference on the Biology of Marine Mammals. Quebec, Canada. October 12-16, 2009.
9. **Mooney, TA**, and Ketten, DR. The why and how of testing hearing in stranded animals. Northeast Regional Stranding Network Conference. Salem, MA. March 26-29, 2009.
10. **Mooney, TA**, Nachtigall, PE, Vlachos, S. Intense sonar pings induce temporary threshold shift in a bottlenose dolphin, *Tursiops truncatus*. Acoustics '08 Conference. Paris, France. June 29-July 5, 2008.
11. Pacini, A, Nachtigall, PE, **Mooney, TA**, Castellote, M, Taylor, K, and Esteban, JA. Directional sensitivity and hearing pathways in the beluga whale, *Delphinapterus leucas*. Acoustics '08 Conference. Paris, France. June 29-July 5, 2008.
12. **Mooney, TA**, Taylor, KA., Nachtigall, PE, Pacini, A, Castellote, M, Esteban, JA. Odontocetes don't all hear the same: directional sensitivity and hearing pathways in the beluga whale, *Delphinapterus leucas*. 17th Biennial Conference on the Biology of Marine Mammals. Cape Town, South Africa. Nov 28-Dec 3, 2007.
13. Apprill, AM, **Mooney, TA**, Stimpert AK, Lammers MO, Rappé, MS. A novel approach to examine environmental and health-related characteristics of humpback whales using the bacterial composition of epithelial skin. 17th Biennial Conference on the Biology of Marine Mammals. Cape Town, South Africa. Nov 28-Dec 3, 2007. *****Best Poster Presentation*****
14. Taylor, KA, **Mooney, TA**, Nachtigall, PE, Rasmussen, M, Miller, LA., The high frequency hearing and temporal processing of caught-and-released white-beaked dolphins, *Lagenorhynchus albirostris*. 17th Biennial Conference on the Biology of Marine Mammals. Cape Town, South Africa. Nov 28-Dec 3, 2007.
15. Pacini, A, **Mooney, TA**, Nachtigall, PE. False killer whale echolocation experiment to reduce long line bycatch: preliminary results. 17th Biennial Conference on the Biology of Marine Mammals. Cape Town, South Africa. Nov 28-Dec 3, 2007.
16. **Mooney, TA**, Nachtigall, PE, Taylor, KA, Miller, LA, Rasmussen, M. Temporal resolution and broadband click thresholds in a caught-and-released white-beaked dolphin (*Lagenorhynchus albirostris*). 21st Conference of the European Cetacean Society. San Sebastian, Spain. April 22-25, 2007.
17. Breese, M, **Mooney, TA**, Nachtigall, PE, Au, WWL, Vlachos, S. Temporary threshold shifts in the bottlenose dolphin (*Tursiops truncatus*), varying noise duration and intensity. 21st Conference of the European Cetacean Society. San Sebastian, Spain. April 22-25, 2007.

18. Mooney, TA, Nachtigall, PE, Au, WWL, Breese, M, Vlachos, S. Temporary threshold shifts in the bottlenose dolphin (*Tursiops truncatus*), varying noise duration and intensity. 4th Joint Meeting of the Acoustical Society of America and the Acoustical Society of Japan. November 28-December 2 2006. **** Best Student Paper Presentation****

19. Mooney, TA, Nachtigall, PE, Au, WWL, Breese, M, Vlachos, S. The effects of noise intensity and exposure duration and potential protective mechanisms in the bottlenose dolphin (*Tursiops truncatus*). Ocean Sciences Meeting. Honolulu, HI. February 20-24, 2006.

20. Lammers, MO, **Mooney, TA**, Brainard, RE, Au, WWL. Passive acoustic monitoring of biological activity on coral reefs and in nearby waters. Ocean Sciences Meeting. Honolulu, HI. February 20-24, 2006.

21. Mooney, TA, Nachtigall, PE, Au, WWL, Breese, M, Vlachos, S. Predicting noise induced threshold shifts in a bottlenose dolphin: Effects of noise duration, intensity, and frequency. 16th Biennial Conference on the Biology of Marine Mammals. San Diego, CA. December 12-16, 2005.

22. Taylor, KA, Nachtigall, PE, Yuen, MMY, **Mooney, TA**. A portable system to evaluate the auditory system of stranded marine mammals. 16th Biennial Conference on the Biology of Marine Mammals. San Diego, CA. December 12-16, 2005.

23. Lammers, MO, Stimpert, AK, Au, WWL, and **Mooney, TA**. Diel and spatial patterns in the singing behavior of humpback whales off Oahu, Hawaii. 16th Biennial Conference on the Biology of Marine Mammals. San Diego, CA. December 12-16, 2005.

24. Lammers, MO, Stimpert, AK, Au, WWL, and **Mooney, TA**. Diel and spatial patterns in the singing behavior of humpback whales off Oahu, Hawaii. 150th Meeting of the Acoustical Society of America. Minneapolis, MN. October 17-21, 2005.

25. Mooney, TA, Lammers, MO, and Nachtigall, PE. Monitoring for fish sounds: Characterization and diurnal trends of three species of Pomacentrids. Underwater Acoustic Measurements, Heraklion, Crete, Greece, June 28-July 1, 2005.

26. Mooney, TA, Lammers, MO, Santos, PA, and Nachtigall, PE. An underwater system to monitor ecologically important fish sounds: Characterization and diel trends of three species of Pomacentrids. 149th Meeting of the Acoustical Society of America. Vancouver, B.C., Canada. May 16-20, 2005.

27. Mooney, TA, Nachtigall, PE, Yuen, MM, and Taylor, KT. Can you hear me now? Hearing thresholds of a stranded Risso's dolphin. University of Hawaii Testers Symposium. Honolulu, HI. March 17-18, 2005.

28. Taylor, KT, Nachtigall, PE, Yuen, MM, and **Mooney, TA**. A portable system to assess the auditory status of stranded marine mammals. University of Hawaii Testers Symposium. Honolulu, HI. March 17-18, 2005.

29. Nachtigall, PE, Yuen, MM, **Mooney, TA**, and Taylor, KT. Measuring hearing in a neonatal stranded Risso's dolphin (*Grampus griseus*). 148th Meeting of the Acoustical Society of America. San Diego, CA. November 15-19, 2004.

30. Mooney, TA, Nachtigall, PE, and Yuen, MM. The modulation rate transfer function of a Risso's dolphin, *Grampus griseus*, using the envelope following response. 148th Meeting of the Acoustical Society of America. San Diego, CA. November 15-19, 2004.

31. Mooney, TA, Au, WWL, and Nachtigall, PE. Will acoustically enhanced nets reduce odontocete gillnet bycatch because they are better sound reflectors? 148th Meeting of the Acoustical Society of America. San Diego, CA. November 15-19, 2004.

32. Mooney, TA, Au, WWL, and Nachtigall, PE. A method to reduce marine mammal bycatch: Predicted harbor porpoise detection ranges of three experimental gillnets. University of Hawaii Testers Symposium. Honolulu, HI. March 11-12, 2004.

33. Mooney, TA, Au, WWL, and Nachtigall, PE. Target strength and predicted biosonar detection ranges of three experimental gillnets: A method to reduce marine mammal bycatch. ASLO/TOS Ocean Research Conference. Honolulu, HI. February 15-20, 2004.

34. **Mooney, TA**, Nachtigall, PE, Au, WWL, and Muhic, CM. Barium sulfate nets reduce bycatch: acoustic reflectivity or flexural stiffness? 15th Biennial Conference on the Biology of Marine Mammals. Greensboro, NC. December 14-19, 2003.
35. **Mooney, TA**, Nachtigall, PE, & Au, WWL. Target strength of two gillnets and predictions of biosonar detection ranges. First Pan-American/Iberian Meeting on Acoustics. Cancun, Mexico. December 2-6, 2002.
36. **Mooney, TA**, Nachtigall, PE, & Au, WWL. Can dolphins detect gillnets? Implications of reflective gillnets. Hawaii Institute of Marine Biology Colloquium. Kaneohe, HI. October 21-22, 2002
37. **Mooney, TA** & Wahle, R. Tag retention and mortality rates of the American lobster, *Homarus americanus*. Gulf of Maine Foundation Symposium. Damariscotta, ME. August 1-2, 2000.

Student Presentations

1. Strobel, SM* and **Mooney, TA**. Sand lance detection of low frequency tones and humpback whale megapclicks. 19th Biennial Conference on the Biology of Marine Mammals. Tampa, FL. November 27-December 2, 2011.
2. Kaplan, M* and **Mooney, TA**. My talk will be titled Impact of elevated CO2 conditions on paralarval longfin squid (*Loligo pealeii*) development and early life. WHOI Biology Department Summer Student Seminar. Woods Hole, MA. August 11, 2011.
3. Sharr, A* and **Mooney, TA**. Aminoglycoside-induced hair cell damage in the statocyst of squid (*Loligo pealeii*). MBL Undergraduate Research Symposium. Woods Hole, MA. August 18, 2011.
4. Streets, A* and **Mooney, TA**. Squid behavioral reactions to low frequency sound. MBL Undergraduate Research Symposium. Woods Hole, MA. August 18, 2011.

*denotes mentored undergraduate student; **graduate student

Undergraduate Mentoring

2010-present **Research Mentor for Undergraduates**, **WHOI.** Mentored four visiting summer students Projects on the neuroanatomy of squid, sand lance hearing, and climate impacts on squid

2002-2008 **Research Mentor for Undergraduates, Dept. of Zoology, University of Hawaii** Mentoring of six undergraduate students in the design of short research experiments, collecting and analyzing data, interpreting results and preparation of a short paper/presentation.

Teaching: Invited Lectures

2011 *WHOI* Summer Fellow Lecture Series: Hearing in marine mammals
2011 *WHOI* Animal Behavior course: "Reef Bioacoustics"
2010 *SUNY, College of Environmental Science & Forestry*: "Squid hearing"
2010 *Tufts Veterinary School*: lecture on "Cephalopod auditory anatomy"
2009 *Harvard University*'s: "Marine Biology the Deep Ocean" course
2009 *WHOI* Marine Mammal Science course: "Hearing and Sensory Ecology"
2008-2010 *Woods Hole Summer Science School* (for 10-12 yr olds) "Marine Mammal Biology"
2007 *Univ. of Hawaii* - Zoology Dept. Marine Bioacoustics Course (5 lectures) (Included beginner MatLab and Intro to Marine Acoustics)
2007 *Univ. of Hawaii* - Marine Options Program Marine Biology Summer Course (3 lectures)
2007 *Univ. of Hawaii* - Marine Mammal Biology Class (2 lectures)
2004-2006 *Univ. of Hawaii* - Zoology Dept: "Marine Mammal Hearing and Effects of Sonar"
2003 *Eckerd College*: "BioSonar Capabilities of Marine Mammals"

Teaching: Full Courses/Labs

2003 **Graduate Teaching Assistant, Department of Zoology, University of Hawaii** Taught senior/graduate level *Developmental Biology* Lab.

2002 **Graduate Teaching Assistant, Biology Program, University of Hawaii**

Taught upper level *Ecology and Evolution* lab. Wrote and graded quizzes and homework and designed course work. *Rating above course and department average*

1999 **Undergraduate Teaching Assistant, Department of Biology, UNH**
Assisted graduate TA in teaching second semester "*Introductory Biology*"

1998 **Undergraduate Teaching Assistant, Department of Physics, UNH**
Aided graduate TA in teaching second semester "*Introductory Physics*"

Field Experience

Chief Scientist, DTAGging Hawaiian false killer and melon-headed whales 2010
Acoustic behavior, baseline ecology and habitat use of odontocete species of concern

Scientist, Hearing of the Chinese Yangtze River porpoise 2010
Audiogram, auditory temporal process and comparative auditory anatomy of wild-caught porpoises

Scientist, Hawaiian humpback whale bioacoustic behavior 2004-2008
Localization, movement and behavior measured via towed hydrophone array and D-Tags

Scientist, Icelandic Research Cruises 2006-2007
Capture, study and release of wild white-beaked dolphins and minke whales.

Scientist, Polar Bear Hearing Expedition, Kolmården, Sweden 2005
Study of polar bear hearing range and sensitivity.

Scientist, SPLASH (Structure of Population, Levels of Abundance, and Status of Humpbacks) 2004-2006
NOAA's Oahu contractor to biopsy and photo-identify North Pac. humpback whales.

Visiting Scientist, Dept. of Fisheries and Oceans, **University of the Azores, Portugal** Summer 2004
Survey of soniferous fishes and efficacy of using acoustics to monitor MPAs

Visiting Researcher, Friday Harbor Laboratories, Univ. of Washington Summer 2003
Marine Bioacoustics Workshop – Investigated acoustic reflectivity of salmon using SIMRAD echosounders and EchoView.

Research Assistant, **Bigelow Laboratories and Darling Marine Center** 2000
University of Maine at Orono
Lobster population study in the Gulf of Maine; tagging, movements, predation work.

Laboratory Technician, Walker Lab 1997-2000
University of New Hampshire
Aquaculture of the green sea urchin and leukemia study in the soft shell clam.

Data Consultation

2010 Report contributor: Marine Mammals and Sound Workshop. Report to the National Ocean Council Ocean Science and Technology Interagency Policy Committee. July 13th and 14th, 2010

2010 Data applied to NMFS Proposed Regulations: "Taking of Marine Mammals Incidental to Specified Activities," Federal Register: June 8, 2010 (Vol. 75, No. 109)

2010 Data applied to Fish and Wildlife Service Proposed Regulations: "Proposed Rules for Safe and Nonlethal Deterrents to Polar Bears," Federal Register: April 26, 2010 (Vol. 75, No.79)

Awards Received

Nominated to Corporation of Marine Biological Laboratory – Woods Hole, MA 2009
Grass Foundation Fellowship – Marine Biological Lab, Woods Hole, MA 2008
AAAS Excellence in Science Program – Nominated by UH Zoology Dept. 2007-2008
Best Background Noise – Albert Tester Memorial Symposium, Univ. of Hawaii 2006
Best Student Paper Presentation – Acoustical Society of American Conference 2006
Honorable Mention – National Science Foundation, Graduate Fellowship 2003
Outstanding Teaching Assistant – University of Hawaii, Biology Program 2001

University Honors Program – University of New Hampshire 1996-2000
Dean Scholarship – University of New Hampshire 1996-2000
Golden Key National Honor Society 2000
Phi Kappa Phi National Honor Society 1999-2003

Outreach – Media

Featured or interviewed in Sonar/Marine mammal related articles in the: *Nature, Science, The New York Times, The Times (London), Christian Science Monitor, The Telegraph (London), Agence France-Presse (AFP-Paris), New Scientist, Discover Online, Acoustic Ecology Institute* and others

Featured or interviewed in squid related TV programs including: the *BBC* and *National Geographic's 'Inside Nature's Giants'*, and Canada's *Daily Planet*

MBL LabBits, "What Do Squid Hear?" by Joseph Caputo – July 23, 2008
http://www.mbl.edu/news/press_releases/2008_pr_07_23.html#Anchor-What-49575

Le Monde, Paris, France. "Les mammiferes marins menaces par la pollution sonore humaine" (Threats to marine mammals by human sound pollution) by Pierre Le Hir - July 4, 2008

Science Metropolis, "Do you hear what squid hear" by Joseph Caputo – June 24, 2008
http://www.sciencemetropolis.com/2008/06/24/at-mbl-do-you-hear-what-squid-hear/*Discover Magazine*.

"How to Weave a Dolphin-Friendly Net" by Kathy A. Svitil - March 4, 2005
http://discovermagazine.com/2005/mar/dolphin-friendly-net0304

Professional Service

Research Advisory Team: National Marine Mammals and Sound: Science and Application Workshop 2010

Reviewer for journals: Animal Behavior, Biology Letters, PlosONE, ICES Journal of Marine Science, Journal of the Acoustical Society of America, Aquatic Mammals, Marine Mammal Science, Naturwissenschaften, and Journal of Experimental Biology.

Review for Conference abstracts: Animal Biosonar, Kyoto Japan, 2009; Biennial Conference of the International Society for Marine Mammalogy, 2009, 2011.

Representative: Society for Marine Mammalogy – President, Hawaii Student Chapter 2004-2007
UH Zoology Dept. Student Representative 2002-2003
WHOI Postdoctoral Association Committee 2010
WHOI Education Committee 2010

Active Member: Society for Marine Mammalogy, Acoustical Society of America, Association for Research in Otolaryngology