

## CURRICULUM VITAE

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### EDUCATION:

B.A., University of Minnesota, 1967. Major—Zoology, Minor—Chemistry  
M.S., Washington State University, 1970. Major—Zoology  
Ph.D., University of Arizona, 1974. Major—Biology, Minor—  
Statistics

### CURRENT MEMBERSHIPS IN PROFESSIONAL SOCIETIES

American Association for the Advancement of Science  
Ecological Society of America  
Society for Conservation Biology

### TECHNICAL PRESENTATIONS

1973. "Sea otters: their influence on the structure of nearshore communities".  
Annual Meeting of The Wildlife Society, Flagstaff, Arizona, PRESENTED
1977. "Alternate states of stability in a sea otter dominated community". The Biennial  
Meeting of the Marine Mammal Society, San Diego, California, PRESENTED
1977. "Research on the sea otter in Alaska". First working meeting of the Otter  
Specialist Group, IUCN, Paramaribo, Suriname, INVITED
1978. "Time budgets and activities of sea otter populations: interaction between  
population status and community structure" International Theriological Congress, Brno,  
Czechoslovakia. PRESENTED
1979. "The role of sea otters in coastal community structure". Biennial Meeting of La  
Sociedad Mexicana para el Estudio de los Mamiferos Marinos, La Paz, Baja California  
Sur, PRESENTED
1979. "Activity and foraging behavior in sea otters: interaction between population and  
community". Biennial Meeting of The Marine Mammal Society, Seattle, Washington,

## PRESENTED

1980. "Food selection and some foraging tactics of sea otters". International Furbearer Conference, Frostburg, Maryland, PRESENTED

1980. Workshop to examine the need for and alternatives to the culling of wild animals, Yarmouth Port, Mass., "The case of the sea otter". INVITED

1981. "Las Nutrias del mar, las pesquerias y la organizacion del medio ambiente marino al sur de Punta Concepcion, California". Sociedad Mexicana para el Estudio de los Mamiferos Marinos, La Paz, Baja California Sur, PRESENTED (in Spanish)

1981. "Marine mammal extirpations by aboriginal hunters in the North Pacific region". Biennial Meeting of The Marine Mammal Society, San Francisco, California, PRESENTED

1983. "Sea otters and invertebrate fishery resources: existing and potential conflicts from Canada to Mexico". Workshop on conflicts between marine mammals and fisheries, La Jolla, California. INVITED

1984. "Disturbance vs. competition: the influence of Pacific winter storms on intertidal community organization at San Nicolas Island, California". Annual Meeting of Ecological Society of America, Ft. Collins, Colorado, PRESENTED

1985. "Activity and social behavior of the Pacific walrus at Round Island, Alaska". American Cetacean Society, Monterey Bay Chapter, Monterey. INVITED

1986. "Los estudios de la nutria del mar y su medio ambiente coastal a San Nicolas Island, California". Biennial Meeting of La Sociedad Mexicana para el Estudio de los Mamiferos Marinos, Guaymas, Sonora, PRESENTED

1987. "Multicausal disturbances and the non-equilibrium structure of a rocky intertidal community at San Nicolas Island, California". California Islands Symposium, Santa Barbara, California, PRESENTED

1988. "Research and management of sea otters in the eastern North Pacific Ocean". International Asian Otter Symposium, Bangalore, India. INVITED

1988. "Ecology of extinctions in kelp forest communities". Annual meeting of the Society for Conservation Biology, Davis, California. INVITED

1989. "Sampling and resource assessment in rocky intertidal communities". Annual Meeting of the Southern California Academy of Sciences, Thousand Oaks, California. INVITED

1989. "Population status of the sea otter". Fifth International Otter Colloquium, Hankensbüttel, Germany. INVITED
1989. "Homing behavior of sea otters relocated to San Nicolas Island". International Theriological Congress, Rome, Italy, INVITED
1989. "Behavior, ecology and life history of New World otters". Fifth International Otter Colloquium, Hankensbüttel, Germany. INVITED
1990. "Optimal foraging by the sea otter: populations vs. individuals". Society for the study of Marine Mammalogy, Pacific Grove, California, PRESENTED
1990. "Sample space, sample size, and the use of inferential statistics in ecological field studies". Western Society of Naturalists, Monterey, California, PRESENTED
1991. "Paradigms for managing carnivores: the case of the sea otter". Zoological Society of London, Symposium, London. INVITED
1992. "The role of plant secondary compounds in marine plant-herbivore interactions: an interhemispheric comparison". Temperate Reef Symposium, Auckland, New Zealand, PRESENTED
1992. "Ecology, economics and history: the Pacific maritime fur trade". Public lecture series for distinguished alumni, University of Arizona. INVITED
1992. "Experimental biogeography: interhemispheric variation in marine plant-herbivore interactions". Annual Meeting of the Ecological Society of America, Honolulu, Hawaii, PRESENTED
1993. "The evolutionary consequences of sea otters in kelp forest communities." Joint U.S./Russian sea otter workshop, Wasilla, Alaska, PRESENTED
1993. "Environmental contaminants in sea otters." Joint U.S./Russian sea otter workshop, Wasilla, Alaska. PRESENTED
1993. "Top-level carnivores and ecosystem effects: questions and approaches". Cary Conference on *Linking Species and Ecosystems*, Institute of Ecosystem Studies, Milbrook, New York. INVITED
1993. "The conservation of marine otters". Biennial meeting of the Marine Mammal Society, Galveston, Texas. INVITED
1993. "An interhemispheric comparison of plant/herbivore interactions." Temperate Reef

Symposium, Auckland, New Zealand, PRESENTED

1994. "Reproduction and mortality of sea otters in Alaska." Western Society of Naturalists, Monterey, California, PRESENTED

1994. "Role of predation in diel behavior of red sea urchins." Annual Meeting of the Western Society of Naturalists, Monterey, California, PRESENTED

1994. "Translocation of sea otters to San Nicolas Island - a retrospection." Fourth California Islands symposium, Santa Barbara, California, PRESENTED

1994. "Influences of large, mobile predators in aquatic communities: examples from sea otters and kelp forests". Royal Society of Scotland, Symposium on predator/prey interactions in aquatic ecosystems, Aberdeen, Scotland. INVITED

1994. "Marine mammals: an overview of research needs in central California." Workshop on the Monterey Bay Research Initiative, University of California, Santa Cruz, INVITED

1994. "The search for keystone species". Workshop on keystone species, UNEP Global Biodiversity Assessment, Hilo, Hawaii, INVITED

1995. "Sea otters as a keystone species". Plenary lecture, Annual meeting of the Wildlife Society, Portland, Oregon. INVITED

1995. "Careers in conservation." Western Regional Meeting of AAAS/Society for Conservation Biology, INVITED

1996. "The NBS research program on sea otters". California Biodiversity initiative, Monterey Bay National Marine Sanctuary, INVITED

1996. "Comparative demography of sea otter populations". Workshop on the sea otter, Endangered Species Update, Monterey Bay Aquarium, PRESENTED

1997. "Sea otters as umbrella species in the conservation of kelp forest ecosystems". Symposium on species and ecosystem approaches to management. Annual Meeting of the Society for Conservation Biology, Victoria, British Columbia INVITED

1997. "Catastrophic declines in sea otter populations in the Aleutian archipelago". Monterey Bay Biodiversity Symposium, Santa Cruz, CA. INVITED

1997. "Do sea otters make a good umbrella species for the conservation of kelp forest ecosystems?" International Theriological Congress, Acapulco, Mexico. INVITED

1997. "Why rehabilitate oiled wildlife?" 5<sup>th</sup> International symposium on wildlife and oil

spills. Monterey, California, 3-5 November 1997. INVITED

1998. "Why predators matter". Keynote Lecture. Grass roots meeting of the Wildlands Project, Estes Park. Colorado. INVITED

1998. "Sea otters and kelp forests". Public lecture series of the US Geological Survey, Menlo Park. INVITED

1999. "Are sea otter populations in the Aleutian Islands food limited?" Biennial meeting of the Marine Mammal Society, PRESENTED

1999. "Predators and ecosystems". Sigma Xi Lecture, University of California, Santa Cruz. INVITED

2000. "Predation in the sea". Inaugural Lecture of the Seymour Marine Discovery Center, University of California, Santa Cruz. INVITED

2000. "The evolution of large body size in abalones". Temperate Reef Symposium, Cape Town, South Africa. PRESENTED

2000. "Apex predators and trophic cascades in some marine and terrestrial ecosystems". Society for Conservation Biology Annual Meeting, Missoula, Montana. INVITED

2000. "Apex predators, ecosystem connectivity, and the optimal size of marine reserves". Plenary Lecture, American Fisheries Society, Fairbanks. INVITED

2000. "Status of sea otters in the Aleutian Islands". US/Russia joint sea otter meeting, Monterey. INVITED

2001. "Tales of past abundance: an Alaskan story". Colloquium on Marine Conservation, Monterey Bay Aquarium. INVITED

2001. "Predators and 'the balance of nature'". Schweppe Public Lecture Series in marine sciences, University of Texas, Port Aransas, Texas INVITED

2001. "Predators and the balance of nature". Distinguished Marine Scientist Colloquium, Hatfield Marine Sciences Center, NOAA and Oregon State University INVITED

2001. "Predators and the balance of nature". Peter Leveque Natural History Lecture, Santa Rosa Junior College INVITED

2001. "Chain reactions in kelp forests: long ago and far away". American Association for the Advancement of Science, Annual Meeting. INVITED

2002. "Mortality patterns and population dynamics of the threatened California sea otter". *Carnivores 2002*, Conference sponsored by Defenders of Wildlife, Monterey, California. PRESENTED
2002. "Complex interactions in kelp forest ecosystems". Plenary Lecture, *Carnivores 2002*, Conference sponsored by Defenders of Wildlife, Monterey, California. INVITED
2002. "Process advocacy colors scientific objectivity". 2002 Annual Pew Fellows meeting, Plenary Lecture. Bonaire, Dutch West Indies. INVITED
2002. "Complex trophic relationships in kelp forests". 4<sup>th</sup> William R. and Lenore Mote International Symposium in Fishery Ecology, Sarasota, Florida. *Confronting tradeoffs in the ecosystem approach to fisheries management*. INVITED
2002. "Some historical dimensions to kelp forest ecosystem dynamics". Western Society of Naturalists, Annual Meeting. Symposium on historical ecology. INVITED
2003. "Defaunated food webs: large vertebrates and nature's balance". 17<sup>th</sup> Annual Ricketts Memorial Lecture. Presented by the Research Community of Monterey Bay for exemplary work in the field of marine sciences. INVITED
2003. "Defaunated food webs: large vertebrates and nature's balance". Plenary lecture. Oregon State University, Department of Fisheries and Wildlife, Annual Graduate Student Colloquium, November 12, 2003. INVITED
2003. "Carnivory and connectivity in 'pristine' island food webs". Keynote lecture, 6<sup>th</sup> California Islands Symposium, Ventura, California. INVITED
2003. "Sequential megafaunal collapse in the North Pacific Ocean: an ongoing legacy of commercial whaling?". Plenary lecture, 15<sup>th</sup> Biennial Conference on the Biology of Marine Mammals, Greensboro, North Carolina. INVITED
2004. "Large vertebrates and nature's balance". 40<sup>th</sup> Annual Paul L. Errington Memorial Lecture, Iowa State University. INVITED
2004. From killer whales to kelp forests: industrial whaling and the reorganization of ocean ecosystems Capstone Lecture, Annual Meeting, American Society of Mammalogists. Arcata, California. INVITED
2004. Large predators and ecosystem resilience: examples and hypotheses from 3 case studies. Symposium on the resilience of marine ecosystems honoring the 100<sup>th</sup> anniversary of Friday Harbor Laboratories, University of Washington. INVITED
2004. Sea otters: science, policy and the future. Keynote lecture for sea otter awareness

week. Sponsored by Defenders of Wildlife, Monterey, CA INVITED

2005. From killer whales to kelp forests: connectivity in marine food webs. Spring Colloquium in Biology, University of North Carolina, Greensboro, INVITED

2005. Population status of sea otters. Keynote lecture for sea otter awareness week. Sponsored by Defenders of Wildlife, Monterey, CA INVITED

2005. From killer whales to kelp forests; chain reactions in ocean ecosystems. Distinguished Scientist Lecture, Marine Biological Laboratory, Woods Hole, MASS

2005. The influences of large vertebrates in marine and terrestrial ecosystems. American Association for the Advancement of Science, Annual Meeting. INVITED

2005. Life history and behavioral correlates of population status in marine mammals. Biennial Conference, Society for Marine Mammalogy. PRESENTED

2006. Repatriating functionality in global ecosystems. Plenary Lecture, Annual Meeting, Society for Conservation Biology. INVITED

2006. Sea otters as predators and prey: the causes and consequences of trophic cascades. Annual Meeting, The Wildlife Society. INVITED

2009. The Aleutian archipelago: understanding carnivory from patterns of variation in space and time. Symposium on the Ecology of Place, Annual Meeting, The Ecological Society of America. INVITED

2009. Trophic downgrading of planet earth. Plenary Lecture, Annual Meeting, Western Society of Naturalists. INVITED

2009. Can predators reduce atmospheric carbon levels? Carnivores 2009. Scientific conference sponsored by the Defenders of Wildlife. PRESENTED

2010. Trophic downgrading of our planet. Plenary Lecture. Marine Biology Symposium, University of Florida, St. Augustine Marine Lab. INVITED

2011. Apex consumers and the fabric of nature. Vice President's Symposium, Society of American Naturalists/Society for the Study of Evolution, annual meeting, Norman, Oklahoma. INVITED

## COMMITTEES AND SERVICES

Standing Committee on Marine Mammals, American Society of Mammalogists, 1978-

1982, co-chairman, 1979-1982.

Steering/Planning Committee, Marine Mammal Subgroup, US/USSR Program for Conservation of the Environment, 1976-1979.

Workshop on mammals in the sea, Bergen, Norway, "Unit ecosystems working group report", 1976. (Chaired session and authored report).

Otter Specialist Group, Species Survival Commission, International Union for the Conservation of Nature, 1977-present, Deputy Chairman, 1981.

Workshop on social science perspectives on managing conflicts between marine mammals and fisheries, Arroyo Grande, California. Biological problems panel member, 1981.

Third International Otter Colloquium, Santa Cruz, California, Served on colloquium organizational committee, organized and chaired session on sea otters, 1985.

Symposium on the community ecology of sea otters, Western Society of Naturalists, Monterey, California, "Sea otters, sea urchins, and kelp beds: some questions of scale", 1985. Co-organizer of symposium with G.R. VanBlaricom.

Pacific Rim development committee. Served with 5 other faculty at University of California, Santa Cruz on committee to develop a proposal for research, educational exchange, and other activities having to do with Pacific rim countries. Program was initiated by the President of the University of California, in anticipation of a shifting world economy from industrial Europe to the Pacific rim, 1985-1986.

International Asian Otter Symposium. Organized preparation of manuscripts and served as editor for the published proceedings, 1988.

Member Recovery Team, Southern Sea Otter, 1989-present

Workshop on Linking Species and Ecosystems, Institute of Ecosystem Studies, Millbrook, New York. Provided invited poster contribution and written manuscript for the workshop proceedings, 1993.

Joint U.S./Russian sea otter workshop, Wasilla, Alaska. Chaired session and contributed two oral presentations, 1993.

Board of Editors, Ecological Society of America, 1993-95

Research Needs Workshop, Monterey Bay Research Initiative, Santa Cruz, California. Provided background lecture on research needs for marine mammals, 1994.



Strategic Planning Workshop for National Biological Service, Washington, D.C. Drafted materials for section of Strategic Plan on Rewarding Scientific Performance, 1995.

Science Workshop for the Wildlands Project. Tucson, Arizona. November 1997. Invited participant. Contributed ideas and written narrative to chapters of a book that will be published, edited by M. Soule and J. Terborg, 1997.

Board of Editors, Zoological Society of London, *Animal Conservation*, 1997-2001

Vision Workshop for research on ocean ecology. Hosted by National Science Foundation. Invited participant and white paper author, 1998.

Member PEW Fellow, Marine Conservation, 1999-present

Science Advisory Committee, National Center for Ecological Analysis and Synthesis, National Science Foundation, 1999-2002

Board of Editors, *Marine Ecology Progress Series*, 2000-present

Committee member, NRC, National Academy of Sciences, *Relationships between fisheries and Steller sea lions*, 2001-2002.

Board of Editors, *Frontiers in Ecology and the Environment*, 2003-2007

Editor-in-Chief, *Marine Mammal Science*, 2005-2008

Member Recovery Team, Southwest Alaska Sea Otter, 2005-present

#### Invited Seminars:

1971. Institute of Arctic Biology, University of Alaska

1975. Department of Biology, The Pennsylvania State University

1976. Moss Landing Marine Laboratories

1978. Department of Biology, University of California, Santa Cruz

1979. Department of Zoology, Oregon State University;  
Ecology and Evolutionary Biology, University of California, Santa Cruz

1980. Department of Biology, Sacramento State University;

Ecology and Evolutionary Biology, University of California, Santa Cruz

1981. Moss Landing Marine Laboratories;  
Denver Wildlife Research Center
1982. National Marine Mammal Laboratory, Seattle;  
Museum of Vertebrate Zoology, University of California, Berkeley
1982. Ecology and Evolutionary Biology, University of California, Santa Cruz
1983. Department of Zoology, University of Washington;  
Department of Biology, University of Victoria;  
Division of Natural Sciences, University of Victoria;  
Moss Landing Marine Laboratories
1984. Ecology and Evolutionary Biology, University of California, Santa Cruz;  
Hopkins Marine Station, Stanford University;  
Scripps Institution of Oceanography
1985. Department of Fisheries and Wildlife, Oregon State University;  
Moss Landing Marine Laboratories
1986. Department of Paleontology, University of California, Berkeley
1987. Moss Landing Marine Laboratories,
1988. Department of Biology, San Diego State University;  
Institute of Marine Sciences, University of North Carolina;  
Duke University Marine Laboratory;  
Institute of Marine Sciences, State University of New York at Stony Brook;  
Department of Ecology and Behavioral Biology, University of Minnesota,
1990. Department of Zoology, University of Auckland;  
Leigh Marine Laboratory, University of Auckland (2 seminars);  
Department of Renewable Natural Resources, University of Arizona;  
Distinguished alumnus lecture, University of Arizona;  
Department of Biology, Stanislaus State University;  
Bodega Marine Laboratory, University of California;  
Department of Biological Sciences, University of California at Santa Barbara;  
Santa Cruz Natural History Society
1991. National Ecology Research Center;  
Alaska Fisheries and Wildlife Research Center;  
University-wide seminar, University of California at Davis;

Department of Ecology and Evolutionary Biology, University of California at Davis

- 1992. Leigh Marine Laboratory, University of Auckland;  
Institute of Ecosystem Studies, Millbrook, New York (2 seminars);  
Ecology and Evolutionary biology, University of California at Santa Cruz;  
National Ecology Research Center
- 1993. Leigh Marine Laboratory, University of Auckland;  
National Ecology Research Center;  
Department of Integrative Biology, University of California, Berkeley
- 1994. Department of Biology, University of Nevada, Reno;  
Department of Biology, University of Nevada, Reno;
- 1995. Scripps Institution of Oceanography, Santa Diego, California;  
University of California, Santa Cruz;  
Department of Biology, University of Durham, UK
- 1996. Department of Biology, Boise State University;  
Department of Biology, Boise State University;  
Department of Wildlife Biology, University of Montana
- 1997. Bodega Marine Laboratory, University of California, Davis;  
Department of Biology, UCLA;  
Departments of Fisheries and Wildlife/ Zoology, Oregon State University
- 1997. Invited public lecture, Pacific Grove Natural History Museum
- 1998. Department of Biology, University of California, Santa Cruz;  
Department of Biology, University of California, Santa Barbara
- 1999. Universidad Católica, Santiago, Chile;  
Valpariso University, Valpariso, Chile;  
Georgia Tech University;  
Moss Landing Marine Laboratories
- 2000. Darling Marine Center, University of Maine;  
Department of Biology, University of Pennsylvania;  
Department of Ecology and Evolutionary Biology, University of Minnesota
- 2001. Department of Biology, University of Denver;  
Scripps Institution of Oceanography, University of California, San Diego;

- Marine Sciences Center, University of Texas, Port Aransas;  
Humboldt State University, Arcata;  
NOAA Fishery Science Center, Seattle;  
NCEAS Eco-lunch, Santa Barbara
2002. School of Law, Stanford University;  
Biology Department, California State University Stanislaus;  
Duke University Marine Laboratory, Beaufort, North Carolina (3 seminars);  
Institute of Marine Sciences, University of Alaska, Fairbanks (2 seminars);  
Department of Ecology and Evolutionary Biology, University of California at  
Santa Cruz
2003. Department of Biology, University of Alaska, Juneau  
University of California, Bodega Marine Laboratory  
Department of Fisheries and Wildlife, Oregon State University
2004. Department of Biology, San Diego State University  
Department of Fisheries and Wildlife, Iowa State University
2005. Department of Biology, Georgia Institute of Technology  
Department of Ecology and Evolution, Cornell University  
Department of Fisheries and Wildlife, Cornell University  
Marine Biology Laboratory, Woods Hole Oceanographic Institution
2006. Department of Natural Resources, University of California Berkeley  
Department of Biology, University of Wyoming
- 2007 Department of Biology, Chapman College  
Department of Fisheries and Wildlife, Oregon State University  
The American Museum of Natural History, New York City  
The Wildlife Conservation Society, Bronx Zoo
- 2008 None
- 2009 University of Nevada, Reno  
Moss Landing Marine Laboratories  
University of California, Berkeley  
Georgia Tech University
- 2010 University of Florida  
Princeton University  
University of Pennsylvania  
State University of New York at Stony Brook

2011 Scripps Institution of Oceanography  
California State University, Northridge  
University of British Columbia

#### Courses Taught

- 1984. Quantitative aspects of ecology and population biology. Upper division/graduate level lecture course, University of California, Santa Cruz
- 1985. Stability in ecological systems. Graduate level seminar course, University of California, Santa Cruz
- 1987. Quantitative aspects of ecology and population biology. see above
- 1987. Plant/Herbivore Interactions: marine-terrestrial comparisons. Graduate Seminar Course, University of California, Santa Cruz.
- 1989. Probability, sampling, and experimental design. Upper division/graduate level lecture course, University of California, Santa Cruz
- 1989. Community Ecology (Diamond and Case, eds). Graduate Seminar Course, University of California, Santa Cruz
- 1991. Probability, sampling, and experimental design. see above
- 1993. Probability, sampling, and experimental design. see above
- 1995. Probability, sampling, and experimental design. see above
- 1997. Experiments in Ecology (A.J. Underwood). Graduate Seminar Course, University of California, Santa Cruz
- 1998. Method in Ecology (Shrader-Frechette and McCoy). Graduate Seminar Course, University of California, Santa Cruz
- 2000. Design of protected areas on land and in the sea. Graduate Seminar Course, University of California, Santa Cruz
- 2001. Probability, sampling, and experimental design. see above
- 2010. Introductory Ecology. University of California, Santa Cruz

2010. Trophic Cascades. (Terborgh and Estes). Graduate Seminar Course, University of California, Santa Cruz

2011. Introductory Ecology. University of California, Santa Cruz

#### Graduate Students Advised

- James P. Thompson, M.S., 1982. Thesis title, "Benthic illumination within a Macrocystis bed at Pt. Soquel, Santa Cruz, California, and its influence upon Macrocystis population structure and the abundance of benthic red algae". Institute of Marine Sciences, University of California, Santa Cruz.
- Cynthia Zabel, Ph.D., 1986. Dissertation title, "Reproductive behavior of the red fox (*Vulpes vulpes*): a longitudinal study of an island population". Department of Biology, University of California, Santa Cruz.
- Spencer James Taggart, Ph.D., 1987. Dissertation title, "Grouping behavior of Pacific walrus (*Odobenus rosmarus divergens* Illiger), an evolutionary perspective". Department of Biology, University of California, Santa Cruz.
- Claire Michaels, M.S., 1988. Thesis title, "Foraging and habitat use by the herbivorous shore crab, *Pachygrapsus crassipes*, at San Nicolas Island, California". Institute of Marine Sciences, University of California, Santa Cruz.
- Carolyn B. Heath, Ph.D. 1989. Dissertation title, "The behavioral ecology of the California sea lion (*Zalophus californianus*)". Department of Biology, University of California, Santa Cruz.
- Kathy J. Lyons, Ph.D. 1991. Thesis title, "Foraging behavior of California sea otters: the importance of individual variation". Institute of Marine Sciences, University of California, Santa Cruz.
- Frank Winter, M.S. 1991. Thesis title, "Polyphenolics from the kelp *Dictyoneurum californicum* deter grazing by the red abalone, *Haliotis rufescens*". Institute of Marine Sciences, University of California, Santa Cruz.
- Jane Watson, Ph.D. 1993. Dissertation title, "Predation and the ecology of kelp forest communities in British Columbia". Department of Biology, University of California, Santa Cruz.
- Diane Carney, M.S. 1991. Thesis title, "Behavior, ecology, and reproduction of red sea urchins in Sitka Sound, Alaska". Institute of Marine Sciences, University of California, Santa Cruz.
- Breck Tyler, M.S. 1991. Thesis title, "Behavioral ecology of tropicbirds in the northwest Hawaiian Islands". Institute of Marine Sciences, University of California, Santa Cruz.
- Laura McShane, M.S. 1991. Thesis title, "A spectrographic analysis of vocalization in the sea otter". Institute of Marine Sciences, University of California, Santa Cruz.
- Maria Sanchez, M.S. 1992. Thesis title, "Geographical variation in sea otters based on mitochondrial DNA". Institute of Marine Sciences, University of California,

Santa Cruz.

- Corinne Bacon, M.S. 1994. Thesis title, "An ecotoxicological comparison of organic contaminants in sea otters (*Enhydra lutris*) among populations in California and Alaska". Institute of Marine Sciences, University of California, Santa Cruz.
- Daniel H. Monson, M.S. 1995. Thesis title, "Reproductive strategies in sea otters at Amchitka Island, Alaska. Institute of Marine Sciences, University of California, Santa Cruz
- Greg Golet, Ph.D. 1999. Dissertation title, "The cost of reproduction in Black Legged Kittiwakes. Institute of Marine Sciences, University of California, Santa Cruz.
- Brenda Konar, Ph.D. 1998. Dissertation title, "Patterns and mechanisms of succession in subarctic kelp forest communities of the northwest Pacific Ocean". Biology Department, University of California, Santa Cruz.
- Steven Lee, M.S. 1995. Thesis title, "Diel activity patterns in sea urchins: an analysis of causality based on biogeographic, taxonomic, and ecological evidence". Institute of Marine Sciences, University of California, Santa Cruz.
- Kenneth Vicknair, M.S. 1996. Thesis title, "Sea otters and asteroids in the western Aleutian archipelago". Institute of Marine Sciences, University of California, Santa Cruz.
- Michelle Paddack, M.S. 1997. Thesis title, "The importance of refuges to coastal rockfish populations in the Monterey Bay National Marine Sanctuary". Institute of Marine Sciences, University of California, Santa Cruz, CA.
- Claire Mathews, M.S. 1996. Thesis title, "Time-energy analyses of sea otter foraging in Monterey Bay, California". Institute of Marine Sciences, University of California, Santa Cruz.
- Stacey Lindeman, M.S. 1998. Thesis title, "Evidence for the source of high concentrations of organic contaminants in the Aleutian archipelago based on a spatial analysis of organochlorine levels in blue mussels". Institute of Marine Sciences, University of California, Santa Cruz.
- Mathew Edwards, Ph.D. 2001. Dissertation title. "Patterns and mechanism of change in giant kelp forests resulting from the 1997-98 ENSO event". Department of Ecology and Evolutionary Biology, University of California, Santa Cruz
- Shauna Risewietz, M.S. 2002. Thesis title. Shifts in kelp forest fishes and their associated food webs following collapse of sea otter populations in western Alaska. Institute of Marine Sciences, University of California, Santa Cruz
- Eric Danner, Ph.D. Dissertation title, "Remote imaging analyses and landscape patterns in island plant communities". Department of Ecology and Evolutionary Biology, University of California, Santa Cruz
- M. Timothy Tinker. Ph.D. Dissertation title. "Behavior and spatial dynamics of the California sea otter population". Department of Ecology and Evolutionary Biology, University of California, Santa Cruz
- Alisha Kage, M.S. 2004, Thesis title, Movement patterns of sea otters. Department of Ecology and Evolutionary Biology, University of California, Santa Cruz.
- Gena Bentall, M.S. 2005. Thesis title, Morphological and behavioral correlates of

- population status in the southern sea otter, *Enhydra lutris nereis*: a comparative study between central California and San Nicolas Island
- Hoyt Peckham, Ph.D candidate. Dissertation topic. Behavior, ecology and conservation of loggerhead turtles on the west coast of Baja California, Mexico. Department of Ecology and Evolutionary Biology, University of California, Santa Cruz
  - Michelle Staedler, M.S. student
  - Lilian Carswell, M.S. student
  - Erin Dodd, M.S. student
  - Holly McCormick, Ph.D student

#### Graduate Committees Served On

- Robert M. Mayer, M.S. 1980. College of Fisheries, University of Washington, Seattle.
- David B. Irons, M.S. 1982. Department of Fisheries and Wildlife, Oregon State University, Corvallis.
- Robert K. Cowen, Ph.D. 1985. Scripps Institution of Oceanography, University of California, San Diego.
- Steven Swartz, Ph.D. 1985. Department of Biology, University of California, Santa Cruz.
- Joanne Reiter, Ph.D. 1986. Department of Biology, University of California, Santa Cruz.
- Keith Miles, Ph.D. 1987. Department of Fisheries and Wildlife, Oregon State University, Corvallis.
- Susan Shane, Ph.D. 1987. Department of Biology, University of California, Santa Cruz.
- Claudio Campagna, Ph.D. 1987. Department of Biology, University of California, Santa Cruz.
- Luciana Honigman, M.S. 1988. Institute of Marine Sciences, University of California, Santa Cruz.
- David Auriolles-Gamboa, Ph.D. 1988. Department of Biology, University of California, Santa Cruz.
- Martin Ramierz, Ph.D. 1990. Department of Biology, University of California, Santa Cruz.
- Naomi Rose, Ph.D. 1994. Department of Biology, University of California, Santa Cruz.
- M. Scott Mills, Ph.D. 1996. Department of Biology, University of California, Santa Cruz
- Josh Donlan, M.S. 2000. Department of Biology, University of California, Santa Cruz
- Shawn Noren, Ph.D. 2002. Department of Biology, University of California, Santa Cruz
- Samantha Forde, 2002. Department of Biology, University of California, Santa Cruz



- Michael Goebel, Ph.D. 2002. Department of Ecology and Evolutionary Biology, University of California, Santa Cruz
- Jennifer Brown, Ph.D 2004. Department of Ecology and Evolutionary Biology, University of California, Santa Cruz
- Dianna Steller, Ph.D. 2004. Department of Ecology and Evolutionary Biology, University of California, Santa Cruz
- Lisa DiGirolamo. Ph.D., 2005. Department of Ecology and Evolutionary Biology, University of California, Santa Cruz
- Laura Yates, Ph.D., 2006. Department of Ecology and Evolutionary Biology, University of California, Santa Cruz
- Shannon Fowler, Ph.D., 2005. Department of Ecology and Evolutionary Biology, University of California, Santa Cruz
- Carolyn Kurlle, Ph.D., Department of Ecology and Evolutionary Biology, University of California, Santa Cruz
- Carey Kunz, Ph.D., 2006. Department of Ecology and Evolutionary Biology, University of California, Santa Cruz

MEMBERSHIPS IN HONOR SOCIETIES:

Sigma Xi - Scientific Research Society (elected member in recognition of research in biological sciences - 1969)

Phi Kappa Phi - National Honorary Society for Scholastic Achievement (elected member for scholastic performance - 1969)

Fellow, California Academy of Sciences (elected 1999)

RESEARCH GRANTS AND FELLOWSHIPS:

1964-1965. National Defense and Education Association, Graduate Research Fellowship, Washington State University

1967. National Science Foundation, Summer Traineeship, Washington State University

1970-1972. (with N.S. Smith) Energy Research and Development Administration, Research on sea otters at Amchitka Island, Alaska (\$55,000)

1984-1985. (with G.R. VanBlaricom) National Geographic Society, Interactions between sea otters and intertidal mussel populations in Prince William Sound, Alaska (\$6700)

1985. (with M. Riedman) The Banbury Foundation, Behavior and population biology of sea otters near Monterey Bay, California (\$33,000)
- 1985-1987. (with D.O. Duggins and C.A. Simenstad) National Science Foundation, Sea otters, alternative communities, and the role of kelp-derived carbon in nearshore food webs (\$149,904)
1986. (with M. Riedman) The Banbury Foundation, Behavior and population biology of sea otters near Monterey Bay, California (\$40,000)
- 1986-1987. (with D.O. Duggins and C.A. Simenstad) National Science Foundation, The impact of sea otters on nearshore food webs and the role of kelp-derived carbon in coastal ecosystems: secondary production supplement (\$79,512)
- 1987-1988. (with J.S. Pearse) City of Santa Cruz, Study of the behavior and population biology of sea otters in relation to activities associated with construction of the Santa Cruz Sewage Outfall (\$32,787)
- 1990-1992. (with P.D. Steinberg) National Science Foundation, Geographical variation in the effects of brown algal secondary metabolites on temperate marine herbivores (\$147,000)
- 1991-1993. (with D.B. Siniff) National Science Foundation, The behavioral ecology of sea otters at Amchitka Island, Alaska (\$474,403)
1995. Legacy Program, U.S. Navy, The behavioral ecology of sea otters at Adak Island, Alaska. (\$108,000)
- 1995-97. Legacy Program, U.S. Air Force, The ecology of sea otters and coastal marine communities at Shemya Island, Alaska. (\$408,000)
- 1996-97. (with W. Jarman) U.S. Navy, Contaminant levels in blue mussels in the Aleutian Archipelago. (\$96,000)
- 1997-1999. (with W. Jarman) U.S. Navy, Spatial variation in contaminant levels in sea otters based on measurements from blood samples of living animals. (\$179,000).
- 1999-2002. (with R.G. Anthony, J.R. Bodkin, W. Jarman and A.K. Miles) U.S. Navy. Monitoring program for environmental contaminants in the nearshore marine ecosystem at Adak Island, Alaska. (\$1,830,000)

- 2000-2004. (with D. Croll and J. Maron) National Science Foundation. Introduced foxes and seabirds: the role of top-down processes in controlling marine subsidies to terrestrial ecosystems. (\$419,872).
- 2000-2003. (with T. Williams, D. Costa, K. Ralls, and D. Siniff) Minerals Management Service. Population dynamics and biology of the California Sea Otter at the southern end of its range. (\$222,138)
- 2008-2010 (with B. Konar and M. Edwards) National Science Foundation. Kelp forest interaction webs in the Aleutian archipelago: patterns and mechanisms of change following the collapse of an apex predator. (\$773,008).
- 2008-2009 (with J. Bodkin) North Pacific Research Board. Threatened southwest Alaska sea otter stock: delineating the causes and constraints to recovery of a keystone predator in the North Pacific Ocean. (\$338,353)

9. OTHER:

- 1978. American Men and Women of Science
- 1978. Award for outstanding publication, National Fish and Wildlife Laboratory, Fish and Wildlife Service
- 1981. Award for outstanding publication, Denver Wildlife Research Center, Fish and Wildlife Service
- 1987. Betty S. Davis Conservation Award, Friends of the Sea Otter (in recognition of efforts to help reestablish sea otters to San Nicolas Island)
- 1990. Distinguished alumunus, School of Renewable Natural Resources, University of Arizona
- 1990. United States Department of Interior, Natural Resource Response Award for Exceptional Service (granted for work on the Exxon Valdez oil spill)
- 1999. Pew Fellowship in Marine Conservation (\$150,000)
- 2003. Meritorious Service Award, U.S. Geological Survey
- 2004. Western Ecological Research Center, U.S. Geological Survey, Director's Award

2004. Eugene M. Shoemaker Award for Distinguished Achievement in Communication. U.S. Geological Survey

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Estes, J.A., and N.S. Smith. 1973. Research on the sea otter at Amchitka Island. Final Report. USAEC Contract AT(26-1)-520.

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Palmisano, J.F., and J.A. Estes. 1977. Ecological interactions involving the sea otter. pp. 527-567 in M.L. Merritt and R.G. Fuller (eds.). *The Environment of Amchitka Island*. USERDA, TID-26712, Springfield, Virginia.

Simenstad, C.A., J.A. Estes, and K.W. Kenyon. 1978. Aleuts, sea otters, and alternate stable state communities. *Science* 200: 403-411.

Estes, J.A., and J.R. Gilbert. 1978. Evaluation of an aerial survey of Pacific walrus. *J.*

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Estes, J.A., A.M. Johnson, and R.J. Jameson. 1978. Research on the sea otter in Alaska. pp. 120-125 in Otters. Proceedings of the First Working Meeting of the Otter Specialists Group. Sponsored by the World Wildlife Fund (International) and organized with the permission of the Survival Services Commission, IUCN. Paramaribo, Suriname, 27-29 March 1977. Compiled and edited by Nicole Duplaix, Chairman.

Estes, J.A., N.S. Smith, and J.F. Palmisano. 1978. Sea otter predation and community organization in the western Aleutian Island, Alaska. *Ecology* 59: 822-833.

Estes, J.A. 1979. Exploitation of marine mammals: r-selection of K-strategists? *J. Fish Res. Board Can.* 36: 1209-1217.

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Estes, J.A. 1981. Carnivorous mammals: the case of the sea otter. in P.A. Jewell and S. Holt (eds.). *The Management of Locally Abundant Wild Mammals*, Academic Press, New York.

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- Lindberg, D.R., K.I. Warheit, and J.A. Estes. 1987. Seasonal predation and prey preference by oystercatchers on limpets at San Nicolas Island, California, USA. *Mar.*

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Riedman, M., and J.A. Estes. 1988. A review of the history, distribution, and foraging ecology of sea otters. Pp. 4-21 in G.R. VanBlaricom and J.A. Estes (eds.). The community ecology of sea otters. Ecological Studies Vol. 65. Springer Verlag, New York.

Estes, J.A., and C. Harrold. 1988. Sea otters, sea urchins, and kelp beds: some questions of scale. Pp. 116-150 in G.R. VanBlaricom and J.A. Estes (eds.). The community ecology of sea otters. Ecological Studies Vol. 65. Springer Verlag, New York.

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- Estes, J.A. 1992. Status of sea otter (*Enhydra lutris*) populations. pp. 27-35 in C. Reuther and R. Rochert (eds.), *Proceedings of the V. International Otter Colloquium, Hankensbuttel. Habitat 6.*
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- Riedman, M.L., J.A. Estes, M. Staedler, A. Giles, and D. Carlson. 1994. Breeding patterns and reproductive success of sea otters in California. *J. Wildl. Manage.* 58:391-399.
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- Estes, J.A. 1995. Top-level carnivores and ecosystem effects: questions and approaches.



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Garshelis, D.L. and J.A. Estes. 1996. Sea otter mortality from the *Exxon Valdez* spill: evaluation of an estimate from boat-based surveys. Marine Mammal Science 13 (2):341-351.

Estes, J.A. 1996. Predators and ecosystem management. Wildl. Soc. Bull. 24:390-396.

Estes, J.A., D.F. Doak, J.R. Bodkin, R.J. Jameson, D. Monson, J. Watt, and M.T. Tinker. 1996. Comparative demography of sea otter populations. Endangered Species Update 13:11-13.

Estes, J.A., C.E. Bacon, W.M. Jarman, R.J. Nordstrom, R.G. Anthony, and A.K. Miles. 1997. Organochlorines in sea otters and bald eagles from the Aleutian Archipelago. Marine Pollution Bulletin 34:486-490.

Estes, J.A. 1997. Wild Otters--Predation and Populations. (Book Review). J. Wildl.

Manage. 61:984-987.

Estes, J.A. 1998. Concerns about the rehabilitation of oiled wildlife. *Conservation Biology* 12:1156-1157.

Estes, J.A., M.T. Tinker, T.M. Williams, and D.F. Doak. 1998. Killer whale predation on sea otters linking coastal with oceanic ecosystems. *Science* 282:473-476.

Lindberg, D.L., J.A. Estes, and K.A. Warheit. 1998. Human influences on trophic cascades in rocky intertidal communities. *Ecological Applications* 8(3):880-890.

Golet, G.H., D.B. Irons, and J.A. Estes. 1998. Survival costs of chick rearing in black-legged kittiwakes. *J. Animal Ecology* 61:827-841.

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Watt, J., D.B. Siniff, and J.A. Estes. 2000. Interdecadal change in diet and population of sea otters at Amchitka Island, Alaska. *Oecologia* 124:289-298.

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#### REPORTS ACCEPTED FOR PUBLICATION

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