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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”. Advisor Dr. Burney J. Le Boeuf.

1988 Licence ès Sciences in Biology, with honors, Université de Neuchâtel, Switzerland (6-year degree). Thesis on the ecology and population dynamics of rodents and shrews in the Jura mountains of Switzerland. Advisor Dr. Claude Mermod.

Languages: English, French, Swedish, rusty German.

Professional Societies: Acoustical Society of America, Society for Marine Mammalogy, Sigma Xi. Was elected Fellow of the Acoustical Society of America in December 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 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 upper-division class <i>Animal Behavior</i> , UCSC

Relevant fieldwork:

August 2013–2018	Tagged narwhals with acoustic tags in Scoresby Sound, East Greenland, to gather basic life-history information. These data will serve as a baseline in a study (summers 2017 & 2018) on the effects of seismic exploration on narwhals.
March / April 2013, 2014, 2015, and 2016	Tagged bowhead whales with acoustic tags in Disko Bay, West Greenland, as part of a tag development project - to develop small tags that can be carried by marine mammals for weeks to assess cumulative sound exposure to anthropogenic sounds.
Aug to Oct of 2007–2013	Deployed, calibrated, and retrieved arrays of Directional Autonomous Seafloor Acoustic Recorders (DASARs) in the Beaufort Sea to investigate the effects of seismic exploration on the calling behavior of bowhead whales.
June 2010	Underwater measurements of deterrent sounds made by salmon fishermen on Kodiak, AK, to investigate their effects on humpback whales.

Aug & Sep of 2000–2006	Deployment, calibration, servicing and retrieval of an array of DASARs in the Beaufort Sea (Prudhoe Bay, AK) to monitor the effects of an oil production island (Northstar) on the migration path and calling 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, and 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.
May 00	Measurements of shallow-hazard survey sounds, Pt Hueneme, CA.

Peer-reviewed publications:

- Heide-Jørgensen, M.P., **S.B. Blackwell**, T.M. Williams, M.H.S. Sinding, M. Skovrind, O.M. Tervo, E. Garde, R.G. Hansen, N.H. Nielsen, M.C. Ngô, S. Ditlevsen. Some like it cold: temperature-dependent habitat selection by narwhals. *Ecology and Evolution* 2020;00:1–18.
- Thode, A.M., **S.B. Blackwell**, A.S. Conrad, K.H. Kim, T. Marques, L. Thomas, C.S. Oedekoven, D. Harris, and K. Bröker. 2020. Roaring and repetition: how bowhead whales adjust their call density and source level (Lombard effect) in the presence of natural and seismic airgun survey noise. *Journal of the Acoustical Society of America* 147:2061–2080.
- Frouin-Mouy, H., X. Mouy, C.L. Berchok, **S.B. Blackwell**, and K.M. Stafford. 2019. Acoustic occurrence and behavior of ribbon seals (*Histriophoca fasciata*) in the Bering, Chukchi, and Beaufort seas. *Polar Biology* DOI 10.1007/s00300-019-02462-y
- Blackwell, S.B.**, O.M. Tervo, A.S. Conrad, M.H.S. Sinding, R.G. Hansen, S. Ditlevsen, M.P. Heide-Jørgensen. 2018. Spatial and temporal patterns of sound production in East Greenland narwhals. *PLoS ONE* 13(6):e0198295, 23 pages.
- Williams, T.M., **S.B. Blackwell**, B. Richter, M.-H.S. Sinding, M.P. Heide-Jørgensen. 2017. Paradoxical escape responses by narwhals (*Monodon monoceros*). *Science* 358:1328–1331.
- Thode, A.M., **S.B. Blackwell**, A.S. Conrad, K.H. Kim, A.M. Macrander. 2017. Decadal-scale frequency shift of migrating bowhead whale calls in the shallow Beaufort Sea. *Journal of the Acoustical Society of America* 142:1482–1502.

- Blackwell, S.B.**, C.S. Nations, M.E. Kauffman, A.M. Thode, A.S. Conrad, R.G. Norman, K.H. Kim. 2017. Effects of tones associated with drilling activities on bowhead whale calling rates. *PLoS ONE* 12(11):e0188459, 21 pages.
- Thode, A.M., **S.B. Blackwell**, K.D. Seger, A.S. Conrad, K.H. Kim, A.M. Macrander. 2016. Source level and calling depth distributions of migrating bowhead whale calls in the shallow Beaufort Sea. *Journal of the Acoustical Society of America* 140(6):4288–4297.
- Thode, A.M., K.H. Kim, R.G. Norman, **S.B. Blackwell**, C.R. Greene, Jr. 2016. Acoustic vector sensor beamforming reduces masking from underwater industrial noise during passive monitoring. *JASA Express Letters* 139, EL105; DOI: 10.1121/1.4946011, 7 pages.
- Blackwell, S.B.**, C.S. Nations, T.L. McDonald, A.M. Thode, D. Mathias, K.H. Kim, C.R. Greene, Jr., A.M. Macrander. 2015. Effects of airgun sounds on bowhead whale calling rates: evidence for two behavioral thresholds. *PLoS ONE* DOI: 10.1371/journal.pone.0125720, 29 pages.
- Heide-Jørgensen, M.P., N.H. Nielsen, R.G. Hansen, H.C. Schmidt, **S.B. Blackwell**, O.A. Jørgensen. 2015. The predictable narwhal: satellite tracking shows behavioural similarities between isolated subpopulations. *Journal of Zoology* DOI: 10.1111/jzo.12257, 16 pages.
- Heide-Jørgensen, M.P., N.H. Nielsen, R.G. Hansen, **S.B. Blackwell**. 2014. Stomach temperature of narwhals (*Monodon monoceros*) during feeding events. *Animal Biotelemetry* 2:9.
- Abadi, S.H., A.M. Thode, **S.B. Blackwell**, D.R. Dowling. 2014. Ranging bowhead whale calls in a shallow-water dispersive waveguide. *Journal of the Acoustical Society of America* 136(1):130–144.
- Bonnel, J., A.M. Thode, **S.B. Blackwell**, K.H. Kim, A.M. Macrander. 2014. Range estimation of bowhead whale (*Balaena mysticetus*) calls in the Arctic using a single hydrophone. *Journal of the Acoustical Society of America* 136(1):145–155.
- Blackwell, S.B.**, C.S. Nations, T.L. McDonald, C.R. Greene, Jr., A.M. Thode, M. Guerra, A.M. Macrander. 2013. Effects of airgun sounds on bowhead whale call detection rates in the Alaskan Beaufort Sea. *Marine Mammal Science*, 29(4):E342–E365.
- Thode, A.M., K.H. Kim, **S.B. Blackwell**, C.R. Greene, Jr., C.S. Nations, T.L. McDonald, A.M. Macrander. 2012. Automated detection and localization of bowhead whale sounds in the presence of seismic airgun surveys. *Journal of the Acoustical Society of America* 131(5):3726–3747.
- McDonald, T.L., W.J. Richardson, C.R. Greene, **S.B. Blackwell**, C.S. Nations, R.M. Nielson, B. Streever. 2012. Detecting changes in the distribution of calling bowhead whales exposed to fluctuating anthropogenic sounds. *Journal of Cetacean Research and Management* 12(1):91–106.
- Richardson, W.J., T.L. McDonald, C.R. Greene, Jr., **S.B. Blackwell**, B. Streever. 2012. Distribution of bowhead whale calls near an oil production island with fluctuating underwater sound. P. 303–306 *In* The Effects of Noise on Aquatic Life, A.N. Popper and A. Hawkins, editors, *Advances in Experimental Medicine and Biology* 730, Springer Science+Business Media LLC.
- Blackwell, S.B.**, T.L. McDonald, K.H. Kim, L.A.M. Aerts, W.J. Richardson, C.R. Greene, Jr., B. Streever. 2012. Directionality of bowhead calls measured with multiple sensors. *Marine Mammal Science* 28(1):200–212.
- Guerra, M., A.M. Thode, **S.B. Blackwell**, A.M. Macrander. 2011. Quantifying seismic survey reverberation off the Alaskan North Slope. *Journal of the Acoustical Society of America* 130(5):3046–3058.

- Koski, W.R., D.W. Funk, D.S Ireland, C. Lyons, K. Christie, A.M. Macrander, **S.B. Blackwell**. 2009. An update on feeding by bowhead whales near an offshore seismic survey in the Central Beaufort Sea. Report of the International Whaling Commission SC/61/BRG3.
- Greene, C.R., Jr., **S.B. Blackwell**, M.Wm. 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.
- Streever, B., R.P. Angliss, R. Suydam, M. Ahmaogak, C. Bailey, **S.B. Blackwell**, J.C. George, C.R. Greene, Jr., R.S. Jakubczak, J. Lefevre, T.L. McDonald, T. Napageak, W.J. Richardson. 2008. Progress through collaboration: a case study examining effects of industrial sounds on bowhead whales. *Bioacoustics* 17(1-3):345–347.
- Blackwell, S.B.**, W.J. Richardson, C.R. Greene, Jr., 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, B.J. Le Boeuf. 2007. Swimming speed and foraging strategies of northern elephant seals. *Deep-Sea Research II* 54:369–383.
- Blackwell, S.B.**, 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.**, 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. Morrisette, A.M. Landeira-Fernandez, **S.B. Blackwell**, T.D. Williams, 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, 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.
- Costa, D.P., D.E. Crocker, J. Gedamke, P.M. Webb, D.S. Houser, **S.B. Blackwell**, D. Waples, S.A. Hayes, B.J. Le Boeuf. 2003. The effect of a low-frequency sound source (acoustic thermometry of the ocean climate) on the diving behavior of juvenile northern elephant seals, *Mirounga angustirostris*. *Journal of the Acoustical Society of America* 113(2):1155–1165.
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- 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.
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- 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.
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- 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.
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- 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.