

**SUSANNA BIRGITTA BLACKWELL**  
**SENIOR SCIENTIST, GREENERIDGE SCIENCES, INC.**

**Office address:** 1411 Firestone Road, Goleta CA 93117

**Education:**

**1996** Ph.D. in Biology, University of California at Santa Cruz. Thesis title: “Terrestrial apnea in northern elephant seals, *Mirounga angustirostris*: development and role in water economy”.

**1988** Licence ès Sciences in Biology, with honors, Université de Neuchâtel, Switzerland (6 year university degree roughly equivalent to an MS). Wrote a thesis on the ecology and population dynamics of several species of rodents and shrews of the Jura mountains in Switzerland.

**Languages spoken:** English, French, Swedish, some German.

**Professional Societies:** Acoustical Society of America, Society for Marine Mammalogy, American Association for the Advancement of Science, Sigma Xi.  
Fellow of the Acoustical Society of America (Dec. 2007)

**Employment and teaching experience:**

May 00–current	Senior Scientist, Greeneridge Sciences, Inc.
Jun 98–Apr 00	Postdoctoral Fellow under Dr. Barbara Block, Hopkins Marine Station, Stanford University
Feb–May 98	Visiting Researcher, University of Stockholm, Sweden
July–Aug 97	Instructor for 2 upper-division classes ( <i>Animal Behavior</i> and <i>Biology of Marine Mammals</i> ), University of California at Santa Cruz (UCSC)
July 96–June 97	Postdoctoral Fellow under Drs. Burney Le Boeuf and Dan Costa, UCSC
Aug 94	Instructor for an upper-division class ( <i>Animal Behavior</i> ), UCSC
Jan 90–June 96	Teaching Assistant during 13 quarters, UCSC

**Fieldwork:**

Aug–Oct 2007	Deployed and calibrated five arrays of Directional Autonomous Seafloor Acoustic Recorders in the Beaufort Sea to monitor the locations and numbers of calling bowheads between Kaktovik and Harrison Bay during their fall migration.
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Aug & Sep of 2000–2006	Deployment, calibration, servicing and retrieval of an array of Directional Autonomous Seafloor Acoustic Recorders (DASARs) in the Beaufort Sea (Prudhoe Bay, AK) to monitor the effects of industrial noise on the migration path of bowhead whales.
July 06	Underwater measurements of airgun sounds in the Chukchi Sea, to validate safety radii during seismic exploration.
Nov 04	Underwater measurements of vibratory pile-driving sounds in the Snohomish River near Seattle, WA, to assess possible effects on salmonid fish.
Aug 04	Underwater measurements of impact and vibratory pile-driving sounds in Cook Inlet, AK, to evaluate possible effects on beluga whales.
Nov 03 Jul 02 May 02	Underwater measurements, with and without use of a “bubble curtain”, of impact pile-driving sounds during bridge construction in the San Francisco Bay Area, CA, to determine effects on fish.
Aug 03	Underwater and airborne sound recordings of a hovercraft, Prudhoe Bay, AK.
Jan 03	Sound recordings from a vibratory beam driver to assess the potential impact on salmonid fish in the Duwamish River near Seattle, WA.
Mar 02, Mar 01	Acoustic measurements (underwater, in air, and in the ice) of drilling and production sounds, Prudhoe Bay, AK.
Apr–May 01	Member of the acoustic mitigation team for a ship shock trial, Patuxent River Naval Air Station, MD. Monitored for marine mammal sounds and locations via sonobuoys from a Navy patrol plane.
Jan 00	Tagging of giant Atlantic bluefin tuna with pop-off satellite archival tags in Beaufort, NC, under the Tag-A-Giant (TAG) program.
July 99	Tagging of albacore and Pacific bluefin tuna with conventional and pop-off satellite archival tags, F.V. <i>Shogun</i> .
July 98	Acoustic telemetry of Pacific bluefin and albacore tuna, R.V. <i>Pt Sur</i> .
Feb 98	Physiological ecology of grey seals in Estonia. Instrumented weaned pups with custom-built heart-rate and activity recorders to estimate the contribution of apneustic breathing to overall water economy during the post-weaning fast.
Oct 97	Effect of low-frequency sound on northern elephant seals, San Nicolas Is. Participated in translocations of elephant seals instrumented with acoustic recorders. Designed and fabricated the controller board for the recorders.

Oct 96	Population dynamics and physiology studies on southern elephant seals, Patagonia, Argentina.
1990–1996	Numerous studies on the physiology, diving and migratory behavior of northern elephant seals, Año Nuevo, CA.

**Peer-reviewed publications:**

Greene, C.R., Jr., S.B. Blackwell, and M.W. McLennan. 2008. Sounds and vibrations in the frozen Beaufort Sea during gravel island construction. **Journal of the Acoustical Society of America** 123(2):687–695.

Blackwell, S.B., W.J. Richardson, C.R. Greene, Jr., and B. Streever. 2007. Bowhead whale (*Balaena mysticetus*) migration and calling behaviour in the Alaskan Beaufort Sea, autumn 2001–2004: an acoustic localization study. **Arctic** 60(3):255–270.

Hassrick, J.L., D.E. Crocker, R.L. Zeno, S.B. Blackwell, D.P. Costa, and B.J. Le Boeuf. 2007. Swimming speed and foraging strategies of northern elephant seals. **Deep-Sea Research II** 54:369–383.

Blackwell, S.B. and C.R. Greene, Jr. 2006. Sounds from an oil production island in the Beaufort Sea in summer: characteristics and contribution of vessels. **Journal of the Acoustical Society of America** 119(1):182–196.

Blackwell, S.B., and C.R. Greene, Jr. 2005. Underwater and in-air sounds from a small hovercraft. **Journal of the Acoustical Society of America** 118(6):3646–3652.

Blackwell, S.B., C.R. Greene, Jr. & W.J. Richardson. 2004. Drilling and operational sounds from an oil production island in the ice-covered Beaufort Sea. *Journal of the Acoustical Society of America* 116(5):3199–3211.

Blackwell, S.B., J.W. Lawson & M.T. Williams. 2004. Tolerance by ringed seals (*Phoca hispida*) to impact pipe-driving and construction sounds at an oil production island. **Journal of the Acoustical Society of America** 115(5):2346–2357.

Blank, J.M., J.M. Morrissette, A.M. Landeira-Fernandez, S.B. Blackwell, T.D. Williams and B.A. Block. 2004. In situ cardiac performance of Pacific bluefin tuna hearts in response to acute temperature change. **Journal of Experimental Biology** 207:881–890.

Teo, S.L.H., A. Boustany, S. Blackwell, A. Walli, K.C. Weng and B.A. Block. 2004. Validation of geolocation estimates based on light level and sea surface temperature from electronic tags. **Marine Ecology Progress Series** 283:81–98.

Moulton, V.D., W.J. Richardson, M.T. Williams & S.B. Blackwell. 2003. Ringed seal densities and noise near an icebound artificial island with construction and drilling. **Acoustic Research Letters Online** 4(4):112–177.

- Block, B.A., H. Dewar, S.B. Blackwell, T. Williams, E.D. Prince, C.J. Farwell, A. Boustany, S.L.H. Teo, A. Seitz, A. Walli & D. Fudge. 2001. Electronic tags reveal migratory movements, depth preferences and thermal biology of Atlantic bluefin tuna. **Science** 293(5533):1310–1314.
- Campagna, C., J. Dignani, S.B. Blackwell & M.R. Marin. 2001. Detecting bioluminescence with an irradiance time-depth recorder deployed on southern elephant seals. **Marine Mammal Science** 17(2):402–414.
- Marcinek, D.J., S.B. Blackwell, H. Dewar, E.V. Freund, C. Farwell, D. Dau, A. Seitz and B.A. Block. 2001. Depth movements and muscle temperature of Pacific bluefin tuna measured with ultrasonic telemetry. **Marine Biology** 138:869–885.
- Le Boeuf, B.J., D.E. Crocker, D.P. Costa, S.B. Blackwell, P.M. Webb and D.S. Houser. 2000. Foraging ecology of northern elephant seals. **Ecological Monographs** 70(3):353–382.
- Le Boeuf, B.J., D.E. Crocker, J. Grayson, J. Gedamke, P.M. Webb, S.B. Blackwell and D.P. Costa. 2000. Respiration and heart rate at the surface between dives in northern elephant seals. **Journal of Experimental Biology** 203:3265–3274.
- Blackwell, S.B., C.A. Haverl, B.J. Le Boeuf & D.P. Costa. 1999. A method for calibrating swim-speed recorders. **Marine Mammal Science** 15(3):894–905.
- Webb, P.M., D.C. Crocker, S.B. Blackwell, D.P. Costa & B.J. Le Boeuf. 1998. Effects of buoyancy on the diving behavior of northern elephant seals. **Journal of Experimental Biology** 201:2349–2358.
- Campagna, C., F. Quintana, B.J. Le Boeuf, S.B. Blackwell and D.E. Crocker. 1998. Diving behaviour and foraging ecology of female southern elephant seals from Patagonia. **Aquatic Mammals** 24(1):1–11.
- Le Boeuf, B.J., P.A. Morris, S.B. Blackwell, D.E. Crocker & D.P. Costa. 1996. Diving behavior of juvenile northern elephant seals. **Canadian Journal of Zoology** 74(9):1632–1644.
- Fletcher, S., B.J. Le Boeuf, D.P. Costa, P.L. Tyack & S.B. Blackwell. 1996. Onboard acoustic recording from diving northern elephant seals. **Journal of the Acoustical Society of America** 100(4):2531–2539.
- Campagna, C., B.J. Le Boeuf, S.B. Blackwell, D.E. Crocker & F. Quintana. 1995. Diving behaviour and foraging location of female southern elephant seals from Patagonia. **Journal of Zoology**, London 236:55–71.
- Blackwell, S.B. & B.J. Le Boeuf. 1993. Developmental aspects of sleep apnoea in northern elephant seals, *Mirounga angustirostris*. **Journal of Zoology**, London 231:437–447.
- Le Boeuf, B.J., D.E. Crocker, S.B. Blackwell, P.A. Morris & P.H. Thorson. 1993. Sex differences in diving and foraging behaviour of northern elephant seals. **Symposium of the Zoological Society of London** No. 66:149–178.