PETER HANS DAHL

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EDUCATIONAL HISTORY

Massachusetts Institute of Technology and Woods Hole Oceanographic Institution
Ph.D., Ocean Engineering, 1989

EMPLOYMENT HISTORY

Applied Physics Laboratory Appointment at University of Washington
Seattle, WA
Sr. Principal Engineer, 2012-present
Principal Engineer, 1999-2012
Senior Engineer, 1993-1999
Engineer IV, 1989-1993

Faculty Appointment at the University of Washington, Dept. of Mechanical Engineering
Professor, 2010- present
Associate Professor, 2008- 2010
Research Associate Professor, 1999 - 2008
Research Assistant Professor, 1993 - 1999

PROFESSIONAL SOCIETY ACTIVITY

- Fellow, Acoustical Society of America (ASA), 2001 and ASA Vice President 2013-2014

- Technical Co-Chair, *IEEE Oceans 2010 Meeting, Seattle*, September 20-23, 2010
- ASA Executive Council Member, 2008-2011
- Chair, ASA Technical Committee on Underwater Acoustics, 2003-2006
- Associate Editor, *IEEE J. Oceanic Engineering*, 1999-2004
- Member, Marine Technical Society

MAJOR FIELD EXPERIMENTS IN UNDERWATER SOUND

- Principal Investigator, underwater sound test of naval underwater explosives, off San Diego, May 2014
- Principal Investigator, Targets and Reverberation Experiment (TREX13), off Florida coast, April 2013
- Principal Investigator, underwater sound test of naval underwater explosives, off Virginia coast, September 2012

- Principal Investigator, Trans Acoustic Variability Experiment (TAVEX), off Korean coast, August 2008
- Principal Investigator, Shallow Water Acoustics Experiment (SW06), off New Jersey Coast, July 2006
- Chief U.S. Scientist, Asian Seas International Acoustics Experiment (ASIAEX) in the East China Sea, May-June 2001 (U.S., China and Korea)
- Principal Investigator in five major experiments between 1992-1999 conducted in Chinese, Korean and U.S. waters

PUBLICATIONS

Refereed archival journal publications

1. A. Soloway and P. H. Dahl, Peak sound pressure and sound exposure level from underwater explosions in shallow water**,** ***J. Acoust. Soc. Am.*, *Express Letters,*** *136 (3) 218-223, Sep. 2014.*
2. C. Bassett, J. Thomson, P. H. Dahl, and B. Polagye , Flow-noise and turbulence in two tidal channels**,** ***J. Acoust. Soc. Am.,*** 135, 1764-1771, May 2014.
3. P. H. Dahl, W. J. Plant and D.R. Dall'Osto, Vertical coherence and forward scattering from the sea surface and the relation to the directional wave spectrum**,** ***J. Acoust. Soc. Am.,*** 134 (3), 1843-1853, Sept. 2013.
4. D.R. Dall'Osto and P. H. Dahl, Elliptical acoustic particle motion in underwater waveguides, ***J. Acoust. Soc. Am.***, 134 (1), 109-118, July 2013.
5. P. H. Dahl and P. G. Reinhall, Beam forming of the underwater sound field from impact pile driving , ***J. Acoust. Soc. Am.*, *Express Letters,*** *134 (1) 1-6, July 2013.*
6. A. De Robertis, C. D. Wilson, S. R. Furnish, and P. H. Dahl, Underwater radiated noise measurements of a noise-reduced fisheries research vessel, ***ICES Journal of Marine Science***, doi:10.1093/icesjms/fss172, *Nov.* 2012.
7. G. K. Kapodistrias and P. H. Dahl, Scattering measurements from a dissolving bubble, ***J. Acoust. Soc. Am.***, 131 (6) 4243-4251, *Jun.* 2012.
8. D.R. Dall'Osto, P. H. Dahl, and J. W. Choi, Properties of the acoustic intensity vector field in a shallow water waveguide, ***J. Acoust. Soc. Am.***, 131 (3) 2023-2035, *Mar.* 2012.
9. P.G. Reinhall and P. H. Dahl, Underwater Mach wave radiation from impact pile driving: Theory and observation, ***J. Acoust. Soc. Am.***, 130(3) 1209-1216, *Sep. 2011.*
10. P. H. Dahl, Observations and modeling of angular compression and vertical spatial coherence in sea surface forward scattering, ***J. Acoust. Soc. Am.***, 127(1) 96-103, *Jan. 2010.*
11. P. H. Dahl, J. W. Choi, N. J. Williams, and H. G. Graber, Attenuation from near-surface bubbles, ***J. Acoust. Soc. Am.*, *Express Letters,*** *124 (3) 163-169, Sep. 2008.*
12. J. W. Choi, P. H. Dahl, and J. Goff, Observations of the R-reflector and sediment interface reflection at the Shallow Water 06 Central Site, ***J. Acoust. Soc. Am.*, *Express Letters,*** *124 (3) 128-134, Sep. 2008.*
13. Dajun Tang, F. S. Henyey, Z. Wang, K. L. Williams, D. Rouseff ,P. H. Dahl, J. Quijano, and J. W. Choi, Mid-frequency acoustic propagation in shallow water on the New Jersey shelf: Mean Intensity, ***J. Acoust. Soc. Am.*, *Express Letters,*** *124 (3) 85-90, Sep. 2008.*
14. Dajun Tang, F. S. Henyey, Z. Wang, K. L. Williams, D. Rouseff ,P. H. Dahl, J. Quijano, and J. W. Choi, Mid-frequency acoustic propagation in shallow water on the New Jersey shelf. II. Intensity fluctuation, ***J. Acoust. Soc. Am.*, *Express Letters,*** *124 (3) 91-96, Sep. 2008.*
15. J. W. Choi and P. H. Dahl, Spectral properties of the interference head wave, ***J. Acoust. Soc. Am.***, (6), 146-150, July 2007.
16. P. H. Dahl and J. W. Choi, Precursor arrivals in the Yellow Sea, their distinction from first-order head waves, and their geoacoustic inversion, ***J. Acoust. Soc. Am.***, 120 (6), 3525-3533, December 2006.

17. J. W. Choi and P. H. Dahl, First-order and zeroth-order head waves, their sequence, and implications for geoacoustic inversion, ***J. Acoust. Soc. Am***., 119 (6), 3660-3668, June 2006.
18. J. W. Choi and P. H. Dahl, Measurement and simulation of the channel intensity impulse response for a site in the East China Sea, ***J. Acoust. Soc. Am***., 119 (5), 2677-2685, May 2006.
19. P. H. Dahl and J. W. Choi, The East China Sea as an Underwater Acoustic Communication Channel: Measurements of the Channel Impulse Response, ***U. S. Navy J. Underwater Acoustics***, 56 (1), 141-154, Jan. 2006.
20. S. R. Ramp, C.S. Chiu, F. H. Bahr, Yiquan Qi, P. H. Dahl, J. H. Miller, J. F. Lynch, Renhe. Zhang, and Ji-Xun Zhou, The shelf-edge environment in the central East China Sea and its impact on low-frequency acoustic propagation, ***IEEE J. Oceanic Engineering***, Vol. 29, 1011-1031, Oct. 2004.
21. Gopu R. Potty, James H. Miller, P. H. Dahl, and Colin J. Lazauski, Geoacoustic inversion results from the ASIAEX East China Sea Experiment, ***IEEE J. Oceanic Engineering***, Vol. 29, 1000-1011, Oct. 2004.
22. J. W. Choi and P. H. Dahl, Mid to High Frequency Bottom Loss in the East China Sea, ***IEEE J. Oceanic Engineering***, Vol. 29, 980-987, Oct. 2004.
23. Zhaohui Peng, Ji-Xun Zhou, P. H. Dahl and Renhe Zhang, Seabed acoustic parameters from dispersion analysis and transmission loss in the East China Sea, ***IEEE J. Oceanic Engineering***, Vol. 29, 1038-1045, Oct. 2004.
24. Ji-Xun Zhou, Xue-Zhen Zhang, P. H. Rogers, Jeffrey A. Simmen, Peter H. Dahl, Guoliang Jin and Zhaohui Peng, Reverberation vertical coherence and sea-bottom geoacoustic inversion in shallow water, ***IEEE J. Oceanic Engineering***, Vol. 29, 988-999, Oct. 2004.
25. W. Plant, P. H. Dahl, Jean-Paul Giovanangeli, and Hubert Branger, Bound and Free Surface Waves in a Large Wind-Wave Tank, ***J. GeoPhys. Res***., 109 C10002, doi:10.1029/2004JC002342, 2004.
26. P. H. Dahl, Forward scattering from the sea surface and the van Cittert-Zernike theorem, ***J. Acoust. Soc. Am***., 115 (2), 589-599, Feb. 2004.
27. R.C. Spindel, J. Na, P.H. Dahl, S. Oh, C. Eggen, Y.G. Kim, V.A. Akulichev and Y. N. Morgunov, Acoustic Tomography for Monitoring the Sea of Japan: A Pilot Experiment, IEEE ***J. Oceanic Engineering***, Vol. 28, 297-302, April 2003.
28. P. H. Dahl, The contribution of bubbles to high-frequency sea surface backscatter: A 24-h time series of field measurements, ***J. Acoust. Soc. Am.***, 113 (2), 769-780, Feb. 2003.
29. S. R. Ramp, J. F. Lynch, P. H. Dahl, C-S. Chiu, and J. A. Simmen, Program Fosters Advances in Shallow-water Acoustics in Southeastern Asia ***EOS, Transactions American Geophysical Union***, Vol. 84, No. 37, 361-367, Sep. 2003.
30. P. H. Dahl and G. Kapodistrias, Scattering from a single bubble near a roughened air-water interface: Laboratory measurements and modeling, ***J. Acoust. Soc. Am***., 113 (1), 94-101, Jan.2003.
31. G. Kapodistrias and P. H. Dahl, On scattering from a bubble located near an air-water interface: Laboratory measurements and modeling, ***J. Acoust. Soc. Am***., 110 (3), 1271-1281, Sep. 2001.
32. P. H. Dahl, High Frequency Forward Scattering from the Sea Surface: The Characteristic Scales of Time and Angle Spreading, ***IEEE J. Oceanic Engineering***, Vol. 26, 141-151, Jan. 2001.
33. Richardson M.D., Briggs K.B., Bibee L.D., Jumars P.A., Sawyer W.B., Albert D.B., Bennett R.H., Berger T., Buckingham M.J., Chotiros N.P., Dahl P.H., Dewitt N.T., Fleischer P., Flood R., Greenlaw C.F., Holliday D.V., Hulbert M.H., Hutnak M.P., Jackson P.D., Jaffe J.S., Johnson H.P., Lavoie D.L., Lyons A.P., Martens C.S., McGehee D.E., Moore K.D., Orsi T.H., Piper J.N., Ray R.I., Reed A.H., Liko Self R.F., Schmidt J.L., Schock S.G., Simonet F., Stoll R.D., Tang Dajun, Thistle D.E., Thorsos E.I., Walter D..J, Wheatcroft R.A., Overview of SAX99: Environmental considerations, ***IEEE J. Oceanic Eng.,*** Vol. 26, 26-53, Jan. 2001.
34. P. H. Dahl, Bubble clouds and their transport within the surf zone as measured with a distributed array of upward-looking sonars, ***J. Acoust. Soc. Am***., 109 (1), 133-142, Jan. 2001.

35. G. Kapodistrias and P. H. Dahl, Effects of interaction between two bubble scatterers, ***J. Acoust. Soc. Am.***, 107 (6), 3006-3017, June 2000.
36. W. J. Plant, P. H. Dahl, and W. Keller, Microwave and Acoustic Scattering from Parasitic Capillary Waves, ***J. GeoPhys. Res***, Vol. 104 no. C11, 25853-25865, Nov. 1999.
37. P. H. Dahl, On bistatic sea surface scattering: Field measurements and modeling, ***J. Acoust. Soc. Am***., 105 (4), 2155-2169, April 1999.
38. P. H. Dahl and W. J. Plant, The Variability of High-Frequency Acoustic Backscatter from Near the Sea Surface, ***J. Acoust. Soc. Am***., 101 (5), 2596-2602, May 1997.
39. P. H. Dahl, W. J. Plant, B. Nützel, A. Schmidt, H. Herwig and E. A. Terray, Simultaneous Acoustic and Microwave Backscattering from the Sea Surface, ***J. Acoust. Soc. Am***., 101 (5), 2583-2595, May 1997.
40. P. H. Dahl, On the spatial coherence and angular spreading of sound forward scattered from the sea surface: Measurements and interpretive model, ***J. Acoust. Soc. Am***., 100 (2), 748-758, Aug. 1996.
41. P.H. Dahl and A. T. Jessup, On bubble clouds produced by breaking waves: An event analysis of ocean acoustic measurements, ***J. GeoPhys. Res.,*** Vol. 100 no. C3, 5007-5020, Mar. 1995.
42. P.H. Dahl and G. V. Frisk, Diffraction from the Juncture of a Pressure-Release and Locally Reacting Half Planes, ***J. Acoust. Soc. Am.,*** 90 (2), 1093-1100, Aug. 1991.
43. P.H. Dahl, A. B. Baggeroer, P.N. Mikhalevsky and I. Dyer, Measurement of the Temporal Fluctuations of CW Tones Propagated in the Marginal Ice Zone, ***J. Acoust. Soc. Am.*** 83 (6), 2175-2179, June 1988.
44. Dyer, P.H. Dahl, A. B. Baggeroer and P.N. Mikhalevsky, Ocean Dynamics and Acoustic Fluctuations in the Fram Strait Marginal Ice Zone, ***Science*** Vol. 236, 435-436, April 1987.
45. P.H. Dahl and O.A. Mathisen, Some Experiments and Considerations for Development of Doppler-Based Riverine Sonars, ***IEEE J. Oceanic Eng.*, OE-9, no.3**, 214-217, July 1984.
46. P.H. Dahl and O.A. Mathisen, Measurements of Fish Target Strength and Associated Directivity at High Frequencies, ***J. Acoust. Soc. Am***. **73** (4), 1205-1211, April 1983.

Conference proceedings and other non-journal articles

- ***Refereed periodical or professional publications***

1. Dajun Tang, James F. Moum, James F. Lynch, Phil Abbot, Ross Chapman, Peter H. Dahl, T. F. Duda, G. Gawarkiewicz, S. Glenn, J. A. Goff, Hans Graber, J. Kemp, A. Maffei, J. D. Nash, and A. Newhall, Shallow Water '06 A Joint Acoustic Propagation/Nonlinear Internal Wave Physics Experiment, **Oceanography**, Vol. 20, 156-167, Dec. 2007.
2. P.H. Dahl, J. H. Miller, D. H. Cato, and R. K. Andrew, Underwater Ambient Noise, **Acoustics Today,** 23-33, January 2007.

Parts of books (and chapters in edited books)

1. P. H. Dahl, *High-Frequency Underwater Sound*, a 19-page self-contained chapter In: *Encyclopedia of Electrical and Electronic Engineering*, J. G. Webster, Ed. John Wiley & Sons, New York, 1-19, October 2007.
   PDF version available: http://staff.washington.edu/dahl97/DahlPDFs/HFS.pdf
2. K. Matre and P. H. Dahl, *Basic Technologies in Ultrasound* Chapter 1 of *Basic and New Aspects of Gastrointestinal Ultrasonography*, Edited by S. Ødegaard and Odd Helge Gilja, World Scientific Press, Amsterdam, Feb. 2005

3. P. H. Dahl, *Underwater Ultrasound*, a 17-page self-contained chapter In: *Encyclopedia of Electrical and Electronic Engineering*, J. G. Webster, Ed. John Wiley & Sons, New York, 10-26, Feb. 1999.

Journal issues edited

October 2004 issue of IEEE J. Oceanic Eng. *Science and Engineering Advances in Exploring Asian Marginal Seas*, Edited by J. F. Lynch and P. H. Dahl

Abstracts, letters, non-refereed papers, technical reports

- ***Professional society technical publication***

1. P.H. Dahl, Section 4.1, "Sound scattering from bubbles", In: Bubble Detection and Cavitation Monitoring , ANSI Technical Report S1.24 TR2002, by the Acoustical Society of America's Committee on Standards, 2002.
2. P.H. Dahl, Introduction to "*History of Underwater Sound"* by Ralph Goodman, including chapter editor and author of historical time-line, for the Acoustical Society of America's 75th Anniversary publication, 2004.

- ***Journal Editorials***

1. P. H. Dahl, Renhe Zhang, J. H. Miller, L R. Bartek, Zhaohui Peng, S. R. Ramp, Ji-Xun Zhou, C. S. Chiu, J. F. Lynch, J. A. Simmen, and R.C. Spindel, Overview of Results from the Asian Seas International Acoustics Experiment in the East China Sea, ***IEEE J. Oceanic Engineering***, Vol. 29, 920-928, Oct. 2004. Guest Editorial
2. J. F. Lynch and P. H. Dahl, Science and Engineering Advances in Exploring the Asian Marginal Seas, ***IEEE J. Oceanic Engineering***, Vol. 29, 919, Oct. 2004. Guest Editorial

COURSE DEVELOPMENT AT THE UNIVERSITY OF WASHINGTON

- "What is Sound?" Discovery Seminar (1-month) for freshman (2004-2009)
- UW GEAR-UP program for high school students with disadvantaged background: 2-day "What is Sound?" demonstrations, 2004
- Applied Acoustics (ME 525) for graduate students: taught yearly since 1999
- Short courses (2-day) on the use of sonar for detecting and counting fish, presented to the Alaska Dept. of Fish and Game in 2000, 2002, and 2004 (a different emphasis each year).

AFFILIATIONS AND OTHER APPOINTMENTS

Gjeste-Professor (Guest Professor) University of Bergen, Faculty of Physics (University of Washington-University of Bergen Faculty Exchange Program 2002)

INTERNATIONAL CONFERENCE ORGANIZATION

- Science Advisory Committee for the *5th Pacific Rim Underwater Acoustics Conference*, Vladivostok, Russia, (Sep. 2015)

- Organizer of: *Underwater acoustics in Asian marginal seas: field experiments and modeling*, Special Session of the Acoustical Society of America, Hong Kong meeting, (May 2011)

- Science Advisory Committee for the *2ndt Pacific Rim Underwater Acoustics Conference*, Xi'an, China., (Oct. 2009) and *3rd Pacific Rim Underwater Acoustics Conference*, Korea (Sep. 2011)

- Organizer of: *Seabed and sea surface interaction measurements and modeling* (with Michael Ainslie, The Netherlands), Special Session of the Acoustical Society of America, Paris meeting, June 2008

- Co-Chair and Co-founder of the *1st Pacific Rim Underwater Acoustics Conference*, Vancouver, Canada, (Oct. 2007)

- Organizing Committee, *Asian Seas International Acoustics Experiment (ASIAEX) International Symposium*, Chengdu, China, Oct. 2002

- Steering Committee, *International Shallow Water Fisheries Sonar Conference*, Seattle, 1999.

RECENT INVITED LECTURES AND SEMINARS

1. "*Underwater sound from pile driving: what it is and why it matters*" Invited lecture for, Acoustical Society of America meeting, Providence, R.I., May 2014

2. "*Underwater noise from pile driving*", invited speaker to: Predicting Sound Fields – Global Soundscape Modelling to inform Management of Cetaceans and Anthropogenic Noise (NMFS and International Whaling Commission) Leiden, Netherlands, April 2014

3. "*Properties influencing the transmission loss and mitigation of the underwater sound from marine pile driving*", invited talk given at the San Francisco meeting of the Acoustical Society of America, December 2013

4. "*Impact pile driving: frequency, angle and range dependence and their implications for current and potential quieting technologies,"* invited speaker to: Quieting Technologies for Reducing Noise During Seismic Surveying and Pile Driving (Bureau of Ocean Energy Management, BOEM) Silver Springs, Md, February 2013

5. "*Pile driving in Puget Sound, State of Washington, USA,"* invited speaker to: International Workshop on Measurement Standards for Underwater Sound, Delft, Netherlands, Feb 2011

6. "*The evolution of spatial coherence with range from source,"* invited speaker to: U.S. Office of Naval Research 1st Indo-US Workshop on Shallow Water Acoustics, Goa, India, Feb 2010

7. "*Observations of 0th order head waves in the Yellow Sea,"* invited speaker to: 2nd International Conference on Shallow Water Acoustics, Shanghai, September 2009

8. *"Sound Propagation in Arctic Waters and the Ambient Noise Environment ,"* University of Alaska Fairbanks School of Fisheries and Ocean Sciences -University of Washington Seminar Exchange Guest Lectureship, October 2008