

Dr. Carolyn Mary Kurle

UC San Diego · Biology Division · Ecology, Behavior, and Evolution Section
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Education

- 2008 **University of California, Santa Cruz**
Ph.D. in Ecology and Evolutionary Biology
Dissertation: *Investigating trophic impacts of invasive rats on islands*
D. Croll and B. Tershy (Co-Chairs), J. Estes, P. Koch, P. Raimondi
- 1998 **Texas A&M University**
M.S. in Wildlife and Fisheries Sciences
Thesis: *Stable isotope assessment of temporal and geographic differences in feeding ecology of northern fur seals (*Callorhinus ursinus*)*
G. Worthy (Chair), K. Winemiller, L. Cifuentes, T. Loughlin
- 1994 **University of Washington**
B.S. in Zoology
Undergraduate research: *Variations in marine intertidal and invertebrate community structure*
A. Kohn, M. Dethier, and T. Klinger (advisors)
- 1994 **University of Washington**
B.A. in German Language and Literature

Academic Positions

- 2010- **UC San Diego**, San Diego, California
Assistant Professor, Biological Sciences Division, Section of Ecology, Behavior, and Evolution
- 2008-2010 **UC Santa Barbara**, Santa Barbara, California
Post-doctoral Research Associate with Dr. Bradley Cardinale
Effects of species diversity on the strength of trophic cascades
- 2006 **UC Santa Cruz**, Santa Cruz, California
Course Instructor, *Marine Conservation Biology*
- 2001-2007 **UC Santa Cruz**, Santa Cruz, California
Guest Lecturer, *Ecological Field Methods* and *Marine Conservation Biology*
- 2001-2007 **UC Santa Cruz**, Santa Cruz, California
Teaching Assistant: *Ecology and Evolution, General Biology, Marine Conservation Ecology, Ecological Field Methods, Genetics Lecture and Laboratory, and Human Physiology*
- 1996-1998 **Texas A&M University**, College Station, TX
Teaching Assistant: *General Biology* and *Human Anatomy and Physiology*

Research Positions

- 2005 **National Ocean Service/NOAA**, Long Beach, California
Scientific Consultant: Provided expert analyses and damage assessment of the Aleutian Islands after an oil spill
- 1999-2001 **National Marine Mammal Laboratory/NMFS/NOAA**, Seattle, Washington
Research Wildlife Biologist: Foraging ecology and population dynamics of marine mammals in Alaska
- 1994-1996 **National Marine Mammal Laboratory/NMFS/NOAA**, Seattle, Washington
Research Technician: Laboratory and field aspects of marine mammal assessment and management projects
- 1995-1997 **Natural Resources Consultants, Inc.**, Seattle, Washington
Biological Field Technician: Salmon population dynamics studies in Puget Sound and Pacific Ocean
- 1994 **Coastal Zone & Estuarine Studies Division/NOAA**, Seattle, Washington
Molecular Genetics Intern: Genetic analyses of fish stocks for a salmon extinction project

Awards & Honors

- 2006 Murray F. Buell Award for Best Student Presentation, Ecological Society of America, 41st Annual Meeting
- 2006 Most Outstanding Student Presentation Award, Society for Conservation Biology, 20th Annual Meeting
- 1999-2001 Five Department of Commerce/NOAA/NMFS Special Service Awards
- 1998 Most Distinguished Graduate Student Award, Texas A&M University, Wildlife and Fisheries Sciences Department
- 1991-1994 Dean's List, University of Washington
- 1993 Inducted as member of Delta Phi Alpha, National German Honor Society

Grants & Fellowships

- 2010 National Geographic Society Research and Exploration Grant (\$26,000)
Effects of invasive mammals on native marine birds and sub- and intertidal ecosystems in the San Juan Islands, Washington
- 2008 Harvey L. Karp Discovery Award Post-doctoral Fellowship (\$50,000)
Effects of Species Diversity on the Biological Productivity of Food-webs
- 2008 Travel Grant to attend the Isoscapes 2008 Meeting (\$400)
- 2007 Murray F. Buell Award travel grant to attend the ESA 42nd Annual Meeting (\$700)
- 2006 Strategic Environmental Research & Development Program (SERDP) Grant for attendance at the Ecological Society of America's 41st Annual Meeting (\$1000)
- 2005-6 Center for the Dynamics and Evolution of the Land-Sea Interface (CDELSI) Research and Travel Grants (\$500 and \$500)
- 2005 National Wildlife Refuge System Centennial Scholarship for Conservation Research (\$15,000) *Effects of an introduced species on an ecosystem*

- 2005-8 Environmental Protection Agency Science to Achieve Results (STAR) Fellowship (\$130,000) *Effects Of An Introduced Species On Marine Intertidal Trophic Interactions And Ecosystem Structure In The Aleutian Islands, Alaska*
- 2005 Sigma Delta Epsilon Adele Lewis Grant (\$3,000)
- 2005 UCSC Ecol. & Evol. Biology Department Summer Research Fellowship (\$500)
- 2005 The STEPS Institute for Innovation in Environmental Research M.R.C. Greenwood Research Grant in Biodiversity Conservation (\$9,000)
- 2005 Myers Oceanographic and Marine Biology Trust Grant for Research (\$2,300)
- 2005 UCSC Doctoral Student Teaching Assistant Sabbatical Fellowship (\$7,700)
- 2003-4 United States Fish and Wildlife Service and Alaska Maritime National Wildlife Refuge Dissertation Research Grants (\$4,100 and \$5,000)
- 2003 Marilyn C. Davis Memorial Research Grant (\$2,000)
- 1998 Texas A&M University Graduate Program Enhancement Fund Research Grant (\$750)
- 1998 Marine Research Offshore Fishing Tournament Research Grant (\$500)
- 1997 National Marine Mammal Laboratory Field Research Grant (\$7,000)

Refereed Articles

- Kurle CM** and Cardinale, BJ (in review) Ecological factors associated with the strength of trophic cascades in streams. *Ecology*
- Kurle CM**, Sinclair ES, Edwards AE, and Gudmundson CJ (in review) Temporal and spatial variation in the stable nitrogen and carbon isotope ratios of common marine prey species from Alaskan waters. *Canadian Journal of Fisheries and Aquatic Sciences*
- Kurle CM**, Croll DA, Tershy, BT, and Koch PL (in review) The importance of discrimination factors and correct stable isotope mixing models for predicting seasonal variation in omnivore foraging ecology. *Oikos*
- Kurle CM** and Koch PL (in review) Discrimination factors ($\Delta^{15}\text{N}$ and $\Delta^{13}\text{C}$) between multiple diets and tissues in captive rats: applications to understanding foraging ecology of omnivores. *Oecologia*
- Kurle CM** (2009) Interpreting temporal variation in omnivore foraging ecology via stable isotope modeling. *Functional Ecology* 23:733-744
- Kurle CM**, Croll DA, Tershy BT (2008) Introduced rats indirectly change marine intertidal communities from algae to invertebrate dominated. *Proceedings of the National Academy of Sciences* 105:3800-3804
- Kurle CM** and Gudmundson CJ (2007) Regional differences in foraging of young-of-the-year Steller sea lions *Eumetopias jubatus* in Alaska: stable carbon and nitrogen isotope ratios in blood. *Marine Ecology Progress Series* 342:303-310
- Newsome SD, Etnier MA, **Kurle CM**, Waldbaur JR, Chamberlain CP, and Koch PL (2007) Historic decline in primary productivity in western Gulf of Alaska and eastern Bering Sea: Isotopic analysis of northern fur seal teeth. *Marine Ecology Progress Series* 332:211-224

Kurle CM and Worthy GAJ (2002) Stable nitrogen and carbon isotope ratios in multiple tissues of the northern fur seal *Callorhinus ursinus*: implications for dietary and migratory reconstructions. *Marine Ecology Progress Series* 236:289-300

Kurle CM (2002) Stable-isotope ratios of blood components from captive northern fur seals (*Callorhinus ursinus*) and their diet: applications for studying the foraging ecology of wild otariids. *Canadian Journal of Zoology* 80:902-909

Kurle CM and Worthy GAJ (2001) Stable isotope assessment of temporal and geographic differences in feeding ecology of northern fur seals (*Callorhinus ursinus*) and their prey. *Oecologia* 126:254-265

Articles in Preparation

Zeppelin T, Sterling J, **Kurle CM**, Iverson, S, Ream, R. Comparisons of foraging ecology of northern fur seals using stable isotope, scat, telemetry, and fatty acid analyses

Technical Reports

Kurle CM (2006) Report on pre-assessment of intertidal sites on Unalaska Island, Alaska following the oil spill from the M/V Selendang Ayu. *in* J. Cubit, editor. Summary Report: M/V Selendang Ayu Oil Spill, Preassessment Surveys of Intertidal, Subtidal, and Anadromous Stream Habitats. NOAA Damage Assessment Center. Long Beach, California

Kurle CM (2005) Description of the rocky intertidal communities and Norway rat behavior on Rat Island, Alaska in 2003. U.S. Fish and Wildlife Service Report. AMNWR 05/23. Homer, Alaska

Kurle CM and Loughlin TR (2001) The use of fatty acid signature profiles to obtain dietary and other information from otariids. *Steller Sea Lion Investigations, 2000*. NOAA, NMFS, AFSC Processed Report 2001-05. Seattle, Washington

Research Presentations

Kurle, CM (2009) Trophic cascades decline with increasing algal diversity in streams. 44th Annual Meeting for the Ecological Society of America, Albuquerque, NM

Kurle, CM (2008 – *Invited Seminar*) The alteration of food-webs via human perturbations, University of California, San Diego, CA

Kurle, CM (2008 – *Invited Seminar*) Trophic impacts of invasive animals, University of California, San Diego, CA

Kurle, CM (2008 – *Invited Seminar*) Investigating trophic impacts of invasive rats on islands, University of California, Santa Barbara, CA

Kurle, CM (2008) Modeling temporal variation in the diet of an invasive omnivore using stable isotopes of nitrogen and carbon. *Isoscapes 2008*, Santa Barbara, CA

Kurle, CM, Croll DA, Tershy BT (2007) Estimating impacts of invasive rats using analysis of stable isotopes from captive and field studies. 42nd Annual Meeting for the Ecological Society of America, San Jose, CA

Kurle, CM (2006 – *Invited Seminar*) Ecological extinctions and trophic interactions. Pacific Lutheran University, Tacoma, WA

- Kurle, CM** (2006) Introduced rats indirectly change intertidal communities from algae to invertebrate dominated. Environmental Protection Agency Graduate Fellowship Conference, Washington, DC
- Kurle, CM** (2006) The role of stable carbon and nitrogen isotopes in determining a trophic cascade whereby invasive rats indirectly transform marine intertidal communities. 5th International Conference on Applications of Stable Isotope Techniques to Ecological Studies, Belfast, N. Ireland
- Kurle, CM** (2006) Introduced rats indirectly alter marine communities. 41st Annual Meeting for the Ecological Society of America, Memphis, TN
- Kurle, CM** (2006) Introduced rats indirectly transform island intertidal communities. 20th Annual Meeting for The Society for Conservation Biology, San Jose, CA
- Kurle, CM** (2005) Effects of an introduced terrestrial predator on rocky intertidal and marine bird communities in the Aleutian Islands, Alaska. 3rd Annual UCSC/Stanford University Species Interaction Workshop, Palo Alto, CA
- Kurle, CM and Sinclair, ES** (2003) Estimation of Steller sea lion (*Eumetopias jubatus*) foraging ecology using stable nitrogen and carbon isotope ratio analyses of blood components. 15th Biennial Meeting for The Society for Marine Mammalogy, Greensboro, NC
- Kurle, CM** (1999) Stable isotope assessment of temporal and geographic differences in feeding ecology of northern fur seals (*Callorhinus ursinus*) and their prey. 13th Biennial Meeting for The Society for Marine Mammalogy, Maui, HI

Professional Associations

American Association for the Advancement of Science
 Ecological Society of America
 Society for Conservation Biology
 Sigma Delta Epsilon: Graduate Women in Science
 The Society for Marine Mammalogy (1997-2004)
 Western Society of Naturalists (2001-2002)
 American Fisheries Society (1998-1999)

Scientific Reviewer

Aquatic Mammals, Canadian Journal of Zoology, The Condor, Ecology, Endangered Species Research, Functional Ecology, Marine Ecology Progress Series, Marine Mammal Science, and Wildlife Research

Service & Community Outreach

- 2007 Invited Panelist, Ecological Society of America 2007 Annual Meeting
 Plenary luncheon discussion on the direction and function of ESA and its annual meetings
- 2007 Founder, Families and Science online discussion forum
<http://tech.groups.yahoo.com/group/scienceandfamilies>
- 2006 Environmental Outreach Education, UCSC Arboretum and STEPS Institute for Innovation in Environmental Research
 Design of a permanent display outlining invasive species threats to biodiversity
- 2002-5 Scientific Advisory Committee Member, Society for Marine Mammalogy
- 2002-4 Student Member-at-Large, Board of Governors, Society for Marine Mammalogy

Other Media & Popular Articles

- 2008 BBC radio interview: Drive on Five Live, "Rats on the Aleutian Islands," February 26, 2008
- 2008 BBC radio interview: The World Today, "Effects of invasive rats on islands," February 26, 2008
- 2008 BBC radio interview: The Richard Bacon Show, "Rats on islands," February 26, 2008

Select print articles featuring my work on invasive rats on islands

- 2008 National Geographic News, *Alien rats prey on seabirds worldwide*, February 21, 2008 (<http://news.nationalgeographic.com/news/2008/02/photogalleries/rat-pictures/photo5.html>)
- 2008 Live Science on MSNBC, *Rats wreak havoc on island ecosystems*, by Andrea Thompson, February 25, 2008 (<http://www.msnbc.msn.com/id/23341699/>)
- 2008 Biology News Net, *Rats on islands disrupt ecosystems from land to sea*, February 25, 2008 (http://www.biologynews.net/archives/2008/02/25/rats_on_islands_disrupt_ecosystems_from_land_to_sea_researchers_find.html)
- 2008 United Press International, *Study: Island rats harm ecosystems*, February 26, 2008 (http://www.upi.com/NewsTrack/Science/2008/02/26/study_island_rats_harm_ecosystems/8838/)
- 2008 Moments in Time World Press, *Islands with rats lose their birds*, February 27, 2008 (<http://timeinmoments.wordpress.com/2008/02/27/islands-with-rats-lose-their-birds/>)
- 2008 Christian Science Monitor, *Rats' drastic effects on islands*, by Peter N. Spotts, February 28, 2008 (<http://www.csmonitor.com/2008/0228/p17s01-stgn.html>)
- 2008 ScienceDaily News, *Rats on islands disrupt ecosystems from land to sea, researchers find*, February 28, 2008 (<http://www.sciencedaily.com/releases/2008/02/080225213745.htm>)
- 2008 Plenty Magazine, *Sending invasive rats packing*, by Erin Barnes, April 3, 2008 (http://www.plentymag.com/features/2008/04/eliminating_invasive_rats.php)

References

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Paul Koch
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Earth Sciences
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National Marine Mammal Laboratory/NMFS/NOAA
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Hubbs Professor of Marine Mammalogy
Provost's Distinguished Professor of Biology
Director, Physiological Ecology & Bioenergetics Lab
University of Central Florida
(Formerly at Texas A&M University)
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