

**SEAN M. WIGGINS**  
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**EDUCATION:** B.S., University of California, San Diego, Mechanical Engineering, 1988.  
M.S., University of California, San Diego, Engineering Sciences  
(Applied Ocean Sciences), 1990.  
Ph.D., Scripps Institution of Oceanography, Oceanography (Applied  
Ocean Sciences), 1995.

**PROFESSIONAL EXPERIENCE:** **Project Scientist**, Marine Physical Laboratory, Scripps Institution of  
Oceanography, University of California, San Diego, 1999-Present.

Study marine mammals using acoustic techniques and present results in  
peer-reviewed publications.

Chief scientist, lead acoustician/engineer and/or participant on numerous  
whale acoustic and visual surveys in the waters off Southern California,  
in the Bering Sea, and Antarctica.

Design, develop, manage, maintain and use autonomous and ship-based  
acoustic recording systems worldwide to study whale sounds.

Develop and use software tools for bioacoustic data analysis and  
modeling.

Measure acoustic-mechanical tissue properties and model whale  
(*Ziphius cavirostris*) structural and acoustic response with finite  
elements.

Lead and conduct multi-sensor shallow geophysical surveys, analyze  
data and present results.

Design, fabricate and utilize novel high-resolution terrestrial seismic  
reflection equipment.

**Project Manager/Engineer**, DeepSea Power and Light, San Diego,  
California, 1997-1999.

Managed and participated in all aspects of product design and development  
including concept, research, design, 3D CAD modeling, 2D drafting,  
prototyping, vendor/ machine shop interaction and production assembly.

Acquired and processed data for non-invasive imaging of archaeological  
sites utilizing seismic techniques.

**Postdoctoral Researcher**, Marine Physical Laboratory, Scripps Institution  
of Oceanography, University of California, San Diego, 1995-1997.

Utilized and maintained marine and terrestrial seismic data  
acquisition and recording systems.

Developed and employed software tools for analysis, interpretation and  
presentation of seismic data.

**Research Assistant**, Marine Physical Laboratory, Scripps Institution of Oceanography, University of California, San Diego, 1989-1995.

Doctoral dissertation: Hess Deep structure from seismic tomography.  
Master's thesis: A proposed experiment and apparatus for measuring the temporal change of black smoker's heat flux.

**PROFESSIONAL SOCIETIES:** Acoustical Society of America, Society of Marine Mammology, American Geophysical Union, Marine Technology Society, Society of Exploration Geophysics

**RESEARCH INTERESTS:** Marine mammal acoustics, ocean instrumentation, high-resolution near-surface geophysical imaging.

### **SELECTED RECENT PUBLICATIONS:**

D. W. Johnston, M. McDonald, J. Polovina, R. Domokos, S. Wiggins and J. Hildebrand, Temporal patterns in the acoustic signals of beaked whales at Cross Seamount Biol. Lett. doi:10.1098/rsbl.2007.0614 Published online (2008).

Cranford TW, McKenna M, Soldevilla M, Wiggins SM, Shadwick R, Goldbogen J, Krysl P, Leger JS, and Hildebrand JA. Anatomic Geometry of Sound Transmission and Reception in Cuvier's Beaked Whale (*Ziphius cavirostris*). *Anatomical Record* 291:353-378 (2008).

Wiggins, S. M. and Hildebrand, J. A., High-frequency Acoustic Recording Package (HARP) for broad-band, long-term marine mammal monitoring. International Symposium on Underwater Technology 2007 and International Workshop on Scientific Use of Submarine Cables & Related Technologies 2007, Tokyo, Japan, Institute of Electrical and Electronics Engineers, pp. 551-557, 17-20 April, 2007.

Sirovic, A, J. A. Hildebrand, and S. M. Wiggins, Blue and fin whale call source levels and propagation range in the Southern Ocean, *J. Acoust. Soc. Am.* 122(2):1208-1215 (2007).

Oleson, E. M., S. M. Wiggins and J. A. Hildebrand. Temporal separation of blue whale call types on a southern California feeding ground. *Animal Behaviour* 74: 881-894 (2007).

Krysl P., T.W. Cranford, S.M. Wiggins, and J.A. Hildebrand. Simulating the effect of high-intensity sound on cetaceans: Modeling approach and a case study for Cuvier's Beaked whale (*Ziphius cavirostris*). *J. Acoust. Soc. Am.*, 120 (4):2328-2339 (2006).

McDonald, M. A., J. A. Hildebrand and S. M. Wiggins. Increases in deep ocean ambient noise west of San Nicolas Island, California. *J. Acoust. Soc. Am.*, 120 (2), 1-8 (2006).

Wiggins, S., E. Oleson, M. McDonald, and J. A. Hildebrand. Blue whale (*Balaenoptera musculus*) diel call patterns offshore of Southern California. *Aquatic Mammals*. 31 (2):161-168. (2005).

McDonald, M. A., J. A. Hildebrand, S. M. Wiggins, D. Thiele, D. Glasgow, and S. E. Moore. Sei whale sounds recorded in the Antarctic. *Journal of The Acoustical Society Of America*. 118 (6):3941-3945, (2005).

Soldevilla, M. S., M. F. McKenna, S. Wiggins, R. E. Shadwick, T. W. Cranford, and J. A. Hildebrand. Cuvier's beaked whale (*Ziphius cavirostris*) head tissues: physical properties and CT imaging. *J. Experimental Biology*. 208:2319-2332, (2005).

Wiggins, S., M. McDonald, L. M. Munger, S. Moore, and J. A. Hildebrand. Waveguide propagation allows range estimates for North Pacific right whales in the Bering Sea. *Canadian Acoustics*. 32 (2):146-154, (2004).

Sirovic, A., J. A. Hildebrand, S. M. Wiggins, M. A. McDonald, S. E. Moore, and D. Thiele. Seasonality of blue and fin whale calls and the influence of sea ice in the Western Antarctic Peninsula. *Deep-Sea Research Part II-Topical Studies In Oceanography*. 51 (17-19):2327-2344. (2004).

Wiggins, S.M. Autonomous Acoustic Recording Packages (ARP's) for long-term monitoring of whale sounds, *MTS Journal*, Vol. 37, No.2, 13-22, (2003)

Wiggins, S.M., J. A. Hildebrand, and J. M. Gieskes. Geothermal state and fluid flow within ODP Hole 843B: Results from wireline logging, *Earth and Planetary Science Letts.*, 195, 239-248, (2002).

Hildebrand, J.A., P.C., Henkart, S.M. Wiggins, and L.B., Conyers. A comparison of seismic reflection and ground-penetrating radar imaging at the Controlled Archaeologic Test Site, Champaign Illinois, *Archaeological Prospection*, 9, 9-21, (2002).