

EDUCATION

PhD Biology & Wildlife, University of Alaska Fairbanks	2018
Bridging the gap between pupping and molting phenology: behavioral and ecological drivers in Weddell seals.	
MSc Biological Sciences, University of Alaska Anchorage	2015
An agent-based model for predicting impacts of environmental change on Weddell seals.	
BSc Marine Biology, University of California Santa Cruz	2013
<i>Honors</i> , Fine-scale calibration of pinniped vibrissae growth dynamics using photogrammetry and stable isotopes.	
High Tech High School	2009
<i>Highest honors</i> , 4.47 GPA	

FELLOWSHIPS

\$138,000 , National Science Foundation Post-Doctoral Research Fellowship in Biology	2018 – 2020
\$138,000 , National Science Foundation Graduate Research Fellowship	2015 – 2018
\$35,000 , National Institutes of Health, IDeA Networks of Biomedical Research Excellence Fellowship	2014 – 2015

PROFESSIONAL APPOINTMENTS

Post-Doctoral Researcher , Santa Cruz CA, University of California Santa Cruz	2018
Visiting Intern , Japan, National Institute of Polar Research	2017
Visiting Researcher , Monterey CA, NOAA Southwest Fisheries Science Center	2016

PUBLISHED BOOK

RS Beltran, PW Robinson. (2017). **A Seal Named Patches**, pp 40 (children’s book), ISBN 1602233314.
Winner of the DeBary Children’s Science Book Award 2017, Starred in School Library Journal

AWARDS

Best Student Oral Presentation, Biologging Meeting, Germany	2017
Best Young Researcher in Ecological Modeling	2016-2017
National Geographic Young Explorer	2017
Nominated, Western Association of Graduate Schools Distinguished Master’s Thesis Award	2016
Best student oral presentation, Society for Marine Mammalogy, San Francisco	2015
Best student oral presentation, Society for Marine Mammalogy, New Zealand	2013
Wellesley Book Award for academic excellence	2009
Science Fair, 1 st in County, 4 th in State, Environmental Department service award	2009

TEACHING EXPERIENCE

Instructor. <i>Marine Ecology</i> . University of California Santa Cruz	2017
Learning Assistant. <i>Development & Physiology of Organisms</i> . University of California Santa Cruz	2017
Teaching Assistant. <i>Field Methods in Large Marine Vertebrates</i> . University of California Santa Cruz	2016
Co-Founder. <i>Bringing Antarctic Weddell seals to Alaska K-12 classrooms</i> . 4000 students reached.	2014-2015
Laboratory Instructor. <i>Fundamentals of Oceanography</i> . University of Alaska Anchorage.	2013

MENTORING EXPERIENCE

Diana Alvarado, UC Santa Cruz, Packard Fellowship	2018
Shannon Bent, UC Santa Cruz	2017
Kaitlyn E. Martinez, UC Santa Cruz	2016
Kelly Shrader, UC Santa Cruz	2016-2017
Jeanette Pirlo, UC Santa Cruz	2016
Nadja DiMartino, UC Santa Cruz	2016

Clara Woolner, NSF Research Experience for Undergraduates 2015
Brandi Ruscher-Hill, University of California Santa Cruz 2015

PEER-REVIEWED PUBLICATIONS

- [in prep] G Frankfurter, RS Beltran, M Hoard, JM Burns. Rapid prototyping and 3D printing of Antarctic seal flipper tags. Prepared for submission to The Wildlife Society Bulletin.
- [in prep] RS Beltran, GA Breed, T Adachi, A Takahashi, Y Naito, PW Robinson, WO Smith Jr., AM Kilpatrick, AL Kirkham, JM Burns. Seal diving behavior suggests shallowing of fish distributions during sea-ice driven phytoplankton blooms. Prepared for submission to the Proceedings of the National Academy of Sciences.
- [in prep] RS Beltran, AL Kirkham, GA Breed, JW Testa, JM Burns. Reproductive success influences molt phenology and subsequent colony attendance in a high latitude mammal. Prepared for submission to Functional Ecology.
11. RS Beltran, JM Burns, GA Breed. Review: Convergence of biannual moulting strategies across birds and mammals. Proceedings of the Royal Society of London B. 20180318. <http://dx.doi.org/10.1098/rspb.2018.0318>
10. Z Smeele, JM Burns, K Van Doorsaler, S Kraberger, RS Fontenele, K Waits, D Stainton, MR Shero, RS Beltran, AL Kirkham, G Frankfurter, R Bergartt, P Lefeurve, A Varsani . Diverse papillomaviruses identified in Weddell seals. General Virology. DOI 10.1099/jgv.0.001028
9. RS Beltran, B Ruscher-Hill, AL Kirkham, JM Burns. An evaluation of three-dimensional photogrammetric and morphometric techniques for estimating volume and mass in Weddell seals. PLOS ONE. 13(1): e0189865.
8. E Fahsbender, JM Burns, S Kim, S Kraberger, G Frankfurter, A Eilers, MR Shero, RS Beltran, AL Kirkham, R McCorkell, R Bergartt, M Male, K Rosario, G Ballard, DG Ainley, M Breitbart, A Varsani. (2017). Diverse and highly recombinant alloviruses associated with Weddell seals in Antarctica. Journal of Virus Evolution. 3,1-11.
7. RS Beltran, JW Testa, JM Burns. (2017). An agent-based model for predicting impacts of environmental change on a top marine predator, the Weddell seal. Ecological Modelling. 351,36-50.
6. N Lubcker, R Condit, RS Beltran, PJN de Bruyn, MN Bester. (2016). Vibrissal growth parameters of southern elephant seals *Mirounga leonina*: obtaining fine-scale, time-based stable isotope data. Marine Ecology Progress Series. 559,243-255.
5. RS Beltran, SH Peterson, EA McHuron, C Reichmuth, LA Huckstadt, DP Costa. (2016). Pinnipeds are what they eat, plus what? Determination of trophic discrimination factors in six seal (Family: *Phocidae*) species. Rapid Communications in Mass Spectrometry. 30, 1115–1122.
4. L Schwarz, S Villegas-Amtmann, RS Beltran, DP Costa, C Goetsch, LA Huckstadt, J Maresh, SH Peterson. (2015). Comparisons and Uncertainty in Fat and Adipose Tissue Estimation Techniques: The Northern Elephant Seal as a Case Study. PLoS ONE. 10, e0131877.
3. RS Beltran, MS Connolly, SH Peterson, R Condit, C Reichmuth, DP Costa. (2015). Whisker growth dynamics: a validated approach for assigning timescales to stable isotope analyses. Marine Ecology Progress Series. 523, 233-241.
2. M Connolly, RS Beltran and C Reichmuth. (2014). A calibration procedure for measuring pinniped vibrissae using photogrammetry. Aquatic Mammals. 40(2), 213-218.
1. RS Beltran, N Kreidler, D Van Vuren, S Morrison, E Zavaleta, K Newton, B Tershy and D Croll. (2014). Passive recovery of vegetation from herbivore eradication on Santa Cruz Island, California. Restoration Ecology. 22(6), 790-797. **Cover photo.**

RESEARCH FUNDING

\$29,794 National Geographic Committee for Research and Exploration (*Co-PI*) 2017
\$2,000 Baldridge Award, Monterey Bay Chapter, American Cetacean Society 2017

\$4,500	National Geographic Young Explorers Grant	2017
\$700	LGL Graduate Student Research Award	2016
\$1,000	Nicholas F. Hughes Memorial Scholarship	2016
\$5,000	NSF Graduate Research Internship Program	2016
\$3,000	LGL Graduate Student Research Award	2016
\$7,560	National Geographic Waitt Grant	2015
\$1,200	Erich Follmann Memorial Student Research Support	2015
\$25,000	National Geographic Committee for Research and Exploration (<i>Co-PI</i>)	2015
\$1,000	PADI Foundation Scholarship for Outreach and Education	2015
\$2,000	LGL Graduate Student Research Award	2015
\$3,000	LGL Graduate Student Research Award	2014
\$1,000	PADI Foundation Scholarship for Marine Mammals	2014
\$3,000	Kenneth and Ann Thimann Scholarship	2013
\$500	Dr. Earl H. Myers and Ethel M. Myers Oceanographic and Marine Biology Trust	2013
\$1,000	Women Divers Hall of Fame Advanced Dive Training Grant	2013
\$500	Friends of Long Marine Lab Student Research and Education Award	2013
\$500	Stevenson College Student Research Fund	2013
\$700	UC Santa Cruz Ecology and Evolutionary Biology Departmental Grant	2012

TRAVEL FUNDING

\$1,100	Society for Ecological Modeling Travel Grant	2017
\$500	AntEco Travel Grant	2017
\$600	College of Natural Science & Mathematics Student Travel Grant	2017
\$1,200	Biomedical Learning and Student Training Travel Grant	2016
\$700	Society for Marine Mammalogy Student Travel and Presentation Award Grant	2015
\$5,769	Alaska INBRE Student Travel Grant	2015, 2016, 2018
\$1,500	Antarctic Thresholds Ecosystem Resilience and Adaptation (AnT-ERA) Travel Grant	2014
\$1,100	Society for Marine Mammalogy Student Travel and Presentation Award Grant	2013
\$500	UC Santa Cruz Department of Student Affairs Travel Grant	2013
\$200	UC Natural Reserve System Student Travel Fund	2012

INVITED TALKS

National Institute of Polar Research, Japan	2017
UCSC Seymour Marine Discovery Center Science Sunday, USA	2017
International Society for Ecological Modeling Conference, South Korea	2017
Harvard College PRISE Distinguished Speaker Series, USA	2016
International Statistical Ecology Conference, Marine Mammal Session, USA	2016

ORAL PRESENTATIONS

RS Beltran, T Adachi, PW Robinson, A Takahashi, Y Naito, AL Kirkham, GA Breed, JM Burns. Combining time-depth recorders and jaw accelerometers to reconstruct the year-round foraging behavior of adult, female Weddell seals. Biologging Symposium, 2017, Germany. **Best student talk award.**

AL Kirkham, MR Shero, GP Adams, RB McCorkell, RS Beltran, DL Thompson Jr, JM Burns. Seasonal cycling in Antarctic Weddell seals during polar day: midsummer declines in serum prolactin link to ovulation and molt. International Union of Physiological Sciences, 2017, Brazil.

JM Burns, MR Shero, RS Beltran. Maternal constraints on the timing of weaning in Weddell seals. Society for Marine Mammalogy, 2017, Canada.

RS Beltran, T Adachi, PW Robinson, A Takahashi, Y Naito, AL Kirkham, GA Breed, JM Burns. Weddell seal dives suggest a vertical ecosystem shift concurrent with seasonal phytoplankton blooms. Society for Marine Mammalogy, 2017, Canada.

AL Kirkham, MR Shero, G Adams, R McCorkell, RS Beltran, DL Thompson Jr, JM Burns. Serum prolactin concentrations in an Antarctic phocid: sharp declines in midsummer and links to reproduction and molt. Society for Marine Mammalogy, 2017, Canada.

RS Beltran, T Adachi, PW Robinson, A Takahashi, Y Naito, AL Kirkham, GA Breed, JM Burns. Weddell seal dives suggest a vertical ecosystem shift concurrent with seasonal phytoplankton blooms. Midnight Sun Science Symposium, 2017, Alaska.

RS Beltran, AL Kirkham, GA Breed, JM Burns. Reproductive effort affects the annual dive behavior of adult, female Weddell seals. SCAR Biology, 2017, Belgium.

JM Burns, MR Shero, RS Beltran. Maternal constraints on the timing of weaning in Weddell seals. SCAR Biology, 2017, Belgium.

AL Kirkham, J Avery, MR Shero, RS Beltran, JM Burns. Endocrine regulation of mass varies with reproductive status in female Weddell seals. SCAR Biology, 2017, Belgium.

JM Burns, RS Beltran, AL Kirkham, MR Shero, S Walcott. Working hard or hardly working – just what are those Weddell seals doing? McMurdo Station Science Seminar, 2017, Antarctica.

RS Beltran, JM Burns, JW Testa. Using agent-based models to predict behavioral and physiological responses of top predators to environmental change: a case study with Weddell seals (*Leptonychotes weddellii*). Society for Marine Mammalogy, 2015, California. **Best student talk award.**

C Reichmuth, RS Beltran, J Sills, SH Peterson, EA McHuron, J Lofstrom. What captive studies can tell us about the foraging ecology of free-ranging Arctic seals. Society for Marine Mammalogy, 2015, California.

JM Burns, RS Beltran. Summertime and the living is easy? Modelling the annual life cycle of Weddell seals. McMurdo Station Science Seminar, 2015, Antarctica.

RS Beltran, MR Shero, AL Kirkham, JW Testa, JM Burns. Diving deeper into the over-summer foraging behavior of a top polar predator, the Weddell seal. Animal Behavior Conference, 2015, Alaska.

RS Beltran, JM Burns, JW Testa. Agent-based models can predict behavioural and physiological responses of top predators to environmental change: a case study with Weddell seals (*Leptonychotes weddellii*). Ecological Society of America Conference, 2015, Maryland.

RS Beltran, MS Connolly, SH Peterson, C Reichmuth, DP Costa. Whisker growth dynamics: a validated approach for assigning timescales to stable isotope analyses. Society for Marine Mammalogy, 2013, New Zealand. **Best student talk award.**

L Schwarz, RS Beltran, DP Costa, S Habran, LA Huckstadt, J Maresh, L New, SH Peterson, PW Robinson, R Schick, S Tavoni, S Villegas-Amtmann. From physiology to conservation: embracing uncertainty in physiological measurements and models. Society for Marine Mammalogy, 2013, New Zealand.

RS Beltran, N Kreidler, D Van Vuren, S Morrison, E Zavaleta, K Newton, B Tershy and D Croll. Passive recovery of vegetation from herbivore eradication on Santa Cruz Island, California. Conservation Biology Symposium, 2013, California.

RS Beltran, MS Connolly and C Reichmuth. A picture is worth a thousand measurements: The use of photogrammetry and stable isotope analysis to calibrate pinniped vibrissal length estimations. UCSC Ecology and Evolutionary Biology Department Symposium, 2013, California.

RS Beltran. Everything you always wanted to know about sex in the sea, but were afraid to ask. Seymour Marine Discovery Center Continuing Education Workshop, 2012, California.

POSTER PRESENTATIONS

RS Beltran, AL Kirkham, GA Breed, JW Testa, JM Burns. Molt phenology mediates colony attendance in Weddell seals. POLAR (Scientific Committee on Antarctic Research/Arctic Summit), 2018, Switzerland.

N Lubcker, R Reisinger, W Oosthuizen, R Condit, RS Beltran, A vanTonder, P Pistorius, N DeBruyn, M Bester. Whiskers of seals as matrices for obtaining time-based biochemical data. Society for Marine Mammalogy, 2017, Canada.

JM Lapsertis, C Martin, AN French, RS Beltran, JM Burns, CT Murphy. Photogrammetric measurements for comparison of vibrissal architecture between pinniped species. Society for Marine Mammalogy, 2017, Canada.

RS Beltran, GA Breed, PW Robinson, DK Briscoe, EL Hazen, SJ Bograd, DP Costa. Oceanographic drivers of foraging effort and success in the northern elephant seal. Biologging Symposium, 2017, Germany.

G Frankfurter, RS Beltran, M Hoard, JM Burns. Functional prototyping: overwinter survival of a 3D-printed flipper tag on a Weddell seal (*Leptonychotes weddellii*). International Association of Aquatic Animal Medicine. 2017, Mexico.

CT Murphy, CJ Martin, AN French, RS Beltran, JM Burns, JM Lapsertis. Interspecies variability in pinniped vibrissal morphology and array architecture. Society for Integrative and Comparative Biology, 2017, Louisiana.

RS Beltran, JW Testa, JM Burns. Agent-based models can predict behavioral and physiological responses of top predators to environmental change: a case study with Weddell seals. University of Alaska Biomedical Research Conference, 2016, Alaska.

RS Beltran, JW Testa, JM Burns. Agent-based models can predict behavioral and physiological responses of top predators to environmental change: a case study with Weddell seals (*Leptonychotes weddellii*). INBRE Meeting, 2015, Alaska.

AL Kirkham, MR Shero, RS Beltran, R McCorkell, G Adams, JM Burns. Weddell seals prioritize protein deposition while recovering mass after weaning. Society for Marine Mammalogy, 2015, California.

AL Kirkham, RS Beltran, MR Shero, G Adams, JM Burns. Opposite trends in over-summer mass change: post-parturient Weddell seals gain weight while non-reproductive females lose mass and condition. American Physiological Society, 2014, California.

RS Beltran, JM Burns, JW Testa. Using simple biologging metrics to inform dynamic bioenergetics models: a case study with Weddell seals. Bio-logging Conference, 2014, France.

RS Beltran, JM Burns, JW Testa. A generalized bioenergetic model for pinnipeds: a toolkit for testing hypotheses about impacts of environmental change on top predators. Scientific Committee on Antarctic Research Open Science Conference, 2014, New Zealand.

RS Beltran, MS Connolly, SH Peterson, C Reichmuth, DP Costa. Fine-scale calibration of whisker growth dynamics using photogrammetry and stable isotope analysis. University of California Undergraduate Research Symposium, 2013, California.

RS Beltran, MS Connolly and C Reichmuth. A picture is worth a thousand measurements: A calibration procedure for pinniped vibrissal length estimation using photogrammetry. Monterey Bay National Marine Sanctuary Symposium, 2013, California. **2nd Place in student poster competition.**

N Kriedler, RS Beltran, D Van Vuren and D Croll. Vegetation recovery following the eradication of feral sheep on Santa Cruz Island, CA. California Islands Symposium, 2012, California.

RS Beltran, S Fregosi, C Casey and C Reichmuth. Photometric determination of body size parameter impacts on hierarchical dominance in male northern elephant seals (*Mirounga angustirostris*). University of California Undergraduate Research Symposium, 2012, California.

OUTREACH/MEDIA

Skype a Scientist, 3rd grade focus

2017

WhaleTimes K-12 Skype Classroom Visits	2017
Ambassador, Kids2College program in Alaska	2017
Podcast, Wild Lens “Eyes On Conservation”	2016
Podcast, KFBX AM 970 (with Charlie O’Toole)	2016
Radio Interview, KIAK 102.5FM (with Peter Van Nort)	2016
Featured on Institute of Arctic Biology homepage	2016
Participated in “Letters to a Pre-Scientist”, a pen-pal program for underprivileged students	2015-2017
Featured in the Alaska News Miner: “UA researcher shares love of seals, science with students”	2015
Host, International Polar Week event at the University of Alaska Fairbanks	2015
Featured in the Alaska News Miner: “UAF student travels to Arctic field station”	2015
Regular contributor to PolarTREC lessons, journals, and blog	2013-2015
Participated in Animal Behavior Society Outreach Fair	2015
Featured in the Association for Polar Early Career Scientists Outreach and Education blog	2015
Featured University of Alaska student: www.uaa.alaska.edu/biological-sciences/sealteamsix.cfm	2015
Participated in a live PolarTREC webinar from Antarctica. 4000 people reached.	2014
Featured in Mirror Lake Middle School news: http://mlms6.com/2014/08/29/antarctica-scientists-visit/	2014
Featured in Anchorage School District news: http://www.asdk12.org/images/insideASD/2014/20140919/	2014
Featured in Women Divers Hall of Fame summer newsletter	2014
Featured in UC Natural Reserve System news: http://news.ucsc.edu/2014/09/restoration-ecology.html	2014
Featured in BBC film “Supergiant Animals”	2013
Participated in “sealebration” outreach event for the Año Nuevo State Park	2012-2013

GUEST LECTURES

Annual cycle of a polar mammal. UC Santa Cruz.	2018
Field methods for studying pinnipeds in Antarctica. UC Santa Cruz.	2017
Ecological Data Analysis in R. Field Methods for Large Marine Vertebrates. UC Santa Cruz.	2016
Weddell seal biology. Field Methods for Large Marine Vertebrates. UC Santa Cruz.	2015
Influences of cognition on pinniped behavior. Psychology 101. San Diego Mesa College.	2015
Primary productivity in the Southern Ocean. Antarctic Ecology. University of Alaska Anchorage.	2014
Northern fur seals and Weddell seals. Wildlife Wednesday. Alaska Department of Fish and Game.	2014
Northern fur seals and Weddell seals. Opportunities for Lifelong Education Alaska.	2014
Manipulating Ecological Data in R. BIOE128L. University of California Santa Cruz.	2014
ENSO, PDO and other atmospheric/oceanic processes. BIO179. University of Alaska Anchorage.	2013

ACTIVITIES

Participant, National Geographic Sciencetelling Bootcamp (5 days)	2018
Participant, Alan Alda Center for Communicating Science Workshop (3 days)	2017
Triathlete, 1x full IRONMAN, 3x half IRONMAN	2016-2017
UC Santa Cruz Orientation Program Leader	2011-2012
UC Santa Cruz Varsity Soccer	2009-2011
Model United Nations, 2 best delegate awards, 5 outstanding awards	2004-2009
Rotary Youth Leadership Awards Conference	2008
Competitive Club Soccer, 1 national championship	1999-2009

FIELD AND LAB EXPERIENCE

Graduate Student Researcher , McMurdo Station, Antarctica	2013 – 2017
Assisted with Weddell seal anesthesia procedures (telemetry deployment, blood and tissue collection) and molt surveys.	
Field Assistant , NOAA/NMML, Pribilof Islands, Alaska	2013 – 2017
Participated in resighting, blood collection, tagging, animal handling, and censusing efforts of Northern fur seals.	
Laboratory Technician , Benthic Ecology Lab, Moss Landing, California	2013
Used a scanning electron microscope to photograph and identify larvae from a hydrothermal vent community in Fiji.	
Laboratory Technician , Benthic Invertebrate Lab, Santa Cruz, California	2012 – 2013

Cared for and monitored laboratory invertebrates (echinoderms, cnidarians), assisted with phytoplankton inoculation.

Field & Database Technician, Costa Lab, Santa Cruz, California 2012 – Present
Assist with northern elephant seal anesthesia procedures, weanling weighing, and tag resights.

Field Intern, Pinniped Cognition and Sensory Systems Lab, Santa Cruz, California 2011 – 2012
Assisted with resighting, scoring behavioral interactions, acoustic playbacks, photogrammetry, database maintenance.

Dive Technician, US Geological Survey, San Nicolas Island, California 2012
Collected fish, algae and invertebrate abundance and distribution data using SCUBA.

Intern, Coastal Conservation Action Lab, Santa Cruz, California 2012
Synthesized literature regarding invasive vertebrates and other threats to vulnerable and endangered seabirds on islands.

Volunteer, Raimondi-Carr Lab, Long Marine Laboratory, Santa Cruz, California 2012
Synthesized literature regarding kelp forest species interactions.

Shift Manager, Seymour Marine Discovery Center, Santa Cruz, California 2011 – 2012
Managed and trained 200 volunteers on marine biology and conservation topics for public education.

Animal/Research Technician, Pinniped Cognition & Sensory System Lab, Santa Cruz, California 2010 – 2012
Completed over 1000 hours of animal training and husbandry (7 pinnipeds and 1 sea otter).

Intern, Birch Aquarium, Scripps Institution of Oceanography, San Diego, California 2008 – 2009
Created Hall of Fishes guide for docents. Completed over 115 hours of service interpreting outdoor tidepools to visitors.

Volunteer Educator, Conservation Corps, Wild Animal Park, San Diego, California 2005 – 2007
Completed over 100 hours of volunteer service educating the public about environmental preservation.

CERTIFICATIONS

Wilderness First Aid, CPR/AED, O2 Administration Certifications
Laboratory & Radiation Safety Training; Institutional Animal Care and Use Committee Training
DOI Motorboat Operator Training Course; California Department of Boating and Waterways Boating Safety Course
NAUI Open Water, Rescue, Master Diver, EANx, Dry Suit, Reef Check EcoDiver SCUBA Certifications
AAUS Scientific SCUBA Certification, 100 cold-water dives, 15 warm-water dives, 5 Dry Suit dives

SERVICE

Panelist, National Geographic Explorer Advisory Panel
Reviewer, National Geographic Grants Program
Reviewer, Deep Sea Research Pt II Journal
Reviewer, Society for Marine Mammalogy Abstracts
Reviewer, Nature Scientific Reports Journal
Reviewer, Mammalian Biology Journal
Reviewer, Marine Mammal Science Journal
Judge, Alaska Statewide High School Science Symposium
Council Member, Association of Polar Early Career Scientists
Member, Ecological Society of America
Member, Society for Marine Mammalogy
Associate Member, Women Divers Hall of Fame
Member, Institute of Marine Engineering, Science and Technology