

CURRICULUM VITAE - SUMMARY

TERHUNE, JOHN MOORE

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Education and employment history

B.Sc. (Agr.)	University of Guelph, Canada	1968
M.Sc.	University of Guelph, Canada	1970
Lic. Scient./Ph. D.	University of Aarhus, Denmark	1973
Research Assistant	University of Guelph	1970-71
Research Associate	University of Guelph	1973-75
Instructor	U. New Brunswick, Fredericton	1975-80
Assistant Professor	U. New Brunswick, Saint John	1980-83
Associate Professor	U. New Brunswick, Saint John	1983-91
Chair, Dept. of Biology	U. New Brunswick, Saint John	1992-97, 2010-11
Professor	U. New Brunswick, Saint John	1991-2012
Associate Dean of Graduate Studies	U. New Brunswick, Saint John	1999-2007
Acting Dean, S.A.S.E.	U. New Brunswick, Saint John	2007-8
Professor Emeritus	U. New Brunswick, Saint John	2012-present
Distinguished Service Award	U. New Brunswick	2006
President's Medal	U. New Brunswick	2010

Teaching experience

I have taught over 20 different undergraduate courses (primarily in vertebrate biology, animal behaviour, physiology, zoology, bio-acoustics, communication and marine science areas) in addition to supervising 18 individual study courses, 29 honours students, 17 M. Sc. students and 3 Ph. D. students.

Current research interests

Underwater vocal communication strategies of harp and Weddell seals.
Impact of underwater noise on the communication behaviour of cetaceans in the Bay of Fundy.
Underwater hearing studies of harbour seals and harbour porpoises (member, Dr. R. Kastelein's team).
Using auditory weighting functions to assess the perception of noise levels.

I have conducted marine mammal vocal communication and underwater noise studies in the Bay of Fundy, Gulf of St. Lawrence, Greenland and Antarctica.

Selected publications on marine mammal hearing, vocal communication and underwater noise

- Terhune, J.M., and K. Ronald. 1972. The harp seal, *Pagophilus groenlandicus* (Erxleben, 1777). III. The underwater audiogram. *Can. J. Zool.* 50: 565-569.
- Terhune, J.M., and K. Ronald. 1973. Some hooded seal (*Cystophora cristata*) sounds in March. *Can. J. Zool.* 51: 319-321.
- Terhune, J.M. 1974. Directional hearing of a harbor seal in air and water. *J. Acoust. Soc. Amer.* 56: 1862-1865.

- Møhl, B., J.M. Terhune and K. Ronald. 1975. Underwater calls of the harp seal, *Pagophilus groenlandicus*. Rapp. P.-V. Réun. Cons. Int. Explor Mer, 169: 533-543.
- Terhune, J.M., and K. Ronald. 1975. Underwater hearing sensitivity of two ringed seals (*Pusa hispida*). Can. J. Zool. 53: 227-231.
- Terhune, J.M., and K. Ronald. 1975. Masked hearing thresholds of ringed seals. J. Acoust. Soc. Amer. 58: 515-516.
- Terhune, J.M., and K. Ronald. 1976. The upper frequency limit of ringed seal hearing. Can. J. Zool. 54: 1226-1229.
- Terhune, J.M., R.E.A. Stewart, and K. Ronald. 1979. Influence of vessel noises on underwater vocal activity of harp seals. Can. J. Zool. 57: 1337-1338.
- Terhune, J.M. 1981. Influence of loud vessel noises on marine mammal hearing and vocal communication. *in*, The Question of Sound from Icebreaker Operations: the Proceedings of a Workshop. N.M. Peterson, Ed., Petro-Canada. Calgary p. 270-286.
- Terhune, J.M., and K. Ronald. 1986. Distant and near range functions of harp seal underwater calls. Can. J. Zool. 64: 1065-1070.
- Terhune, J.M., G. MacGowan, L. Underhill and K. Ronald. 1987. Repetitive rates of harp seal underwater vocalizations. Can. J. Zool. 65: 2119-2120.
- Terhune, J.M. 1988. Detection thresholds of a harbour seal to repeated underwater high-frequency, short-duration sinusoidal pulses. Can. J. Zool. 66: 1578-1582.
- Terhune, J.M. 1988. Unresolved aspects concerning the influence of noise on marine mammals. *in*, Port and Ocean Engineering under Arctic Conditions, Vol. II, Symposium on Noise and Marine Mammals. W.M. Sackinger and M.O. Jeffries Eds. University of Alaska, Fairbanks, Alaska. p. 9-13.
- Terhune, J.M. 1989. Underwater click hearing thresholds of a harbour seal. Aquat. Mamm. 15: 22-26.
- Turnbull, S.D., and J.M. Terhune. 1990. White noise and pure tone masking of pure tone thresholds of a harbour seal listening in-air and underwater. Can. J. Zool. 68: 2090-2097.
- Terhune, J.M., G.W. Friars, J.K. Bailey and F.M. O'Flynn. 1990. Noise levels may influence Atlantic Salmon smolting rates in tanks. J. Fish Biol. 37: 185-187.
- Terhune, J.M. 1991. Masked and unmasked pure tone detection thresholds of a harbour seal listening in air. Can. J. Zool. 69: 2059-2066.
- Turnbull, S.D. and J.M. Terhune. 1993. Repetition enhances hearing detection thresholds in a harbour seal (*Phoca vitulina*). Can. J. Zool. 71: 926-932.
- Terhune, J. and Turnbull, S. 1995. Variation in the psychometric functions and hearing thresholds of a harbour seal. *in*, Sensory systems of aquatic Mammals. R.A. Kastelein, J.A. Thomas and P.E. Anachtigall, Eds. DeSpil Publishers, Woerden, Netherlands pp. 81-93.
- Terhune, J.M. 1999. Pitch separation as a possible jamming avoidance mechanism in underwater calls of bearded seals (*Erignathus barbatus*). Can. J. Zool. 77: 1025-1034.
- Terhune, J.M. and W.C. Verboom. 1999. Right whales and ship noises. Mar. Mamm. Sci. 15: 256-258.
- Serrano, A. and J.M. Terhune. 2001. Within-call repetition may be an anti-masking strategy in underwater calls of harp seals (*Pagophilus groenlandicus*). Can. J. Zool. 79: 1410-1413.
- Jacobs, S.R. and J.M. Terhune. 2002. The effectiveness of acoustic harassment devices in the Bay of Fundy, Canada: seal reactions and a noise exposure model. Aquatic Mammals 28: 147-158.

- Serrano, A. and J.M. Terhune. 2002. Antimasking aspects of harp seal (*Pagophilus groenlandicus*) underwater vocalizations. *J. Acoust. Soc. Amer.* 112: 3083-3090.
- Van Polanen Petel, T.D., J.M. Terhune, M.A. Hindell and M.A. Giese 2006. An assessment of the audibility of sound from human transport by breeding Weddell seals *Leptonychotes weddellii*. *Wild. Res.* 33: 275-291.
- Kastelein, R.A., S. Van Der Heul, J.M. Terhune, W.C. Verboom, and R.J.V. Triesscheijn 2006. Deterring effects of 8-45 kHz tone pulses on harbor seals (*Phoca vitulina*) in a large pool. *Mar. Envir. Res.* 62: 356-373.
- Kastelein, R.A., P.J. Wensveen, L. Hoek, W.C. Verboom and J.M. Terhune. 2009. Underwater detection of tonal signals between 0.125 and 100 kHz by harbor seals (*Phoca vitulina*). *J. Acoust. Soc. Amer.* 125: 1222-1229.
- Haarr, M.L., L.D. Charlton, J.M. Terhune and E.A. Trippel. 2009. Harbour porpoise (*Phocoena phocoena*) presence patterns at an aquaculture cage site in the Bay of Fundy, Canada. *Aquat. Mamm.* 35: 203-211.
- Rosson, M.A., and J.M. Terhune. 2009. Source levels and communication-range models for harp seal (*Pagophilus groenlandicus*) underwater calls in the Gulf of St. Lawrence, Canada. *Can. J. Zool.* 87: 609-617.
- Kastelein, R.A., P.J. Wensveen, L. Hoek, and J.M. Terhune. 2009. Underwater hearing sensitivity of harbor seals (*Phoca vitulina*) for narrow noise bands between 0.2 and 80 kHz. *J. Acoust. Soc. Amer.* 126: 476-483.
- Kastelein, R.A., Gransier, R., Hoek, L., Macleod, A., and Terhune, J.M. 2012. Hearing threshold shifts and recovery in harbor seals (*Phoca vitulina*) after octave-band noise exposure at 4 kHz. *J. Acoust. Soc. Amer.* 132: 2745-2761.
- Terhune, J.M. 2013. A practical weighting function for harbor porpoise underwater sound level measurements. *J. Acoust. Soc. Amer.* 134: 2405-2408.
- Kastelein, R.A., Hoek, L., Gransier, R., de Jong, C.A.F., Terhune, J.M. and Jennings, N. 2015. Hearing thresholds of a harbour porpoise (*Phocoena phocoena*) for playbacks of seal scarer signals, and effects of the signals on behavior. *Hydrobiologica* (in press).
- Terhune, J.M. and T. Bosker. 2015. Harp seals do not increase their call frequencies when it gets noisier. *In*, The effects of noise on aquatic life III. A.N. Popper and A. Hawkins eds., Springer Science + Business Media, New York, (in press).

Consultations on marine mammal vocal communication and underwater noise

Invited participant, underwater noise workshop, Arctic Pilot Project	1981
Witness re. National Energy Board Hearings on behalf of the Inuit Tapirisat of Canada and Baffin Region Inuit Association, re. underwater ship noise and marine mammals	1981-82
Technical specialist, Beaufort Sea Environmental Assessment Panel	1983
Technical specialist, low level air defence panel review	1990
Reviewer, underwater noise, Canadian Science Advisory Secretariat on Pathways of Effects, DFO, Ottawa	2009
Reviewer, Underwater Noise Environmental Impact Assessment, Eider Rock Project, For NB Conservation Council	2009

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