

**List of Scientific Publications**  
**Associated with the HSWRI Bioacoustics Laboratory**  
**1977-present**

This list describes work done by staff of the Bioacoustics Laboratory at Hubbs-SeaWorld Research Institute (HSWRI) from the lab's dedication in 1977 to the present. Following the list of papers by staff, there is a short list of papers written with HSWRI collaboration

The work was conducted in the tradition of Carl and Laura Hubbs and represents the Institute's mission "...to return to the sea some measure of the benefits derived from it".

**2005 – present**

- Bowles, A.E., and R.C. Anderson.** 2012. Behavioral responses and habituation of small cetaceans and pinnipeds to novel objects and simulated fishing gear with and without a pinger. *Aquatic Mammals* 38(2): 161-188.
- Hayward, L.S., **A. Bowles**, J.C. Ha, and S.K. Wasser. 2011. Impacts of acute and long-term vehicle exposure on physiology and reproductive success of the northern spotted owl. *Ecosphere* 2(6), Article 65: 1 - 20 [online journal of the Ecological Society of America].
- Owen, M.A., and **A.E. Bowles.** 2011. Auditory Psychophysics and the Management of a Threatened Large Carnivore, the Polar Bear (*Ursus maritimus*). *International Journal of Comparative Psychology* 24: 244-254.
- Schlundt, C.E., R.L. Dear, D.S. Houser, **A.E. Bowles**, T. Reidarson, J.J. Finneran. 2011. Auditory evoked potentials in two short-finned pilot whales (*Globicephala macrorhynchus*). *Journal of the Acoustical Society of America* 129(2): 1111-1116.
- Bowles, A.E., S.L. Denes, and M. Shane.** 2010. Acoustic characteristics of ultrasonic coded transmitters for fishery applications: could marine mammals hear them? *Journal of the Acoustical Society of America* 128(5): 3223-3231.
- Akamatsu, T., D. Wang, K. Wang, S. Li, S. Dong, X. Zhao, J. Barlow, **B.S. Stewart**, and M. Richlen. 2008. Estimation of the detection probability for Yangtze finless porpoises (*Neophocaena phocaenoides asiaorientalis*) with a passive acoustic method. *Journal of the Acoustical Society of America* 123(6): 4403-4411.
- Zielinski, W.J., K.M. Slauson, and **A.E. Bowles.** 2008. Effects of off-highway vehicle use on the American marten. *Journal of Wildlife Management* 72(7): 1558-1571
- Bowles, A.E.** and B. Schulte-Fortkamp. 2008. Noise as an indicator of quality of life: Advances in measurement of noise and noise effects on humans and animals in the environment. *Acoustics Today* 4(2): 35-39.
- Southall, B., **A.E. Bowles**, W.T. Ellison, J.J. Finneran, R.L. Gentry, C.R. Greene, Jr., D. Kastak, D.R. Ketten, J.H. Miller, P.E. Nachtigall, W.J. Richardson, J.A. Thomas, and P.L. Tyack. 2007. **Marine mammal noise exposure criteria: Initial scientific recommendations.** *Aquatic Mammals* 33(4): 411-521.
- Jaffe, J., F. Simonet, P.L. Roberts, and A.E. Bowles. 2007. Measurement of the acoustic reflectivity of Sirenia (Florida manatees) at 171 kHz. *Journal of the Acoustical Society of America.* 121(1):158-165.



## 2000 - 2004

- Bowles, A.E.** 2003. Review: “*Hearing by Whales and Dolphins*” by W.W.L. Au, A.N. Popper, and R.R. Fay (eds). *Marine Mammal Science* 18(2): 567 – 571.
- Insley, S.J., R. Paredes, and I.L. Jones.** 2003. Differences in razorbill *Alca torda* parent-offspring vocal recognition. *Journal of Experimental Biology* 206: 25-31.
- Insley, S.J., A.V. Phillips, and I. Charrier.** 2003. A review of social recognition in pinnipeds. *Aquatic Mammals* 29.2: 181-201.
- Wolski, L., R. Anderson, A.E. Bowles, and P.K. Yochem.** 2002. Measuring hearing in the harbor seal (*Phoca vitulina*): comparison of behavioral and auditory brainstem response techniques. *Journal of the Acoustical Society of America* 113(1): 629 – 637.
- Bowles, A.E., S. Wisdom, and K. Anderson.** 2001. Call development and behavior of 'JJ', a rehabilitated gray whale calf, *Eschrichtius robustus*. *Aquatic Mammals* 27(3): 239 - 255.
- Ting, C., J. Garrelick, and **A. Bowles.** 2001. An analysis of the response of sooty tern eggs to sonic boom overpressures. *Journal of the Acoustical Society of America* 111(1, pt. 2): 562 – 568.

## 1995 - 1999

- Bowles, A.E.** 1999. In Memoriam: Frank Thomas Awbrey. *Marine Mammal Science* 15(1): 262-265.
- Bowles, A.E., E. Berg, and N. Abraham.** 1997. Effects of Low-Altitude Aircraft Overflights on Ratites. Pp 646-651 *In* Proceedings of the 7<sup>th</sup> International Congress of the Biological Effects of Noise, 22-26 November, Sydney, Australia.
- McInerney, S.A., **J.K. Francine, B.S. Stewart, and P.H. Thorson.** 1997. The influence of low-frequency instrumentation response on rocket noise metrics. *Journal of the Acoustical Society of America* 102:2780-2785.
- Bowles, A.E.** 1996. Effects of Sonic Booms on Marine Mammals: Problem Review and Recommended Research. *In* Baize, D. (ed), 1995 NASA High-Speed Research Program Sonic Boom Workshop, Volume I. Proceedings of a Workshop Held at Langley Research Center, Hampton, VA, September 12-13, 1995. NASA Conference Publication 3335. July 1996.
- Bowles, A.E.** 1995. Responses of wildlife to noise. Chapter 8, pp. 154-213 *In* R.L. Knight and K.J. Gutzwiller (eds), *Wildlife and Recreationists: Coexistence Through Management and Research*. Island press, Washington, D.C.
- Francine, J.K., and A.E. Bowles.** 1995. Field measurements of Merriam's kangaroo rat, *Dipodomys merriami*, hearing on the Barry M. Goldwater Air Force Range using auditory evoked potentials. *Inter-Noise* 95: 4-6.
- Francine, J.K., J.S. Yaeger and A.E. Bowles.** 1995. Sound from low-altitude jet overflights in burrows of the Merriam's kangaroo rat, *Dipodomys merriami*, and the Kit Fox, *Vulpes macrotis*. *Inter-Noise* 95: 991-994
- McClenaghan, L. and **A.E. Bowles.** 1995. Effects of low-altitude overflights on populations of small mammals on the Barry M. Goldwater Range. *Inter-Noise* 95:985-990.



## 1990 - 1994

- Bowles, A.E.**, M. Smultea, B. Würsig, D.P. DeMaster, and D. Palka. 1994. Relative abundance and behavior of marine mammals exposed to transmissions from the Heard Island Feasibility Test. *Journal of the Acoustical Society of America* 96(4): 2469-2484.
- Edds, P.L., **D.K. Odell** and B.R. Tershey. 1993. Vocalizations of a captive juvenile and free-ranging adult-calf pairs of Bryde's whales, *Balaenoptera edeni*. *Marine Mammal Science* 9(3):
- Shiple, C., **B.S. Stewart**, and J. Bass. 1993. Seismic communication in the northern elephant seal. pp. 553-562 In J. Thomas, R. Kastelein, and A. Supin (eds), *Marine Mammal Sensory Systems*. Plenum Press, New York, 1992.
- Francis, R.C., **F.T. Awbrey**, C. Goudy, M.A. Hall, D.M. King, H. Medina, K.S. Norris, M.K. Orbach, R. Payne and E. Pikitch. 1992. *Dolphins and the Tuna Industry*. National Academy Press, Washington, DC.
- Shiple, C., **B.S. Stewart** and J. Bass. 1992. Seismic communication in northern elephant seals. Pages 553-562 in J.A. Thomas, R.A. Kastelein and A.Y. Supin, eds. *Marine Mammal Sensory Systems*. Plenum Press, New York.
- Hall, J.D.**, and **J. Francine**. 1991. Measurements of underwater sounds from a concrete island drilling structure located in the Alaskan sector of the Beaufort Sea. *Journal of the Acoustical Society of America* 90:1665-1667.
- Awbrey, F.T.** 1990. Concluding comments on cetacean hearing and echolocation. Pages 427-433 in J.A. Thomas, R.A. Kastelein and A.Y. Supin, eds. *Marine Mammal Sensory Systems*. Plenum Press, New York.
- Bowles, A.E.**, **F.T. Awbrey**, and R. Kull. 1990. A model for the effects of overflight noise on the reproductive success of raptorial birds. *InterNoise* 90: 1129-1132.
- Evans, W.E.**, and **F.T. Awbrey**. 1990. Natural history aspects of marine mammal echolocation: Feeding strategies and habitat. Pp. 521-534 in P.E. Nachtigall and P.W.B. Moore (Eds), *Animal Sonar Processes and Performance*. NATO Advanced Study Institute Series A: Life Sciences, Volume 156.
- Jayko, K., M. Reed, and **A.E. Bowles**. 1990. Simulation of interactions between migrating whales and potential oil spills. *Environmental Pollution* 63: 97-127.
- Thomas, J.A.**, **R.A. Kastelein** and **F.T. Awbrey**. 1990. Behavior and blood catecholamines of captive belugas during playbacks of noise from an oil drilling platform. *Zoo Biology* 9:393-402.

## 1985 - 1989

- Awbrey, F.T.**, **J.A. Thomas** and **R.A. Kastelein**. 1988. Low-frequency underwater hearing sensitivity in belugas, *Delphinapterus leucas*. *Journal of the Acoustical Society of America* 84:2273-2275.
- Bowles, A.E.**, W.G. Young, E.D. Asper. 1988. Ontogeny of stereotyped calling of a killer whale calf, *Orcinus orca*, during her first year. *Rit Fiskidielidar* (Journal of Marine Sciences, Reykjavik, special volume) 11:251-275.
- Evans, W.E.**, and **F.T. Awbrey**. 1988. Natural history aspects of marine mammal echolocation: feeding strategies and habitat. Pages 521-534 in P.E. Nachtigall and P.W.B. Moore (eds), *Animal Sonar: Processes and Performance*. Plenum Press, New York.
- Evans, W.E.**, **F.T. Awbrey** and **H. Hackbarth**. 1988. High frequency pulses produced by free-ranging

- Commerson's dolphin (*Cephalorhynchus commersonii*) compared to those of phocoenids. Pages 173-181 in R. L. Brownell and G. P. Donovan, eds. *Reports of the International Whaling Commission (Special Issue 9). Biology of the genus Cephalorhynchus*. International Whaling Commission, Cambridge, UK.
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- Moore, S.E., **J.K. Francine**, **A.E. Bowles**, and J.K.B. Ford. 1988. A preliminary analysis of the calls of killer whales, *Orcinus orca*, from Iceland and Norway. *Rit Fiskidieldar* (Journal of Marine Sciences, Reykjavik, special volume) 11:225-250.
- Reed, M., K. Jayko, **A.E. Bowles**, and **S. Leatherwood**. 1988. Numerical model of bowhead and gray whale migration in Alaskan waters. *Journal of Ecological Modeling* 44:1-42.
- Thomas, J.**, N. Chun, W.W.L. Au, and K. Pugh. 1988. Underwater audiogram of a false killer whale (*Pseudorca crassidens*). *Journal of the Acoustical Society of America* 84:936-940.
- Thomas, J.A.**, R. A. Puddicombe, M. George and D. Lewis. 1988. Variations in underwater vocalizations of Weddell seals (*Leptonychotes weddelli*) at the Vestfold Hills as a measure of breeding population discreteness. *Hydrobiologia* 165:279-284.
- Thomas, J.A.**, M. Stoermer, C. Bowers, L. Anderson and A. Garver. 1988. Detection abilities and signal characteristics of echolocating false killer whales (*Pseudorca crassidens*). Pages 323-328 in P.E. Nachtigall and P.W.B. Moore (eds), *Animal Sonar*. Plenum Publishing Corporation, New York.
- Thomas, J.**, N. Chun and W.W.L. Au. 1988. Underwater audiogram of a false killer whale (*Pseudorca crassidens*). *Journal of the Acoustical Society of America* 84:936-940.
- Awbrey, F.T.** 1987. Communicating with dolphins - Reply. *Marine Mammal Science* 3(3): 288.
- Thomas, J.A.**, **L.M. Ferm** and V.B. Kuechle. 1987. Silence as an anti-predation strategy by Weddell seals. *Antarctic Journal of the United States* XXII:232-234.
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- Awbrey, F.T.** 1986. Communicating with dolphins. *Marine Mammal Science* 2(3): 233.
- Thomas, J.A.**, **S.R. Fisher** and **F.T. Awbrey**. 1986. Use of acoustic techniques in studying whale behavior. Pages 121-138 in G. P. Donovan, ed. Reports of the International Whaling Commission (Special Issue 8). *Behavior of Whales in Relation to Management*. International Whaling Commission, Cambridge, UK.
- Thomas, J.A.**, **S.R. Fisher**, **L.M. Ferm** and R.S. Holt. 1986. Acoustic detection of cetaceans using a towed array of hydrophones. Pages 139-148 in G. P. Donovan, ed. Reports of the International Whaling Commission (Special Issue 8). *Behavior of Whales in Relation to Management*. International Whaling Commission, Cambridge.
- Bohne, B.A., **J.A. Thomas**, **E.R. Yohe** and S.H. Stone. 1985. Examination of potential hearing damage in Weddell seals (*Leptonychotes weddelli*) in McMurdo Sound, Antarctica. *Antarctic Journal of the United States* 19:174-176.
- Schusterman, R.J., **J. A. Thomas**, and F. G. Wood (Eds). 1986. *Dolphin Cognition and Behaviour: A Comparative Approach*. Lawrence Erlbaum Associates, Hillsdale, New Jersey. 393 pp.

## 1980-1984

- Awbrey, F.T., S. Leatherwood, E.D. Mitchell and W. Rogers.** 1984. Nesting green sea turtles (*Chelonia mydas*) on Isla Clarión, Islas Revillagigedos, Mexico. *Bulletin of the Southern California Academy of Science* 83:69-75.
- Leatherwood, S., A.E. Bowles, E. Krygier, J.D. Hall, and S. Ignell.** 1984. Killer whales (*Orcinus orca*) in Southwest Alaska, Prince William Sound, and Shelikof Strait: A review of available information. *Reports of the International Whaling Commission* 34: 521-530.
- Leatherwood, S., R.R.Reeves, A.E. Bowles, B.S. Stewart, and K.R. Goodrich.** 1983. Distribution, seasonal movements, and abundance of Pacific white-sided dolphins in the eastern North Pacific. *Scientific Reports of the Whales Research Institute* 35:129-157.
- Thomas, J.A., K C. Zinnel and L.M. Ferm.** 1983. Analysis of Weddell seal (*Leptonychotes weddelli*) vocalizations using underwater playbacks. *Canadian Journal of Zoology* 61:1448-1456.
- Thomas, J.A., and I. Stirling.** 1983. Geographic variation in the underwater vocalizations of Weddell seals (*Leptonychotes weddelli*) from Palmer Peninsula and McMurdo Sound, Antarctica. *Canadian Journal of Zoology* 61:2203-2212.
- Thomas, J.A. and D.P. DeMaster.** 1983. Diel haul-out patterns of Weddell seal (*Leptonychotes weddelli*) females and their pups. *Canadian Journal of Zoology* 61:2084-2086.
- Thomas, J.A., and D.P. DeMaster.** 1983. Parameters affecting survival of Weddell seal pups (*Leptonychotes weddelli*) to weaning. *Canadian Journal of Zoology* 61:2078-2083.
- Dahlheim, M.E. and F. Awbrey.** 1982. A classification and comparison of vocalizations of captive killer whales (*Orcinus orca*). *Journal of the Acoustical Society of America* 72:661-670.
- Awbrey, F.T., J.A. Thomas, W.E. Evans and S. Leatherwood.** 1982. Ross Sea killer whale vocalizations: preliminary description and comparison with those of some northern hemisphere killer whales. *Reports of the International Whaling Commission* 32:667-670.
- Evans, W.E., A.V. Yablokov, and A.E. Bowles.** 1982. Geographic variation in the color pattern of killer whales (*Orcinus orca*). *Reports of the International Whaling Commission* 32:687-694.
- Leatherwood, S., F.T. Awbrey and J.A. Thomas.** 1982. Minke whale response to a transiting survey vessel. *Reports of the International Whaling Commission* 32:795-802.
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- Thomas, J.A., and V.B. Kuechle.** 1982. Quantitative analysis of Weddell seal (*Leptonychotes weddelli*) underwater vocalizations at McMurdo Sound, Antarctica. *Journal of the Acoustical Society of America* 72: 1730-1738.
- Thomas, J.A., and D.P. DeMaster.** 1982. An acoustic technique for determining diurnal activities in leopard (*Hydrurga leptonyx*) and crabeater (*Lobodon carcinophagus*) seals. *Canadian Journal of Zoology* 60:2028-2031.
- Thomas, J.A., S.R. Fisher, W.E. Evans and F.T. Awbrey.** 1982. Ultrasonic vocalizations of leopard seals (*Hydrurga leptonyx*). *Antarctic Journal of the United States* 17:186.
- Leatherwood, S., J.A. Thomas and F.T. Awbrey.** 1981. Minke whales off northwestern Ross Island. *Antarctic Journal of the United States* 16: 154-156.
- Green, R.F., S.H. Ridgway, W.E. Evans.** 1980. Functional and descriptive anatomy of the bottlenosed



*HSWRI Publication List*

- dolphin nasolaryngeal system with special reference to the musculature associated with sound production. Pp. 199-249 in R.-G. Busnel and J.F. Fish (Eds), *Animal Sonar Systems*. NATO Advanced Study Institute Series A: Life Sciences, Volume 28.
- Jehl, J.R., Jr., W.E. Evans, F.T. Awbrey** and W.S. Drieschmann. 1980. Distribution and geographic variation in the killer whale (*Orcinus orca*) populations of the Antarctic and adjacent waters. *Antarctic Journal of the United States* 15:161-163.
- Ljungblad, D.K., **S. Leatherwood** and M.E. Dahlheim. 1980. Sounds recorded in the presence of an adult and calf bowhead whale. *Marine Fisheries Review* 42:86-87.
- Ridgway, S.H., D.A. Carder, R.F. Green, A.S. Gaunt, S.L. Gaunt, and **W.E. Evans**. 1980. Electromyographic and pressure events in the nasopharyngeal system of dolphins during sound production. Pp. 239-249 in R.-G. Busnel and J.F. Fish (Eds), *Animal Sonar Systems*. NATO Advanced Study Institute Series A: Life Sciences, Volume 28.
- Wood, F.G. and **W.E. Evans**. 1980. Adaptiveness and ecology of echolocation in toothed whales. Pp. 381-425 in R.-G. Busnel and J.F. Fish (Eds), *Animal Sonar Systems*. NATO Advanced Study Institute Series A: Life Sciences, Volume 28.