**Birgitte I. McDonald**

Moss Landing Marine Laboratories, San Jose State University

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https://www.mlml.calstate.edu/birdmam/

**Education And Postdoctoral Training .**

Postdoc **Aarhus University**  
 Zoophysiology, Institute of Bioscience, 2013 - 2014

Supervisors: Peter T. Madsen, Tobias Wang

*Field energetics and diving physiology of a small cetacean, the harbor porpoise*

**Scripps Institution of Oceanography**, UC San Diego  
 Center for Marine Biotechnology and Biomedicine, 2010 - 2013

Supervisor: Paul J. Ponganis

*Diving physiology of the California sea lion: Blood oxygen depletion, heart rate and stroke rate in free ranging sea lions*

Ph.D. **University of California, Santa Cruz**, Ecology and Evolutionary Biology, 2009

Advisor: Daniel P. Costa

*The reproductive energetics of Antarctic fur seals: influence of maternal traits and foraging behavior on investment*

M.A. **Sonoma State University**, Biology, 2003

Top 25 Scholar

Advisor: Daniel E. Crocker

*Physiological and behavioral determinants of lactation efficiency in northern elephant seals*

B.A. **University of California, Santa Cruz**, Biology, 1999

College Honors, Honors in the Major

**University of Copenhagen**

Education Abroad Program, 1996-1997

**Appointments .**

Associate Professor, Moss Landing Marine Laboratories, San Jose State University 2020

Assistant Professor, Moss Landing Marine Laboratories, San Jose State University 2015-2020

**Grants and Fellowships .**

**Grants:**

“Support for basic response to marine mammal strandings in California’s Monterey Bay”

*Prescott Grant Program, NOAA, MLML total: $16,966, Awarded*

R. Dunkin, D. Casper and B.I. McDonald PIs 2020-2021

“CAREER: Foraging ecology and physiology of emperor penguins in the Ross Sea”

*National Science Foundation, Project total: $935,931, Awarded*

B.I. McDonald 2020-2025

“Support for California sea lion unusual mortality event – UC Davis Agreement”

*Oiled Wildlife Care Network, UC Davis, $84,420 (for equipment and student tuition)*

B.I. McDonald 2020

“Development of active acoustic methods for the measurement of air spaces in freely diving   
mammals”

*Packard endowment through University of California, Santa Cruz $10,000, Awarded*

C.Reichmuth, K Benoit-Bird, B.I. McDonald, and N.Thometz 2019

“Assessment of the cumulative effects of multiple stressors on marine mammals – elephant seals as a model system”

*Strategic Environmental Research and Development Program, Awarded to Dr. Costa (UCSC)*

D.P. Costa, D.E. Crocker, S. Peterson, and B.I. McDonald 2020-2024

“Support for California sea lion unusual mortality event – UC Davis Agreement”

*Oiled Wildlife Care Network, UC Davis, $52,372 (for equipment and student tuition)*

B.I. McDonald 2019

“Enhanced stranding response on the central California through advanced training and improved public outreach”

*Prescott Grant Program, NOAA, MLML total: $26,677, Project total: $95,582*

R. Dunkin, D. Casper, and B. McDonald 2019-2020

“The hidden lives of emperor penguins: Cameras and movement loggers provide insight into foraging of an Antarctic Icon”

*National Geographic Exploration grant, $26,004*

B.I. McDonald 2018-2019

“The hidden lives of emperor penguins: Cameras and movement loggers provide insight into foraging of an Antarctic Icon”

*Sea World Conservation Fund, $10,000*

B.I. McDonald 2018-2019

“Enhanced stranding response and training for the future on the central California coast”

*Prescott Grant Program, NOAA, MLML total: $3,539, Project total: $65,696*

R. Dunkin, D. Casper, B. McDonald, and J. Harvey 2018-2019

“Support for California sea lion unusual mortality event – UC Davis Agreement”

*Oiled Wildlife Care Network, UC Davis, $62,750 (for equipment and student tuition)*

B.I. McDonald 2018

“Collaborative Research: At-sea experimental disturbance to characterize physiological plasticity in diving northern elephant seals”

*National Science Foundation: Division of Integrative Organismal Systems*

*MLML total: $265,455 Project total (5 institutions): $1,050,000*

A. Hindle, B.I. McDonald, C.L. Williams, M. Horning, and H. Klinck, 2017-2021

“Large whale readiness and response in central and northern California”

*Prescott Grant Program, NOAA, $91,458*

B.I. McDonald, J.T. Harvey, R. Dunkin, and D. Casper 2017-2020

“Enhanced stranding response on the central California Coast”

*Prescott Grant Program, NOAA, MLML total: $26,622 Project total: $99,998*

D. Casper, R. Dunkin, B. McDonald, and J. Harvey 2017-2018

“Support for California sea lion unusual mortality event – UC Davis Agreement”

*Oiled Wildlife Care Network, UC Davis, $62,925 (for equipment and student tuition)*

B.I. McDonald 2017

“Heart rate logging in deep diving toothed whales: a new tool for assessing responses to   
disturbance”

*Office of Naval Research, $443,818*

B.I. McDonald, M. Johnson, N. Aguilar de Soto, and P.T. Madsen 2016-2020

“Social behavior and site fidelity of Monterey Bay Risso’s dolphins”

*American Cetacean Society – Monterey Bay chapter, $20,000*

B.I. McDonald and A. Stimpert 2015

“Graduate student training and financial support”

Polka Dot Foundation, $25,000 (2015), $15,000 (2016), $5,000 (2017)

B.I. McDonald 2015-2017

“Monitoring central California pinniped colonies using unmanned aerial vehicles”

*Packard endowment through University of California, Santa Cruz $2,915*

D.P. Costa, P.R. Robinson, and B.I. McDonald 2015

“Coccidioidomycosis in rescued marine mammals along California’s coast”

*Council on Ocean Affairs, Science and Technology, MLML total: $2,500 Project total: $7,495*

A. Lauer, H. Liwanag, and B.I. McDonald 2015-2016

“Field energetics and diving physiology of a small cetacean, the harbor porpoise”

*National Science Foundation International Postdoctoral Fellowship, $150,500*

B.I. McDonald (Aarhus University, Denmark) 2013-2015

“Keeping warm in cold water: Field energetics and diving physiology of a small cetacean”

*Carlsberg Foundation, $37,500 (210,000 DKK)*

P.T. Madsen, B.I. McDonald, and T. Wang 2013-2015

“Deep-diving California sea lions: Are they pushing their physiological limits”

*Office of Naval Research, $340,751*

P.J. Ponganis and B.I. McDonald 2012-2014

**Fellowships**:

Environmental Protection Agency STAR fellowship 2005-2008

National Science Foundation pre-doctoral fellowship 2001-2005

**Publications .**

***Published***

1. Harrington, K.J., J.A. Fahlbusch, R. Langrock, J.-F. Therrien, **B.I. McDonald**. Time-energy allocation of a seasonally food-stressed island-restricted Falconid, the striated caracara (*Phalcoboenus australis*). *Animal Biotelemetry 8*(1), 1-11.2020.
2. **McDonald, B.I.**, M.S. Tift, L.A. Hückstädt, M. Jeffko, and P.J. Ponganis. Stroke effort and relative lung volume influence heart rate in diving sea lions. *Journal of Experimental Biology* 223: jeb214163. 2020
3. Hückstädt, L.A., M.A. Piñones, D.M. Palacios, **B.I. McDonald**, M.S. Dinniman, E.E. Hofmann, J.M. Burns, D.E. Crocker and D.P. Costa. Predicted shift in the foraging strategy of the largest consumer of Antarctic krill, the crabeater seal, due to climate change in the western Antarctica Peninsula. *Nature Climate Change* 10:472–477. 2020.
4. Hindell, M., R.R. Reisinger, Y. Ropert-Coubert, L.A. Hückstädt, P.N. Trathan, H. Bornemann, J-B. Charrassin, D. P. Costa, …, **B.I McDonald**, …, B. Raymond (81 authors). Tracking predator communities to protect the Southern Ocean. *Nature* 580:87–92. 2020.
5. Ropert-Coubert, Y., Van de Putte, A., Reisinger, R., Bornemann, H., Charrassin, J., … Hindell, M. . The retrospective analysis of Antarctic tracking data project. Scientific Data. 7, Article #: 94. 2020.
6. Lauer, A., L. Palmer, C. Kloock, H.E.M. Liwanag, **B.I. McDonald**, C. Mulcahy, T. Norris, J. Mejia Muñoz, S. Hannah, and S. Johnson. Survey for anti-Coccidioides antibodies in blood sera from California sea lions (*Zalophus californianus*) and northern fur seal pups (*Callorhinus ursinus*) that stranded along California’s coast (2013-2015). *Western Wildlife* 6:69-81. 2019.
7. Horning, M., R.D. Andrews, A. Biship, P.L. Boveng, D.P. Costa, D.E. Crocker, M. Haulena, M. Hindell, A.G. Hindle, R.R. Holser, S.K. Hooker, L.A. Hückstädt, S. Johnson1, M.-A. Lea, **B.I. McDonald**, C.R. McMahon, P.W. Robinson, R. Sattler, C.R. Shuert, S.M. Steingass, D. Thompson, P.A. Tuomi, C.L. Williams, and J.N. Womble. Best practice recommendations for the use of external telemetry devices on pinnipeds. *Animal Biotelemetry* 7:20. 2019
8. Elmegaard, S.L., **B.I. McDonald**, and P.T. Madsen. Drivers in diving heart rate in captive harbor porpoises (*Phocoena phocoena*). *Journal of Experimental Biology* 222: jeb208637. 2019.
9. Hooper, A.W., R.W. Burger, L.S. Rubin, **B.I. McDonald**, and D.E. Crocker. Maternal age influences offspring behavior and growth efficiency during provisioning in northern elephant seals (*Mirounga angustirostris*). *Animal Behavior* 151: 121-130. 2019.
10. Rojano-Donate, L., **B.I. McDonald**, D.M. Wisniewska, M. Johnson, J. Teilmann, M. Wahlberg, J.H. Kristensen, and P.T. Madsen. High field metabolic rates of wild harbor porpoises. *Journal of Experimental Biology* 221: [jeb.185827](https://search.crossref.org/?q=10.1242%2Fjeb.185827). 2018.
11. J. Kaczmarek, C. Reichmuth, **B.I. McDonald**, J.H. Kristensen, J. Larson, F. Johansson, J. Sullivan, P.T. Madsen. Drivers of the dive response in pinnipeds; apnea, submergence or temperature. *Journal of Experimental Biology* 221: jeb.176545. 2018.
12. Goetz, K.T., **B.I. McDonald**, and G.L. Kooyman. Habitat preference and dive behavior of non-breeding emperor penguins in the eastern Ross Sea, Antarctica*. Marine Ecology Progress Series* 509: 155-171. 2018.
13. **McDonald, B.I.**, M. Johnson, and P.T. Madsen. Dive heart rate in harbour porpoises is influenced by exercise and expectations. *Journal of Experimental Biology* 221: jeb.168740. 2018.
14. Hooker, S., S.E. Simmons, A. Stimpert, and **B.I. McDonald**. Equity and career-life balance in marine mammal science. *Marine Mammal Science* 33: 955-965. 2017.
15. Ponganis, P.J., **B.I. McDonald**, M.S. Tift, S.C. Gonzalez, B. DaValle, R.A. Gliniecki, C.C. Stehman, N. Hauff, B. Ruddick, and R. Howard. Effects of inhalational anesthesia on blood gases and pH in California sea lions. *Marine Mammal Science* 33: 726-737. 2017.
16. Tift, M.S., L.A. Hückstädt, **B.I. McDonald**, P. Thorson, and P.J. Ponganis. Flipper stroke rate and venous oxygen levels in free-ranging California sea lions. *Journal of Experimental Biology* 220: 1533-1540. 2017.
17. Ponganis, P.J., **B.I. McDonald**, M.S. Tift, and C.L. Williams. Heart rate regulation in diving sea lions: the vagus nerve rules. *Journal of Experimental Biology* 220: 1372-1382. 2017.
18. Elmegaard, S.L., M. Johnson, P.T. Madsen, and **B.I. McDonald**. Cognitive control of heart rate in diving harbor porpoises. *Current Biology* 26: R1175-R1176. 2016. (cover photo).
19. Villegas-Amtmann, S., **B.I. McDonald**, D. Paez-Rosas, D. Aurioles-Gamboa, and D.P. Costa. Adapted to change: Low energy requirements in a low and unpredictable productivity environment, the case of the Galapagos sea lion. *Deep-Sea Research Part II* 140: 94-104. 2016.
20. Crocker, D.E. and **B.I. McDonald**. Chapter 10: Post-partum reproduction. In: Marine Mammal Physiology: Requisites for Ocean Living. Eds. M.A. Castellini & J.A. Mellish. CRC Press, Boca Raton. 2015.
21. Kooyman, G.L., **B.I. McDonald**, and K.T. Goetz. Why do satellite transmitters on emperor penguins stop transmitting? *Animal Biotelemetry* 3: 54. 2015.
22. **McDonald, B.I.** and P.J. Ponganis. Deep diving sea lions exhibit extreme bradycardia in long duration dives. *Journal of Experimental Biology* 217: 1525-1534. 2014.
23. Maresh, J.L., S.E. Simmons, D.E. Crocker, **B.I. McDonald**, T.M. Williams, and D.P. Costa. Free- swimming northern elephant seals have low field metabolic rates that are sensitive to an increased cost of transport. *Journal of Experimental Biology* 217: 1485-1495. 2014.
24. Gearheart, G., G.L. Kooyman, K.T. Goetz, and **B.I. McDonald**. Migration front of post-moult emperor penguins. *Polar Biology* 37: 435-439. 2014.
25. Wright, A.K., K.V. Ponganis, **B.I. McDonald**, and P.J. Ponganis. Heart rates of emperor penguins diving at sea: implications for oxygen store management. *Marine Ecology Progress Series* 496: 85-98. 2014.
26. Maxwell, S.M., E.L. Hazen, S.J. Bograd, B.S. Halpern, G.A. Breed, B. Nickel, N.M. Teutschel, L.B. Crowder, S. Benson, P.H. Dutton, H. Bailey, M.A. Kappes, C.E. Kuhn, M.J. Weise, B. Mate, S.A. Shaffer, J. Hassrick, R.W. Henry, L. Irvine, **B.I. McDonald**, P.J. Robinson, B.A Block, and D.P. Costa. Cumulative human impacts on marine predators. *Nature Communications* 4. 2013.
27. **McDonald, B.I.** and P.J. Ponganis. Insights from venous oxygen profiles: oxygen utilization and management in diving California sea lions.*Journal of Experimental Biology* 216: 3332-3341. 2013.
28. **McDonald, B.I.,** and P.J. Ponganis. Lung collapse in a diving sea lion: hold the nitrogen and save the oxygen. *Biology Letters* 8: 1047-1049. 2012.
29. **McDonald, B.I.,** M.E. Goebel, D.E. Crocker, and D.P. Costa. Dynamic influence of maternal and pup traits on maternal care during lactation in an income breeder, the Antarctic fur seal. *Physiological and Biochemical Zoology* 85: 243-254. 2012.
30. **McDonald, B.I.,** M.E. Goebel, D.E. Crocker, and D.P. Costa. Biological and environmental drivers of energy allocation in a dependent mammal, the Antarctic fur seal pup. *Physiological and Biochemical Zoology* 85: 134-147. 2012. (cover photo)
31. Robinson, P.W., D.P. Costa, D.E. Crocker, J.P. Gallo-Reynoso, C.D. Champagne, M. Fowler, C. Goetsch, K. Goetz, J.L. Hassrick, L.A. Hückstädt, C.E. Kuhn, J. Maresh, S.M. Maxwell, **B.I. McDonald**, S. Peterson, S.E. Simmons, N.M. Teutschel, S. Villegas-Amtmann, and K. Yoda. Key foraging habitats of mesopelagic predators of the northeast Pacific Ocean: insights drawn from a data-rich species, the northern elephant seal. *PLoS ONE* 7(5): e36728.
32. Hückstädt, L.A., J.M. Burns, **B.I. McDonald,** P. Koch, D.E. Crocker, and D.P Costa. Being a specialist in a changing environment: the diet of the crabeater seal along the western Antarctic Peninsula. *Marine Ecology Progress Series* 455: 287-301. 2012.
33. Hückstädt, L.A., P. Koch, **B.I. McDonald**, M.E. Goebel, D.E. Crocker, and D.P Costa. Inter-individual differences in the trophic ecology of southern elephant seals from the western Antarctic Peninsula: insights from stable isotope analyses. *Oceologia* 169: 395-406. 2012.
34. Padman, L., D.P. Costa, S.T. Bolmer, M.E. Goebel, L.A. Hückstädt, A. Jenkins, **B.I. McDonald**, and D.R. Shoosmith. Seals measure bathymetry of the Antarctic continental shelf. *Geophysical Research Letters* 37: L21601-L21606. 2010.
35. Costa, D.P., L. Hückstädt, D.E. Crocker, **B.I. McDonald**, M.E. Goebel, and M.A. Fedak. Approaches to studying climate change and habitat selection of Antarctic pinnipeds. *Integrative and Comparative Biology* 50: 1018-1030. 2010.
36. Hassrick, J.L., D.E. Crocker, N.M. Teutschel, **B.I. McDonald**, P.W. Robinson, S.E. Simmons, and D.P. Costa. Age and mass impact oxygen stores and diving duration in adult female northern elephant seals. *Journal of Experimental Biology* 213: 585-592. 2010.
37. **McDonald, B.I.,** M.E. Goebel, Y. Tremblay, D.E. Crocker, and D.P. Costa. Maternal traits and environment impact the foraging strategies and provisioning rates of an income breeder, the Antarctic fur seal. *Marine Ecological Progress Series* 394: 277-288. 2009.
38. **McDonald, B.I.**, D.E. Crocker, J.M. Burns, and D.P. Costa. Body condition as an index of winter foraging success in crabeater seals (*Lobodon carcinophaga*). *Deep Sea Research Part II* 55: 515-522. 2008.
39. Biuw, M., L. Boehme, C. Guinet, M. Hindell, D. Costa, J.-B. Charrassin, F. Roquet, F. Bailleul, M. Meredith, S. Thorpe, Y. Tremblay, **B. McDonald**, Y.-H. Park, S.R. Rintoul, N. Bindoff, M. Goebel, D. Crocker, P. Lovell, J. Nicholson, F. Monks, and M.A. Fedak. Variations in behavior and condition of a Southern Ocean top predator in relation to in situ oceanographic conditions. *Proceedings of the National Academy of Science* 104: 13705–13710. 2007.
40. **McDonald, B.I.** and D.E. Crocker. Physiology and behavior influence lactation efficiency in northern elephant seals (*Mirounga angustirostris*). *Physiological and Biochemical Zoology* 79: 484-496. 2006.
41. Tremblay, Y., S.A. Shaffer, S.L. Fowler, C.E. Kuhn, **B.I. McDonald**, M.J. Weise, C. Bost, H. Weimerskirch, D.E. Crocker, M.E. Goebel, and D.P. Costa. Interpolation of tracking data in a fluid environment. *Journal of Experimental Biology* 209: 128-140. 2006.
42. Kuhn, C.E., **B.I. McDonald**, S.A. Shaffer, D.P. Costa, J. Barnes, D.E. Crocker, and J.M. Burns. Diving physiology and winter foraging behavior of a juvenile leopard seal (*Hydrurga leptonyx). Polar Biology* 29: 303-307. 2006.
43. Burns, J.M., D.P. Costa, M.A. Fedak, C.J.A. Bradshaw, M.A. Hindell, N. Gales, **B.I. McDonald**, S.J. Trumble, and D.E. Crocker. Winter habitat use and foraging behavior of crabeater seals along the Western Antarctic Peninsula. *Deep Sea Research Part II* 51: 2279-2303. 2004.

***Submitted or to be submitted 2020/21***

Barrett, H., M.T. Tinker, G. Bentall and **B.I. McDonald**. The energetic cost of anthropogenic disturbance on the southern sea otter (*Enhydra lutris nereis*). To be submitted: *Marine Mammal Science*.

Cole, M.R., P.T. Madsen, J.A. Zeligs, S. Skrovan, and **B.I. McDonald**. Head-mounted accelerometry accurately detects prey capture in California sea lions. To be submitted: *Animal Biotelemetry.*

Crocker D.E. and B.I. McDonald. Chapter 4: Physiological capacity and constraint impacts behavioral phenotype in phocid seals. In: Phocid Ethology. Eds. E. McHuron & D.P. Costa. **Submitted.**

Elmegaard, S.L., **B.I. McDonald**, J.Teilmann, and P.T. Madsen. Heart rate and startle responses to transient noise exposure and sonar are decoupled in diving, captive harbour porpoises. **Submitted:** *Journal of Experimental Biology*.

Hindle, A., **B.I. McDonald**, M. Horning, P.J.Ponganis, S. Hannah, L. Cooley, and C.L. Williams. Heart rate and temperature during at-sea disturbance in diving elephant seals. *Philosophical Transactions of the Royal Society B* – Special Issue.

Kooyman, G.L, **B.I. McDonald**, C.L. Williams, J.U. Meir, and P. Ponganis. The Aerobic Dive Limit: After 40 Years, Still Rarely Measured but Commonly Used. **Submitted**: *Comparative Biochemistry and Physiology, Part A*

**McDonald, B.I.,** S.L. Elmegaard, M. Johnson, D.M. Wisniewska, J. Teilmann, and P.T. Madsen. High heart rates in hunting porpoises. **Submitted:** *Proceedings of the Royal Society B*.

**McDonald, B.I.,** P.J. Ponganis, P.T. Madsen, A. Fahlman, D.P. Costa, A. Costidis, D.E. Crocker, D. Garcia-Parraga, G.L. Kooyman, P. Kvadsheim, M. Moore, S. Noren, S.H. Ridgway, N. Thometz, L Thompson T Wang, and T.M. Williams. Future directions in marine mammal physiology. To be submitted: *Frontiers in Physiology*.

Rojano-Donate, L., J. Teilmann, D.M. Wisniewska, J. van der Hoop, F.H. Jensen, U. Siebert, **B.I. McDonald**, S. Elmegaard, S. Sveegaard, R. Dietz, M. Johnson, and P.T. Madsen. Low hunting cost in short and shallow diving harbour porpoises. **Submitted**: *Functional Ecology*.

Wisniewska, D., and **B.I. McDonald.** Measuring energy intake and expenditure in free-ranging marine predators: a review. To be submitted: *Philosophical Transactions of the Royal Society B*

**Teaching Experience .**

**Moss Landing Marine Laboratories**

Physiological Ecology of Marine Vertebrates

Biology of Marine Mammals and Birds

Ecology of Vertebrates in the Gulf of California

Sampling and Experimental Design

Scientific Writing

Ecology of Marine Turtles, Birds and Mammals

*Co-Instructor*, **Aarhus University**

Ecophysiology of Marine Mammals 2014

*Instructor*, **University of California, Santa Cruz**

Biology of Marine Mammals, upper division lecture and lab course 2009

*Teaching Assistant*

**University of California, Santa Cruz** 2003-2004

Physiological & Developmental Biology –introductory biology series

Biology of Marine Mammals – upper division lecture and lab course

**Sonoma State University** 2000-2001

Diversity, Structure, & Function Laboratory – introductory biology series

Introduction to Biology Laboratory for non-majors

*Environmental Education Intern* 2000

**Shaver’s Creek Environmental Center**, Pennsylvania State University

Taught children of all ages at outdoor school, summer camps, and local schools

**Mentoring Experience .**

*Associate Professor,* **Moss Landing Marine Laboratories**

**Advisor**: Thirteen M.S. students (5 finished, 12 current)

**Committee member or mentor**: 18 M.S. students (11 Moss Landing Marine Labs, 5 San Jose State University, 1 Sonoma State University, 1 Aarhus University) and one Ph.D. student (UCSC)

**Comprehensive exam committee**: one Ph.D. student (UCSC)

**Intern supervisor**: Fifteen undergraduate and post-baccalaureate interns

**NSF funded Research Experience for Undergraduate students**: Three summer students

**Other Skills .**

* Proficient in the use of a variety of statistical methods including: mixed effects models, general linear models, and the information theoretic approach.
* Programming in MATLAB and R
* Experience programming, processing and analyzing data from a variety of data loggers including: time-depth recorders, satellite tags, accelerometers, acoustic tags, and physiological biologgers (oxygen and heart rate).
* Field techniques, including: physical and chemical capture and restraint of pinnipeds and seabirds, blood and tissue sampling, attachment of data loggers, mark-recapture techniques, behavioral observations and census techniques
* Laboratory techniques, including: enzyme activity and hormone assays, stable and radio isotope analysis, respirometry, bomb calorimetry, blood processing, Hb-O2 dissociation curve analysis, scat analysis
* Radiation safety trained
* Animal husbandry and training
* Scientific diver (Advanced, Rescue, Nitrox) and Diving First Aid for professional divers

**Invited Presentations .**

**College of Science Seminar,** San Jose State University 2020

**International Bio-Logging Society Webinar, "The Breadth of Bio-Logging"** 2020

**Science Lecture series,** Scott Base, Antarctica2019

**Field Methods in Animal Biology,** UC Santa Cruz 2019

**Symposium to honor of Yasohiko Naito**, UC Santa Cruz 2019

**Ecology and Evolutionary Biology Seminar,** UC Santa Cruz 2019

**Elephant Seal Symposium,** UC Santa Cruz 2018

**Oxygen Symposium,** Celebration of Roy Weber, Aarhus University, Denmark2018

**Biology Departmental Seminar,** California State University, Monterey Bay 2017

**Hopkins Marine Station,** Stanford University 2016

**Biology Departmental Seminar,** Sonoma State University2016

**Marine Mammal Veterinary Medicine training series**, UC Davis 2016-19

**Biology Departmental Seminar,** San Jose State University2015

**California Marine Mammal Society Student Chapter Annual meeting** 2015

**Zoophysiology** **Departmental Seminar**, Aarhus University, Denmark 2013

**Biology Departmental Seminar,** UC San Diego 2011

**Zoophysiology** **Departmental Seminar**, Aarhus University, Denmark 2011

**Naval Medical Center,** San Diego, CA 2010

**Biology Department**, Sonoma State University, CA 2010

**Science Lecture series,** Palmer Station, Antarctica2006

**Outreach .**

*Career Panelist,* **Lakeview Middle School,** Watsonville, CA 2020

*Career Panelist,* REU Ocean Careers Workshop, Marina, CA 2019

*National Geographic Ocean Explorer Blog (will be migrating to new site)* 2019

“Hidden Lives of Emperor Penguins”

*Increased Social Media presence* 2019

Created Vertebrate Ecology Twitter and Facebook account

*Invited Speaker,* Science Sunday, **The Lab in Carmel**, Carmel, CA2019

“Emperors of the Ice: Ecology and Physiology of an Iconic Antarctic Predator”

*Invited Guest/Speaker,* Society for Women in Marine Science, Monterey Bay chapter 2019

“ Career-life balance brown bag lunch discussion”

*Invited Speaker,* Docent training, **Año Nuevo State Park,** CA 2018

“Moss Landing Marine Labs Elephant Seal Research”

*Invited Speaker,* Women in STEM club, **Lynbrook High School**, San Jose, CA2018

“Field work in Antarctica”

*Invited Speaker,* **American Cetacean Society**, Monterey Chapter 2018

“Emperors of the Ice: Ecology and Physiology of an Iconic Antarctic Predator”

*Invited Speaker,* Science Sunday, **Seymour Center, Long Marine Lab,** CA 2017

“Emperors of the Ice: Physiology and Ecology of the emperor penguin”

*Panel participate and poster judge,* **California State University, Monterey Bay** 2017, 18 Student Polar Research Symposium

*Invited Speaker,* Docent training, **Año Nuevo State Park,** CA 2017

“Diving physiology of sea lions and elephant seals”

*Invited Speaker,* Wave Foundation Seminar Series, **Newport Aquarium,** KY 2017

“Emperors of the Ice: Ross Sea emperor penguin research”

*Invited Speaker*, Advanced Biology, **Lloyd Memorial High,** KY 2017

“Living and working in Antarctica: Adventures of a researcher”

*Invited Guest,* Marine Biology students, **Thomas More Collage,** KY2017

Informal question and answer dinner about Marine Biology career paths

*Invited Speaker,* Oceanography Club, **Monterey Bay Aquarium,** CA 2016

“Deep diving elephant seals”

*Invited Speaker,* **American Cetacean Society**, San Francisco Chapter 2016

“Pushing the limit: Diving physiology of marine mammals”

*Invited Speaker,* **American Cetacean Society**, Monterey Chapter 2015

“Pushing the limit: Diving physiology of marine mammals”

*Speaker,* Open house, **Moss Landing Marine Laboratories,** CA 2015

“Emperors of the Ice”

**Fjord and Belt center,** Denmark2013-2014

Research included in daily presentations

*Invited Speaker,* **Audubon Society,** Bakersfield Chapter2012

“Emperor penguin research”

*Workshop presenter*, **Expanding your Horizons,** San Diego, CA2011, 12  
“Diving Physiology”

*Invited Speaker*, **College Heights Elementary School,** Bakersfield, CA 2010

“Living and Working in Antarctica”

*Workshop co-presenter*, **Expanding your Horizons,** San Diego, CA2010  
“Diving Physiology”

*Panel participant,* Docent training, **Año Nuevo State Reserve**, CA 2010

*Panel participant, Marine Biologist,* **Your Future is our Business,** CA2005-2009

Serve on career panels talking to students about marine biology careers

*Invited Speaker,* **Danish Sisterhood of American California District Convention** 2009

“Adventures of a marine biologist”

*Invited Speaker,* **Audubon Society,** Bakersfield Chapter2009

“Birds and Mammals of Cape Shirreff, Livingston Island”

**Selected National and International Media Coverage .**

“Voices from Antarctica, Episode 4: Best Journey in the World & Episode 5: Waiting for Penguins” – Radio New Zealand, June 2020

“Tracking marine predators highlights biodiversity hotspots in the Southern Ocean most in need of protection” – Geographical, June 2020

“Science on Ice, Season 1 Episode 2: Penguins” - TVNZ, May 2020

“Crabeater seal data used to predict changes in Antartarctic krill distribution” – Phys.org, April 2020

“Penguins help researchers identify the must vulnerable areas of the Antarctic” – BBC Science Focus, April 2020

“Meet the Deep-Diving, Ear-Splitting, 4,500-Pound Rock Star of Año Nuevo” – Bay Nature, Jan 2020

“Hvaler kan også få dykkersyge – derfor skal de ikke forstyrres” – Videnskab.dk, Sep. 2019

“CSU Women in Antarctica: To the Ends of the Earth” – The CSU System News, Mar. 2019

“Svelte porpoises eat twice as much as humans to cope with the cold” – Science Mag, Dec. 2018

“Counting the breaths of wild porpoises reveals their revved-up metabolism” - ScienceNews, Dec. 2018

“World’s longest penguin dive, of more than half an hour, is recorded” – The Guardian, Apr. 15, 2018

“Porpoises plan their dives and can set their heart rate to match” – New Scientist, Nov. 21, 2016

“Sea lions dive deep” – CBC Quirks and Quarks, Sept. 22, 2012

“Deep diving sea lions squeeze the air out” – ScienceNow, Sept. 19, 2012

“Sea lions beat the bends” – Australian Geographic, Sept. 20, 2012

“Nitrogen absorption avoided in sea lion diving” – EarthTimes, Sept. 19, 2012

“Biology behind sea lions’ mega dives revealed” – Cosmos magazine, Sept. 19, 2012

“Hidden lives of elephant seals: Record -setting dive more than a mile deep” – ScienceDaily, May 14, 2012

“Climate change woes” – LiveScience, Mar. 21, 2012

“Seal pups face climate change woes” – Discovery News, Mar. 21, 2012

“Energy requirements make Antarctic fur seal pups vulnerable to climate change” – Science

Daily, Mar. 21, 2012

**Referee Experience .**

Associate Editor: *Animal Biotelemetry*

Journals: *Biology Letters, Behavioral Ecology and Sociobiology, Canadian Journal of Zoology, Comparative Biochemistry and Physiology, Journal of Comparative Physiology B, Ecological Modelling, Journal of Experimental Biology, Ecology and Evolution, Ecosphere, Endangered Species Research, Frontiers in Physiology, Functional Ecology, Marine Biology*, *Marine Ecology Progress Series, Marine Mammal Science, Methods in Ecology and Evolution, PlosOne, Science*

Grants: Alaska Sea Grant, American Academy of Underwater Sciences (AAUS) graduate student research awards, North Pacific Research Board, Council on Ocean Affairs, Science & Technology (COAST): student research proposals and grant development proposals

**Service: .**

*University*

MLML Development and Outreach, member 2020

MLML Diversity, Equity, and Inclusion Committee, member 2020

MLML Technology Advisory Group, member 2018 – present

MLML Invertebrate Biologist Faculty Search Committee, member 2017

MLML Web Advisory Group, member 2017 – 2018

MLML Strategic Plan Committee, member 2017

MLML Web Sitemap Subcommittee, member 2017

MLML Curriculum Committee, chair 2016 – 2020

MLML Small boats & marine operations Committee, member 2015 – present

MLML Curriculum Committee, member 2015/16, 2020 MLML Scholarship Committee 2015/2016

SJSU Institutional Animal Care and Use Committee, alternate 2015 – present

MLML Web Committee, member 2015 – 2017

MLML Faculty Librarian Search Committee, member 2015

*Scientific community*

*Faculty Advisor,* MARINE (Monterey Area Research Institutions’ Network for Education) 2020

*Faculty Advisor,* Society of Women in Marine Science, Monterey Bay Chapter 2019 - present

*Workshop participant,* Santa Cruz, CA 2017

Current state and future directions of diving physiology research (ONR funded)

*Host*, Moss Landing Marine Laboratories, CA 2017

California Student Chapter Meeting

*Marine Mammal and Turtle Stranding Coordinator*, Monterey County 2015- present

*Co-organizer*, Biology of Marine Mammals Conference, San Francisco, CA 2015

Career-Life Balance and How to Make a Successful Career in Marine Mammal Science

*Co-organizer*, Institute of Bioscience, Aarhus University 2014

Workshop: Diving Physiology

*Co-organizer*, Experimental Biology, San Diego, CA 2014

Symposium: Organismal Adaptation/Response to Hypoxic Environments

**Professional Associations: .**

American Physiological Society (2010-present), Society for Experimental Biology (2012-2015), Society for Integrative Biology (2004-2011), Society of Marine Mammalogy (2002-present), Phi Beta Kappa honor society (1998-present), International Biologging Society (2017- present), Society for Women in Marine Science (2018 – present)