

CURRICULUM VITAE

James Allen Estes
Long Marine Laboratory
University of California
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Santa Cruz, California 95060
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EDUCATION:

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

CURRENT MEMBERSHIP IN PROFESSIONAL SOCIETIES

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

PROFESSIONAL AWARDS

Sigma Xi, 1969
Phi Kappa Phi, 1969
American Men and Women of Science, 1978
Outstanding publication, US Fish and Wildlife Service, 1978
Outstanding publication, US Fish and Wildlife Service, 1981
Betty S. Davis Conservation Award, 1987
Distinguished Alumnus Award and Lecture, University of Arizona, 1990
Exceptional Service Award, Department of the Interior, 1990
Eugene M. Schoemaker Award for Distinguished Achievement in Communication, US
Geological Survey, 1997
Pew Fellow in Marine Conservation, 1999
Fellow, California Academy of Science, 1999
Meritorious Service Award, US Geological Survey, 2003
Ed Ricketts Award and Lecture, Monterey Bay National Marine Sanctuary, 2004
Director's Award, US Geological Survey, 2004
Lifetime Achievement Award, Western Society of Naturalists, 2011
C. Hart Merriam Award, American Society of Mammalogists, 2012
US National Academy of Sciences, 2014

COMMITTEES AND SERVICE

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. Session Chair

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, 1985, Organizing Committee

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. University of California, Santa Cruz, 1985-1986.

International Asian Otter Symposium. Proceedings Editor, 1988.

Southern Sea Otter Recovery Team Member, US Fish and Wildlife Service, 1989-2000

Joint U.S./Russian sea otter workshop, Wasilla, Alaska. 1993, Session Chair

Board of Editors, *Ecology/Ecological Monographs*, 1993-95

Strategic Planning Workshop for National Biological Service, Washington, D.C., 1995.

Board of Editors, *Animal Conservation*, 1997-2001

Vision Workshop for research on ocean ecology. Hosted by National Science Foundation. 1998.

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

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, 2005-2010

Board of Governors, Wildland Network, 2010-present

Steering Committee, 2011 Mote Fisheries Symposium

Steering Committee, Yale Climate and Energy Conference: Managing Species for Regulating the Carbon Cycle, 2012

Board of Editors, Proceedings of the National Academy of Sciences, 2015-

Committee member, NRC, National Academy of Sciences, *Multiple Stressors on Marine Mammals*, 2015-2016.

Member, Ocean Studies Board, National Research Council, 2016-

CONTRACTS AND GRANTS

- 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)
- 2013-2015 (with R. Steneck) National Science Foundation. Ocean acidification: century scale impacts to ecosystem structure and function of Aleutian kelp forests. (\$574,617)

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;
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
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
- 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, Stony Brook
- 2011 Scripps Institution of Oceanography
California State University, Northridge
University of British Columbia
- 2012 CCIMAR, La Paz, Mexico
Santa Barbara City College
University of Maine
Hopkins Marine Station, Stanford University

2013

Utah State University
University of Alaska
University of New Mexico
University of California, Los Angeles

2014

Colorado State University
University of California, Santa Barbara

2015

University of Nebraska
Moss Landing Marine Laboratories
Kansas State University
Institute of Ecosystem Studies
University of Wisconsin
University of Idaho

TEACHING

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, 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, 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, University of California, Santa Cruz
1997. Probability, sampling, and experimental design. see above
2010. General Ecology. University of California, Santa Cruz
2010. Trophic Cascades. (Terborgh and Estes). Graduate Seminar, University of California, Santa Cruz
2011. General Ecology. University of California, Santa Cruz
2012. General Ecology. University of California, Santa Cruz
2013. General Ecology. University of California, Santa Cruz
2014. General Ecology, University of California, Santa Cruz
Controversies in conservation, graduate seminar, UC Santa Cruz
BioE 200B, graduate training course, UC Santa Cruz
2015. General Ecology, University of California, Santa Cruz
Controversies in conservation, graduate seminar, UC Santa Cruz
BioE 200B, graduate training course, UC Santa Cruz
- 2016 BioE 295, Grad training course, preparation for Qualify Examination, UC Santa Cruz

GRADUATE STUDENTS SUPERVISED

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 walruses (*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 2009. 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. 2011. Thesis title. Behavioral ontogeny of sea otter pups. Department of Ecology and Evolutionary Biology, University of California, Santa Cruz.

Lilian Carswell, M.S. 2010. Thesis title. Population biology of translocated sea otters in southern California. Department of Ecology and Evolutionary Biology, University of California, Santa Cruz.

Erin Dodd, M.S. 2010. Contaminants in California sea otters. Department of Ecology and Evolutionary Biology, University of California, Santa Cruz.

Benjamin Weitzman, M.S. 2012. Thesis title. The recovery of sea otters in Glacier Bay, Alaska Department of Ecology and Evolutionary Biology, University of California, Santa Cruz.

Maxine Tarjan (co-advised with M.T. Tinker). Ph.D. Dissertation in progress. Department of Ecology and Evolutionary Biology, University of California, Santa Cruz

Sarah McKay Strobel (co-advised with M.T. Tinker and C. Reithmuth). Ph.D. Dissertation in progress. Department of Ecology and Evolutionary Biology, University of California, Santa Cruz.

PRESENTATIONS AT SCIENTIFIC MEETINGS

1973. "Sea otters: their influence on the structure of nearshore communities". Annual Meeting of The Wildlife Society, Flagstaff, Arizona

1977. "Alternate states of stability in a sea otter dominated community". The Biennial Meeting of the Marine Mammal Society, San Diego, California
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
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
1979. "Activity and foraging behavior in sea otters: interaction between population and community". Biennial Meeting of The Marine Mammal Society, Seattle, Washington,
1980. "Food selection and some foraging tactics of sea otters". International Furbearer Conference, Frostburg, Maryland
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
1981. "Marine mammal extirpations by aboriginal hunters in the North Pacific region". Biennial Meeting of The Marine Mammal Society, San Francisco, California,
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
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

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

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

1990. "Sample space, sample size, and the use of inferential statistics in ecological field studies". Western Society of Naturalists, Monterey, California

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

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,

1993. "The evolutionary consequences of sea otters in kelp forest communities." Joint U.S./Russian sea otter workshop, Wasilla, Alaska
1993. "Environmental contaminants in sea otters." Joint U.S./Russian sea otter workshop, Wasilla, Alaska
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
1994. "Reproduction and mortality of sea otters in Alaska." Western Society of Naturalists, Monterey, California
1994. "Role of predation in diel behavior of red sea urchins." Annual Meeting of the Western Society of Naturalists, Monterey, California
1994. "Translocation of sea otters to San Nicolas Island - a retrospection." Fourth California Islands symposium, Santa Barbara, California
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
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
1998. "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?" 5th International symposium on wildlife and oil spills. Monterey, California, 3-5 November 1997. INVITED
1999. "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
2000. "Are sea otter populations in the Aleutian Islands food limited?" Biennial meeting of the Marine Mammal Society
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
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
2001. "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
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". 4th 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". 17th 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, 6th California Islands Symposium, Ventura, California. INVITED

2003. "Sequential megafaunal collapse in the North Pacific Ocean: an ongoing legacy of commercial whaling?". Plenary lecture, 15th Biennial Conference on the Biology of Marine Mammals, Greensboro, North Carolina. INVITED
2004. "Large vertebrates and nature's balance". 40th 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 100th 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, INVITED
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
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

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

2012. Do trophic cascades affect the sequestration and storage of atmospheric carbon: an analysis for sea otters and kelp forests. Yale climate and energy annual conference, Yale University. INVITED

2013. Sea otters and kelp forests: an ecological history of the North Pacific Ocean. C. Hart Merriam Lecture, American Society of Mammalogists Annual Meeting, Philadelphia, PA. INVITED

2013. Trophic level complexity and its influence on population dynamics and conservation. International Mammalogical Congress, Belfast, Northern Ireland, INVITED

2014. Sea otters and kelp forests: questions, approaches, and perspectives. Hakai Institute,
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2015. The keystone species concept in ecology and management. Ecological Society of America, Annual Meeting. INVITED

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