

Distinguished Professor of Mathematical Biology Emeritus
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Professor Emeritus, Theoretical Ecology Group,
Department of Biology, University of Bergen, Norway
(<http://www.bio.uib.no/te/>)

EDUCATION

B.S. (Physics, High Honors), University of Illinois, 1971
M.S., (Biophysics) University of Illinois, 1972
Ph.D., (Applied Mathematics and Statistics), University of British Columbia, 1978

PERMANENT POSITIONS

Scientific Analyst, Center for Naval Analyses (CNA), 1977-80 [CNA is the Navy's federally funded research and development center. Its research activities include operations analysis, systems analysis, and system engineering.]
University of California Davis (UCD): Assistant Professor, 1980-82; Associate Professor 1982-84; Professor 1984-96
University of California Santa Cruz (UCSC), 1996-: Professor Environmental Studies, 1996-2002; Professor Applied Mathematics and Statistics 2002-2007; Distinguished Professor Applied Mathematics and Statistics 2007-2013
Distinguished Research Professor Applied Mathematics and Statistics 2013-2023

Major administrative duties and appointments:

Co-founder, Graduate Program in Applied Mathematics, UCD (1981-83)
Chair, Department of Mathematics, UC Davis 1984-1989
Co-founder, Graduate Program in Population Biology, UCD (1986-89)
Director, Center for Population Biology, UCD 1989-1993
Director, Geographic Information Systems/Interdisciplinary Sciences Computational Laboratory, UCSC, 1996-1999
Associate Vice Chancellor, Planning and Programs, UCSC 1997-1999
Marine Resources Assessment Group Americas [MRAG Americas, Inc.]
1999-, Senior Scientific Advisor, 2004-9, Regional Director, California Office
Chair, Department of Applied Mathematics and Statistics, UCSC, 2007-09
Vice Chair, UCSC Academic Senate, 2009-2010
Chair, Program in Technology and Information Management, UCSC, 2010-12

VISITING POSITIONS

Current

Visiting Scientist, Puget Sound Institute, Center for Urban Waters, University of Washington, 2012-

Visiting Professor, Antarctic Climate and Ecosystems Cooperative Research Centre, University of Tasmania, Hobart, Australia, 2013-

Previous

Visiting Associate Professor of Engineering Science and Applied Mathematics
Northwestern University, Summer 1983

Visiting Professor of Biology, Simon Fraser University, Summer 1987

Scheinbrun Professor of Botany, Hebrew University of Jerusalem, Fall 1987

University of Oxford, Center for Mathematical Biology, Member, Wolfson College, Spring 1988

Visiting Professor of Biology, Simon Fraser University, Summer 1990, 1991

Rose and Max Varon Visiting Professor, Weizmann Institute of Science, Winter 1994

Visiting Professor, University of Glasgow, Division of Environmental and Evolutionary
Biology, 1996-2002

Visiting Professor, NERC Centre for Population Biology, Imperial College, June 1997

Visiting Professor, Imperial College of Science and Technology, 1999-2005

William and Lenore Mote Eminent Scholar, Florida State University, Winter 2000

Dozor Professor, Ben Gurion University, Spring, 2000

HONORS AND AWARDS

E.J. James Scholar, University of Illinois, 1968-71

Phi Kappa Phi, 1970

Phi Beta Kappa, 1971

NIH Traineeship in Biophysics, 1971

Graduate Research Fellowship, University of British Columbia 1975, 1976

University of California Regents' Junior Faculty Fellowship, 1980

Sigma Xi, 1981

Koopman Paper Prize, Operations Research Society of America, 1981

Senior Member, Institute of Electrical and Electronic Engineers (IEEE), 1983

JASA-Applications Invited Paper, American Statistical Association, 1983

Visiting Associate Professor of Engineering Science, Northwestern University

Joseph Myerhoff Fellowship, Weizmann Institute of Science, 1987

Fellow, John Simon Guggenheim Memorial Foundation, 1987

Scheinbrun Professor of Botany, Hebrew University of Jerusalem, 1987

Senior Research Fellow, Fulbright Foundation, 1988

Visiting Professor, Centre for Mathematical Biology, Oxford University, 1988

Member, Wolfson College, University of Oxford, Hilary and Trinity terms, 1988

George Gund Foundation Distinguished Environmental Scholar, Case Western Reserve
University, 1992

Rose and Max Varon Professor, Weizmann Institute of Science, 1994

Honorary Professor, Division of Environmental and Evolutionary Biology
University of Glasgow, 1996-2002

Visiting Professor, NERC Centre for Population Biology, Imperial College,
Silwood Park, Ascot, UK, 1997

Distinguished Statistical Ecologist, International Association for Ecology, 1998

Visiting Professor, Imperial College of Science and Technology (various
1999-2005)

Fellow, California Academy of Sciences (Ecology Section), 2000

William R. and Lenore Mote Eminent Scholar Chair in Fisheries Ecology and
Enhancement at Florida State University and the Mote Marine Laboratory, 2000

Dozor Professor, Ben Gurion University, 2000

Tester Lecturer, University of Hawaii, 2002

7th Annual Fall Symposium Lecturer, University of Wisconsin, 2002

Fellow, American Association for the Advancement of Science, 2002

Excellence in Teaching Award, UCSC Academic Senate, 2003

Ernst Frohlich Fellow, Center for Marine and Atmospheric Research, CSIRO, Hobart, 2006

Astor Lecturer, University of Oxford, 2007

Fellow, American Institute of Fishery Research Biologists, 2007

William V. Kaeser Visiting Scholar, University of Wisconsin, Spring 2008

JIMAR (Joint Institute for Marine and Atmospheric Research) Visiting Scholar
University of Hawaii, 2008

Fellow, Royal Society of Edinburgh, 2009

Lamberson Ecology Trust Lecturer, Humboldt State University, 2010

American Fisheries Society Publication Award for the Best Publication in *Transactions of the
American Fisheries Society* 2009 (award given 2010) for Satterthwaite, W.H.,
M.P., Collins, E., Sawnk, D.R., Merz, J.E., Titus, R.G., Sogard, S.M., and M. Mangel.
Steelhead life history on California's Central Coast: Insights from a State-Dependent
Model. *Transactions of the American Fisheries Society* 132:532-548

Joint Recipient Queen's Anniversary Prize with colleagues at the Sea Mammal Research Unit
University of St. Andrews (for work on the Special Committee on Seals), 2011

Distinguished Alumnus Lecture, Institute of Applied Mathematics, University of
British Columbia, 2012

Member CIMEC Council of Fellows, 2013- [CIMEC is the Cooperative Institute for Marine
Ecosystems and Climate and the Council of Fellows provides advice to NOAA
Fisheries on research priorities in California]

Fellow, Society for Industrial and Applied Mathematics, 2013

Doctor of Science, *honoris causa*, University of Guelph, 2014
Citation: "This degree is awarded in recognition of your significant academic
contributions combining mathematics and statistics with theoretical ecology
and evolutionary biology. You have profoundly influenced an entire generation
of ecologists, environmental scientists and applied mathematicians on
how to solve important practical problems and make the world a better place".

Graduate Student Invited Speaker, Department of Biological Sciences
Simon Fraser University, 2014

Secretary of Commerce, Group Gold Medal for Scientific and Engineering Achievement,
for collaborative work on the Bering Sea Integrated Ecosystem Research Program, 2015

Fellow, Ecological Society of America, 2016

Glaser Professor, Department of Biological Sciences, Florida International University. 2017

I gave a series of five lectures (Thoughts on Modeling in Biology, Ten Principles from Evolutionary Ecology Essential for Marine Conservation, State Dependent Behavioral Theory for Assessing the Population Consequences of Disturbance, The Evolutionary Ecology of Offspring Number and investment, and Invasion Biology and the Success of Social Networks) and one public talk (Whales, Science, and Scientific Whaling in the International Court of Justice).

Alaska Airlines Imagining the Future Speaker, Washington State University, 2017

Fellow, American Academy of Arts and Sciences, 2018

Citation: “Marc Mangel has been at the forefront of developing rigorous mathematical approaches to solving major pure and applied problems in ecology, evolution and behavior. His influential books and reviews have trained several generations of biologists. His empirical work, which links models to experiments and field observations, has included novel ecological and evolutionary approaches to host-parasitoid interactions, quantitative methods for sustainable fishery management, the response of ectotherms to changing environments, the inference of species’ conservation status, and the role of disturbance in conservation biology. In addition, his work on major national and international environmental policy panels have furthered the links between science and public policy.”

Outstanding Achievement Award, American Institute of Fishery Research Biologists, 2019

Citation: “For the scientific merit and broad-reaching impacts of his research in the use of mathematical methods to solve biological and ecological problems in ecosystem based fishery management.”

Fellow, Washington State Academy of Sciences, 2020

Citation: “For a scientific career dedicated to use of quantitative methods to address ecological and evolutionary problems in the conservation and management of living natural resources.

William R. and Lenore Mote Eminent Scholar in Marine Biology Florida State University, 2020-2021

ADDITIONAL PROFESSIONAL EXPERIENCE

Conference/Meeting Convenor

Convenor, Mini symposium on **Search and Decision in Fisheries Management**, SIAM 30th Meeting, 1982

Convenor, **R. Yorque Conference on Resource Management**, 1983, 1984, 1985

Director, NATO Advanced Research Workshop **Operations and Systems Analysis in Fruit Fly Management**, 1985

Convenor and Editor of Proceedings, Mathematics in the Life Sciences **Sex Ratio and Sex Allocation: Experiments and Models**, 1989

Convenor and Editor of Proceedings, **Classics of Theoretical Biology**, IMA Meeting, Oxford, UK, 1989

Convenor and Editor of Proceedings, **Bioeconomics and Behavioural Ecology. A Celebration in Honor of the 60th Birthday of Colin Clark**, 1991

Convenor and Chair, Steering Committee, **Principles of Wild Living Resource Conservation**, 1994
 Convenor and Editor of Proceedings, **Second International Symposium on Krill**, 1999
 Convenor, **Workshop on Mathematical Ecology**, Pacific Institute for Mathematical Sciences, 1999
 Convener, **An Interdisciplinary Workshop on Quantitative and Evolutionary Approaches to Environmental Problem Solving**, 2001
 Convener (with Kai Lorenzen and Malcolm Beveridge), **Nature and Culture: Comparative Biology and Interactions of Wild and Farmed Fish**, International Symposium of the Fisheries Society of the British Isles, 2004
 Convener (with Steve Nicol and Keith Reid) **Lenfest Workshop on Identifying and Resolving Key Uncertainties in Management Models for Krill Fisheries**, 2007

Panel Membership/Participation

Participant, Session on **Creative Problem Solving**, Teaching Week UC- Davis, 1982.
 Participant, **Expert Panel of the Joint Agency-Industry Committee on Eggs and Larva**, La Jolla, CA, April 16-18, 1985
 Invited Expert to the **Scientific Committee for the Conservation of Antarctic Living Marine Resources**, Hobart, Tasmania, October/ November, 1988
 Member, Steering Committee, Public Service Research Program **Integrating Conservation Biology and Agriculture**, UCD, 1989-1990
 Participant, NSF Workshop **Initiative in Theoretical and Computational Biology**, Washington, April 1990
 Member, **Bellman Prize Committee**, Mathematical Biosciences, 1989, 90
 Member, **SIAM-AMS Committee on Mathematics in the Life Sciences**, 1988-1993; Chair , 1990-1993
 Participant, California Department of Fish and Game Workshop Short-term **Sardine Assessment and Management**, Tiburon September 1990
 Member, Delegation of the United States to the **Scientific Review of Large-Scale Pelagic Driftnetting**, Sidney, BC, June 1991
 Member, Delegation of the United States to the **Scientific Committee for the Conservation of Antarctic Living Marine Resources**, Hobart, Tasmania October 21-November 1, 1991
 Member, Panel for the Review of the **US Antarctic Marine Living Resources Program**, May 1992
 Advisor to Program Committee Gordon Research Conference on **Chemical/Biological Synergies to Reduce Inputs for Pest Control**, February 1995
 Participant, **Potential Biological Removals Workshop**, Southwest Fisheries Science Center, June 1994
 Member, **Pitelka Award Committee**, International Society for Behavioral Ecology, 1996-2000
 Member, **Delegation of the US to the CCAMLR (Commission for the Conservation of Antarctic Marine Living Resources) Working Group on Ecosystem Monitoring and Management**, 1996, Bergen, Norway

- Member, **Scientific Committee, International Workshop and Young Scientists School From Individuals to Populations**, Ceske Brudejovice, Czech Republic, July 1998
- Member, Panel **Assessing Extinction Risk for West Coast Salmon**, National Marine Fisheries Service, November 1996
- Member, **National Marine Fisheries Service Ecosystems Advisory Panel** (nominated by the National Research Council, NRC), 1997-2000
- Member, **Delegation of the US to the CCAMLR (Commission for the Conservation of Antarctic Marine Living Resources) Working Group on Ecosystem Monitoring and Management**, July 1997, San Diego, CA
- Member, **Ad hoc Committee for an Intercampus Activity in Conservation Biology**, University of California, 1997-1999
- Member, University of California Santa Cruz **Sigma Xi Steering Committee**, 1997-
- Member, **Scientific Advisory Panel for West Coast Marine Reserve Planning**, Center for Marine Conservation, 1997-1998
- Member, **NSF Ecology Panel**, Spring 1998; Fall 1998
- Member, **Science Advisory Board, National Center for Ecological Analysis and Synthesis**, 1998-2001
- Member, **Council, American Institute of Biological Sciences**, 1999-2002
- Member, **International Academic Advisory Board, The Arava Institute of Environmental Studies**, 2000-
- Member, **Board of Science, Resilience Alliance** 2000-
- Member, **Evaluation Team on Icelandic Cod**, Fishery Ministry of Iceland, 2001-2002
- Member, **Review Team for Issues to be Considered by the Evaluation Team for the Bering Sea and Gulf of Alaska Walleye Pollock Fishery**, National Fisheries Conservation Center, 2002
- Member, **Review Team for F40 Harvest Management Strategy**, North Pacific Fisheries Management Council, 2002
- Reviewer, **Fishery Control Rules for California Nearshore Fishery Management Plan**, California Marine Life Management Project, 2002
- Member, **Ad-hoc Technical Review Committee on Westcoast Groundfish Habitat**, Pacific States Marine Fishery Commission, 2003
- Member, **Board of Scientific Advisors, Seafood Watch**, 2003-05
- Member, NOAA Fisheries **Recovery Science Review Panel** (NRC Appointment), 2004-
- Member, NERC (Natural Environment Research Council, United Kingdom) **Special Committee on Seals**, 2004-11; Chair 2008-11
- Member, **Marine Management Area Science Committee**(Conservation International/Moore Foundation), 2005-06
- Member, **Canada Research Chairs Program College of Reviewers**, 2005-
- Member, **NSF Workshop: The Future of Synthesis in the Ecological Sciences**, 2008
- Member, **Scientific Advisory Board, Florida State University Coastal and Marine Laboratory**, 2008-11
- Member, **Steering Committee, University of Florida IGERT in Spatial Ecology** 2009-
- Chair, **Review Committee for the Fisheries Centre, University of British Columbia**,

2009

Chair, **External Review Committee, Department of Applied Mathematics, Naval Postgraduate School**, 2009

Chair, **External Review Panel, US Antarctic Marine Living Resources (AMLR) Program**, 2009

Member, **Lenfest Ocean Program Forage Fish Task Force**, 2009-2012

Member, **Scientific Review Board, International Pacific Halibut Commission**, 2013-

Chair, **External Review Panel, Ecosystem Science Review, Northwest Fisheries Science Center**, 2016

Member, **Ocean Modeling Forum on Climate and Communities Working Group**, 2020-

Editorial Appointments

Member, Editorial Advisory Council, Natural Resources Modelling, 1984-1988

Associate Editor, Operations Research, 1987 -1992

Special Issues Editor, Bulletin of Mathematical Biology, 1988-1994

Editorial Board, Ecological Applications, 1989-1994

Associate Editor, Theoretical Population Biology, 1989-

Editor, SIAM Journal on Applied Mathematics, 1989-1992

Editorial Advisory Board, Journal of Mathematical Biology, 1990-1999

Editorial Board, Mathematical Biosciences, 1991-1994

Editorial Board, Evolutionary Ecology, 1991-1999

Editorial Advisory Board, Environmental and Ecological Statistics, 1992-

Co-Editor, Behavioral Ecology, 1994-1999

Editorial Board, Oecologia, 1998-2009

Editorial Board, Evolutionary Ecology Research, 1999-2009

Subject Editor, Israel Journal of Ecology and Evolution, 2006-

Editorial Board, The American Naturalist, 2007-09

Senior Advisory Council, Natural Resources Modeling, 2007-

Public Directorships

Board of Directors, Jewish Fellowship of Davis, 1983-86; Treasurer 1984-85

Board of Directors, Sacramento-Davis Hillel Foundation, 1990-92

Board of Directors, Santa Cruz Hillel, 2000-02; Vice President 2001-02

Board of Directors, FishWise, 2003-2007; 2010-2020

Chair Board of Directors of FishWise, 2013-2020

Miscellaneous

Visiting Lecturer Program, Society for Industrial and Applied Mathematics, 1978-81

Education Committee, Society for Industrial and Applied Mathematics, 1978-80

Founding Member, Institute for Theoretical Dynamics, University of California Davis, 1983-1993

External examiner, Ph.D. thesis of M. Ledbetter, Department of Zoology University of British Columbia, 1985

External Referee, Ph.D. cum laude of M. Visser, Department of Population Biology, University of Leiden, 1991

External Examiner, Ph.D. thesis of J. Day, University of Adelaide, 1995
 External Examiner, MSc thesis of R. B. Thomson, Department of Mathematics and Applied Mathematics, University of Capetown, 1997
 External Examiner, Ph.D. thesis of L. Huato, Department of Zoology, University of British Columbia, 2001
 Opponent, Ph.D. Disputation of N. Jonzen, Department of Theoretical Ecology, University of Lund, 2001
 External Examiner, Ph.D. thesis of D. Claessen, Department of Population Biology, University of Amsterdam, 2002
 External Examiner, Ph.D. thesis of T. van Kooten, Department of Population Biology, University of Amsterdam, 2004
 External Examiner, Ph.D. thesis of C.M. Elkin, Department of Biological Sciences, University of Calgary, 2004
 External Examiner, Ph.D. thesis of C. Asseburg, School of Mathematics and Statistics, University of St. Andrews, 2006
 External Examiner, Ph.D. thesis of A. Frid, Department of Biological Sciences Simon Fraser University, 2006
 External Examiner, Ph.D. thesis of R. Suri, Institute of Information and Mathematical Sciences Massey University, 2008
 Opponent, Doctoral Technices Defense of K. H. Andersen, Technical University of Denmark, 2017

RESEARCH GRANTS AND CONTRACTS

Calculation of optimal search tracks in the search for a moving target, Office of Naval Research, 1980-82
 Optimal detection of Mediterranean fruit fly, University of California Institute of Ecology, 1981-82
 Design of a search pattern for hydroacoustic surveys of fish schools, Pacific Biological Station, 1982-83
 Design of a search pattern for hydroacoustic surveys of fish schools, Pacific Biological Station, 1982-83
 Investigation of some control, decision, and search problems associated with fisheries and pest management, National Science Foundation 1982-85
 Optimal allocation of scouting activity and timing of pesticide application: San Joaquin cotton and the lygus bug, California Integrated Pest Management Grant, 1983-84
 Operations and systems analysis in fruit fly management, NATO Systems Science Panel, 1984-85
 Optimal trapping patterns for detecting and delimiting infestations of medfly, Mexican and Caribbean fruit fly, California Department of Food and Agriculture, 1985-87
 New methods in stock abundance estimation, California Sea Grant, 1985-88
 Estimation of medfly and Mexican fruit fly population size and optimal sterile insect release schedules, California Department of Food and Agriculture, 1985-87
 Chinook salmon mixed fishery analysis, California Department of Fish and Game, 1986-89
 Testing and further development of unified foraging theory, National Science Foundation, 1986-90
 Krill Simulation Study, Commission for the Conservation of Antarctic Marine Living

- Resources, 1987-89
- Host Choice and Behavioral Ecology of Tephritid Fruit Flies, USDA Cooperative Research Service Grant, 1990-95
- Global Climate Change: The Mexico/United States Pacific Coast and Transboundary Resources, UC MEXUS Critical Issues Program, 1990
- Developmental Conflict in Salmonids: Experiments and Theory, NATO Collaborative Research Grant 1990-1992
- Effects of Uncertainty and Information on Dispersal and Foraging Strategies, US-Israel Binational Science Foundation, 1990-1993
- Behavioral Models of Fish Patterning and Response to Global Climate Change, National Science Foundation, 1991-1993
- Individual Behavior and Population Processes: Spatial and Multi-trophic Aspects of Insect-Plant and Host-Parasitoid Interactions, National Science Foundation, 1992-1995
- State Variable Approaches to Life History Variation in Salmonids, California Sea Grant 1993-1996
- A Modeling Study of the Population Biology of Krill, Seabirds, and Marine mammals in the southern ocean, National Marine Fisheries Service 1993-1996
- Metapopulation Ecology as It Relates to Risk of Extinction of West Coast Salmon Populations, National Marine Fisheries Service, 1996
- Working Group on Population Management, National Center for Ecological Analysis and Synthesis, 1996
- Implementing Testing a Model for the Effects of Environmental Factors on Smolting and Maturation in Atlantic Salmon, *Salmo salar* L., National Marine Fisheries Service, 1997-2000
- Improving Biological Control by Exploiting Parasitoid Learning and Herbivore Responses to Plant Variability, USDA, 1997-1999
- Models of southern ocean krill life histories: From fisheries ecology to individual behavior, National Science Foundation, 1998-2001
- International conference on foraging behavior: nervous systems to Ecosystems (co- PIs D. Stephens and D. Kramer), National Science Foundation, 1998
- Survey of Central Coast Coho Salmon and Steelhead Trout, National Marine Fisheries Service, 1998-2000
- Second international symposium on the biology of krill, National Science Foundation, 1998-2000
- Climate change and trophic links in coastal upwelling centers, National Institute for Global Environmental Change (co-PIs D. Croll and B. Marinovic), 1999-2002
- Oviposition Habitat Selection in Response to Risk of Predation: Consequences for Metapopulation Dynamics and Community Structure in Temporary Pools at Different Spatial Scales (co-PI L. Blaustein), Israel-US BSF, 2000-2003
- Understanding Interactions Between Wild and Escaped Cultured Atlantic Salmon, NMFS (Co-PI A. Rosenberg, University of New Hampshire) 2001-2003 (\$140K)
- CSTAR: The Center for Stock Assessment Research. A Collaborative Training Program Between NOAA Fisheries and UCSC, NMFS, 2001-2016 (\$2.2M total)
- Modeling Essential Fish Habitat in a Life Cycle Context, NMFS, 2002-03 (\$55K)

Investigating Uncertainty in Fisheries Stock Assessments, California Sea Grant, 2002-2005 (\$189K)

Ecological Detection and Disease Outbreaks, DARPA/NSF 2003-2006 (\$270K)

Stock Assessment of California Sheephead, CDFG 2004 (\$75K)

Ecosystem Attributes and Adaptive Approaches During Stock Rebuilding, NMFS, 2004-05 (\$100K)

Climate Change, Krill Life Histories and Krill Fisheries, Lenfest Ocean Program, 2005-09 (\$844K)

Oxidative Damage in Diving Mammals and Birds: Linking Theory and Experiment, UCMEXUS, 2005-06 (\$25K)

Life History Variation in Steelhead Trout and the Implications for Water Management, CalFed Science Program, 2006-09 (\$1.22M)

Ecosystem Consequences of MSC Certification, Northwest Fisheries Science Center 2007-08 (\$25K)

Behavioral Foraging Model (a component of the Bering Sea Integrated Ecosystem Research Program), North Pacific Research Board/NSF (2008-11) (\$376K)

Resiliency of stock-recruitment relationships of Pacific scombroids, Pacific Islands Fishery Science Research Center, 2008-10 (\$45K)

Towards a theory linking hematopoietic stem cells, foraging ecology, antipredator behavior, and immune defense, NSF, 2009-13 (\$297K)

Beyond maternal effects: Transgenerational plasticity in thermal performance, NSF, 2011-15 (\$602K)

Play as a window into cognitive evolution and the rules of the sociality, National Institute for Mathematical and Biological Synthesis (NIMBioS)

OPUS: Ectotherms in Changing Environments, NSF, 2015-2017 (\$221K)

NSF-NERC: Collaborative Research: Informing population models with evolutionary theory to infer species conservation status, NSF. Co-PI with Holly Kindsvater (Rutgers)(Grant total: \$830K; my share \$176K)

Analytical synthesis of western gray whale data to determine the population consequences of disturbance off Sakhalin Island, Russia. Co-PI with Lisa Schwartz, Dan Costa, Elizabeth McHuron. Exxon-Mobil (my share \$85K)

Improving catch estimation methods in sparsely sampled, mixed-stock fisheries via High Performance Computer (E.J. Dick PI Nicholas Grunloh, Don Pearson, John Field, and Marc Mangel co-PIs). NOAA Fisheries (\$47K)

Assessing the development of feedback management and leveraging dual ecosystem models to inform the establishment of marine protected areas in the Antarctic Peninsula region. Pew Foundation 2018-19 (\$95K)

Unifying modeling approaches for better understanding and characterizing the effects of anthropogenic disturbance on marine mammals. Office of Naval Research 2019-2022 (\$296K)

PUBLICATIONS

Books and Edited Volumes

1985

Mangel, M. *Decision and Control in Uncertain Resource Systems*. Academic Press

Mangel, M. (editor) *Resource Management* Springer Verlag

1986

Mangel, M., R.E. Plant and J.R. Carey (editors) *Pest Control: Operations and Systems Analysis in Fruit Fly Management*, Springer Verlag

1988

Mangel, M. and C.W. Clark. *Dynamic Modeling in Behavioral Ecology*. Princeton University Press.

Russian edition: *Dinamicheskie modeli v ekologii povedeniya*. Moscow, Mir Publishers, 1992

1990, 1991

Mangel, M. (editor) *Classics of Theoretical Biology*, Pergamon Press, Oxford. A Special Issue of the Bulletin of Mathematical Biology.

Part I: Volume 52 Numbers 1,2. Part II: Volume 53, Numbers 1,2

Mangel, M.(editor) *Sex Allocation and Sex Change: Experiments and Models*. Lectures on Mathematics in the Life Sciences, Volume 22 American Mathematical Society, Providence, RI

1992

Mangel, M. (editor) *Bioeconomics and Behavioural Ecology. A Special Issue in Honor of the 60th Birthday of Colin Clark* Bulletin of Mathematical Biology, Volume 54, Numbers 2/3

1997

Hilborn, R. and M. Mangel. *The Ecological Detective. Confronting models with data*. Princeton University Press

2000

Clark, C.W. and M. Mangel. *Dynamic State Variable Models in Ecology: Methods and Applications*. Oxford University Press

2006

Mangel, M. *The Theoretical Biologist's Toolbox. Quantitative Methods for Ecology and Evolutionary Biology*. Cambridge University Press

Articles (Most available in pdf form at the publications page)

1971

Mangel, M. A treatment of complex ions in sea water. *Marine Geology* 11:M24-26
 Jendrasiak, G.L. and M. Mangel. Ion pair movement across bilayer lipid membranes. *Nature* 234:80-81

1975

Berns, D.S., A. Ilani, and M. Mangel. The dependence of photosensitivity of bileaflet lipid membranes upon the chlorophyll and carotenoid content. *Journal of Membrane Biology* 20:171-180

Mangel, M. The enhancement of photocurrents in bilayer lipid membranes by phycocyanin: pH and surface charge dependence. *Biochemical and Biophysical Research Communications* 66:393-397

1976

Berns, D.S., A. Ilani, and M. Mangel. Photosensitivity in bilayer lipid membranes .pg 277-287 in J. Birks (ed) *Proceedings of the International Conference on the Excited States of Biological Molecules, Lisbon 1974*.

Jendrasiak, G.L. and M. Mangel. The movement of ion pairs across bilayer lipid membranes. *Chemistry and Physics of Lipids* 16:167-180

Mangel, M. The relationship of photosensitivity of bilayer lipid membranes and the aqueous acceptor: studies using complex ions of amino acids. *Biochimica et Biophysica Acta* 419:404-410

Mangel, M. Properties of liposomes containing chloroplast pigments: photosensitivity and efficiency of energy conversion. *Biochimica et Biophysica Acta* 430:459-466

1977

Mangel, M. and D. Ludwig. Probability of extinction in a stochastic competition. *SIAM Journal on Applied Mathematics* 33:256-366

1978

Mangel, M. Fluctuations at chemical instabilities. *Journal of Chemical Physics* 69:3697-3708

Mangel, M. Fluctuations in systems with multiple steady states: Application to Lanchester equations. pg 335-340 in P.Wang et al. (eds.) *Proceedings of the Workshop on the Information Linkage Between Applied Mathematics and Industry*. Academic Press

Mangel, M. Small fluctuations in systems with multiple steady states. *SIAM Journal on Applied Mathematics* 36:544-572

1979

Clark, C.W. and M. Mangel. Aggregation and fishery dynamics: A theoretical study of schooling and the purse seine tuna fisheries. *Fishery Bulletin* 77:317-337

Mangel, M. Uniform treatment of fluctuations at critical points. *Physica* 97A: 597-615

Mangel, M. Relaxation at critical points: Deterministic and stochastic theory *Physica*

97A:616-642

1980

Mangel, M. Small fluctuations in systems with multiple limit cycles. *SIAM Journal on Applied Mathematics* 38:120-128

Mangel, M. Rate constant and transmission coefficient in the diffusion theory of reaction rates. *Journal of Chemical Physics* 76:6606-6613

1981

Mangel, M. Search for a randomly moving object. *SIAM Journal on Applied Mathematics* 40:327-338

Gillespie, D.T. and M. Mangel. Conditioned averages in chemical kinetics. *Journal of Chemical Physics* 75:704-709

Mangel, M. Description and some aspects of control of temperature fluctuations in catalytic wires and gauzes. *Mathematical Modeling* 2:201-212

Mangel, M. Three bearing method for passive triangulation in systems with unknown deterministic biases. *IEEE Transactions on Aerospace Systems* 17:814-819 (*Koopman Paper Prize, Operations Research Society of America 1982*)

Mangel, M. Diffusion theory of reaction rates for multiple potential barriers. *Journal of Chemical Physics* 75:5969-5971

Mangel, M. Simple theory of relaxation from instabilities. *Physical Review* A24:3226-3238

1982

Mangel, M. Probability of success in the search for a moving target. *Operations Research* 30:216-222

Mangel, M. Finding the solution isn't the problem, finding the problem is the problem, *Teaching Resources Newsletter* 7:1, Winter, 1982; re-printed in *Canadian Applied Mathematics Society Newsletter*, 1982

Mangel, M. Aggregation and fishery dynamics: Multiple time scales, times to extinction, and random environments. *Ecological Modelling* 15:191-209

Mangel, M. Applied mathematicians and naval operators. *SIAM Review* 24: 289-300

Mangel, M. Search effort and catch rates in fisheries. *European Journal of Operations Research* 11:361-366

Mangel, M. Optimal search for and mining of underwater mineral resources. *SIAM Journal of Applied Mathematics* 43:99-106

1983

Mangel, M. and R.E. Plant. Multiseasonal management of an agricultural pest. I: Development of the theory. *Ecological Modelling* 20:1-19

Mangel, M. and C.W. Clark. Uncertainty, search, and information in fisheries. *Journal of the International Council for the Exploration of the Seas* 43:93-103

Clark, C.W. and M. Mangel. Search theory in ecology and resource management. *Springer Lecture Notes in Biomathematics* 52:380-388

1984

Clark, C.W. and M. Mangel. Foraging and flocking strategies: Information in an uncertain environment. *American Naturalist* 123:626-647

Mangel, M. and F.J. Samaniego. Abraham Wald's work in aircraft survivability *Journal of the American Statistical Association* 79:259-271 (*JASA Applications Invited Paper 1983*)

Knessl, C., B.J. Matkowsky, Z. Schuss, M. Mangel and C. Tier. Asymptotic solution of the Kramers-Moyal equation and first passage times for Markov jump processes. *Physical Review A* 29:3359-3369

Mangel, M., R.E. Plant, and J.R. Carey. Rapid delimiting of pest infestations: A case study of the Mediterranean fruit fly. *Journal of Applied Ecology* 21:563-579

Knessl, C., B.J. Matkowsky, Z. Schuss, M. Mangel and C. Tier. Solution of Kramers-Moyal equations for problems in chemical physics. *Journal of Chemical Physics* 81:1285-1293

Ohsumi, A. and M. Mangel. On the search and parameter estimation for a randomly moving object. pg 133-136 in *Proceedings of the 7th Symposium on Dynamical Systems Theory*, Tokushima University, Japan

1985

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Vincenzi, S., Crivelli, A.J., Satterthwaite, W.H. and M. Mangel. Eco-evolutionary dynamics induced by massive mortality events *Journal of Fish Biology* doi:10.1111/jfb.12382

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Vincenzi, S. and M. Mangel. Food abundance, kittiwake life histories, and colony dynamics in the Northeastern Pacific: implications of climate change and regime shifts. *Marine Ecology Progress Series* 515:251-263

2015

Boettiger C., Mangel M., and S. Munch. 2015 Avoiding tipping points in fisheries management through Gaussian process dynamic programming. *Proc. R. Soc. B* 282: 20141631. <http://dx.doi.org/10.1098/rspb.2014.1631>

Levi, T., Kilpatrick, A.M., Barfield, M., Holt, R.D., Mangel, M., and C.C. Wilmers. Threshold levels of generalist predation determine consumer response to resource pulses. *Oikos* doi: 10.1111/oik.01487

Boughton, D.A., Harrison, L.R., Pike, A.S., Arriaza, J.L. and M. Mangel. Thermal Potential for Steelhead Life History Expression in a Southern California Alluvial River, Transactions of the American Fisheries Society, 144:2, 258-273, DOI: 10.1080/00028487.2014.986338

Sadeh, A., Polevikov, A., Mangel, M., and L. Blaustein. Intercohort size structure dynamics of fire salamander larvae in ephemeral habitats: a mesocosm experiment. *Oecologia* DOI 10.1007/s00442-015-3366-7

Mangel, M., Dowling, N., Lopez Arriaza, J. The behavioral ecology of fishing vessels: Achieving conservation objectives through understanding the behavior of fishing vessels. *Environmental and Resource Economics* 61:71-85 DOI 10.1007/s10640-013-9739-7

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Pellis, S.M., Burghardt, G.M., Palagi, E. and M. Mangel. Modeling play: distinguishing between origins and current functions. *Adaptive Behavior* DOI: 10.1177/1059712315596053

Richerson, K., Watters, G.M., Santora, J.A., Schroeder, I.D., and M. Mangel. More than passive drifters: a stochastic dynamic model for the movement of Antarctic krill. *Marine Ecology Progress Series* 529:35-48

Mangel, M. Stochastic Dynamic Programming illuminates the link between environment, physiology, and evolution. *Bulletin of Mathematical Biology*. 77:857-877

2016

Jorgensen, C., Engberg, K. and M. Mangel. Modelling and interpreting fish bioenergetics: a role for behaviour, life-history traits and survival trade-offs. *Journal of Fish Biology* 88:389-402

Mangel, M., Bonsall, M.B., and A. Aboobaker. Feedback control in planarian stem cell systems. *BMC Systems Biology* DOI 10.1186/s12918-016-0261-8

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Brierley, A.S., Clapham, P.J., Baker, C.S., Baluch, S., Begona Santos, M., Berggren, P., Brownell Jr., R.L., Castro, C., Charrassin, J-C., Chasqui Velasco, L. Cooke, J., Currey, R., Gallego, P., Galletti Vernazzani, B., Herr, H., Ivashchenko, Y.V., Lauriano, G., Leaper, R., Mangel, M., Marcondes, M.C.C., de Oliveira Luna, F., Panigada, S., Reeves, S.A., Ridoux, V., Ritter, F., Rodríguez- Fonesca, Roel, B.A., Rosenbaum, H., Scheidat, M., Simmonds, M., Stachowitsch, P., and P. Wade. Japan's whaling is unscientific. *Nature* 529: 283 (not peer-reviewed)

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Reimer, J.R., Mangel, M., Derocher, A.E., and M. A. Lewis. Matrix methods for stochastic dynamic programming in ecology and evolutionary biology. *Methods in Ecology and Evolution*. DOI: 10.1111/2041-210X.13291

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Mangel, M. Iwasa et al. (1984): On the cusp of a revolution in foraging theory. *Theoretical Population Biology* 133:25-26 <https://doi.org/10.1016/j.tpb.2019.07.004>.

Dichmont, C.M., Dowling, N.A., Pascoe, S., Cannard, T., Pears, R.J., Breen, S., Robert, T., Leigh, G.M., and M. Mangel. Operationalizing triple bottom line harvest strategies. *ICES Journal of Marine Science*, doi:10.1093/icesjms/fsaa033

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Lee, W-S., Salinas, S., Lee, Y-R., Siskidis, J.A., Mangel, M. and S.B. Munch. Thermal transgenerational effects remain after two generations. *Ecology and Evolution*. DOI: 10.1002/ece3.6767

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2021

Zimmerman, F., Enberg, K., and M. Mangel. Density-independent mortality at early life stages increases the probability of overlooking an underlying stock-recruitment relationship. *ICES Journal of Marine Science* doi:10.1093/icesjms/fsaa246

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Marshall, D.J., Bode, M., Mangel, M., Arlinghaus, R., and E.J. Dick. Reproductive hyperallometry and managing the world's fisheries. *Proceedings of the National Academy of Sciences*. PNAS 2021 Vol. 118 No. 34 e2100695118.

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McHuron, E.A., Aerts, L., Gailey, G., Sychenko, O., Costa, D.P., Mangel, M., and L.K. Schwarz. Predicting the population consequences of acoustic disturbance, with application to an endangered gray whale population. *Ecological Applications*, Article 02440

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2022

Schwarz, L., McHuron, E., Mangel, M., Gailey, G., and O. Sychenko. Gray whale habitat use and reproductive success during seismic surveys near their feeding grounds: comparing state dependent life history models and field data. *Environmental Monitoring and Assessment* (2022) 194 (Suppl 1):733.

Mangel, M. and A. Brown. Population processes in cyber system variability. *PLoS ONE* 17(12): e0279100. doi 10.1371/journal/pone.0279100

2023

McHuron, E.A., Sterling, J.T., and M. Mangel. The influence of prey availability on behavioral decisions and reproductive success of a central-place forager during lactation. *Journal of Theoretical Biology* 560 (2023) 111392

Mangel M Operational analysis for COVID-19 testing: Determining the risk from asymptomatic infections. *PLoS ONE* 18(2): e0281710. <https://doi.org/10.1371/journal.pone.0281710>

PUBLIC LECTURES

Shrum Science Lecture, Simon Fraser University, 1991 George Gund Lecture, Case Western Reserve University, 1992

Biodiversity Science Lecture, University of British Columbia, 1995

Bay Delta Modeling Symposium After Dinner Talk, Asilomar, CA, 1998

Temple Beth El Seniors Program, 1999

27th Annual Tester Symposium General Lecture, Honolulu, 2002

Fall Symposium Lecture Lecture, University of Wisconsin Madison Ecology Group, 7th Annual Fall Symposium 2002

UCSC Alumni Association Guest Speaker, Seattle, 2005

Separating Environmental Science and Environmentalism in the Study of Marine Reserves, University of the Azores, 2005

Science and Sinai, UCSC Chabad Student Center, 2006

The Ten Plagues and Statistical Science as a Way of Knowing, Geoge Slager Centre, University of Oxford, 2007
 Ecology, Conservation and Public Policy, The Astor Lecture, University of Oxford, 2007
 Why We Age, What Makes Us Age, and What Can Be Done About It, 10th Synergy Lecture, UCSC, 2007; also Temple Beth El Seniors Program, 2009
 Ecology, Conservation and Public Policy, The Toyota-ANU Lecture, Australian National University, 2009
 Southern Ocean Krill, Krill Predators and Krill Fishery Management in a Changing Climate Florida State University Coastal and Marine Laboratory Evening Lecture Series, 2010
 Convocation Speaker, Ontario College of Agriculture, University of Guelph, 2014
 The Ten Plagues and Science as a Way of Knowing, Limud Vancouver '15, Vancouver, BC, Canada, 2015
 Science, Whales, and Scientific Whaling in the International Court of Justice, Science Sunday, Seymour Marine Discovery Center, UCSC, 2015
 Science, Whales, and Scientific Whaling in the International Court of Justice, American Cetacean Society Monterey, CA, 2015

INVITED AND PLENARY LECTURES AT PROFESSIONAL MEETINGS

Invited Speaker, Marine Geology Symposium, Urbana, IL, 1971
 Invited Speaker, American Mathematical Society, Special Session on Natural Resource Management, Seattle, 1977
 Invited Speaker, NATO Advanced Research Institute on Search Theory, Faro, Portugal, 1979
 Invited Speaker, Operations Research Society of America, Special Session on Search for Moving Targets, Milwaukee, 1979
 Invited Speaker, American Mathematical Society, Special Session on Mathematical Biology, Davis, CA, 1980
 Invited Speaker, American Mathematical Society, Special Session on Stochastic Processes, Reno, 1981
 Invited Speaker, Workshop on Uncertainty and Fishery Economics, Kingston, RI, 1981
 Invited Speaker, Pacific Coast Conference on Mathematical Modeling of Renewable Resources, Arcata, CA, 1982
 Invited Speaker, NSF-CBMS Conference on Competition, Logan, UT, 1982
 Invited Speaker, American Mathematical Society, Special Session on Mathematical Biology, Monterey, CA, 1982
 Invited Speaker, Operations Research Society of America, Chicago, 1983
 Invited Speaker, Optimization Days, Montreal, 1983
 Principal Lecturer (10 lectures), Nonlinear fluctuations in chemistry and physics Northwestern University, 1983
 JASA Applications Invited Lecture, American Statistical Association, Toronto, 1983
 After Dinner Speaker, Operations Research Society of America-The Institute of Management Sciences, San Francisco, 1984
 Invited Speaker, Expert Panel of the Joint Agency-Industry Committee on Eggs and Larva, La Jolla, CA, 1985

Invited Speaker, 36th Tuna Conference, Lake Arrowhead, CA, 1985
 Invited Speaker, Canadian Society of Theoretical Biology, Canada, 1985
 Invited Speaker, NATO Advanced Research Workshop on Pest Control, Bad Windsheim, Germany, 1985
 Principal Lecturer (5 lectures), Workshop for California Department of Fish and Game, Long Beach, CA, 1985
 Invited Speaker, 2nd Workshop on Applied Control Theory in Renewable Resource Management, Honolulu, HI, 1985
 Plenary Lecturer, 5th Pacific Coast Conference on Natural Resources Modelling, Newport, OR, 1986
 Invited Speaker, INTECOL Symposium on Control Theory in Ecology, Syracuse, NY, 1986
 Principal Lecturer (6 lectures), 2nd International School on Theoretical Ecology, Trieste, Italy, 1986
 Invited Speaker, Biological Objectives in Fisheries Management Workshop, Seattle, WA., 1987
 Principal Lecturer (11 lectures), Ph.D. Course, Institute of Life Sciences, Hebrew University of Jerusalem, 1987
 Invited Speaker, Country-wide Symposium on Theoretical Ecology, Institute of Theoretical Biology, University of Leiden, Netherlands, 1988
 Invited Speaker, Scientific Committee for the Conservation of Antarctic Marine Living Resources, Hobart, Tasmania, October, 1988
 Principal Lecturer (5 lectures) , First Autumn Workshop on Mathematical Ecology, International Center for Theoretical Physics, Trieste, Italy, 1988
 Invited Speaker, American Institute of Biological Sciences, Toronto, August 1989
 Invited Speaker, Ninth Pacific Coast Resource Modeling Conference, Missoula, MT, 1990
 Plenary Lecturer, Third Behavioral Ecology Conference, Uppsala, Sweden, 1990
 Principal Lecturer (7 lectures), Nordic Council Course, Stockholm University Field Station, Tövetorp, 1990
 Invited Speaker, Pacific Northwest Workshop on Mathematical Biology, Vancouver, 1991
 Plenary Lecturer, Tenth Pacific Coast Resource Modeling Conference, Arcata, CA, 1991
 Plenary Lecturer, Festschrift for Colin Clark, Vancouver, Canada , 1991
 Plenary Lecturer, International Ethological Congress, Kyoto, 1991
 Invited Speaker, Probability Consortium of the Western Reserve , Case Western Reserve University, April, 1992
 Principal Speaker, Gordon Conference on Theoretical Biology, 1992
 Invited Speaker, Royal Society of London Discussion Meeting, July 1993
 Principal Lecturer (6 lectures), Canadian Mathematical Society Summer School on Mathematical Biology, Vancouver, August, 1993
 Principal Speaker, Gordon Conference on Predictive Theory in Biological Oceanography and Its Evaluation, August 1993
 Invited Speaker, Sixth Annual Bodega Colloquium 1993
 Principal Lecturer (12 lectures), University of Bergen Doctor of Science Course, April 1994
 Principal Lecturer (5 lectures) 10th Annual Complex Systems Summer School, Santa Fe Institute, June 1994
 Invited Workshop Leader, Entomophagous Insect Meeting, Whistler, BC, September, 1994

- Invited Speaker, Pacific Northwest Workshop on Mathematical Biology, Vancouver, BC, May 1995
- Principal Speaker, National Dr. of Science Course on Modeling the Behavior of Fish, University of Bergen, August 1996
- Invited Speaker, Workshop on the Risk of Extinction in West Coast Salmonid Populations, Northwest Fisheries Science Center, Seattle, WA. November 1996
- Invited Speaker, First Workshop on Organisms With Negligible Senescence, Andrus School of Gerontology, University of Southern California, June 1997
- Invited Speaker, Symposium on Instream Flows, American Fisheries Society Meeting, Monterey, CA, August 1997
- Plenary Speaker, Workshop on Marine Harvest Refugia for West Coast Rockfish, Pacific Grove, CA, Sept 1997
- Invited Speaker, Second Workshop on Organisms With Negligible Senescence, Andrus School of Gerontology, University of Southern California, June 1998
- Invited Speaker, Mote International Symposium on Essential Fish Habitat and Marine Reserves, Mote Marine Laboratory, Sarasota, FL, November 1998
- Invited Speaker, Third Workshop on Organisms With Negligible Senescence, Andrus School of Gerontology, University of Southern California, September 1999
- Invited Speaker, Symposium on Restoration Ecology, Western Society of Naturalists, December 1999
- Invited Speaker, Symposium on Marine Reserves, Western Society of Naturalists December 1999
- Dozor Lecture Series, Ben-Gurion University of the Negev, May 2000
- Invited Speaker, Symposium on Slow Aging, University of Southern California, September 2000
- Plenary Speaker, CALFED Science Conference, October 2000
- Plenary Speaker (Introductory Comments and Closing Talk), Third Mote Symposium in Fisheries Biology, October 2000
- Invited Speaker, Research Workshop on Life span: Evolutionary, Ecological and Demographic Perspectives, Santorini, Greece, May 2001
- Super-speaker, Duke University Marine Laboratory September 2001
- 27th Annual Albert L. Tester Memorial Symposium Distinguished Speaker, University of Hawaii, March 2002
- Plenary Lecture, University of Wisconsin Madison Ecology Group, 7th Annual Fall Symposium, October 2002
- Opening Talk, Workshop on Linking Human Socioeconomic and Biophysical Processes in Benthic Marine Ecosystems Along the Pacific Coast in Baja California, Mexico. La Paz February 2003
- Invited Speaker, International Workshop on Bayesian Data Analysis, Santa Cruz, CA August 2003
- Invited Speaker, 27th Larval Fish Conference, Santa Cruz, CA, August 2003
- Invited Speaker, Symposium of the Conference, California Cooperative Oceanic Fisheries Investigations Annual Conference, November 2003
- Invited Speaker, Zoological Society of London Symposium on Management of Marine Ecosystems: Monitoring Change in Upper Trophic Levels, April 2004

- Invited Speaker, California Water and Environmental Modeling Forum Workshop on Using Models in Endangered Species Act Recovery Planning, September 2004
- Invited Speaker, Fifth William R. and Lenore Mote International Symposium The Good, the Bad, and the Ugly: Integrating Marine and Human Ecology into Fisheries Management, November 2004
- Invited Speaker, First Workshop on Evolutionary Biodemography, University of Virginia, Charlottesville, VA, October 2005
- Closing Talk, Workshop on Uncertainty in Ecological Analysis, Mathematical Biosciences Institute, Ohio State University, April 2006
- Invited Speaker, Sixth William R. and Lenore Mote International Symposium In Fisheries Ecology, November 2006
- Invited Speaker, American Institute of Fishery Research Biologists 50th Anniversary Symposium on The Future of Fishery Science in North America, February 2007
- Guest Speaker, Populations Under Pressure. A Graduate Research Symposium in Applied Population Biology. Imperial College Centre for Population Biology at Silwood Park, March 2007
- Olin College of Engineering Keynote Lecture, World Conference on Natural Resource Modeling, June 2007
- Invited Speaker, Thematic Topic on Evolutionary Ecology of Senescence, Annual Meeting of the British Ecology Society, September 2007
- Invited Speaker Center for Infectious Disease Dynamics Workshop on Control and Management of Infectious Diseases, Pennsylvania State University, June 2008
- Closing Speaker, Bergen Meeting on the Socio-economic Effects of Fisheries Induced Evolution, University of Bergen, September 2008
- Keynote Speaker, Fenner Conference on The Art and Science of Environmental Decision-Making, Australian Academy of Sciences, March 2009
- Invited Speaker, Okeanos Workshop on Assessing the Cumulative Impacts of Underwater Noise with Other Anthropogenic Stressors on Marine Mammals , August 2009
- Lamberson Ecology Lectuer Series, Humboldt State University, February 2010
Combining Life History Theory, Experiments, and Field Studies in Setting River Flows for California Steelhead
Doing Policy Relevant Science; Understanding Policy Relevant Science:
The Essential Tension
- Keynote Speaker, In Honour of Dr. Colin Clark: Developments and Challenges in Fisheries Economics, University of British Columbia, May 2012
- Inaugural Speaker, Santa Cruz-Monterey Bay Student Chapter of the American Fisheries Society, February 2016
- Invited Speaker, Sackler Colloquium on Coupled Human-Natural Systems, National Academy of Sciences, March 2016
- Keynote Speaker, Pacific Fisheries Management Council
Workshop on Productivity, Seattle, December 2016

INVITED SEMINARS AT RESEARCH INSTITUTIONS

- Ben Gurion University (Ecology)
- Bodega Marine Laboratory (2 times)

Cambridge University (Kings College Research Center 2 times)
Case Western Reserve University (University-wide lecture, Center for Stochastic Processes in the Sciences)
Colorado State University (Colloquium in the Life Sciences, Fisheries and Wildlife Biology)
Columbia University (Applied Mathematics)
Cornell University (Ecology and Systematics, two times)
Florida State University (Biological Sciences, three times; Computational Biology)
Freshwater Fisheries Laboratory, Pitlochry, Scotland
Haifa University(Institute of Evolution, 2 times)
Hebrew University of Jerusalem (Institute of the Life Sciences lecture series)
Imperial College (Renewable Resources Assessment Group, Mathematics, NERC Centre for Population Biology (2 times), TH Huxley School for the Environment)
International Institute for Applied Systems Analysis, Vienna
Lawrence Livermore Laboratory (Biology Division)
Los Alamos National Laboratory (Theoretical Division)
Marine Resources Assessment Group (2 times)
Monterey Bay Aquarium Research Institute
Mote Marine Laboratory
Naval Post Graduate School (Operations Research 3 times, Applied Mathematics 2 times, Meyer Institute of Systems Engineering)
New York University (Courant Institute)
North Carolina State University (Biomathematics, Zoology)
Northwest Fisheries Science Center (4 times)
Northwestern University (Applied Mathematics lecture series, 3 times)
Norwegian Institute for Natural Resources Research (NINA)
Ohio State University (Ecology and Organismal Biology)
Oxford University (Zoology 3 times, Mathematical Biology 2 times)
Pacific Biological Station, Nanaimo, BC, Canada
Pacific Environmental Group, Monterey, CA
Pennsylvania State University (Operations Research, Statistics, Ecology, Agricultural Economics, Biology)
Princeton University (Biology 2 times, Ecology and Evolutionary Biology 2 times)
Scripps Institution of Oceanography (3 times)
Simon Fraser University (Biology, 2 times, Faculty of Science Special Lecture)
Southeast Fisheries Science Center, Panama City, FL
Southwest Fisheries Science Center, La Jolla (2 times)
Southwest Fisheries Science Center, Santa Cruz
Southwest Fisheries Science Center, Tiburon (3 times)
Stanford University (Applied Mathematics, 2 times, Environmental Policy Forum, Hopkins Marine Station)
Stonybrook University (School of Marine and Atmospheric Sciences)
Tel Aviv University (Zoology, 2 times)
University of Amsterdam (Population Biology)
University of Arizona (Ecology and Evolution)

University of Bergen (Institute of Fisheries and Marine Biology, Biology)
 University of British Columbia (Applied Mathematics 3 times, Zoology, Fisheries Centre
 2 times)
 University of California Berkeley (Entomology, Integrative Biology; Environmental
 Sciences, Policy, and Management (2 times))
 University of California Davis (Ecology, Zoology, Population Biology, Institute of
 Theoretical Dynamics)
 University of California Irvine (Applied Mathematics)
 University of California Los Angeles (Biology, LaKretz Center for Conservation Biology)
 University of California San Diego (Biology)
 University of California Santa Barbara (Mathematics, Biology 2 times)
 University of California Santa Cruz (Environmental Studies 2 times, Biology, Ocean
 Sciences 2 times)
 University of Chicago (Ecology and Evolutionary Biology)
 University College, Cardiff (Zoology)
 University of the Azores (Fisheries and Oceanography, 2 times)
 University of Dundee (Mathematics)
 University of Edinburgh (Institute of Cell, Animal, Plant and Population Biology)
 University of Florida (Zoology, two times; Agricultural Economics, Fisheries and
 Aquaculture)
 University of Glasgow (Zoology, Division of Environmental and Evolutionary Biology)
 University of Hawaii (Zoology)
 University of Illinois (Agricultural Economics, Ecology, Entomology)
 University of Kansas (Systematics and Ecology, Botany)
 University of Kentucky (Biology, Ecology)
 University of Leicester (Biology) University of Leiden (Theoretical Biology)
 University of Lund (Theoretical Ecology)
 University of Nevada Reno (Ecology, Evolution and Conservation Biology)
 University of Oregon (Biology)
 University of Oxford (Zoology, 3 times; Centre for Mathematical Biology, Centre for the
 Environment)
 University of Southern California (Biology, Andrus Gerontology Center)
 University of Texas (Statistics, Zoology)
 University of Washington (Applied Mathematics, Center for Quantitative Studies,
 Fisheries 2 times, Statistics, Zoology)
 University of Wisconsin (Center for Limnology, 2 times; Department of Zoology)
 University of Wollongong (Biology)
 Virginia Polytechnic and State University (Mathematics)
 Washington State University (Mathematics, Entomology)
 Washington University (Biology)
 Weizmann Institute of Science (Applied mathematics; Theoretical Biology 2 times)

STUDENTS SUPERVISED

Undergraduate Research Students

1983-84

Leann Sucht: Rockfish population dynamics

1983-85

Carl Lindvahl: Bioeconomics

1986-87

Thomas Chin: Dynamic models of body size

1990-91

Margaret Hatch: The role of snake predation in structure in desert rodent communities (Departmental Citation, Department of Wildlife and Fisheries Biology, 1992)

1990-92

Paulette Razy: Interspecific competition and facultative development in flour beetles; Egg size and host choice in walnut husk fly (Departmental Citation, Department of Wildlife and Fisheries Biology, 1993)

Jennifer Garrison: Locomotor abilities and habitat choice in anolis lizards (Departmental Citation, Department of Zoology, 1992)

1991-92

Lisa Baloiian: Cost of the facultative dauer stage in nematode life histories (Departmental Citation, Department of Zoology, 1992; Mary Regan Meyer Prize, College of Agriculture and Environmental Sciences, 1992)

Marie Denn: The role of snake predation in structuring desert rodent communities

1992-93

Robin Jacoby: Sexual cannibalism in mantids

Danielle Bruno (Departmental Citation, Department of Zoology 1993): Sexual cannibalism in mantids

Jeff Liebow: Developmental variation of *Tribolium* in fluctuating environments.

Gerry North: Community ecology of migratory shorebirds.

1993-94

Melanie Paquin: Otolith formation, growth rate, and development of smolt characteristics in chinook salmon

Tamara Fletcher: Diet choice in hydra

1994-95

Elizabeth Johnstone: Reconstruction and analysis of a conservation failure

Thomas Moore: Barn owl traffic-related mortality and its implications

Christine Genova: Conflict resolution for endangered species problems

Jacqueline Jacobsen: Diet choice in hydra

1996-97

Erin Gale: Dormancy in fairy shrimp eggs

1997-98

Gia Simpson: Marine mammal conservation at the Marine Mammal Center

Jonathan Newman: Disease dynamics in a white sea bass hatchery

Edgar Rene Becerra : State variable models of cowbird-bunting interactions (Honors in Environmental Studies, 1998)

Margaret Barton: Learning in parasitoids
1998-99

Daniel Berman, Senior Thesis (Marine Biology): Effects of the 1976 Oceanic Regime Shift on Coho Salmon Populations

Brent Levin, Senior Thesis (Environmental Studies): A Meta-Data Dictionary for Santa Cruz County GIS

1999-2000

John Fejes: Induced plant defenses and herbivore behavior

Jessica Martinez: Life history variation in fairy shrimp

2000-2001

Melinda Milner: Evaluating the effectiveness of no-take reserves in Monterey Bay Marine Sanctuaries

Azure Westwood, Senior Thesis (Biological Sciences): An Environmental Perspective to Using Individual Transferable Quotas (ITQs) to Manage New England Groundfish

Elizabeth Howard, Senior Thesis (Environmental Studies and Biology): Insect Behavior and Trap-Crop Design

2001-2002

Philip Davis: Mallakstra Regional Archaeological Project, Albania (Summer internship)

Annie Carmichael: Congal Biological Reserve, Ecuador (Summer internship)

Elaine Chow, Senior Thesis (Environmental Studies and Biology): Effects of Nodulation Outweigh Compensatory Growth Response After Mineral Nitrogen Deprivation in *Medicago polymorpha*

Daphne Geringer, Senior Thesis (Biology): Spatial and Temporal Patterns of Glucosinolates in *Raphanus sativus* After Induction by Jasmonic Acid

Holly Kindsvater, Senior Thesis (Biology): The Impacts of Entrainment on Larval Fish Populations. Dean's Award, Division of Physical and Biological Sciences, June

2002-2003

Brycen Swart, Internship, NMFS Santa Cruz Laboratory Matt Kerby, Internship, City of Santa Cruz

Megan Atcheson, Senior Thesis (Biology, Honors), Life History Variation, Growth and Smolt Transformation in Steelhead Trout (*Oncorhynchus mykiss*)

2004-2005

Seichii Oyamada, Species-area relations in the context of marine protected areas

2005-2006

Austin Johnson, Detecting density-dependence in seal population dynamics.

- 2007-2008
Erin Middleton, An Overview of Theoretical Biology
- 2009-10
Daniel Ladd, Summer Internship, Economic Valuation of Harbor Services for Salmon Fisheries
Juan Lopez, UC LEADS Scholar for Summer 2010, Modeling Growth in Steelhead Trout
Roxanna Pourzand, Summer Internship at the Monterey Bay Salmon and Trout Project
- 2010-11
Roxanna Pourzand, Modeling Steepness of the Stock Recruitment Relationship
- 2011-12
Nicholas Grunloh, The Behavioral Ecology of Play

M.Sc. Students

- 1985 C. Peters, Solution of the Problem of Collective Ruin
1989 K. Little, A Dynamic Model of Barnacle Settling Patterns
1990 B. Phillips, The Population Biology and Biological Control of a Nematode by Its Obligate Fungus
2003 T. Ish, Conceptual Tools for Managing Two Monterey Bay Fisheries
2008 N. Cantú Medellín, Comparación de Los Indicadores de Estrés Oxidativo Entre Diferentes Especies de Odontocetos. Centro de Investigaciones Biologicas del Noroeste, S.C., La Paz, B.C.S., Mexico
2011 V. Brown, Implementing Dynamic State Variable Models to Investigate Complex Life History Stages and Their Influence on Population Dynamics
2011 R. Curzon, Estimating Rates of Natural Mortality for Fish Using Bayesian Linear Regression Methods: A Comprehensive Approach
2011 D. Hively, Biological Modeling in Data Poor Scenarios

Ph.D. Students

- 1982 L. Karp, Dynamic Games and International Trade. Present Position: Professor, Department of Natural Resource Economics, University of California, Berkeley
1983 S. Stefanou, The Optimal Allocation of Scouting Effort and Timing of Pesticide Application. Present Position: Professor and Head, Department of Agricultural Economics, University of Floria
1987 C. Peters, Application of the WKB Method to Problems in Operations Research and Biology. Present Position: Vice President, Exposure Management Division, Goldman Sachs
1989 J. Goulart, Abundance Estimation and Movement of Pelagic Stocks. Present position: Retired from the Portuguese government (final posting: Scientific and Cultural Attache to the Embassy in the US)
1990 J. Brodziak, Theory and Practice of Genetic Stock Identification with Application to Chinook Salmon Fisheries, Present Position: Staff Scientist, Pacific Islands Fisheries Science Center
1992 A. Bouskila, The Roles of Predation and Competition in Structuring Desert Rodent Communities(winner of the R.M. Love Award for the best thesis in Ecology, UC Davis, 1992). Present Position: Professor, Department of Zoology, Beersheva University
1995 M. R. Maxwell, Sexual Cannibalism and Male Mating Behavior in Praying

Mantids, Present Position: Professor, National University

1995 G.E. Heimpel, Host-feeding Strategies of Aphytis parasitoids (winner of the John Kinsella College of Agriculture and Environmental Science Dissertation Excellence Award, 1996).

Present Position: Professor, Department of Entomology, University of Minnesota

1997 S. Gardner, Theoretical and Empirical Studies of Plant Life History Variation. Deceased 2016.

1997 B. Luttbegg, Theoretical and empirical studies of information gathering and decision making in threespine stickleback (*Gasterosteus aculeatus*) female mate choice. Present Position: Associate Professor, Oklahoma State University

2002 A. Shelton, Variability of Defensive Chemicals in Plants and Their Effects on Herbivore Behavior. Present Position: High School Science Teacher, Bloomington, IN

2002 C. Wilcox, Conservation of Endangered Systems: Using Modeling and Empirical Investigations to Assess the Dynamics of Endangered Species and Their Threats. Present Position: Senior Research Scientist, Pelagic Species Division, CSIRO, Hobart, Tasmania

2005 A. Stephens, Assessment in Salmon and Groundfish Fisheries, Present Position: Fishery Biologist, Northwest Fisheries Science Center

2006 L. Johnson, Mathematical Modeling of Cholera: From Bacterial Life Histories to Community Dynamics, Present Position: Assistant Professor, Virginia Polytechnic and State University

2006 K. Siegfried, Fishery Management in Data-Limited Situations: Applications to Stock Assessment, Marine Reserve Design, and Fish Bycatch Policy, Present Position: Fishery Research Biologist, Southeast Fisheries Science Center

2006 N. Wolf, Finding Behavioral Mechanisms and Ecological Patterns in Sparse and Noisy Data (University of Bergen, Doctor Philosophiae). Present position: Solar energy designer, Seattle, WA

2006 S. Eliassen, Foraging Ecology and Learning. Adaptive behavioural strategies and the value of information (University of Bergen, Doctor Scientiarum, co-supervised with J. Giske). Present position: Associate Professor, Department of Biology, University of Bergen

2007 Y. Lucero, Population Consequences of an Age-dependent Maternal Effect in Rockfish (genus *Sebastes*). Present position: Senior Statistician, Gravity.com

2007 A. Patil, Bayesian Nonparametrics for Inference of Ecological Dynamics. Present position: Founder, Sense, A Data Analytics Company

2009 E.J. Dick. Modeling the Reproductive Potential of Rockfishes (*Sebastes* spp.) Present position: Fishery Research Biologist, Southwest Fisheries Science Center, Santa Cruz, CA

2009 O. Segev Conservation and ecology of the endangered fire salamander (*Salamandra atra*) PhD dissertation, University of Haifa (co-supervised with Leon Blaustein). Present position: Post-doctoral scientist, University of Haifa

2010 J.R. Wiedenmann. Implications of Climate Change for Antarctic Krill and Their Cetecean Predators. Present Position: Visiting Assistant Professor, Rutgers University

2011 W-S Lee. Effects of Growth Trajectories on Adult Performance and Lifespan in Three-Spined Sticklebacks (University of Glasgow, co-supervised with N. Metcalfe and P. Monaghan). Present Position: Post-doctoral Fellow, UC Santa Cruz

2011 V. Labrada Martagon 2011 Evaluation of Health of the Green Turtle in Baja California through Physiological Biomarkers PhD dissertation, Centro de Investigaciones Biologicas de Noroeste, La Paz, BCS, Mexico (co-supervised with Tanian Zenteno-Savin). Present

Position: Assistant Professor, Universidad Autnoma de San Luis Potos, San Luis Potos, Mexico

2011 A. Sadeh Life-history Strategies of Organisms with Complex Life-Cycles and Temporary Larval Habitats: The Fire Salamander as a Model PhD dissertation, Evolutionary and Environmental Biology, University of Haifa (co-supervised with Leon Blaustein). Present position: Research Scientist, Volcani Institute, Rishon LeZion, Israel

2012 T. Levi. Humans as Predators and Prey in Ecological Systems PhD Dissertation, Environmental Studies (co-supervised with Chris Wilmers). Present position: Assistant Professor, Oregon State University

2012 J. Yeakel. The Structure of Mammalian Food-Webs: Interpreting, Predicting, and Informing Estimates of Species Interactions in Paleontological and Modern Communities PhD Dissertation, Ecology and Evolutionary Biology (co-supervised with Paul Koch and Jim Estes) Present position: Assistant Professor, UC Merced

2012 C. Boone Integrating Zooarchaeology and Modeling: Trans-Holocene Fishing in Monterey Bay, California PhD Dissertation, Anthropology (co-supervised with Diane Gifford-Gonzalez). Present position: Consultant

2015 K. Richerson. Antarctic Euphausiids in Space and Time: Behavior, Distribution, and Growth, with Implications for Predators. PhD Dissertation, Ecology and Evolutionary Biology. Current position: Postdoctoral scholar, School of Fisheries and Aquatic Sciences, University of Washington

2015 J. Lopez Arriaza. Unraveling Steelhead Life History Complexity through Mathematical Modeling. PhD Dissertation, Statistics and Applied Mathematics. Current position: Research Scientist, The Climate Corporation

2019 R.M. Driscoll, Adapted to Environmental Change: Life History, Diet, and Habitat Choice of Krill in Winter. PhD Dissertation, Ocean Sciences. Position as of 1 Sept 2019: Research Scientist, Alfred Wegner Institute

Service on Ph.D. Committees

1982

J.J. Fletcher. Management of Multiple Resources with Heterogeneous Capital: The Case of the Eureka Crab Fishery, Agricultural Economics, UC Davis

M. A. O'Donnell. Boundary and Interior Layer Behavior in Singularly Perturbed Nonlinear Systems; Mathematics, UC Davis

1983

J.L. Anderson. Bioeconomic Interaction Between Aquaculture and the Common Property Fishery with Application to Northwest Salmon Resources; Agricultural Economics, UC Davis

J. S., Eales, II. Modeling Searching Behavior in the Pink Shrimp Fishery: Area Choice and Information Gathering, Agricultural Economics, UC Davis

P. Mean. Large-scale Economic Systems Analysis by Positive Quadratic Programming; Agricultural Engineering, UC Davis

1989

E.M. Jakob. Costs and Benefits of Group Living in a Pholcid Spider (*Holocnemus pluchei*); Animal Behavior, UC Davis

1990

- P.J. Colemnares. Stochastic Study of Noise in Open Ionic Channels; Biophysics, UC Davis
- P. Kvam. Estimation Based on Ranked Set Samples; Statistics, UC Davis
- R. Frezza. Models of Higher Order and Mixed Gaussian Reciprocal Processes with Applications to the Smoothing Problem; Applied Mathematics, UC Davis
- P. Smolen. Kinetic Approach to Membrane Transport; Biophysics, UC Davis
- L.R. Whitaker. Contributions to Nonparametric Estimation in Reliability; Statistics, UC Davis
- 1994
- C.M. St. Mary. Sexual Allocation and the Maintenance of Hermaphroditism in the Two-Spotted Goby and the Blue Goby; Biological Science, University of California, Santa Barbara
- A. Sneath. On Bayesian Inference for Nonidentifiable Models; Statistics, UC Davis
- 1995
- P.V. Switzer. Influences on the Site Fidelity of Territorial Animals: Theoretical and Empirical Studies; Animal Behavior, UC Davis
- D. L. Boose, Floral Nectar Production, Pollinator Visitation, and the Opportunity for Natural Selection in a Wild Population of *Epilobium Canum* (Onagraceae), A Hummingbird-Pollinated Shrub, Ecology, UC Davis
- 1996
- T. Frazier, Sexual Size Dimorphism: Mating Systems and Sexual Selection for Large Males in the Digger Wasp *Microbembex* (Hymenoptera: Sphecidae), Population Biology, UC Davis
- J. C. Gaither, Species Richness and Patch Dynamics of Fruit-Parasitic Insects on Southeast Alaskan Plants, Ecology, UC Davis
- 1997
- R. Rosland, Depth selection and life histories in pelagic environments a model approach, Marine Biology, University of Bergen
- 1999
- M. Towner, Linking Human Dispersal to Resources and Marriage: A Dynamic State Variable Model and Life History Data from Oakham, Massachusetts (1770-1807), Animal Behavior, UC Davis
- 2002
- D. Noren, Body Energy Reserve Utilization During the Postweaning Fast of Northern Elephant Seals (*Mirounga Angustirostris*): Implications for Survival, Ecology and Evolutionary Biology
- R. Lewison, Spatially Explicit Behavioral Models, Foraging Behavior, and Population Dynamics of the Common Hippopotamus (*Hippopotamus amphibius*), Ecology, UC Davis
- C.M. Handel, Breeding Ecology of the Black Turnstone: Hedging Bets in a Variable Subarctic Environment, Ecology, UC Davis
- S.B. Munch, Evolution of growth in *Menidia menidia*: bioenergetics, life history theory, and implications for management, Marine Sciences, State University of New York, Stony Brook, NY
- 2004
- K. Crow, Hybridization, reproductive isolation, and speciation in three Hexagrammos fishes, Ecology and Evolutionary Biology, UCSC

T. Tinker, Sources of variation in the foraging behavior and demography of the sea otter, *Enhydra lutris*, Ecology and Evolutionary Biology, University of California, Santa Cruz

W. Satterthwaite, Dispersal in space and time and its importance to plant population dynamics, Ecology and Evolutionary Biology, UCSC

2006

N. Bader, Plant control of soil organic carbon accumulation Environmental Studies, UCSC

D. Merl, Detecting Patterns of Natural Selection Using Bayesian Generalized Linear Models, Computer Science, UCSC

2009

C. Kern, Neurotoxicity of Neonatal Manganese Exposure, Environmental Toxicology, UCSC

2011

K. Fronczyk, A New Framework for Bayesian Analysis of Dose-Response Studies Through Dependent Nonparametric Modeling for Categorical Responses, Applied Mathematics and Statistics, UCSC

C. Simon, Statistical Analysis of Single Molecule Experiments, Applied Mathematics and Statistics, UCSC

M. Farah, Bayesian Nonparametric Methods for Emulation, Sensitivity Analysis, and Calibration of Computer Simulators, Applied Mathematics and Statistics, UCSC

2013

V. Poynor, Bayesian Nonparametric Gamma Mixtures for Mean Residual Life Inference, Applied Mathematics and Statistics, UCSC

POST-DOCTORAL COLLEAGUES

1981-82

J.H. Beder (Present Position: Professor, University of Wisconsin, Milwaukee)

1986-88

M. Dygas Klosek (Present Position: Program Manager, NIH)

1988-90

E. Greene (Present Position: Professor, University of Montana; Winner of the 1990 Dhobzhansky Prize, Society for the Study of Evolution)

D. Fernandes (Present Position: President, Buffalo Zoo, Buffalo, NY)

1990-92

J. Losos (Present Position: Professor, Harvard University)

W. Morris (Present Position: Professor Duke University)

S. Sultan (Present Position: Professor, Wesleyan University)

1991-93

F. Adler (Present Position: Professor, University of Utah)

P. Nonacs (Present Position: Professor, University of California, Los Angeles)

R. Lalonde (Present Position: Professor, University of British Columbia, Kelowna, BC, Canada)

1993-94

L. Rowe (Winner 1993 Young Investigator Award, American Society of Naturalists;

Present Position: Professor, University of Toronto)

1994-96

T. Collier (Professor, Department of Entomology, University of Wyoming)

1995-96

P. Switzer (Present position: Professor, Eastern Illinois University)

1997-98

M. Ney-Nifle (Fulbright Scholar, France; Present Position, Staff Scientist, CNRS, Lyon)

T. Keasar (Fulbright Scholar, Israel. Present position: Lecturer, Ben-Gurion College, Beersheva, Israel)

1998-2002

S. Henson Alonzo (Present position: Professor, University of California Santa Cruz)

1999-2000

K. Shea (Present Position: Alumni Professor, Department of Biology, Pennsylvania State University)

2002-03

M. Snover (Present Position: Research Ecologist, US FWS, Corvallis, OR)

2002-05

S. Munch (Present Position: Research Fisheries Biologist, Southwest Fisheries Science Center)

2006-2009

W. Satterthwaite (Present Position: Research Fisheries Biologist, Southwest Fisheries Science Center)

D. Swank (Present Position: Staff Scientist, NMFS Regional Office, Sacramento)

2006-2010

K. Cresswell (Present Position: Science educator)

2006-2008

S. Carlson (Present position: Professor, UC Berkeley)

2009-10

C. Kern (Present position: Staff Scientist, Southwest Fisheries Science Center)

2009-11

O. Shelton (Present Position: Research Fisheries Biologist, Northwest Fisheries Science Center)

2011-16

S. Vincenzi (Present Position: Data Scientist, Erickson)

2012-2014

M. Monk (Present Position: Research Fisheries Statistician, Southwest Fisheries Science Center)

S. Salinas (Present Position: Assistant Professor, Kalamazoo College)

2012-2015

C. Boettiger (NSF Postdoctoral Fellow in Biology and Mathematics, co-supervised with Steve Munch; Present Position: Assistant Professor, UC Berkeley)

2013-14

V. Labrada Martagon (Present Position: Assistant Professor, Universidad Autnoma de San Luis Potos, San Luis Potos, Mexico)

2013-2015

- V. Poynor (Present Position: Assistant Professor, California State University Fullerton
H. Kindsvater (NSF Postdoctoral Fellow in Biology and Mathematics, co-supervised
with John Reynolds; Present Position: Visiting Assistant Professor, Rutgers University)
2014-17
W-S Lee (Present Position: Research Scientist, Korean Environment Institute)
2016-2018
Elizabeth McHuron (Present Position: Research Scientist, University of Washington)
2018-19
Fabian Zimmerman (co-supervised with Katja Enberg; Present Position: Research
Scientist, Institute of Marine Research, Trondheim, Norway)
Adrian Dahood (co-supervised with George Watters; deceased)