

## **SUE E. MOORE**

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### **SYNOPSIS**

I hold a BA in Biology from the University of California, San Diego, a MS in Biology from San Diego State University, and a PhD in Biological Oceanography from Scripps Institution of Oceanography. I have served as Director, and as Cetacean Program Leader at the NOAA Alaska Fisheries Science Center (AFSC) National Marine Mammal Laboratory. From 2004-2008, I was a Visiting Scholar on detail to the Applied Physics Laboratory at the University of Washington (APL/UW) to develop, support and coordinate passive acoustic and Arctic-related research programs. In 2008, I returned to NOAA/Fisheries as a Research Scientist in the Office of Science & Technology, providing leadership in both Arctic and underwater acoustic science. I retain a strong affiliation with the UW, as an Affiliate Professor in the Department of Biology and the School of Aquatic and Fishery Sciences.

Recent work includes my role as Lead Investigator on the ‘Synthesis of Arctic Research (SOAR) program, supported by a BOEM-NOAA interagency agreement. I Chair the Collaboration Team for the Distributed Biological Observatory (DBO), contributing to the work of the Interagency Arctic Research Policy Committee (IARPC). In addition, I serve as a marine science advisor on a number of science panels including: the US Marine Mammal Commission Committee of Science Advisors; North Slope Borough-Shell Baselines Studies Committee; International Whaling Commission Scientific Committee and the IUCN Cetacean Specialists Group.

### **RESEARCH FOCUS**

My research focus is Arctic marine ecology, impacts of climate change on polar ecosystems and marine mammal bioacoustics. I have conducted research on whales in the Alaskan Arctic since 1981. Current investigations include determining the effects of climate change on the feeding ecology of bowhead and gray whales, and creating mitigation scenarios to guard Arctic whales, walrus and seals from negative impacts associated commercial shipping and offshore oil and gas development. At the APL/UW, my work focused on the development of passive acoustic tools (autonomous seagliders and recorders) for use in ocean observing systems. My overarching goal in all these endeavors is to contribute scientific leadership and coordination to multi-disciplinary marine research programs.

### **EDUCATION**

- 1997 Scripps Institution of Oceanography, Ph.D. Biological Oceanography
- 1979 San Diego State University, M.S. Biology (Behavioral Ecology)
- 1976 University of California, San Diego, B.A. Biology (Mammalian Physiology)

## PROFESSIONAL HISTORY

- 2012-present Senior Scientist, NOAA/Fisheries – Office of Science & Technology  
2008-2012 Research Scientist, NOAA/Fisheries – Office of Science & Technology
- 2006-present Affiliate Professor, University of Washington (Biology & SAFS)  
2004-2008 Principal Oceanographer/Visiting Scholar, *on detail* from NOAA/AFSC to APL-UW
- 2002-2004 Director, NOAA/National Marine Mammal Laboratory (NMML)  
1998-2002 Program Leader, NMML Cetacean Assessment & Ecology
- 1988-1998 Principal Investigator & Senior Scientist  
Science Applications International Corporation (SAIC -*via* contract)  
Arctic Whale Surveys and Assessment (MMS/DoI<sup>1</sup>)  
Cetacean Acoustic Monitoring and Mitigation (US Navy/DoD)  
Cetacean Acoustic Detection and Assessment (NOAA/SWFSC)
- 1978-1988 Program Manager & Field Team Leader  
SEACO, Incorporated (SEACO -*via* contract)  
Arctic Whale Surveys and Assessment (MMS/DoI)  
Cetacean Acoustics and Husbandry (US Navy/DoD)

## AWARDS and RESEARCH GRANTS

- 2015 NOAA Gold Medal Award, as member of the NMFS-OAR Bering Sea Research Team  
2011 BOEM-NOAA Inter-Agency Agreement to support Arctic Synthesis (\$1.8M)  
2009 Minerals Management Service, COMIDA grant to NOAA/PMEL  
2008 Navy Environmental Office (N45); annual funding for IPA to APL/UW (from 2004)  
2007 North Pacific Research Board (NPRB): Co-Investigator on Oceanographic Correlates of the Occurrence of Endangered Whales in the Bering Sea  
2006 Antarctica Service Medal of the United State of America, National Science Foundation  
2005 United States Department of Commerce, Bronze Medal (Group Award)  
*For developing and implementing novel research methods for monitoring the abundance, trends, distribution and movements of beluga whales.*  
2004 NPRB Research Grant: Co-Investigator on Using Autonomous Hydrophones to Monitor Large Whales in the Bering Sea  
2003 National Science Foundation (NSF) Research Grant: Collaborator on SNACS/Bowhead Whales @ Barrow, AK  
2001 NSF Incubation Activity Grant: Co-PI on Biocomplexity in the Alaskan Arctic  
1999 NSF Research Grant: Co-PI on Antarctic-GLOBEC Mysticete Whale Acoustics  
1998 SAIC – Outstanding Senior Scientist, SPAWAR Bio-Acoustic Program  
1995 Hawaii Mariners Associations – Graduate Student Award for Conservation of Pacific Cetaceans: Administered through Scripps Institution of Oceanography  
1989 SAIC – Outstanding Senior Scientist, Alaskan Arctic Field Program

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<sup>1</sup> Minerals Management Service (MMS)/US Department of Interior (DoI); US Department of Defense (DoD)

## **PROFESSIONAL AFFILIATIONS and SERVICE**

### **a. Professional Societies**

Society for Marine Mammalogy (Charter Member)  
Ecological Society of America  
Acoustical Society of America  
Society for Conservation Biology  
American Geophysical Union  
Association for Women in Science

### **b. Advisory Service**

#### ***International Whaling Commission, Scientific Committee (IWC)***

2014 Arctic/Anthropogenic Impacts Workshop  
2008-2012 Chair, Environmental Concerns Subcommittee  
2007 Science Steering Committee, 'Disease Workshop' Pre-Meeting  
2006 Science Steering Committee, 'Seismic Workshop' Pre-Meeting  
2005 Co-Chair and Coordinator, Sea Ice Symposium Pre-Meeting  
2004 Coordinator, Environmental Concerns Standing Group – Acoustic Focus  
1999-present Member of the US Delegation  
Chair of Environmental Concerns (2008-2012)  
Co-Chair IWC/Antarctic Collaboration (2000-2005)  
1996 Invited Scientist: IWC Climate Change Symposium  
1987-91 Invited Scientist: IWC SC Annual Meeting

#### ***U.S. National Science Foundation***

2012-present Co-Investigator: Arctic Observing Network/DBO (Grebmeier & Cooper, co PIs)  
2007-12 SEARCH Science Steering Committee  
2005-08 Science Advisory Committee: Barrow Arctic Science Consortium.  
2004-07 Co-Investigator: Study of North Alaskan Coastal Systems (SNACS).  
2003-05 Advisory Committee Member: Arctic Systems Science (ARCSS), Shelf-Basin Interaction (SBI) Program.  
2000-03 Co-Investigator: Southern-GLOBEC Antarctic Mysticete Whale Project.  
2001-02 Collaborator: Western Whaling Project/Gambell Whalers Interviews.  
2000-01 Co-Investigator: Arctic Biocomplexity - Workshop Grant (IA).  
1999-03 Science Steering Committee Member: ARCSS/SBI Program.  
1999 Invited Scientist: ARCSS/Study of Environmental Arctic Change Workshop.

#### ***U.S. Marine Mammal Commission***

2004-present Member, Committee of Scientific Advisors  
2004-07 Co-PI – *Assessing the Impacts of Climate Change on Arctic Marine Mammals*  
2003 Invited Specialist - *Consultation on Future Directions in Marine Mammal Research*  
2000 Invited Specialist - *Impacts of Changes in Sea Ice and other Environmental Parameters in the Arctic*

### **c. Membership on Panels**

#### ***International Committees for Arctic Research Planning***

2011-present Pacific Arctic Group (PAG) – advising on DBO/mammal activities

2008-10 SCAR/IASC Bi-Polar Action Group – advising on IPY legacy  
 2006-08 Arctic Marine Shipping Assessment Steering Group, Arctic Council  
 2004-05 ICARPII -WG5 & 6: Pan-Arctic Conference, November 2005  
 2004-05 IUCN Independent Scientific Review Panel for Western Gray Whales  
 2002-05 International Arctic Polynya Program - Science Coordinating Group

***Service on Science Panels – Alaska Focus***

2012-present Chair, Interagency Arctic Research Policy Committee/DBO CT  
 2011-present North Slope Borough/Shell Baseline Studies Program  
 2006-12 North Slope Science Initiative Science Technical Advisory Panel  
 2004-08 Barrow Arctic Science Consortium, Science Advisory Group  
 2003-05 Member Science Advisory Committee, Alaska Sea Life Center  
 2000-04 Invited Panelist: ARCUS *Arctic Forum*, Annual Meeting in Washington DC

***Service on Science Panels – Acoustic Focus***

2006-present Steering Committee: NOAA Passive Acoustics Ocean Observing program  
 2005 NEPTUNE Feasibility Workshop, University of Washington  
 2005 NSF/Barrow Cabled Observatory Workshop: Acoustic Monitoring Plan  
 2005 U.S. Navy/N45: Marine Mammals on Navy Training Ranges Workshop  
 2005 ORION Request for Assistance, Letter of Intent: Fisheries and Marine Mammals  
 2004 NOAA Workshop on Anthropogenic Sound and Marine Mammals  
 2003 NEPTUNE Science Planning Workshop: Regional Cabled Observatory  
 2002 NOAA Workshop on Future Directions for Acoustic Marine Mammal Surveys  
 2001 NOAA PR-Navy-MMS: Marine Mammals & Noise – Research and Mitigation  
 1992-98 U.S. Navy/N45: various panels and workshops on mitigation of the effects of underwater noise from military exercises and ship shock trials in the North Pacific  
 1982-91 U.S. Minerals Management Service: various panels, workshops and Information Transfer Meetings

**d. Teaching and Mentoring**

***Affiliate Professor, University of Washington***

2006-present Department of Biology, College of Arts and Sciences  
 School of Aquatic and Fishery Sciences (SAFS)

***National Research Council Associates Program, National Academies***

2003-2008 Advisor, post-doctoral positions at NOAA/AFSC

***Associate Research Scientist, Scripps Institution of Oceanography***

1999-2005 Marine Physical Laboratory: Co-PI, Southern-Ocean GLOBEC Project

***Graduate Student Committees***

Donna Hauser: University of Washington/SAFS – PhD  
 Heather Smith: University of Washington/SAFS Ph.D. (2009)  
 Julie Mocklin: University of Washington/Forestry M.S. (2009)  
 Carole Durussel: University of Oldenburg (Germany) - M.S. (2009)  
 Lisa Munger: Scripps Institution of Oceanography – Ph.D. (2007)  
 Anna-Christina Cucknell: University of Wales, Bangor - M.S. (2007)  
 Ana Sirovic: Scripps Institution of Oceanography – Ph.D. (2006)

Erin Oleson: Scripps Institution of Oceanography – Ph.D. (2005)  
Dan Vos: University of Alaska-Anchorage/Biology - M.S. (2004)  
Sonya Meier: University of Victoria/Biology - M.S. (2003)  
Lori Mazzuca: University of Washington/School Marine Affairs - M.S. (2002)  
Kathleen Stafford: Oregon State University - Ph.D. (2001)

### ***Courses Taught***

1988-90 UCSD, Extension Program: *Marine Biology* (1 quarter/year)  
1979-81 San Diego City College: *Oceanography & Marine Biology* (3 quarters/year)  
1977-79 San Diego State University: *Introductory Biology* (2 semesters/year)

### **PUBLICATIONS**

**Peer-reviewed publications (reverse chronological order; 1<sup>st</sup> authored papers appear first)**

#### **2012-2016 (2x)**

- Moore, S.E.** in review. Is it ‘boom times’ for baleen whales in the Pacific Arctic region?  
*Biology Letters*.
- Moore, S.E.**, P.J. Stabeno, J.M. Grebmeier, S. Okkonen. in prep. The Arctic Marine Pulses (AMP) Model: linking temporal processes to contiguous ecological domains in the Pacific Arctic. *Deep-Sea Research II*.
- Fernandez, L., B. Kaiser, **S.E. Moore**, N. Vestergaard. in review. Introduction to Special Issue: Arctic Marine resource Governance. *Marine Policy*
- Guy, L.S., **S.E. Moore**, P.J. Stabeno. 2016. A holistic look at the New Normal Pacific Arctic. *Eos*: in press
- Hatch, L.T., C. M. Wahle, J. Gedamke, J. Harrison, B. Laws, **S. E. Moore**, A. Smith, J. Stadler and S. M. Van Parijs. 2016. Can you hear me here: managing acoustic habitat in U.S. waters. *Endangered Species Research*: in press.
- Hauser, D.D.W, K.L. Laidre, H. Stern, R.S. Suydam, **S.E. Moore**. in prep. Behavioral ecology of Pacific Arctic beluga whales, *Delphinapterus leucas*.
- Moore, S.E.** and P.J. Stabeno. 2015. Synthesis of Arctic research (SOAR) in marine ecosystems of the Pacific Arctic. *Progress in Oceanography* 136: 1-11.
- Laidre, K.L., H. Stern, K.M. Kovacs, L. Lowry, **S.E. Moore** + 10 co-authors. 2015. Arctic marine mammal population status, sea ice habitat loss and conservation recommendations for the 21<sup>st</sup> century. *Conservation Biology* 29(3): 724-737.
- Mikhalevsky, P.N., H. Sagen, P.F. Worcester, A.B. Baggoeroer, **S.E. Moore** + 15 co-authors. 2015. Multipurpose acoustic networks in the integrated Arctic Ocean Observing System. *Arctic* 68, Supplement 1: published online, 17p.
- Wassman, P., K.N. Kosobokova, D. Slagstad, K.F. Drinkwater, R.R. Hopcroft, **S.E. Moore**, I. Ellingsen, R.J. Nelson, E. Carmack, E. Popova and J. Berge. 2015. The contiguous domains of Arctic Ocean advection: trails of life and death. *Progress in Oceanography*: 42-65.
- Zerbini, A.N., N. Friday, D.M. Palacios, J.M. Waite, P.H. Ressler, B.K. Rone, **S.E. Moore** and

- P.J. Clapham. 2015. Baleen whale abundance, density and distribution in relation to environmental variables and potential prey density in the Eastern Bering Sea. *Deep Sea Research II*: 237-249.
- Moore, S.E.** and F.M.D. Gulland. 2014. Linking marine mammal health and ecology in the 'New Normal' Arctic. *Ocean and Coastal Management* 102: 55-57.
- Moore, S.E.**, E. Logerwell, L. Eisner, E. Farley, L. Harwood, K Kuletz, J. Lovvorn, J. Murphy and L. Quakenbush. 2014. Marine fishes, birds and mammals as sentinels of ecosystem variability and reorganization in the Pacific Arctic region. pp 337-392 In *The Pacific Arctic Region: Ecosystem Status and Trends in a Rapidly Changing Environment*. J. Grebmeier and W. Maslowski (eds) Springer, Dordrecht.
- Bhatt, U.S., D.A. Walker, J.E. Walsh, E. Carmack, K.E. Frey, W. Meier, **S.E. Moore**, F.J.W. Parmentier, E. Post, V. Romanovksy and W. Simpson. 2014. Implications of Arctic sea ice decline for the Earth system. *Annual Review of Environment & Resources*. 39: 57-89.
- Clarke, J., K. Stafford, **S.E. Moore**, B. Rone, L. Aerts and J. Crance. 2013. Subarctic cetaceans in the Southern Chukchi Sea: evidence of recovery or response to a changing ecosystem. *Oceanography* 26(4): 136-149.
- Friday, N.A., A.N. Zerbini, J.M. Waite, **S.E. Moore** and P.J. Clapham. 2013. Cetacean distribution and abundance in relation to oceanographic domains on the eastern Bering Sea shelf in June and July of 2002, 2008 and 2010. *Deep-Sea Research II* 65-70: 260-272.
- Moore, S.E.**, R.R. Reeves, B.L. Southall, T.J. Ragen, R.S. Suydam and C.W. Clark. 2012. Marine mammals and anthropogenic sound in a rapidly changing Arctic. *BioScience* 62(3): 289-295.
- Moore, S.E.**, K.M. Stafford, H. Melling, C. Berchok, Ø. Wiig, K.M. Kovacs, C. Lydersen and J.Richter-Menge. 2012. Comparing marine mammal acoustic habitats in Atlantic and Pacific sectors of the High Arctic: year-long records from Fram Strait and the Chukchi Plateau. *Polar Biology* 35: 475-480.
- Guy, L.S., **S.E. Moore**, P.J. Stabeno. 2012. Marine Ecosystem Synthesis: from physics to whales in the Pacific Arctic. *EOS* 93(4): 501.
- Friday, N.A., J.M. Waite, A.N. Zerbini, and **S.E. Moore**. 2012. Cetacean distribution and abundance in relation to oceanographic domains on the eastern Bering Sea shelf: 1999 to 2004. *Deep-Sea Research II* 65-70: 260-272.
- Mocklin, J.A., D.J. Rugh, **S.E. Moore**, and R.P. Angliss. 2012. Using aerial photography to investigate evidence of feeding by bowhead whales. *Marine Mammal Science* 28(3): 602-619.
- Nieukirk, S.L., D.K. Mellinger, **S.E. Moore**, H. Klinck, R.P. Dziak and J. Goslin. 2012. Sounds from airguns and fin whales recorded in the mid-Atlantic Ocean. *Journal Acoustical Society of America* 131(2): 1102-1112.
- Stabeno, P.J., N. Kachel, **S.E. Moore**, J. M. Napp, J.E. M. Sigler and A.N. Zerbini. 2012. Comparison of warm and cold years on the southeastern Bering Sea shelf. *Deep-Sea Research II* 65-70: 31-45.
- Stabeno, P.J., E. Farley, N. Kachel, **S.E. Moore**, C. Mordy, J.M. Napp, J.E. Overland, A.I. Pinchuk and M. Sigler. 2012. A comparison of physics, chemistry and biology of the northeastern and southeastern Bering Sea shelf. *Deep-Sea Research II* 65-70: 14-30.
- Stafford, K.M., **S.E. Moore**, C.L. Berchok, O Wiig, C. Lydersen, E. Hansen, D. Kalmbach,

K.M. Kovacs. 2012. Sptsbergen's endangered bowhead whales sing through the polar night. *Endangered Species Research* 18: 95-103.

Walkusz, W., W J. Williams, L. Harwood, **S.E. Moore**, B. Stewart, S. Kwasniewski. 2012. Composition, biomass and energetic content of biota in the vicinity of feeding bowhead whales (*Balaena mysticetus*) in Cape Bathurst upwelling region (south eastern Beaufort sea). *Deep-Sea Research I* 69: 25-35.

### 2007-2011 (27)

Okkonen, S., C.A. Ashjian, R. Campbell, J.T. Clarke, **S.E. Moore**, K.D. Taylor. 2011. Satellite observations of circulation features associated with bowhead whale feeding hotspot near Barrow, Alaska. *Remote Sensing of the Environment* 115: 2168-2174.

Streever, B...**S.E. Moore** (w/ 25 co-authors). 2011. Environmental change and potential impacts: applied research priorities for Alaska's North Slope. *Arctic* 64 (3): 390-398.

**Moore, S.E.** 2010. Whales facing climate change in the Pacific Arctic. *Whalewatcher* 39(2):7-11.

**Moore, S.E.**, J.C. George, G. Sheffield, J. Bacon, C.J. Ashjian. 2010. Bowhead whale distribution and feeding near Barrow, Alaska in late summer 2005-06. *Arctic* 63(2): 195-205

**Moore, S.E.**, K.M. Stafford and L.M. Munger. 2010. Acoustic and visual surveys for bowhead whales in the western Beaufort and far northeastern Chukchi seas. *Deep Sea Research II*, 57: 153-157.

Ashjian, C.J., S.R. Braund, R.G. Campbell, J.C. George, J. Kruse, W. Maslowski, **S.E. Moore**, C.R. Nicolson, S.R. Okkonen, B.F. Sherr, E.B. Sherr and Y. Spitz. 2010. Climate variability, oceanography, bowhead whale distribution and Inupiat subsistence whaling near Barrow, Alaska. *Arctic* 63(2): 179-194.

Dushaw et al. [38 co-authors, including **S.E. Moore**]. 2010. A global ocean acoustic observing network. In J. Hall, DE Harrison and D. Stammer (eds) *Proceedings of OceanObs'09: sustained ocean observations and information for society*. Vol. 2 ESA Pub WPP-306.

Grebmeier, J.M., **S.E. Moore**, J.E. Overland, K.E. Frey and R. Gradinger. 2010. Biological response to recent Pacific Arctic sea ice retreats. *EOS* 91(18): 161-162.

Kovacs, K.M., C. Lydersen, J.E. Overland and **S.E. Moore**. 2010. Impacts of changing sea ice conditions on Arctic Marine Mammals. *Marine Biodiversity*: 51-65.

Nystuen, J.A., **S.E. Moore** and P.J. Stabeno. 2010. A sound budget for the southeastern Bering Sea: measuring wind, rainfall, shipping and other sources of underwater sound. *Journal of the Acoustical Society of America*: 58-65.

Stafford, K.M., **S.E. Moore**, P.J. Stabeno, D.V. Holliday, J.M. Napp and D.K. Mellinger. 2010. Biophysical Ocean Observation in the Southeastern Bering Sea. *Geophysical Research Letters*, 37, L02606.

Boersma, P.D., G. A. Rebstock, E. Frere, and **S. E. Moore**. 2009. Following the fish: penguins and productivity in the South Atlantic. *Ecological Monographs* 79(1): 59-76.

Stafford, K.M., J.J. Citta, **S.E. Moore**, M.A. Daher, J.E. George, D. Rodriguez and K. Amaral. 2009. Environmental correlates of blue and fin whale call detections in the North Pacific Ocean 1997-2002. *Marine Ecology Progress Series* 395: 37-53.

**Moore, S.E.** 2008. Marine mammals as ecosystem sentinels. *Journal of Mammalogy* 89(3):534-540.

**Moore, S.E.** 2008. Climate Change. pp 238-241 *In The Encyclopedia of Marine Mammals*, 2<sup>nd</sup>

- Edition, W. Perrin, B. Würsig and J.G.M. Thewissen (eds.), Academic Press, San Diego, CA.
- Moore, S.E.** and H.P. Huntington. 2008. Arctic marine mammals and climate change: impacts and resilience. *Ecological Applications* 18(2): S157-S165.
- Moore, S.E.**, B.M. Howe, K.M. Stafford, M.L. Boyd. 2008. Including whale call detection in standard ocean measurements: application of acoustic seaglidars. *Marine Technical Society Journal* 41(4) 49-57.
- Berline, L., Y.H. Spitz, C.J. Ashjian, R.G. Campbell, W. Maslowski and **S.E. Moore**. 2008. Euphausiid transport in the Western Arctic Ocean. *Marine Ecology Progress Series* 360: 163-178.
- Huntington H.P. and **S.E. Moore**. 2008. Arctic Marine Mammals and Climate Change: Introduction to the Special Volume. *Ecological Applications* 18(2): S1-2.
- Macklin, S.A., J. Schumacher, **S.E. Moore** and S. Smith. 2008. Sustaining the marine ecosystem of the Pribilof domain, Editorial. *Deep-Sea Research II* 55: 1698-1700.
- Munger, L.M., S.M. Wiggins, **S.E. Moore**, J.A. Hildebrand. 2008. North Pacific right whale (*Eubalaena japonica*) seasonal and diel calling patterns from long-term acoustic recordings in the southeastern Bering Sea, 2000-2006. *Marine Mammal Science* 24(4): 795-814.
- Stafford, K.M., **S.E. Moore**, K.L. Laidre and M.P. Heide-Jorgensen. 2008. Bowhead whale springtime song off West Greenland. *Journal of the Acoustical Society of America*. 124(5): 3315-3323.
- Moore, S.E.** and R.C. Lien. 2007. Pilot whales follow internal solitary waves in the South China Sea. *Marine Mammal Science*. 23(1): 193-196.
- Moore, S.E.**, K.M. Wynne, J.C. Kinney and J.M. Grebmeier. 2007. Gray whale occurrence and forage southeast of Kodiak, Island, Alaska. *Marine Mammal Science*. 23(2): 419-428.
- Mellinger, D.K., K.M. Stafford, **S.E. Moore**, R.P. Dziak and H. Matsumoto. 2007. An overview of fixed passive acoustic observation methods for cetaceans. *Oceanography* 20(4): 36-45.
- Stafford, K.M., D.K Mellinger, **S.E. Moore** and C.G. Fox. 2007. Seasonal variability and detection range modeling of baleen whale calls in the Gulf of Alaska, 1999-2002. *Journal of the Acoustical Society of America* 122(6): 3378-3390.
- Stafford, K.M., **S.E. Moore**, M. Spillane and S. Wiggins. 2007. Gray whale calls recorded near Barrow, Alaska, throughout the winter of 2003-04. *Arctic* 60(2): 167-172.

#### **2006-2002 (25)**

- Moore, S.E.** and K.L. Laidre. 2006. Trends in sea ice cover within habitats used by bowhead whales in the western Arctic. *Ecological Applications*: 16(3): 932-944.
- Moore, S.E.**, K.M. Stafford, D. Mellinger, J.A. Hildebrand. 2006. Listening for large whales in offshore waters of Alaska, 1999-2004. *BioScience* 56(1): 49-55.
- Cox et al. [**S.Moore** = 25 of 36 authors]. 2006. Understanding the impacts of anthropogenic sound on beaked whales. *Journal Cetacean Research and Management* 7: 177-187.
- Grebmeier, J.M., J.E. Overland, **S.E. Moore**, E.V. Farley, E.C. Carmack, L.W. Cooper, K.E. Frey, J.H. Helle, F.A McLoughlin, L. McNutt. 2006. A major ecosystem shift observed in the northern Bering Sea. *Science* 311: 1461-1464.
- Moore, S.E.** 2005. Long-term environmental change and marine mammals. pp. 137-147, In J.E.

- Reynolds, (eds.), Marine Mammal Research: Conservation Beyond Crisis. The Johns Hopkins University Press, Baltimore, Maryland.
- McDonald, M.A., J.A. Hildebrand, S.M. Wiggins, D. Thiele, D. Glasgow and **S.E. Moore**. 2005. Sei whale sounds recorded in the Antarctic. *J Acoust. Soc of America* 118(6): 3941-3945.
- Munger, L.M., D.K. Mellinger, S.M. Wiggins, **S.E. Moore** and J.A. Hildebrand. 2005. Performance of spectrogram cross-correlation in detecting right whale calls in long-term recordings from the Bering Sea. *Canadian Acoustics* 33(2): 25-34.
- Shelden, K.E.W., **S.E. Moore**, J.M. Waite, P.R. Wade and D.J. Rugh. 2005. Historic and current habitat use by North Pacific right whales *Eubalaena japonica* in the Bering Sea and Gulf of Alaska. *Mammal Review* 35(2): 129-155.
- Sinclair, E.H., **S.E. Moore**, N.A. Friday, T.K. Zeppelin and J.M. Waite. 2005. Do patterns of Steller sea lion (*Eumetopias jubatus*) diet, population trend, and cetacean occurrence reflect oceanographic domains from the Alaska Peninsula to the central Aleutian Islands. *Fisheries Oceanography* 14: 223-242.
- Stafford, K.M. and **S.E. Moore**. 2005. Atypical calling by a blue whale in the Gulf of Alaska. *Journal Acoustical Society of America* 117 (5): 2724-2727.
- Stafford, K.M., **S.E. Moore** and C.G. Fox. 2005. Diel variation in blue whale calls recorded in the Eastern Tropical Pacific. *Animal Behavior* 69: 951-958.
- Krahn, M. M., D.P. Herman, G.M. Ylitalo, C.A. Sloan, D.G. Burrows, R.C. Hobbs, B.A. Mahoney, G.K. Yanagida, J. Calambokidis and **S.E. Moore**. 2004. Blubber stratification in white whales and killer whales: variability in contaminant concentrations, fatty acid profiles, lipid percent and lipid class profiles that has implications for biopsy sampling. *Journal Cetacean Research and Management*. 6(2): 175-190.
- Mellinger, D.K., K.M. Stafford, **S.E. Moore**, L. Munger and C.G. Fox. 2004. Detection of North Pacific right whale (*Eubalaena japonica*) calls in the Gulf of Alaska. *Marine Mammal Science* 20: 872-879.
- Širović, A., J.A. Hildebrand, S.M. Wiggins, M.A. McDonald, **S.E. Moore** and D.Thiele. 2004. Seasonality of blue and fin whale calls and the influence of sea ice in the Western Antarctic Peninsula. *Deep Sea Research II*: 2327-2344.
- Stafford, K.M., D. Bohnenstiel, D.K. Mellinger and **S.E. Moore**. 2004. Antarctic-type blue whale calls recorded at low latitudes in two oceans. *Deep-Sea Research I*: 51(1):1337-1346.
- Thiele, D., E.T. Chester, **S.E. Moore**, A.S. Friedlaender, A. Širović, J.A. Hildebrand. 2004. Two years in Marguerite Bay: seasonal variability in whale encounters. *Deep-Sea Research II*: 2345-2361.
- Wiggins, S.M., M.A. McDonald, L.A. Munger, J.A. Hildebrand, **S.E. Moore**. 2004. Waveguide propagation allows range estimates for North Pacific right whales in the Bering Sea. *Canadian Acoustics* 32(2): 67-78.
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endangered whales in the Beaufort, Chukchi and northern Bering Seas. NOSC Technical Report 286.

## **PROFESSIONAL PRESENTATIONS (selected, since 2005)**

### **2016**

**Plenary Presentation** – The Arctic Marine Pulses Model (AMSS; January)

**Invited Presentation** – The Arctic Marine Pulses Model (Ocean Sciences Meeting; February)

**Invited Presentation** – Distributed Biological Observatory, Implementation Plan (AOS; March)

### **2015**

**Plenary Presentation** – SOAR Phase I & Phase II, Alaska Marine Science Symposium (AMSS)

**Invited Presentation** – Arctic Marine Resource Governance Workshop, Reykjavik, Iceland

**Plenary Presentation** – 21<sup>st</sup> Biennial Marine Mammal Society (December)

### **2014**

**Invited Presentation** *Marine Mammals and Oceanography in the 'New Normal' Pacific Arctic*, The Big Thaw Session, 2014 AAAS Annual Meeting (February)

**Key Note Presentation** *Marine Mammals in the 'New Normal' Arctic*, IWC Workshop on Impacts of Marine Activities on Cetaceans in the Arctic (March)

**Key Note Presentation** *Marine Mammals and Climate Change*, Annual Meeting of the U.S. Marine Mammal Commission (May)

### **2013**

**Plenary Presentation** *Synthesis of Arctic Research (SOAR): program update*, PacMars-SOAR Open Science meeting – Alaska Marine Science Symposium (January)

**Plenary Presentation** *Marine Mammals and Sea Ice Loss in the Pacific Arctic: Tracking Ecosystem Responses to the 'New Normal' – Linking Polar Observations, Processes and Models at Regional & Global Scales* -- Gordon Research Conference (March)

**Key Note Presentation** *Marine Mammals and Sea Ice Loss in the Pacific Arctic: Tracking Ecosystem Responses to the 'New Normal' – Response of Arctic Marine Ecosystems to Climate Change* – Wakefield Symposium (March)

**Invited Presentation** *Marine Mammals as Ecosystem Sentinels in the Pacific Arctic sector* – NOAA Arctic Science Days (May)

**Invited Presentation** *Marine Mammals and Climate Change in the Pacific Arctic: Impacts & Resilience*. Biodiversity Resilience Symposium, University of Oxford UK (October)

### **2012**

**Plenary Presentation** *Marine Mammals and Sea Ice Loss in the Pacific Arctic: tracking ecosystem responses to the New Normal* ; **Town Hall** *Introducing the Synthesis of Arctic Research (SOAR) project* Alaska Marine Science Symposium (January)

**Invited Presentation** *Biological Responses to the New Normal marine environment in the Pacific Arctic Region* – Marine Mammal Commission, Annual Meeting (January)

**Invited Presentation** *Two New Projects in the Pacific Arctic Region – the DBO and SOAR – NSSI STAP meeting* (February)

**Invited Presentation** *Marine Mammals and Sea Ice Loss in the Pacific Arctic: tracking ecosystem response to the New Normal*; **Poster Presentation** *Acoustic Monitoring of*

*Marine Life using a Fiber-optic Ocean Observing System +Town Hall Presentation  
Higher Trophics/Local Communities – Linking Fish, Seabirds and Marine Mammals to  
DBO Sampling AGU/ASLO Ocean Science Meeting (February)*

## **2011**

**Invited Symposia Presentation** *Marine mammals and sea ice loss in the Pacific Arctic: challenges and opportunities during a period of rapid climate change; 25<sup>th</sup> International Congress for Conservation Biology (December)*

**Invited Presentation** *Fish, Seabirds and Marine Mammal Observations during the 2010-2011 Pilot DBO project, IOS, Sidney BC (November)*

**Invited Plenary Presentation** *Science Partnerships in the Pacific arctic: the marine mammal nexus; 2<sup>nd</sup> International Marine Conservation Congress, Victoria BC Canada (May)*

**Invited Presentation** *Listening to marine mammals at basin to local scales; Acoustical Society of America, Ocean Observing Systems session: Acoustical Observations and Applications I (May)*

**Invited Presentation** *Marine fishes, birds and mammals as sentinels of ecosystem change in the Pacific Arctic: putting some backbone in the DBO; Arctic Science Summit Week (April)*

## **2010**

**Plenary Presentation** *Marine Mammals and Sea Ice Loss in the Pacific Arctic – Alaska Marine Science Symposium (January)*

*Marine Mammal in the Pacific Arctic with comparisons to Atlantic Arctic fauna - Arctic Council – SWIPA Workshop (February)*

**Invited Presentation** *Development of a Distributed Biological Observatory for the Pacific Arctic, State of the Arctic Conference (March)*

**Invited Presentation** *A Distributed Biological Observatory for the Pacific Arctic – a contribution to NOAA's Arctic Vision & Strategy; North Pacific Research Board Science Panel & AFSC speaker series (April)*

**Invited Presentation** *A Distributed Biological Observatory for the Pacific Arctic, part of NOAA's Arctic Vision & Strategy – North Pacific Research Board, Executive Board meeting (May)*

*Use of Passive Acoustic tools to detect marine mammals on Navy training ranges – NOAA-Navy Acoustics Workshop (July)*

*Partnerships in marine mammal research in the Alaskan Arctic, North Slope Science Initiative STAP meeting (September)*

*Development of a Distributed Biological Observatory for the Pacific Arctic – PICES Open-Science meeting (October)*

*Ecological and biologically important areas for marine mammals in the Pacific Arctic – IUCN EBSA & World Heritage Workshop (November)*

## **2009**

*Marine Mammals of the Pacific Arctic – a presentation to the Arctic Council, Marine Expert Monitoring Group, Workshop I, Tromso, Norway (January)*

*Acoustic Impacts of Anthropogenic Activities to Marine Mammal offshore Alaska – a presentation to the Chukchi Sea Acoustic Workshop, Anchorage, AK (February)*

*Marine Mammals as Ecosystem Sentinel in the Pacific Arctic; invited speaker, Gordon*

Research Conference on Polar Marine Science, Lucca Italy (March)  
*Marine Mammals in the Pacific Arctic – Impacts of Recent Sea Ice Loss*; Arctic Science Summit week, Bergen Norway (March)  
*Summary of Research Activities on Marine Mammals off the North Slope of Alaska* – an informal presentation to the North Slope Science Initiative Science Technical Panel, Fairbanks, AK (April)  
*Higher Trophics* – overview presentation at the Biological Response to Reduced Sea Ice in the Pacific Arctic Region Workshop, Seattle, WA (May)  
*Passive Acoustic Detection of Marine Mammals* – a presentation to the Bering Strait Observation Workshop, Eatonville, WA (May)  
*Workshop on Climate Change and Cetaceans* – overview presentation to the Ecological Concerns Standing Working Group of the IWC, Madeira, Portugal (June)  
*Marine Mammals as Ecosystem Sentinels in the Pacific Arctic* – oral presentation at the 18th Biennial Conference on the Biology of Marine Mammals (October)

## **2008**

*Marine Mammals and Anthropogenic Noise*, UW School of Marine Affairs: SMA 500 (OCT)  
*Marine Mammals: insight to climate change through surveys and song* UW Biology (October)  
*Climate Change and Anthropogenic Noise: potential impact to marine mammals in the Arctic*. Arctic Council, Arctic Marine Shipping Assessment workshop (September)  
*Potential impact of offshore human activities on gray whales*. IUCN Western Gray Whale Range-wide Workshop; Tokyo, Japan (September)  
*A goal for ocean-wide shipping noise reduction*. IWC Scientific Committee Meeting; Santiago, Chile (June)  
*Marine Mammals and Climate Change* – Invited Plenary Address, SOMEMMA (May)  
*Marine Mammals and Noise – Current Challenges*, Brief to NAVSEA Advisory Panel (April)  
*Passive acoustic surveys: AFSC research overview* OBIS-SEAMAP PAM Workshop (April)  
*Are gray whales and walrus responding to ‘tipping points’ in seasonal sea ice extent?* 2008 AGU Ocean Sciences Meeting (March)  
*Are Gray Whales Ecosystem Sentinels?* UW Alumni Group (February)

*Cetacean habitats and behavior offshore northwestern Alaska: comparisons across two decades*  
Alaska Marine Science Conference (January)

## **2007**

*Marine Mammals and Anthropogenic Noise*, UW School of Marine Affairs: SMA 500 (OCT)  
*Are Gray Whales Ecosystem Sentinels?* Public Symposia at the San Diego Museum of Natural History (August)  
*Marine Mammals and Noise*, Brief to the Assistant Secretary of the Navy, Installations and Environment (July)  
*Summary of Seismic Surveys in Alaska and Western Canada* IWC SC (May)  
*Overview of Arctic research and assessment activities* IWC (SC) (May)  
*Bowhead whale ‘SNACS’ near Barrow, Alaska: a study of environmental and anthropogenic variability*, Alaska Fisheries Science Center Symposium Series (March)  
*Listening for whales in offshore waters of Alaska*, Alaska Marine Science Conference (January)

## 2006

*Arctic Marine Mammals and Climate Change: Impacts and Resilience* UW Biology Seminar (November)

*Marine Mammals and IPY: Research Opportunities; and Arctic Marine Mammals as Sentinels & Icons* 4<sup>th</sup> Shelf Basin Exchange (SBE) Pan-Arctic Meeting, Sopot, Poland (October)

*Overview of planned seismic surveys offshore northern Alaska, July-October*

Presented to the North Slope Science Initiative, Science Technical Group (June).

*Impacts of Climate Change on Marine Mammal Habitats.* Presented to the American Society of Mammalogists (June).

*Bowhead whales in the Beaufort Sea.* Presented to the International Whaling

Commission, Scientific Committee Symposia on Seismic Surveys and Cetaceans (May).

*Five Years of Passive Acoustics @ AFSC: Listening for Large Whales offshore*

*Alaska.* Presented to the NOAA National Workshop on Passive Acoustics (April).

*SNACS: Bowhead Whale Surveys, 2005.* Presented to the NSF Arctic System Science (ARCSS) Synthesis Workshop (March).

*Acoustic Sampling: OE Survey and Long-Term Sampling.* Presented to NOAA Workshop II: Bowhead Whale Stock Structure Studies (March).

*Trends in sea ice cover in bowhead whale habitats.* American Geophysical Union, Open Science Meeting, Honolulu, Hawaii (February).

*Gray Whales as Sentinels of Alaskan Ecosystem Variability.* Alaska Marine Science Symposium, Anchorage, Alaska (January).

*Marine Mammals as Arctic Ecosystem Sentinels.* Presented to the US Arctic Research Commission, Seattle, Washington (January).

## 2005

*Trends in sea ice cover in bowhead whale habitats.* 16<sup>th</sup> Biennial Conference on the Biology of Marine Mammals, San Diego (December).

*Marine Mammals and Climate Change in the Western Arctic: Relevance to NOAA Climate & Ecosystem Goals.* Presented to the NOAA Climate Board, (September).

*Trends in Arctic Sea Ice: Relevance to Large Whale Habitats.* International Whaling Commission, Scientific Committee Joint Symposium on High Latitude Sea Ice Environments, Ulsan, Korea (May).

*Marine Mammal Habitats in the Western Arctic: Relevance to IPY, ICARPII, and AOOS Research Planning.* Arctic Science Summit Week, Pacific Arctic Group Workshop, Kunming China, (April).

*Intense Aggregations of Higher Trophics: Marine Mammals and Seabirds in Arctic Polynyas.* Arctic Science Summit Week, Polynya Symposium: From Sentinels to Circum-Arctic Expanses, Kunming, China (April).

*Marine Mammal Habitats in the Western Arctic.* NSF Shelf-Basin Interaction, PI Meeting, Monterey California (March).

*Marine Mammals and Seabirds at Arctic Margins and Gateways.* 2<sup>nd</sup> International Conference on Arctic Research Planning (ICARPII), Planning Meeting, Paris, France (February).