

**PETER LLOYD TYACK**

Senior Scientist (with tenure)  
Biology Department  
Woods Hole Oceanographic Institution  
Woods Hole, Massachusetts 02543  
Birth: 31 December 1953, Boston MA

**EDUCATION**

A.B., *summa cum laude* in Biology, Harvard College, 1976.  
Ph.D., in Animal Behavior, Rockefeller University, 1982, Donald R. Griffin, advisor.

**EMPLOYMENT**

1971-1972:	Research Assistant	Alza Co
1974-1975:	Research Associate	New York Zoological Society
1976:	Staff Biologist	Oregon Public Utilities Commission
1977-1981:	Research Associate	New York Zoological Society
1977-1982:	Graduate Fellow	Rockefeller University
1982-1983:	Postdoctoral Scholar	Woods Hole Oceanographic Institution
1983-1985:	Guest Investigator	Woods Hole Oceanographic Institution
1985-1989:	Assistant Scientist	Woods Hole Oceanographic Institution
1989-1999:	Associate Scientist	Woods Hole Oceanographic Institution
1994-1995:	Fellow	Center for Advanced Study in the Behavioral Sciences, Stanford CA
1999-:	Senior Scientist	Woods Hole Oceanographic Institution
2001-2002	Visiting Scientist	Saclant Undersea Research Centre, Italy
2000-2005	Walter A. and Hope Noyes Chair in Oceanography	Woods Hole Oceanographic Institution

**MEMBERSHIPS**

Member, Ocean Studies Board, National Research Council (2008-)  
Federal Advisory Committee on Acoustic Impacts on Marine Mammals, US Marine Mammal Commission (2004-2005)  
Committee on Characterizing Biologically Significant Marine Mammal Behavior. Ocean Studies Board, National Research Council (2003-2004)  
Committee to Review Results of ATOC's Marine Mammal Research Program. Ocean Studies Board, National Research Council (1996-2000)  
Committee on Low Frequency Sound and Marine Mammals, Ocean Studies Board, National Research Council (1992-1994)  
Advisory Board for Marine Mammal Research Program, ATOC.  
Trustee, Center for Coastal Studies (1996-1999)  
Member, Scientific Advisory Board, New England Aquarium (1992-1996)  
Member; Acoustical Society of America, Animal Behavior Society; A.A.A.S., Sigma Xi  
Charter Member, Society for Marine Mammalogy  
Associate, Behavioral and Brain Sciences.

Fellow, Center for Climate and Ocean Research (CICOR)  
Fellow, Acoustical Society of America  
Member, Committee of Scientific Advisors on Marine Mammals, Marine Mammal  
Commission 2000-2003  
Associate Editor, Marine Mammal Science (1998-2003), Encyclopedia of Ocean  
Sciences, IEEE Journal of Oceanic Engineering  
Adjunct Scientist, Mote Marine Aquarium  
Adjunct Professor, Department of Oceanography, University of Rhode Island

### RESEARCH INTERESTS

- Social behavior and acoustic communication in cetaceans.
- Vocal learning and mimicry in the natural communication systems of cetaceans.
- Individually distinctive signature signals, vocal learning, and mimicry in the bottlenose dolphin and the sperm whale.
- Acoustic structure and social functions of the songs of baleen whales.
- Responses of cetaceans to manmade noise.
- Playback to cetaceans of their own and conspecific vocalizations.
- Development of methods to identify which cetacean produces a sound within a social group.

### BOOKS

- 2005       Wartzok D, J. Altmann, W. Au, K. Ralls, A. Starfield, P. L. Tyack. *Marine Mammal Populations and Ocean Noise: Determining when noise causes biologically significant effects.* (NRC report) Washington, D.C.: National Academy Press.
- 2003       de Waal, F. B. M. and P.L. Tyack, editors. *Animal Social Complexity: Intelligence, Culture, and Individualized Societies.* Harvard University Press
- 2000       Mann, J., Connor, R., Tyack, P.L., and H. Whitehead. *Cetacean Societies: field studies of whales and dolphins.* Chicago: University of Chicago Press.
- 2000       Popper, A.N., DeFerrari, H.A., Dolphin, W.F., Edds-Walton, P.L., Greve, G.M., McFadden, D., Rhines, P.B., Ridgway, S.H., Seyfarth, R.M., Smith, S.L., and P.L. Tyack. *Marine mammals and low-frequency sound.* (NRC report) Washington, D.C.: National Academy Press.
- 1994       Green, D.M., DeFerrari, H.A., McFadden, D., Pearse, J.S., Popper, A.N., Richardson, W.J., Ridgway, S.H., and P.L. Tyack. *Low-frequency sound and marine mammals: current knowledge and research needs.* (NRC report) Washington, D.C.: National Academy Press.

## PUBLICATIONS

### 2008

- Soto, N. A., Johnson, M. P., Madsen, P. T., Díaz, F., Domínguez I., Tyack P., Brito A.  
Deep foraging sprints in short finned pilot whales off Tenerife (Canary Islands).  
*Journal of Applied Ecology*, doi: 10.1111/j.1365-2656.2008.01393.x.
- Tyack, P. L. Convergence of calls as animals form social bonds, active compensation for  
noisy communication channels, and the evolution of vocal learning in mammals.  
*Journal of Comparative Psychology*, 122:319-331.
- Fripp, D. R. & Tyack, P. L. Post-partum whistle production in bottlenose dolphins.  
*Marine Mammal Science*, 24:479-502
- Tyack, P. Implications for marine mammals of large-scale changes in the marine  
acoustic environment. *Journal of Mammalogy* 89:549-558.
- Jones, B. A., Stanton, T. K., Lavery, A. C., Johnson, M. P., Madsen, P. T. and P. L.  
Tyack. Classification of broadband echoes from prey of a foraging Blainville's  
beaked whale. *J. Acoust. Soc. Am.* 123:1753-1762.
- Southall, B. L., Bowles A. E., Ellison, W. T., Finneran, J. J., Gentry R. L., Greene Jr. C.  
R., Kastak D., Ketten D. R., Miller J. H., Nachtigall, P. E., Richardson, W. J.,  
Thomas, J. A., Tyack P. L. Marine mammal noise exposure criteria: initial  
scientific recommendations. *Aquatic Mammals*, 33: 411-521.
- Hindell, M. A. Crocker, D. Mori, Y. Tyack P. Foraging behaviour. Chapter 11 in *Marine  
Mammal Ecology and Conservation: A handbook of techniques.* (Boyd, I.,  
Bowen, D. and Iverson, S. eds.) Techniques in Ecology and Conservation Series,  
Oxford University Press.
- Tyack, P. L. Social communication in whales and dolphins. In: *Encyclopedia of  
Neuroscience.* (Adelman, G. and Smith, B. H., eds.) Elsevier, B. V., Amsterdam
- Tyack, P. Effects of sound in the ocean. In: *Atlas of the Ocean*, National Geographic  
Society, Washington D.C.

### 2007

- Dietz, R., Shapiro, A. D., Bakhtiari M., Orr J., Tyack P. L., Richard P., Eskesen I. G.,  
Marshall G. Upside-down swimming behaviour of free-ranging narwhals. *BMC  
Ecology* 7, 14, doi: 10.1186/1472-6785-7-14.
- Madsen P.T., Wilson M., Johnson M., Hanlon R., Bocconcelli A., Aguilar Soto N. &  
Tyack P.T. Clicking for calamari: Can toothed whales echolocate squid (*Loligo  
pealeii*)? *Aquatic Biology*, 1:141-150.
- Parks, S. E., Clark, C. & P. L. Tyack Short and long-term changes in right whale calling  
behavior: the potential effects of noise on acoustic communication. *Journal of  
Acoustical Society of America*, 122:3725-3731

- Miksis-Olds, J. L., Donaghay, P. L., Miller, J. H., Tyack P. L., Nystuen, J. Noise levels correlates with manatee use of foraging habitats. *Journal of Acoustical Society of America* 121:3011-3020.
- Zimmer W. M. X. & Tyack P. L. Repetitive shallow dives pose decompression risk in deep diving beaked whales. *Marine Mammal Science* 23(4): 888-925.
- Parks, S. E., Brown M. W., Conger, L. A., Hamilton, P. K., Knowlton, A. R., Kraus, S. D., Slay, C. K. & P. L. Tyack Occurrence, composition and potential functions of North Atlantic right whale (*Eubalaena glacialis*) surface active groups. *Marine Mammal Science* 23(4): 868-887.
- Nowacek D. P., Thorne L. H., Johnston D. W., Tyack P. L. Responses of cetaceans to anthropogenic noise. *Mammal. Review* 37:81-115.
- Miksis-Olds J. L., Donaghay Percy L., Miller, J. H., Tyack, P. L., Reynolds, J. E. III. Simulated vessel approaches elicit differential responses from manatees. *Marine Mammal Science* 23:629-649.
- Wilson M., Hanlon R., Tyack P., and Madsen P.T. Intense ultrasonic clicks from echolocating toothed whales do not acoustically debilitate or elicit anti-predator responses in the squid *Loligo pealeii*. *Proceedings of the Royal Society Biological Letters* 3:225-227