

Bio-Bibliography
University of California, Santa Cruz, CA
DANIEL PAUL COSTA

EMPLOYMENT

2011 Distinguished Professor of Ecology and Evolutionary Biology Step IX above scale
2011- SOOS-Southern Ocean Observing System Science Steering Committee
2010-2014 Member Central and Northern California Ocean Observing System, CENCOOS Council
2009-2013 Member ORRAP-Ocean Resources and Research Advisory Panel
2009-2014 Science Steering Committee ICED- Integrated Climate & Ecosystem Dynamics
2009-2015 Science Steering Committee CLIOTOP- Climate Change & Top Predators
2008-2013 Ida Benson Endowed chair of Ocean Health
2007 Professor of Ecology and Evolutionary Biology Step IX
2005 Professor of Ecology and Evolutionary Biology Step VII
2002 Professor of Ecology and Evolutionary Biology Step VI
2001 & 2002 Chief Scientist Southern Ocean GLOBEC Process Cruise. July-August
2002-2006 Secretary Society of Marine Mammalogy
2000-2011 Steering Committee Southern Ocean GLOBEC
1999 Zoologist in Residence, University of Tasmania, Hobart, Australia
1995-97 Associate Director, Institute of Marine Sciences
1994-97 Associate Chair of Biology
1993- Professor of Biology
1991-93 Scientific Officer, Physiology and Marine Mammal Biology
Office of Naval Research, Arlington, Virginia
Associate Professor of Biology
1988-90 Associate Adjunct Professor of Biology and Marine Science
1989 June through September, U.S. Navy - ASEE Senior Faculty Fellow, Naval Oceans
Systems Center, Kaneohe, Hawaii
1986-88 Associate Research Biologist, University of California, Santa Cruz
1983-86 Assistant Research Biologist, University of California, Santa Cruz
1987 November, Visiting Scientist, British Antarctic Survey, Cambridge, England
July through September, U.S. Navy - ASEE Senior Faculty Fellow, Naval Oceans
Systems Center, Kaneohe, Hawaii
April through June, Visiting Scientist, Abteilung Wickler, Max-Planck Institut für
Verhaltensphysiologie, Seewiesen, West Germany.
1985 August and September, Visiting Scientist, British Antarctic Survey, Cambridge England
1979-82 National Institutes of Health Postdoctoral Fellowship, Physiological Research
Laboratory, Scripps Institution Oceanography
1978-82 Postdoctoral Research Physiologist Scripps Institution Oceanography
1977-78 Staff Research Associate, Scripps Institution Oceanography
1977 Teaching Assistant, Biology, University of California, Santa Cruz
1976 Research Assistant, University of California, Santa Cruz
1975 Teaching Assistant, Biology, University of California, Santa Cruz
1974 Laboratory Assistant, Laboratory of Nuclear Medicine and Radiation Biology, University
of California, Los Angeles

EDUCATION

1978-1982 Scripps Institution of Oceanography, Postdoctoral Physiologist

1978 University of California, Santa Cruz, Ph.D. (Biology)
1974 University of California, Los Angeles, B.A. (Zoology, Honors) Cum Laude

MEMBERSHIPS IN HONORARY SOCIETIES

Fellow, California Academy of Sciences
American Physiological Society
American Society of Mammalogists
Society of Integrative and Comparative Biology
Ecological Society of America
Society of Marine Mammalogy
Acoustical Society of America
Sigma Xi

HONORS, AWARDS & GRANTS

2014 A Bioenergetic Model to Estimate the Population Consequences of Disturbance. Marine Life Joint Industry Program, Sept 2014 –August 2017. \$1,050,780

2013 Retrospective Analysis of Antarctic Tracking Data (RAATD): International Crabeater and Weddell Seal Tracking Data Sets. 3/1/2013-2/28/2015 \$87,782. Office of Polar Programs National Science Foundation.

2012 Application of the PCAD Model to the California Gray Whale, Integration of Existing Data and Towards a Quantitative Assessment of Biological Significance of Acoustic Disturbance. Joint Award Shell America Upstream and ExxonMobil Research Company. Nov 1 2012-Sept 31 2014. \$295,000.

Development of the PCAD Model to Assess Biological Significance of Acoustic Disturbance. October 1 2012- September 31 2015. Office of Naval Research. \$589,252

2010 Environmental perturbations, behavioral change, and population response in a long-term northern elephant seal study. 1/1/2010-12/31/2012, \$236,137. Office of Naval Research.

Phase III Tagging of Pacific Pelagics. Alfred P. Sloan Foundation, 1/1/2010-12/31-2010, \$102,900

2009 ORRAP Ocean Research Advisory Panel, Appointed by the Secretary of the Navy

Collaborative Research: Weddell seals as autonomous sensors of the winter oceanography of the Ross Sea, 7/1/2009 -6/30/2013, \$555,788. Office of Polar Programs, National Science Foundation.

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2008-2013 Ida Benson Endowed Chair of Ocean Health

Eminent Scholars Lecture, University of South Florida February 2008.

Use of electronic tag data and associated analytical tools to identify and predict habitat utilization of marine mammals, \$445,818. 8/2008-8/2011. Office of Naval Research

Relating Behavior and Life Functions to Populations Level Effects in Marine Mammals: An empirical and modeling effort to develop the PCAD model. 3/2008-2/2010. \$1,039,999. Marine Life Joint Industry Program.

2007 TOPP Phase III: Pilot Projects Involving Birds and Marine Mammals 2007-2009. \$307,848, 5/2007-4/2009 Packard Foundation.

Mapping Hot Spots in California Current and Advancing Archival Tag Technology. \$539,931, 12/2007- 6/2009. Gordon and Betty Moore Foundation.

Tagging of Pacific Pelagics: Identifying and Conserving Pacific Hot Spots in the California Current. 4/2007-3/2010. Alfred P Sloan Foundation

2006 Collaborative Research: U.S. SO GLOBEC Synthesis and Modeling - Habitat Utilization and Predator-Prey interaction in Western Antarctic Peninsula. NSF Polar Programs \$448,518, 9/06-8/08.

From Wind to Whales: The Center for Integrated Marine Technologies to Understand California. \$68,969. NOAA-Center for Integrated Marine Technology. 08/01/06-07/30/07.

Costa Spur Antarctica. Feature on the Antarctic Continent named in recognition of the contribution of D. Costa to Antarctic Research.

2005 Elephant seals as ocean sensors in polar regions. National Undersea Research Program-NOAA. \$166,340 3/05-01/06.

Habitat Utilization of Southern Ocean Seals: Foraging Behavior of Crabeater and Elephant Seals Using Novel Methods of Oceanographic Data Collection. NSF Polar Programs. \$783,672. 8/05-7/08.

Understanding Apex Predator and Pelagic Fish Habitat Utilization in the California Current System by Integrating Animal Tracking with in situ Oceanographic Observations. National Oceanographic Partnership Program ONR. \$712,075. 4/05-04/08.

2004 *The Census of Marine Life Project* Tagging of Pacific Pelagics Phase II: Pilot Demonstration Projects, Data Management, Education and Outreach. Packard Foundation 6/04-05/07 2,300,000 Co PI with B. Block at Stanford University.

Foraging Ecology of the California Sea Lion: Diet, Diving Behavior, Foraging Locations and Predation Impacts on Fishery Resources. \$120,360. California Sea Grant College Program 9/04-8/06.

- Tagging Of Pacific Pelagics Phase II, Gordon and Betty Moore Foundation 7/04-06/07
3,800,000 Co PI with B. Block at Stanford University.
- Tagging of Pacific Pelagics: Using Organisms as Bioprobes for the Ocean Environment.
NOAA Office of Ocean Exploration. \$150,000. 07/01/04-06/30/05.
- 2003 TOPP Phase II: Infrastructure, Data Management and International Collaboration 2003-
2005. \$1,500,000. Alfred P Sloan Foundation. 07/01/03-06/30/06. Co PI with B. Block at
Stanford University.
- 2002-2006 Secretary Society of Marine Mammalogy
- 2002 From Wind to Whales: The Center for Integrated Marine Technologies to Understand
California. \$293,000. NOAA-Center for Integrated Marine Technology. 08/01/02-
07/30/05.
Accelerating Electronic Tag Development for tracking Free-Ranging Marine Animals at
Sea. National Oceanographic Partnership Program (NOPP), Office of Naval Research.
\$1,106,526. 4/02-3/05.
- 2000 Tagging of Pacific Pelagics. Packard and Sloan Foundation \$790,000. 9/2001-6/2003.
Foraging ecology of crabeater seals (*Lobodon carcinophagus*). National Science
Foundation, Division of Polar Programs \$300,000 January 2001- June 2004.
A data base for the study of marine mammal behavior: A tool to define their critical
habitat and behavior. Office of Naval Research. \$175,000. 8/1/00-9/31/02
- 1999 Comparative Foraging Ecology of the Australian Sea Lion and New Zealand Fur Seal.
National Geographic Society. \$17,444.
Tools of the Assessment of Marine Mammal Critical Habitats. Office of Naval Research,
6/1/99 - 5/31/02, \$162,194.
Dissertation Research: Foraging Ecology of Procellariiform Seabirds: Impacts on
Reproduction and Life History. National Science Foundation, 2/1/99 - 1/31/00, \$10,000.
Foraging Ecology of Wandering Albatrosses, *Diomedea exulans*. National Science
Foundation, Division of International Programs, 2/1/99 – 1/31/01, \$15,763.
- 1998 Biological Oceanography and Foraging Ecology of Northern Elephant Seals: Patch Use
and the Relationship to Oceanographic Features and Elephant seals as a Biological
Autonomous Underwater Sampling System. Institute of Marine Sciences, Packard
Endowment for Ocean Science and Technology, \$19,000.
Acoustic Ecology and Remote Acoustic Monitoring of a Minke Whale Population. Office
of Naval Research, 7/25/98 - 9/30/99, \$16,551.
University Research Support for High School Science, Subcontract from CSUMB,
National Science Foundation, 9/98 - 5/00, \$59,989.
Foraging Energetics of Male and Female Wandering Albatross, *Diomedea exulans*.
National Geographic Society, \$16,610.
The role of oceanographic features and prey distribution on foraging energetics and
reproductive success of the Antarctic fur seal, *Arctocephalus gazella*. National Science
Foundation, Division of Polar Program Antarctic Biology, 9/1/98 - 8/31/01 \$290,392.
The Effect of the 1997/98 El Niño on U.S. Coastal areas. National Oceanic and
Atmospheric Administration, 2/19/98 - 2/18/99, \$52,158.
- 1996 Marine Mammal Studies in the Central California National Marine Sanctuaries. National
Oceanic and Atmospheric Administration, Marine Sanctuaries Program, \$75,000.

- Elected Fellow, California Academy of Sciences.
- 1995 The Importance of Foraging Pattern of Reproductive Success in the Northern Fur Seal, *Callorhinus ursinus*. National Science Foundation, Division of Polar Program Arctic Biology, 6/95 - 5/98, \$285,231.
Office of Naval Research, AASERT award for graduate student research support. 5/95 - 4/98, \$84,000.
- 1994 Nominated by White House to serve as U.S. Commissioner on the Inter-American Tropical Tuna Commission.
The Physiology of Freely Diving Beluga Whales. Office of Naval Research, 9/94 - 8/97, \$140,000.
Scripps Institution of Oceanography, Marine Mammal Research Program component of Acoustic Thermometry of the Ocean Climate (ATOC), 2/94 - 9/96, \$1,900,000.
- 1993 The Low Frequency Sound Marine Environment of the Northern Elephant Seal. Office of Naval Research, 1/94 - 12/97 \$660,500.
- 1992 Seed Money Award, Dean Graduate and Research Division, UCSC, \$11,000
- 1991 Nominated for Member at Large, Society for Marine Mammalogy.
- 1990 Free-Ranging Energetics of the Bottlenose Dolphin. National Science Foundation, Biological Oceanography, 6/91 - 7/93, \$206,000.
Ground Truth of Sea Otter Boat Surveys. U.S. Dept. of Justice, August 1990, \$25,600.
Research in Pinniped Biology and Cognition and Physiology. Center for Field Studies, 6/90 - 5/91, \$85,000.
Foraging Energetics of Australian Sea Lions. National Geographic Society, 12/89 - 12/90, \$14,500.
- 1989 Research in Marine Mammal Behavior Cognition and Physiology. Center for Field Studies, 6/89 - 5/90, \$94,000.
Senior Summer Faculty Fellowship, U.S. Navy, American Association Engineering Education, \$12,000.
- 1988 Seed Money Award, Dean Graduate and Research Division, UCSC, \$4,000.
- 1987 Senior Summer Faculty Fellowship, U.S. Navy, American Association Engineering Education, \$12,000.
Nutritional Energetics and Thermal Requirements of Marine Mammals. Office of Naval Research, 2/87 - 1/90, \$495,000.
Bioenergetics of the Antarctic Fur Seal. National Science Foundation, Polar Programs, \$18,000.
- 1986 Research Opportunity Award, Dean, Division of Natural Sciences, UCSC, \$12,000.
Foraging Biology of the Little Penguin in Australia. University Research Expeditions, UREP Grant, \$12,000.
Nominated for Secretary-Treasurer, Society for Marine Mammalogy.
Current Methods in Pinniped Bioenergetics. National Science Foundation, Physiological Ecology Symposium, 1/86 - 12/86, \$8,000.
- 1985 Studies of the Energetic Cost of Net Entanglement of Northern Fur Seals in Marine Debris. National Oceanic and Atmospheric Organization, NMFS, 9/85 - 9/86, \$42,993.
Research Opportunity Award, Dean, Division of Natural Science, UCSC, \$5,000.
- 1984 Foraging Energetics of the Little Penguins in Australia. University Research Expeditions Program, UREP Grant, \$8,500.
- 1983-86 Assessment of the Impact of the California Sea Lion and Elephant Seal on Commercial Fisheries. California Sea Grant College Program, 10/83 - 9/86, \$104,055.
California Sea Grant College Program, Graduate traineeship, 10/83 - 9/86, \$28,125.

- Bioenergetics of the Antarctic Fur Seal. National Science Foundation, Polar Programs, 9/83 - 2/86, \$145,224.
- 1981-83 Bioenergetics of the Northern Fur Seal, *Callorhinus ursinus*. National Oceanic and Atmospheric Organization, National Marine Fisheries Service, 6/81 - 5/83, \$35,364.
- 1979-82 Bioenergetics of Fasting and Lactation in the Fur Seal and Elephant Seal. National Institutes of Health Postdoctoral Research Fellowship, 9/79 - 9/82, \$54,396.
- 1979 Antarctic Service Medal.
- 1978-80 Effects of Oil Contamination on Free-Ranging Sea Otters, *Enhydra lutris*. National Oceanic and Atmospheric Administration, Outer Continental Shelf Environmental Assessment Program, 10/78 - 6/80, \$64,000.
- 1977 Prize of Excellence, 58th Annual Meeting AAAS Pacific Division for paper entitled, "Ecological Energetics of the California Sea Otter."
- 1976-77 Ecological Energetics of the California Sea Otter, *Enhydra lutris*. U.S. Fish and Wildlife Service, 4/76 - 5/77, \$19,600.
- 1975-77 Graduate Fellowship, California State Scholarship and Loan Commission.
- 1970 Bausch and Lomb Science Award.

PATENTS

None

PUBLICATIONS

Papers Published or in Press

- Adachi, T., J. L. Maresh, P. W. Robinson, S. H. Peterson, D. P. Costa, Y. Naito, Y. Y. Watanabe, and A. Takahashi. 2014. The foraging benefits of being fat in a highly migratory marine mammal. Proceedings Royal Society of London Series B Biological Sciences **281**:1797
- Arnould, J. P. Y., J. Monk, D. Ierodiaconou, M. A. Hindell, J. Semmens, A. J. Hoskins, D. P. Costa, K. Abernathy, and G. J. Marshall. 2015. Use of Anthropogenic Sea Floor Structures by Australian Fur Seals: Potential Positive Ecological Impacts of Marine Industrial Development? PLoS ONE **10**:e0130581.
- Beltran, R. S., M. Connolly Sadou, R. Condit, S. Peterson, C. Reichmuth, and D. P. Costa. 2015. Fine-scale whisker growth measurements can reveal temporal foraging patterns from stable isotope signatures. Marine Ecology Progress Series **523**:243-253.
- Gallagher, A. J., N. Hammerschlag, S. J. Cooke, D. P. Costa, and D. J. Irschick. 2015. Evolutionary theory as a tool for predicting extinction risk. Trends in Ecology & Evolution **30**:61-65.
- Hoskins, A. J., D. P. Costa, and J. P. Arnould. 2015a. Utilisation of intensive foraging zones by female Australian fur seals. PLoS ONE **10**:e0117997.
- Hoskins, A. J., D. P. Costa, K. E. Wheatley, J. R. Gibbens, and J. P. Y. Arnould. 2015c. Influence of intrinsic variation on foraging behaviour of adult female Australian fur seals. Marine Ecology Progress Series **526**:227-239.
- Maxwell, S. M., E. L. Hazen, R. L. Lewison, D. C. Dunn, H. Bailey, S. J. Bograd, D. K. Briscoe, S. Fossette, A. J. Hobday, M. Bennett, S. Benson, M. R. Caldwell, D. P. Costa, H. Dewar, T. Eguchi, L. Hazen, S. Kohin, T. Sippel, and L. B. Crowder. 2015. Dynamic ocean management: Defining and conceptualizing real-time management of the ocean. Marine Policy **58**:42-50.
- Peterson, S. H., J. T. Ackerman, and D. P. Costa. 2015a. Marine foraging ecology influences mercury bioaccumulation in deep-diving northern elephant seals. Proc. R. Soc. B **282**.

- Peterson, S. H., E. A. McHuron, S. N. Kennedy, J. T. Ackerman, L. D. Rea, J. M. Castellini, T. M. O'Hara, and D. P. Costa. 2015b. Evaluating Hair as a Predictor of Blood Mercury: The Influence of Ontogenetic Phase and Life History in Pinnipeds. *Arch Environ Contam Toxicol*.
- Peterson, S. H., M. G. Peterson, C. Debier, A. Covaci, A. C. Dirtu, G. Malarvannan, D. E. Crocker, L. K. Schwarz, and D. P. Costa. 2015c. Deep-ocean foraging northern elephant seals bioaccumulate persistent organic pollutants. *Sci Total Environ* **533**:144-155.
- Schwarz, L. K., S. Villegas-Amtmann, R. S. Beltran, D. P. Costa, C. Goetsch, L. Hückstädt, J. L. Maresh, and S. H. Peterson. 2015. Comparisons and Uncertainty in Fat and Adipose Tissue Estimation Techniques: The Northern Elephant Seal as a Case Study. *PLoS ONE* **10**:e0131877.
- Gallagher, A. J., N. Hammerschlag, S. J. Cooke, D. P. Costa, and D. J. Irschick. 2015. Evolutionary theory as a tool for predicting extinction risk. *Trends in Ecology & Evolution* **30**:61-65.
- Sepulveda, M., S. D. Newsome, G. Pavez, D. Oliva, **D. P. Costa**, L. A. Hückstädt. In review. Using satellite tracking and isotopic information to characterize the impact of south american sea lions on salmonid aquaculture in southern Chile. *PLoS One*.
- Chicco, A. J., C. H. Le, A. E. Schlater, A. D. Nguyen, S. D. Kaye, J. W. Beals, R. L. Scalzo, C. Bell, E. Gnaiger, D. P. Costa, D. E. Crocker, and S. B. Kanatous. 2014. High fatty acid oxidation capacity and phosphorylation control despite elevated leak and reduced respiratory capacity in northern elephant seal muscle mitochondria. *Journal Experimental Biology* **217**: 2947-55.
- Brooks, C. M., J. B. Weller, K. Gjerde, R. Sumaila, J. Ardron, N. C. Ban, D. Freestone, K. Seto, S. Unger, D. P. Costa, K. Fisher, L. Crowder, P. Halpin, A. Boustany. 2014. Challenging the 'Right to Fish' in a Fast-Changing Ocean. *Stanford Environmental Law Journal* **33**(3):289-324.
- Louis, C, A C Dirtu; M Stas; Y Guiot; G Malarvannan; K Das; D P Costa; D E Crocker; A Covaci; C Debier. 2014. Mobilization of lipophilic pollutants from blubber in northern elephant seal pups (*Mirounga angustirostris*) during the post-weaning fast. *Environmental Research*: in press.
- Irvine, L., B. R. Mate, M. H. Winsor, D. M. Palacios, S. J. Bograd, **D. P. Costa**, H. Bailey. 2014. Spatial and Temporal Occurrence of Blue Whales off the U.S. West Coast with Implications for Management. *PLoS One* **9**(7):e102959.
- Constable, A. J., J. Melbourne-Thomas, S. P. Corney, K. R. Arrigo, C. Barbraud, D. K. Barnes, N. L. Bindoff, P. W. Boyd, A. Brandt, **D. P. Costa**, A. T. Davidson, H. W. Ducklow, L. Emmerson, M. Fukuchi, J. Gutt, M. A. Hindell, E. E. Hofmann, G. W. Hosie, T. Iida, S. Jacob, N. M. Johnston, S. Kawaguchi, N. Kokubun, P. Koubbi, M. A. Lea, A. Makhado, R. A. Massom, K. Meiners, M. P. Meredith, E. J. Murphy, S. Nicol, K. Reid, K. Richerson, M. J. Riddle, S. R. Rintoul, W. O. Smith, Jr., C. Southwell, J. S. Stark, M. Sumner, K. M. Swadling, K. T. Takahashi, P. N. Trathan, D. C. Welsford, H. Weimerskirch, K. J. Westwood, B. C. Wienecke, D. Wolf-Gladrow, S. W. Wright, J. C. Xavier, and P. Ziegler. 2014. Climate change and Southern Ocean ecosystems I: how changes in physical habitats directly affect marine biota. *Glob Chang Biol*. doi: 10.1111/gcb.12623.
- Hobday, A. J., S. M. Maxwell, J. Forgie, J. McDonald, M. Darby, K. Seto, H. Bailey, S. J. Bograd, D. K. Briscoe, D. P. Costa, L. B. Crowder, D. C. Dunn, S. Fossette, P. N. Halpin, J. R. Hartog, E. L. Hazen, B. G. Lascelles, R. L. Lewison, G. Poulos, & A. Powers. 2014. Dynamic Ocean Management: Integrating Scientific and Technological Capacity with Law, Policy, and Management. *Stanford Environmental Law Journal* **33**:125-165.

- Roman, J., J. A. Estes, L. Morissette, C. Smith, D. Costa, J. McCarthy, J. B. Nation, S. Nicol, A. Pershing, and V. Smetacek. 2014. Whales as marine ecosystem engineers. *Frontiers in Ecology and the Environment*. doi:10.1890/130220
- Smith, W., K. Goetz, D. Kaufman, B. Queste, V. Asper, D. Costa, M. Dinniman, M. Friedrichs, E. Hofmann, K. Heywood, J. Klink, J. Kohut, and C. Lee. 2014. Multiplatform, Multidisciplinary Investigations of the Impacts of Modified Circumpolar Deep Water in the Ross Sea, Antarctica. *Oceanography* 27(2):180-185
- Kuhn, C. E. and D. P. Costa. 2014. Interannual variation in the at-sea behavior of California sea lions (*Zalophus californianus*). *Marine Mammal Science*. DOI: 10.1111/mms.12110.
- Fowler, M. A., C. Debier, E. Mignolet, C. Linard, D. E. Crocker, and D. P. Costa. 2014. Fatty acid mobilization and comparison to milk fatty acid content in northern elephant seals. *Journal of Comparative Physiology B-Biochemical Systemic and Environmental Physiology* 184:125-135.
- Maresh, J. L., S. E. Simmons, D. E. Crocker, B. I. McDonald, T. M. Williams, and D. P. Costa. 2014. Free-swimming northern elephant seals have low field metabolic rates that are sensitive to an increased cost of transport. *The Journal of Experimental Biology* 217:1485-1495.
- Peterson, S. H., J. L. Hassrick, A. Lafontaine, J.-P. Thomé, D. E. Crocker, C. Debier, and D. P. Costa. 2014. Effects of Age, Adipose Percent, and Reproduction on PCB Concentrations and Profiles in an Extreme Fasting North Pacific Marine Mammal. *PLoS ONE* 9:e96191.
- Saarinen, J. J., A. G. Boyer, J. H. Brown, D. P. Costa, S. K. Ernest, A. R. Evans, M. Fortelius, J. L. Gittleman, M. J. Hamilton, L. E. Harding, K. Lintulaakso, S. K. Lyons, J. G. Okie, R. M. Sibly, P. R. Stephens, J. Theodor, M. D. Uhen, and F. A. Smith. 2014. Patterns of maximum body size evolution in Cenozoic land mammals: eco-evolutionary processes and abiotic forcing. *Proc Biol Sci* 281:20132049.
- Shero, M. R., L. E. Pearson, D. P. Costa, and J. M. Burns. 2014. Improving the precision of our ecosystem calipers: a modified morphometric technique for estimating marine mammal mass and body composition. *PLoS ONE* 9:e91233.
- Champagne, C. D., S. M. Boaz, M. A. Fowler, D. S. Houser, D. P. Costa, and D. E. Crocker. 2013. A profile of carbohydrate metabolites in the fasting northern elephant seal. *Comparative Biochemistry and Physiology D-Genomics & Proteomics* 8:141-151.
- Hückstädt, L. A., R. A. Quiñones, M. Sepúlveda, and D. P. Costa. 2014. Movement and diving patterns of juvenile male South American sea lions off the coast of central Chile. *Marine Mammal Science*: 30(3):1175–1183
- Riet-Sapriza, F. G., D. P. Costa, V. Franco-Trecu, Y. Marín, J. Chocca, B. González, G. Beathyate, B. Louise Chilvers, and L. A. Hückstadt. 2013. Foraging behavior of lactating South American sea lions (*Otaria flavescens*) and spatial–temporal resource overlap with the Uruguayan fisheries. *Deep Sea Research Part II: Topical Studies in Oceanography* 88-89:106-119.
- Roquet, F., C. Wunsch, G. Forget, P. Heimbach, C. Guinet, G. Reverdin, J.-B. Charrassin, F. Bailleul, D. P. Costa, L. A. Huckstadt, K. T. Goetz, K. M. Kovacs, C. Lydersen, M. Biuw, O. A. Nøst, H.

- Bornemann, J. Ploetz, M. N. Bester, T. McIntyre, M. C. Muelbert, M. A. Hindell, C. R. McMahon, G. Williams, R. Harcourt, I. C. Field, L. Chafik, K. W. Nicholls, L. Boehme, and M. A. Fedak. 2013. Estimates of the Southern Ocean general circulation improved by animal-borne instruments. *Geophysical Research Letters* **40**:6176-6180.
- 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. L. Hassrick, R. W. Henry, L. Irvine, B. I. McDonald, P. W. Robinson, B. A. Block, and D. P. Costa. 2013. Cumulative human impacts on marine predators. *Nature communications* **4**:2688.
- Meir, J. U., P. W. Robinson, L. I. Vilchis, G. L. Kooyman, D. P. Costa, and P. J. Ponganis. 2013. Blood oxygen depletion is independent of dive function in a deep diving vertebrate, the northern elephant seal. *PLoS ONE* **8**:e83248.
- Costa, D. P.; Houser, D. S; and Crocker, D. E. 2013. Fundamentals of Water Relations and Thermoregulation in Animals. In: *Encycloedia of Life Science (ELS)*. John Wiley & Sons, Ltd: Chichester. DOI: 10.1002/9780470015902.a0003216.pub2
- Noren, D. P., S. M. Budge, S. J. Iverson, M. E. Goebel, D. P. Costa, and T. M. Williams. 2013. Characterization of blubber fatty acid signatures in northern elephant seals (*Mirounga angustirostris*) over the postweaning fast. *Journal of Comparative Physiology* **183**:1065-1074.
- Hobday, A. J., J. W. Young, O. Abe, D. P. Costa, R. K. Cowen, K. Evans, M. A. Gasalla, R. Kloser, O. Maury, and K. C. Weng. 2013. Climate impacts and oceanic top predators: moving from impacts to adaptation in oceanic systems. *Reviews in Fish Biology and Fisheries*:1-10.
- Goldstein, T., I. Mena, S. J. Anthony, R. Medina, P. W. Robinson, D. J. Greig, D. P. Costa, W. I. Lipkin, A. Garcia-Sastre, and W. M. Boyce. 2013. Pandemic H1N1 influenza isolated from free-ranging Northern Elephant Seals in 2010 off the central California coast. *PLoS ONE* **8**:e62259.
- Hamer, D. J., S. D. Goldsworthy, D. P. Costa, S. L. Fowler, B. Page, and M. D. Sumner. 2013. The endangered Australian sea lion extensively overlaps with and regularly becomes by-catch in demersal shark gill-nets in South Australian shelf waters. *Biological Conservation* **157**:386-400.
- Hassrick, J. L., D. E. Crocker, and D. P. Costa. 2013. Effects of maternal age and mass on foraging behaviour and foraging success in the northern elephant seal. *Functional Ecology* **27**:1055-1063.
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Graduate Students:

<u>Student</u>	<u>Department</u>	<u>Degree Program</u>	<u>Year</u>	<u>Co-Sponsor</u>
Rachel Holser	EE Biology	Ph.D.	2014-	
Sarah Kienle	EE Biology	Ph.D.	2013-	
Caroline Casey	EE Biology	Ph.D.	2013-	
Claudio Rojas	EE Biology	Ph.D.	2011-	
Michael Tift	EE Biology	Ph.D.	2011-12	
Justine Jackson-Ricketts	EE Biology	Ph.D.	2010-	
Sarah Peterson	EE Biology	Ph.D. (2015)	2010-2015	
Melinda Connors	Ocean Science	Ph.D.	2009-	Shaffer
Chandra Goetsch	EE Biology	Ph.D.	2009-	
Kim Goetz	EE Biology	Ph.D. (2015)	2009-2015	
Nicole Teutschel	EE Biology	M.A.	2009-2010	
Melinda Fowler	EE Biology	Ph.D. (2012)	2007-2012	Crocker
Jennifer Maresh	EE Biology	Ph.D. (2014)	2005-2014	Williams
Luis Huckstadt	Ocean Science	Ph.D. (2012)	2005-2012	
Sara Maxwell	Ocean Science	Ph.D. (2010)	2005-2010	
Cory Champagne	EE Biology	Ph.D. (2011)	2005-2011	Crocker
Michelle Kappes (Antolos)	EE Biology	Ph.D. (2009)	2005-2009	Shaffer
Autumn-Lynn Harrison	EE Biology	Ph.D. (2012)	2005- 2012	
Stella Villegas	EE Biology	Ph.D. (2009)	2004-2009	
Birgette McDonald	EE Biology	Ph.D. (2009)	2004-2009	
Patrick Robinson	EE Biology	Ph.D. (2009)	2004-2009	
Andreas Walli	Ocean Science	Ph.D. (2007)	2004-2007	
Jason Hassrick	EE Biology	Ph.D. (2011)	2004-2011	
Samantha Simmons	EE Biology	Ph.D. (2008)	2003-2008	
Samantha Simmons	Ocean Science	M.Sc (2003)	2001-2003	
Michael Weise	EE Biology	Ph.D. (2006)	2001-2006	
Christopher Lester	EE Biology	M.A. (2004)	2001-2004	
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Shannon Fowler	EE Biology	Ph.D. (2005)	1999-2005	
Mary Cashman	EE Biology	M.A. (2003)	2000-2002	
Jason Gedamke	Ocean Science	Ph.D. (2004)	1997-2004	
Jill Pettinger	Ocean Science	MSc. (2000)	1997-2000	B. Le Boeuf
Scott Schaffer	Biology	Ph.D. (2000)	1996- 2000	T. Williams
Sylvia Laano	Biology	Ph.D.	1995-97	T. Williams
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Mary Donohue	Biology	M.A. (1997)		
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Tristin Moore	Marine Science	M.Sc (1998)	1994-97	R. Wells
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Sean Hayes	Biology	M.A. (1998)		

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Maria Kretzmann	Marine Science	MSc (1990)	1987-90	
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David Murnane	Marine Science	Masters	1985-87	