

James Yost
Chair
Idaho

W. Bill Booth
Idaho

Guy Norman
Washington

Tom Karier
Washington



Northwest Power and Conservation Council

Jennifer Anders
Vice Chair
Montana

Tim Baker
Montana

Ted Ferrioli
Oregon

Richard Devlin
Oregon

January 8, 2019

DECISION MEMORANDUM

TO: Council members

FROM: Laura Robinson, Program Liaison Coordinator

SUBJECT: Council decision on approval to permit staff to negotiate with Dr. Kling and Dr. Sanchirico for the northern pike economics review

PROPOSED ACTION: Approve Dr. David Kling and Dr. James Sanchirico as economists for the northern pike economics review

SIGNIFICANCE: In November, the Council approved of an economics review on the suppression efforts of northern pike and economic impacts should they reach anadromous waters. The selected economists will work alongside the ISAB throughout their science review of predation in the Basin.

BUDGETARY/ECONOMIC IMPACTS

In November, the Council approved a budget not to exceed \$25,000 for the economics review.

BACKGROUND

At the November Council meeting, the full Council approved a request to the ISAB and selected economists to work on a science review on predation in the Basin and associated economics review on northern pike. A final letter was sent to the ISAB on November 20, 2018. Staff worked with regional partners to develop a list of potential economists for the review. Staff vetted the economists, narrowed down the list, and would like to proceed with Dr. Kling and Dr. Sanchirico. Additionally, staff is pursuing a cost share opportunity from regional partners to increase funding for this review.

ALTERNATIVES

Staff recommends that the Council move forward in contracting with Dr. Kling and Dr. Sanchirico.

SUPPORTING DOCUMENTS

[Council request](#) to the ISAB and economists

Regional letters of support for the economics review:

- [Pacific Northwest Economic Region \(PNWER\)](#) – September 2018
- [Washington Recreation and Conservation Office](#) – October 2018
- [Oregon Invasive Species Council](#) – November 2018

[Council decision memo](#) – November 2018

[Fish and Wildlife Committee memo](#) – September 2018

ATTACHMENTS

See attachment 1 for Dr. Kling's curriculum vitae, and attachment 2 for Dr. Sanchirico's curriculum vitae.

DAVID M. KLING

Department of Applied Economics
240F Ballard Extension Hall
Oregon State University
Corvallis, OR 97331-3601

david.kling@oregonstate.edu
Tel: (541) 737-1418
Fax: (541) 737-1411

APPOINTMENT

Assistant Professor September 2013 - present
Department of Applied Economics, Oregon State University

EDUCATION

Ph.D., Agricultural and Resource Economics, University of California at Davis Sept. 2013

RESEARCH

Peer-Reviewed Publications

LaRiviere, Jacob, **David M. Kling**, James N. Sanchirico, Charles Sims, and Michael Springborn. 2018. "The treatment of uncertainty and learning in the economics of natural resource and environmental management." *Review of Environmental Economics and Policy* 12(1): 92-112.

Kling, David M., James N. Sanchirico, and Paul L. Fackler. 2017. "Optimal monitoring and control under state uncertainty: Application to lionfish management." *Journal of Environmental Economics and Management* 84: 223-245.

Kling, David M., James N. Sanchirico, and James E. Wilen. 2016. "Bioeconomics of managed relocation." *Journal of the Association of Environmental and Resource Economists* 3(4): 1023-1059.

Sanchirico, James N., Daniel K. Lew, Alan C. Haynie, **David M. Kling**, and David F. Layton. 2013. "Conservation values in marine ecosystem-based management." *Marine Policy* 38: 523-530.

Fuller, Kate, **David M. Kling**, Kailin Kroetz, Noam Ross, and James N. Sanchirico. 2013. Economics and ecology of open-access fisheries, in: J. Shogren (Ed.) *Encyclopedia of Energy, Natural Resource, and Environmental Economics*, Elsevier, Waltham, MA: 39-49.

Papers in Preparation ("Ψ" denotes an OSU graduate student coauthor)

Lewis, David J., Steven J. Dundas, **David M. Kling**, Daniel K. Lew, and Sally D. Hacker. "Public preferences for early and partial gains in rebuilding threatened species: The case of Oregon Coast Coho salmon."

(Papers in preparation, continued)

Sloggy, Matthew R. ^ψ, **David M. Kling**, and Andrew J. Plantinga. "Measure twice, cut once: Optimal inventory and harvest under volume uncertainty and price volatility."

Kling, David M., and Deng (Dede) Long^ψ. "Managing renewable resources as hidden capital."

Sanchirico, James N., Julie C. Blackwood, **David M. Kling**, et al. "Renewable resource federalism: Trade-offs between centralized and decentralized control."

Selected Research in Progress

Learning and measurement in optimal fishery management (*with* Paul L. Fackler)

Optimal control of an invasive ecosystem engineer (*with* James N. Sanchirico and Alan Hastings)

The structure of conservation values and ecosystem-based management dynamics (*with* James N. Sanchirico, Daniel K. Lew, and Alan C. Haynie)

RECENT PRESENTATIONS

"Learning and measurement in optimal fishery management". International Institute of Fisheries Economics & Trade (IIFET), Seattle, WA. July 17, 2018. (Invited talk)

"Timber cruising with Faustmann: Optimal inventory and harvest under volume uncertainty and price volatility". AAEA Annual Meeting, Chicago, IL. August 1, 2017.

"An economic perspective on managed relocation". Managed Relocation Under a Changing Climate: An Interdisciplinary Perspective Symposium, University of California, Davis. December 4, 2017. (Invited talk)

GRANTS

Co-PI: A multi-disciplinary, integrative approach to valuing ecosystem services from natural infrastructure. Funder: NOAA-NCCOS. Total Award Amount: \$1,350,000. Ending date: 9/30/19.

Co-PI: Vulnerability and adaptation to ocean acidification among Pacific Northwest mussel and oyster stakeholders. Funder: NOAA Ocean Acidification Program. Total Award Amount: \$672,965. Ending date: 8/31/19.

TEACHING

Advanced Natural Resource Economics (Ph.D.), Natural Resource Economics and Policy (undergraduate), Second Year Research Paper (Ph.D.)

SERVICE

Topic leader (“Risk & Uncertainty”) for the AAEA Annual Meeting (3 year appointment: 2018-2020)

Referee, *Journal of Environmental Economics and Management*, *Journal of the Association of Environmental and Resource Economists*, *Environmental and Resource Economics*, *American Journal of Agricultural Economics*, *Conservation Biology*

Oregon State University: AEC Policy and Planning Committee, AEC Graduate Program Job Market Preparation Group

AWARDS

NMFS-Sea Grant Fellowship in Marine Resource Economics 2011-2013

North American Association of Fisheries Economists Best Student Paper Award 2013

PROFESSIONAL ASSOCIATIONS

Association of Environmental and Resource Economists, Agricultural & Applied Economics Association, North American Association of Fisheries Economists

Last updated: 1/2/19

JAMES N. SANCHIRICO
ENVIRONMENTAL SCIENCE AND POLICY
UNIVERSITY OF CALIFORNIA, DAVIS
ONE SHIELDS AVE, DAVIS, CA 95616
PHONE: 530-754-9883
EMAIL: JSANCHIRICO@UCDAVIS.EDU

EXPERIENCE

University of California at Davis , Dept. of Environ. Science and Policy	
Professor	2009-
Assoc. Professor	2007-2009
Resources for the Future, Washington DC	
Nonresident Fellow	2009-2012
University Fellow	2007-2010,2012-
Senior Fellow	2006-2007
Fellow	1998-2006
U.S. Environmental Protection Agency , Expert coral reef valuation	2008-2009
Georgetown University , Adjunct Professor, Department of Economics	2005-2007
Stanford University , Visiting Scholar, Center for Environmental Science and Policy, Institute for International Studies	2003-2004

EDUCATION

Ph.D. , University of California at Davis, Agricultural and Resource Economics	1998
B.A. with Distinction , Boston University, Economics and Mathematics	1991
University of London, University College, Environmental Economics	1990

PROFESSIONAL ACTIVITIES

- *Co-Editor*, Journal of Association of Environmental and Resource Economists (JAERE), 2018-
- *Member*, NOAA Headquarters Socioeconomic Review team, Sept. 2017
- *Member*, NOAA Northwest Science Center Socioeconomic Review team, August 2017
- *Member*, [Lenfest Fishery Ecosystem Task Force](#), 2014-2016.
- *Associate Director*, UC Davis Coastal and Marine Sciences Institute, 2014-.
- *Master Advisor*, UC Davis Environmental Policy, Analysis, and Planning major, 2013-2018.
- *Member*, National Research Council, Committee on Evaluating the Effectiveness of Stock Rebuilding Plans of the 2006 Fishery Conservation and Management Reauthorization, Feb 2012-2014.
- *Member*, National Research Council, Committee to provide a review of the U.S. National Ocean Acidification Research Plan, 2012-2013.
- *Member*, Technical Input Team for the Oceans and Marine Resources Chapter of the U.S. 2013 National Climate Assessment, 2012.
- *Reviewer*, Approaches for Ecosystem Services Valuation for the Gulf of Mexico After the Deepwater Horizon Oil Spill: Interim Report, National Research Council, 2011.
- *Reviewer*, Ocean Acidification: A National Strategy to Meet the Challenges of a Changing Ocean, National Research Council, 2010.

- *Testimony*, Economic Frameworks and values for regulatory assessment, Little Hoover Commission, Sacramento CA (Jan. 27, 2011)
- *Testimony*, Economic Benefits of Fishing Cooperatives and Individual Fishing Quota Systems at the Hearing on Fishing Safety: The Policy Implications of Cooperatives and Vessel Improvements on July 9, 2008. Oceans, Atmosphere, Fisheries, and Coast Guard Subcommittee of Commerce, Transportation, and Safety Committee of the U.S. Senate.
- *Member*, Advisory Committee, Gordon & Betty Moore Foundation, Marine Initiative 2010-2011.
- *Member*, Advisory Committee, John Muir Institute, UC Davis, June 2010-2012.
- *Member*, Executive Committee, Graduate Group in Ecology, UC Davis, Sept. 2010-2014
- *Member*, Advisory Committee, Marine Ecosystem Services (MARES) Program at Forest Trends, June 2009-2011.
- *Member*, NOAA Science Advisory Board, Ecosystem Science and Management Working Group, Feb. 2009-2013.
- *Member*, NOAA Science Advisory Board, Research and Development Priorities Taskforce, Nov. 2011-2012.
- *Member*, Planning Committee for NOAA's Ecosystem Research Science Challenge Workshop in 2012
- *Member*, NOAA Science Advisory Board, June 2007-June 2010. (2nd term 2010-2013)
- *Member*, NOAA Science Advisory Board Social Science Working Group, 2007- 2008.
- *Member*, Science and Technical Panel Expert Committee, Global Environmental Facility (GEF), 2007-2010.
- *Member*, International Technical Review Committee, CBD Program of Work on Protected Areas, United Nations Development Program and GEF
- *Member*, Massachusetts Ocean Partnership Fund, Science and Technical panel, 2006-2007.
- *Member*, National Research Council, Committee to review The National Science and Technology Council's Joint Subcommittee on Ocean Science and Technology (JSOST) Research Priorities Plan, 2006- 2007.
- *Member*, CA. Marine Life Protection Act Initiative Baseline Science-Management Panel, 2006
- *Editorial Council*, Ecology Letters, Sept. 2009-2013.
- *Associate Editor*, Journal of Theoretical Ecology, June 2011-.
- *Editorial Council*, Journal of Environmental Economics and Management, 2006-2011.
- *Editorial Council*, Journal of Agricultural and Resource Economics, 2006-2009.
- *Associate Editor*, Marine Resource Economics, 2001-2005.
- *Selection Committee*, AERE annual conference, 2011, 2012, 2013, 2014, 2015, 2016, 2017
- *Selection Committee*, NOAA Fisheries, Marine Resource Economics Fellowships, 2003.

AWARDS

2014 Distinguished Scholarly Public Service Award for outstanding public service contributions, UC Davis Academic Senate

2012 Rosenstiel Award in Oceanographic Science for outstanding achievement and distinction in marine policy and economics, 38th recipient.

- 2010 Quality of Research Discovery Award** for “The Economics of Spatial-Dynamic Processes: Applications to Renewable Resources”, Agricultural & Applied Economics Assoc., 2010.
- 2010 FEEM 20th Anniversary Prize in Environmental Economics** was given to researchers at Resources for the Future for their contributions to resource and environmental economics between 1989 and 2009 (Shared with Martin Weitzman, Harvard).
- 2010 Elsevier’s Economics and Finance Journals Most Cited Articles list (2005-2009)**. Two articles (#13 and #15 in the CV).
- 2000 Quality of Research Discovery Award** (Honorable Mention) for "Bioeconomics of Spatial Exploitation in a Patchy Environment", American Agricultural Economics Assoc., 2000.
- 1999 Outstanding Dissertation Award**, American Agricultural Economics Association, 1999.
- 1995 Outstanding Teaching Assistant**, Department of Agricultural and Resource Economics, University of California at Davis, 1995.
- 1995 Sea Grant Trainee Fellowship**, California Sea Grant Program, 1995-1998.

JOURNAL ARTICLES

83. Sampson, G. and J.N. Sanchirico. Exploitation of a Mobile Resource with Costly Cooperation. *Environmental and Resource Economics*. 2018.
82. Ferraro, P. J., J. N. Sanchirico and M. D. Smith. Causal inference in coupled human and natural systems. *Proceedings of the National Academy of Sciences*. 2018
81. Roheim CA, Bush SR, Asche F, Sanchirico JN, & Uchida H Evolution and future of the sustainable seafood market. *Nature Sustainability* 1(8):392-398, 2018.
80. Addicott, E. T., K. Kroetz, M. N. Reimer, J. N. Sanchirico, D. K. Lew and J. Huetteman. Identifying the Potential for Cross-Fishery Spillovers: A Network Analysis of Alaskan Permitting Patterns. *Canadian Journal of Fisheries and Aquatic Sciences*. 2018.
79. Watson, J. T., A. C. Haynie, P. J. Sullivan, L. Perruso, S. O’Farrell, J. N. Sanchirico and F. J. Mueter. Vessel monitoring systems (VMS) reveal an increase in fishing efficiency following regulatory changes in a demersal longline fishery. *Fisheries Research* 207: 85-94, 2018.
78. Lampart, A., A. Hastings, J.N.Sanchirico. Slow treatment promotes control of harmful species by multiple agents. *Conservation Letters*. Forthcoming.
77. Essington, T.E., J.N. Sanchirico, M.L. Baskett. Economic value of ecological information in ecosystem-based natural resource management depends on exploitation history. *Proceedings of the National Academy of Sciences* (PNAS) (2018) 10.1073/pnas.1716858115.
76. Jardine, S. and J.N. Sanchirico. Estimating the Cost of Invasive Species Control. *Journal of Environmental Economics and Management*. (2018) 87:242-257.
75. Fuller, K. B., J. N. Sanchirico, J. M. Alston. The Spatial-Dynamic Benefits from Cooperative Disease Control in a Perennial Crop. *Journal of Agricultural Resource Economics*. (2017), 42(2): 127-145.
74. Marshall, K. N., et al.. (2017), Ecosystem-based Fisheries Management for Social-ecological Systems: Renewing the Focus in the United States with Next Generation Fishery Ecosystem Plans. *Conservation Letters*. Forthcoming. doi:10.1111/conl.12367
73. Mumby PJ, Sanchirico JN, Broad K, et al. Avoiding a crisis of motivation for ocean

- management under global environmental change. *Glob Change Biol.* (2017):1–14.
72. Kling, D., P. Fackler, J.N. Sanchirico. Optimal monitoring and control under state uncertainty: Application to lionfish management. *Journal of Environmental Economics and Management.* (2017). 84: p. 223-245.
71. Kroetz, K., J. N Sanchirico, J. Penas-Torres, D. C. Novoa. Evaluation of the Chilean Jack Mackerel ITQ System. *Marine Resource Economics.* (2017) 32(2): 217-241.
70. O’Farrell, J. N. Sanchirico, I. Chollett et al. Improving Detection of short-duration behavior in fishing vessel tracks by feature engineering of training data. *ICES Journal of Marine Science.* (2016).
69. LaRiviere, J., D. Kling, M. Springborn, C. Sims, J.N. Sanchirico. Characterizing Uncertainty and Learning in the Economics of Resource and Environmental Management, *Review of Environmental Economics and Policy.* (2017) 10.1093/reep/rex021.
68. Narayan, S, Beck, MW, Reguero, BG, Losada, IJ, van Wesenbeeck, B, Pontee, N, Sanchirico, JN, Ingram, JC, Lange, GM, Burks-Copes, KA. The Effectiveness, Costs and Coastal Protection Benefits of Natural and Nature-Based Defences. (2016) *PLoS ONE* 11(5): e0154735. <https://doi.org/10.1371/journal.pone.0154735>.
67. Ryan, D, C. Toews, J.N. Sanchirico, P. R. Armsworth. Implications of Policy Adjustment Costs for Fisheries Management. *Natural Resource Modeling.* July 2016.
66. Kling, D., J.N. Sanchirico, J.E. Wilen. Bioeconomics of managed relocation. *Journal of the Association of Environmental and Resource Economists.* 3(4) Dec. 2016.
65. Bode, M., J.N. Sanchirico, P. Armsworth. Returns from aligning management resolution with ecological variation in a coral reef fishery. *Proceedings of the Royal Society B.* 2016.
64. Boettiger, C., M. Bode, J. N. Sanchirico, J. LaRiviere, A. Hastings and P. R. Armsworth Optimal management of a stochastically varying population when policy adjustment is costly. *Ecological Applications.* (2015). <http://dx.doi.org/10.1890/15-0236.1>
63. Cook, J., J.N. Sanchirico, D. Salon, and J. Williams. Empirical distributions of vehicle use and fuel efficiency across space: Implications of asymmetry for measuring policy incidence. *Transportation Research Part A: Policy and Practice.* (2015) 78:187-199.
62. Jardine, S. and J.N. Sanchirico. Fishermen, Markets, and Population Diversity. *Journal of Environmental Economics and Management.* (2015) 74: 37-54.
61. Sampson, G., J. N. Sanchirico, C. A. Roheim, S. R. Bush, J. E. Taylor, E.H. Allison, J. L. Anderson, N. C. Ban, R. Fujita, S. Jupiter, and J. R. Wilson. Secure Sustainable Seafood from Developing Countries. *Science.* 2015 (May 1). 348(6234): 504-505.
60. Kroetz, K., J. N. Sanchirico, D. K. Lew. Efficiency costs of social objectives in tradable permit Programs. *Journal of the Association of Environmental and Resource Economists* (JAERE). 2015 (Sept). 2(3): 339-366.
59. Essington, T., M. L. Baskett, J. N. Sanchirico, and C. Walters. A novel model of predator prey interactions reveals the sensitivity of forage fish-piscivore fishery trade-offs to ecological conditions. *ICES Journal of Marine Science.* 2015, 72(5), 1349–1358.
58. Kroetz, K. and J. Sanchirico. The Bioeconomics of Spatial-Dynamical Systems in Natural Resource Management. *Annu. Rev. Resour. Econ.* 2015. 7:16.1–16.19
57. Lampert, A., A. Hastings, E. D. Grosholz, S. L. Jardine, and J.N. Sanchirico. Optimal approaches for balancing invasive species eradication and endangered species management. *Science.* 2014 (May 30). 334(6187): 1028-1030.

56. Jardine, S., C. Lin, J.N. Sanchirico. Measuring benefits from a marketing Cooperative in the Copper River fishery. *American Journal of Agricultural Economics*. 2014. 1-18
55. Bucaram, S.J., J.W. White, J.N. Sanchirico and J.E. Wilen, Improving fisheries knowledge does not diminish prior efforts: A reply to Castrejon and Charles. *Ocean & Coastal Management*, 2014. 89: p. 112-112.
54. Micheli, F. P. J. Mumby, D. R. Brumbaugh, K. Broad, C. P. Dahlgren, A. R. Harborne, K. E. Holmes, C. V. Kappel, S. Y. Litvin, J. N. Sanchirico. High vulnerability of ecosystem function and services to diversity loss in Caribbean coral reefs. *Biological Conservation*. 2014. 171: p. 186-194.
53. Kroetz, K., J.N. Sanchirico, P. Armsworth, H. S. Banzhaf. Benefits of the Ballot Box for Species Conservation. *Ecology Letters*. 2014. 17(3): p. 294-302.
52. Siikamaki, J., J.N. Sanchirico, S. Jardine, D. Mcgalughin, and D. Morris. Blue Carbon: Coastal Ecosystems, Carbon Storage, and Potential for Reducing Emissions. *Environment*. 55(6) Nov./Dec. 2013.
51. Sanchirico, J.N., M. Springborn, A. Doerr, M. Schwartz. Investment and the Policy Process in Conservation Monitoring. *Conservation Biology*. 2014. 28(2): p. 361-371.
50. Springborn, M. and J.N. Sanchirico. A density projection approach for non-trivial information dynamics: Adaptive management of stochastic natural resources. *J. of Environmental Economics and Management*. 2013. 66(3): p. 609-624.
49. Bucaram, S., J.W. White, J. N. Sanchirico and J. Wilen. Behavior of the Galapagos fishing fleet and its consequences for the design of spatial management alternatives for the red spiny lobster fishery. *Ocean and Coastal Management*. 2013. 78, pp. 88-100
48. Collie, Jeremy S., W. L. Adamowicz, Michael W. Beck, Bethany Craig, Timothy E. Essington, David Fluharty, Jake Rice, and James N. Sanchirico. Marine spatial planning in practice. *Estuarine, Coastal and Shelf Science*. 2013. 117(1): 1-11.
47. Sanchirico, J.N., D. Lew, D. Kling, A. Haynie, and D. Layton. Conservation values in marine ecosystem-based management. *Marine Policy*. 2013 38: 523-530
46. Siikamaki, J., J.N. Sanchirico, S. Jardine. Global economic potential for reducing carbon dioxide emissions from mangrove loss. *Proceedings of the National Academy of Sciences* (PNAS), 2012; published ahead of print July 30, 2012, doi:10.1073/pnas.1200519109.
45. Jardine, S., and J.N. Sanchirico. Catch Shares in Developing Countries: A review of the literature. *Marine Policy*, 2012. 36 (6):1242-1254.
44. Johnson, A., J. Cinner, M. Hardt, J. Jacquet, T. McClanahan, and J. N. Sanchirico. Trends, current understanding, and future research priorities for artisanal coral reef fisheries research. *Fish and Fisheries*. 2012. Article first published online: 10 APR 2012 DOI: 10.1111/j.1467-2979.2012.00468.x.
43. Helen E. Fox, Michael B. Mascia, Xavier Basurto, Alice Costa, Louise Glew, Dennis Heinemann, Leah Bunce Karrer, Sarah E. Lester, Alfonso V. Lombana, Robert S. Pomeroy, Cheri A. Recchia, Callum M. Roberts, James N. Sanchirico, Lida Pet-Soede, Alan T. White. Reexamining the science of marine protected areas: linking knowledge to action. *Conservation Letters*, 2012 5 (1):1-10.

42. Sanchirico, J.N. and M. Springborn. How to get there from here: Ecological and economic dynamics of ecosystem service provision. *Environmental and Resource Economics*. 2011: 48(2):243-267
41. Pascoe, S., J. Innes, D. Holland, M. Fina, O. Thebaud, R. Townsend, J. Sanchirico, R. Arnason, C. Wilcox, and T. Hutton. Use of Incentive-Based Management Systems to Limit Bycatch and Discarding. *International Review of Environmental and Resource Economics*. 2010. 4:1-39.
40. Kellner, J., J.N. Sanchirico, A. Hastings, and P.J. Mumby. Optimizing for multiple species and multiple values: Tradeoffs inherent in ecosystem-based fisheries management. *Conservation Letters*. 2011. 4 (1):21-30
39. H S Banzhaf, W E Oates, J N Sanchirico. Selection and Design of Local Referenda for Land Conservation. *Journal of Policy Analysis and Management* 2010. 29(4):769-798.
38. Sanchirico, J.N., J. Wilen, and C. Coleman. Optimal rebuilding of a metapopulation. *American Journal of Agricultural Economics*. 2010 92(4): 1087-1102 first published online May 25, 2010 doi:10.1093/ajae/aaq045
37. Smith, M., J. Lynham, J.N. Sanchirico, J. Wilson. The political economy of marine reserves: Understanding the role of opportunity costs. *Proceedings of the National Academies of Sciences (PNAS)*. Jan. 19, 2010 doi: 10.1073/pnas.0907365107.
36. Sanchirico, J.N., H.J. Albers, C. Fischer, and C. Coleman. Spatial Management of Invasive Species: Pathways and Policy Options. *Environmental and Resource Economics*. 45(4): 517-535. 2010. Published online Nov. 1, 2009: 2010 DOI 10.1007/s10640-009-9326-0
35. Sanchirico, J.N., J. Eagle, S. Palumbi, and B. Thompson. Comprehensive planning, dominant-use zones, and user rights: a new era in ocean governance. *Bulletin of Marine Science*, 86(2), 2010.
- Article featured in Scientific American as one of the top 20 world changing ideas in the Dec. 2009 issue.
34. Fischer, C., H.J. Albers, and J.N. Sanchirico. Invasive Species Management in a Spatially Heterogeneous World: Spatial vs. Uniform Policies. *Resource and Energy Economics*. 2010. 32 (4):483-499
33. Pizer, W., J.N. Sanchirico, and M. Batz. Regional patterns of U.S. household carbon emissions. *Climatic Change*. 99(1-2) / March, 2010. DOI: 10.1007/s10584-009-9637-8
32. Sanchirico, J. N. and P. Mumby. Mapping Ecosystem Functions to the Valuation of Ecosystem Services: Implications of species-habitat associations for coastal land-use decisions. *Theoretical Ecology* 2009(2): 67-77.
31. Smith, M., J. N. Sanchirico, and J.E. Wilen. The Economics of Spatial-Dynamic Processes: Applications to Renewable Resources. *Journal of Environmental Economics and Management* 57(1), January 2009: 104-121.
- Won 2010 Quality of Research Discovery Award, Agricultural and Applied Economics Association (AAEA).
30. Broad, K. and J.N. Sanchirico. Local perspectives on marine reserve creation in the Bahamas. *Ocean and Coastal Management*. 51(11), 2008: 763-771.
29. Armsworth, P. and J.N. Sanchirico. The Effectiveness of Buying Easements as a Conservation Strategy. *Conservation Letters*. 1(4) Published Online: 28 Aug 2008. P. 182 – 189.

28. Eagle, J., J.N. Sanchirico and B. Thompson. Ocean Zoning and Spatial Access Privileges: Rewriting the Tragedy of the Regulated Ocean. *New York University Environmental Law Journal*. Nov. 2008.
27. Harborne A. R., P. J. Mumby, C. V. Kappel, C. P. Dahlgren, F. Micheli, K. E. Holmes, J. N. Sanchirico, K. Broad, I. A. Elliott and D. R. Brumbaugh. Reserve effects versus natural variation in coral reef communities. *Journal of Applied Ecology*. (2008): 45:1010-1018.
26. Sanchirico, J.N. and J. Wilen. Sustainable use of Renewable Resources: Implications of Spatial-Dynamic Ecological and Economic Processes. *International Review of Environmental and Resource Economics* (2008): 1:3567-405.
25. Mumby PJ, Broad K, Brumbaugh DR, Dahlgren CP, Harborne AR, Hastings A, Holmes KE, Kappel CV, Micheli F, and Sanchirico JN. Coral reef habitats as surrogates of species, ecological functions and ecosystem services. *Conservation Biology* (2008):22(4):941-951.
24. Sanchirico, James N., M. Smith, and D. Lipton. An approach to ecosystem-based fishery management. *Ecological Economics* (2008): 64(13): 586-596.
23. Newell, R., Papps, K., and J. N. Sanchirico. Asset Pricing in Created Markets for Fishing Quota. *American Journal of Agricultural Economics*. 89(2) (May 2007): 259–272.
22. Sanchirico, J.N. and J.E. Wilen. Global Marine Fishery Resources: Status and Prospectus. *International Journal of Global Environmental Issues*. Vol. 7, No. 2/3, 2007
21. Mumby, P. J., F. Micheli, C. P. Dahlgren, S. Y. Litvin, A. B. Gill, D. R. Brumbaugh, K. Broad, J. N. Sanchirico, C. V. Kappel, A. R. Harborne, K. E. Holmes. Marine Parks Need Sharks? – response. *Science* 312: 527, 2006 (*in Letters*).
20. Sanchirico, J.N, Maldavkar, U., A. Hastings, and J. Wilen. When are no-take zones an economically optimal fishery management strategy? *Ecological Applications*., 16(5):1643-1659, 2006.
19. Sanchirico, J.N., D. Holland, K. Quigley, and M. Fina. Catch-quota balancing in Multispecies Individual Fishing Quotas. *Marine Policy* 30(6): 767-785, 2006.
18. Armsworth, P., G.C. Daily, P. Kareiva, and J.N. Sanchirico. Land Market Feedbacks Can Undermine Biodiversity Conservation. *Proceedings of the National Academies of Sciences (PNAS)*, 103(13), March 22, 2006, 10.1073/pnas.0505278103.
17. Pizer, W., D. Burtraw, W. Harrington, R. Newell, and J. N. Sanchirico. Modeling Costs of Economy-wide versus Sectoral Climate Policies using Combined Aggregate-Sectoral Models. *The Energy Journal* 27(3), 2006.
16. Mumby, Peter J. C. P. Dahlgren, A. R. Harborne, C. Kappel, F. Micheli, , D. Brumbaugh, K. Holmes, J. M. Mendes, K. Broad, J. N. Sanchirico, K. Buch, S. Box, R. Stoffle, A. Gill. Fishing, trophic cascades, and the process of grazing on coral reefs. *Science* 311, 98-101, 2006.
15. Sanchirico, J. N. and J. E. Wilen. Optimal Spatial Management of Renewable Resources: Matching Policy Scope to Ecosystem Scale. *J. of Environ. Econom. Management* 50(1), 23-46, 2005.
 - Number 2 in the most cited articles in JEEM from 2005 to 2009. (April 2010)
 - Reprinted in *Ecological Economics* Vol. II (C. Perrings, ed.), SAGE Publishing Ltd. Dec. 2008: ISBN: 9781412948609
14. Sanchirico, J. N. A Social Scientist’s Perspective on the Census of Marine Life. *Marine Policy* 29(6), 507-520, 2005.

13. Newell, R., J. N. Sanchirico, and S. Kerr. Fishing Quota Markets, *J. of Environ. Econom. Management*, 49(3): 437-462, 2005.
 - Number 3 in the most cited articles in JEEM from 2005 to 2009. (April 2010)
12. Sanchirico, J. N. Additivity Properties in Metapopulation Models: Implications for the Assessment of Marine Reserves, *J. of Environ. Econom. Mgmt*, 49(1): 1-25, 2005.
11. Sanchirico, J. N and S. Hanna. Sink or Swim Time for U.S. Fishery Policy, *Issues in Science and Technology*, Fall 21(1): 2004.
10. Sanchirico, J. N and S. Hanna. Navigating U.S. Fishery Policy Into the 21st Century, *Marine Resource Economics*, 19(3): 2004.
9. Holland, D., J. N. Sanchirico, R. Curtis, and R. L. Hicks. An Introduction to Spatial Modeling in Fisheries Economics, *Marine Resource Economics*, 19(1): 1-6, 2004.
8. Sanchirico, J. N. Designing a Cost-Effective Marine Reserve Network: A Bioeconomic Metapopulation Analysis, *Marine Resource Economics*, 19(1): 46-63, 2004.
7. Sanchirico, J. N., R. Stoffle, K. Broad, and L. McManus. A General Model for Designing Networks of Marine Reserves: Comment, *Science*, 31(4): 47-48, 2003 (*in Letters*).
6. Sanchirico, J. N. Managing Marine Capture Fisheries with Incentive Based Price Instruments, *Public Finance Management*, 3(1): 67-93, 2003.
5. Boyd, J., D. Burtraw, A. Krupnick, R. Newell, V. McConnell, K. Palmer, J. N. Sanchirico, and M. Walls. Trading Cases: Is Trading Credits in Created Markets a Better Way to Reduce Pollution and Protect Natural Resources? *Environmental Science and Technology*, 37(11): 217-223, 2003.
4. Sanchirico, J. N. and J. E. Wilen. The Impacts of Marine Reserves on Limited-Entry Fisheries, *Natural Resource Modeling*, 15(3): 380-400, 2002.
 - Reprinted in Spatial Aspects of Environmental Policy, (Geoghegan J. and W. Gray, eds.), Ashgate Publishing Company (forthcoming).
3. Sanchirico, J. N. and J. E. Wilen. A Bioeconomic Model of Marine Reserve Creation, *J. of Environ. Econom. Management*, 42(3): 257-76, 2001.
2. Sanchirico, J. N. and J. E. Wilen. Dynamics of Spatial Exploitation: A Metapopulation Approach, *Natural Resource Modeling*, 14(3): 391-418, 2001.
1. Sanchirico, J. N. and J. E. Wilen. Bioeconomics of Spatial Exploitation in a Patchy Environment, *J. of Environ. Econom. Management*, 37(2): 129-50, 1999.
 - Reprinted in Fisheries Economics: A Collection of Readings, Volumes I and II, (Lee Anderson, ed.), Ashgate Publishing Company, 2001.

BOOK AND BOOK CHAPTERS

16. Parma, A., P. Sullivan, J. Collie., T. Hartley, W. Heyman, R. Johnston, A. Punt, K. Rose, J.N. Sanchirico, M. Sissenwine, G. Sugihara. Evaluating the Effectiveness of Fish Stock Rebuilding Plans in the United States. National Research Council. The National Academies Press. Washington DC. Aug. 25, 2013.
15. Somero, G., J. Barry, A. Dickson, J. Gattuso, M. Gehlen, J. Kleypas, C. Langdon, C. Lee, E. Miles, and J. Sanchirico. Review of the Federal Ocean Acidification Research and Monitoring Plan. National Research Council. The National Academies Press. Washington DC. Jan. 10, 2013.

14. Fuller, K., D. Kling, K. Kroetz, , N. Ross, and J.N. Sanchirico, The Economics and Ecology of Open-Access. Encyclopedia of Energy, Natural Resources and Environmental Economics Major Reference Works. 2013.
13. Doerr, A., S. Cardenas, S. Jardine, H. Yoon, S. Bucaram, and J.N. Sanchirico, Territorial User Rights in Fisheries (TURFs). Encyclopedia of Energy, Natural Resource and Environmental Economics. 2013.
12. Jardine, S. and J.N. Sanchirico, Ecological Economics. Sourcebook for Theoretical Ecology, UC Press, 2011.
11. Fell, Harrison and J.N. Sanchirico The Political Economy of Addressing Overfishing in U.S. Waters. In Issues of the Day: 100 Commentaries on Climate, Energy, the Environment, Transportation, and Public Health Policy (ed. Ian Parry and Felicia Day), Resources for the Future, Washington, D.C. 2011
10. R. Johnston, J.N. Sanchirico and Holland, D., Measuring Social Value and Human Well-Being. In Seas, Society, and Human Well-Being (ed. R. Bowen, M. Depledge, C. Carlane, and L. Fleming). Jones and Bertlett Learning, Sudbury, MA. Feb. 2011.
9. Sanchirico, J.N. Economically optimal spatial and inter-temporal fishing patterns in a metapopulation. In Marine Protected Areas: Effects, networks and monitoring – A multidisciplinary approach (ed. J. Claudet). Cambridge University Press. 2011.
8. Holland, D., J.N. Sanchirico, R. Johnston and D. Joglekar. Economic Analysis for Ecosystem Based Management: Applications to Marine and Coastal Environments. RFF Press. 240 pages, 2010.
7. Duce, R, N. Targett, D. Breitberg, D. Conover, C. Cooper, C. Ballard, G. Galloway, W. Kuperman, R. Lukas, J. Sanchirico, A. Solow, and D. Hawk. A review of the Ocean Research Priorities Plan and Implementation Strategy. National Research Council, National Academies Press, 2009.
6. Sanchirico, J. N. and Wilen, J. E. Economically optimal management of a metapopulation. In *Spatial Ecology* ed. S. Cantrell, C. Cosner and S. Ruan: Chapman and Hall, Taylor & Francis Group, pp. 317-33, 2010.
5. Wilen, J.E. and J.N. Sanchirico. Bioeconomics of Metapopulations: Sources, Sinks and Optimal Closures. In Explorations in Environmental and Natural Resource Economics: Essays in Honor of Gardner Brown, (D. Layton and R. Halvorson, eds.), Edward Elgar Press (2006).
4. Sanchirico, J. N., K. Vitealla, and P. Emerson. Socioeconomic Implications of Siting Marine Reserves in U.S. Waters. In Ocean Yearbook 19, (A. Chircop and M. McConnell, eds.), University of Chicago Press, 2005.
3. Sanchirico, J. N. Zoning the Oceans. In New Approaches on Energy and the Environment: Policy Advice for the President (Richard Morgenstern and Paul R. Portney, eds.). RFF Press, Washington, DC (Nov. 2004).
2. Kerr, S., R. G. Newell and J. N. Sanchirico. Evaluating the New Zealand Individual Transferable Quota Market for Fisheries Management. In Tradeable Permits Policy Evaluation, Design and Reform: OECD pp. 121–134, 2004.
1. Sanchirico, J. N. To Take or Not to Take the Antibiotic? In R. Laxminarayan, ed. Battling Resistance to Antibiotics and Pesticides: An Economic Approach. RFF Press, DC, 2002.

OTHER PUBLICATIONS (REPORTS, OP-EDS, TESTIMONY, MAGAZINE, ETC)

30. Kroetz, Kailin, Sanchirico, James N., Julio Peña-Torres, Corderi, David (2016). Evaluation of the Chilean Jack Mackerel ITQ System. **Inter-American Development Bank**. <http://dx.doi.org/10.18235/0000260>.
29. Kroetz, Kailin, Sanchirico, James N., Julio Peña-Torres, Corderi, David. Evaluating

- Fishery Catch Share Programs in a Developing Country Context, Common Resource Blog Post, April 26, 2016
28. Sanchirico, J., J. Siikamaki, Glenn-Marie Lange, and Anne Riddle (2016). Approaches for Valuing Coastal Protection Services in a Natural Capital Accounting Framework in “Managing Coasts with Natural Solutions Guidelines for Measuring and Valuing the Coastal Protection Services of Mangroves and Coral Reefs.” M. W. Beck and G-M. Lange, editors. Wealth Accounting and the Valuation of Ecosystem Services Partnership (WAVES), **World Bank**, Washington, DC.
 27. Sanchirico, J.N. 2015. Science Magazine Podcast on Sustainable Seafood. *Science* | DOI: 10.1126/science.aac4531.
 26. Kroetz, K. and J. N. Sanchirico (2015). [The Costs of Competing Goals in Fishery Management](#). **Resources**, Resources for the Future.
 25. Armsworth, P. and J.N. Sanchirico. 2015. The Successes and Unknowns of Conservation Ballot Initiatives. **SNAP.is/Magazine**. <http://www.snap.is/magazine/the-successes-and-unknowns-of-conservation-ballot-initiatives/>
 24. Balstad, R., P. Kareiva, S. Avery, R. Ban, L. Dupigny-Giroux, F. Kudrna, B. Moore, J. Sanchirico, J. Schubel, and J. Snow. 2013 In the Nation’s Best Interest: Making the Most of NOAA’s Science Enterprise, **NOAA SAB Report**.
 23. Siikamaki, J., J.N. Sanchirico, S. Jardine, D. Mcgalughin, and D. Morris. 2012. Blue Carbon: Global Options for Reducing Emissions from the Degradation and Development of Coastal Ecosystems. **RFF Report**. Available at www.rff.org.
 22. Sanchirico, J.N. Economic frameworks and values for regulatory assessment. Testimony to the Little Hoover Commission. Available at <http://www.lhc.ca.gov/>.
 21. Sanchirico, J.N. Valuing the Oil Spill’s Effects on Nature, **RFF Web Commentary**, August 20, 2010. Available at www.rff.org.
 20. Sanchirico, J.N. Zoned In. **Scientific American**, 302(4): 8. (Letter to Editor)
 19. Kroetz, K and J.N. Sanchirico. 2010. Economic Insights into the Costs of Design Restrictions in ITQ Programs, **Resources for the Future Report**, Jan. 2010. www.rff.org
 18. Sanchirico, J.N. 2009. Better-Defined Rights and Responsibilities in Marine Adaptation Policy. **Resources for the Future** Issue Brief. 09-12.
 17. Johnston, RJ, DS Holland, JN Sanchirico, and PH Taylor. 2009. Economic Analysis for Ecosystem-Based Management: An Introduction. Boston, MA: Massachusetts Ocean Partnership.
 16. Kling, D. and J.N. Sanchirico. 09-. **Resources for the Future**, Report , June 2009 (www.rff.org)
 15. Sanchirico, J.N. An Overview of the Economic Benefits of Cooperatives and Individual Fishing Quota Systems prepared for the Subcommittee for Oceans, Atmosphere, Fisheries and Coast Guard of the Senate Committee on Commerce, Science, and Transportation, **U.S. Senate**. 2008. Available at www.rff.org
 14. Banzhaf, H. S., W. Oates, and J.N. Sanchirico. Conservation Through the Ballot Box: Using Local Referenda to Preserve Open Space. **Land Lines**. Lincoln Land Institute. 2008.
 13. Fell, Harrison and J.N. Sanchirico. The Political Economy of Addressing Overfishing in U.S. Waters. **Resources for the Future Policy Commentary**. October 22, 2007 ([http://www.rff.org/rff/News/ Weekly_Policy_Commentary/](http://www.rff.org/rff/News/Weekly_Policy_Commentary/))
 12. Sanchirico, J.N. and P. Mumby. Economics, Habitats, & Biological Populations: Finding the Right Value. **Resources** 165 Spring 2007
 11. Sanchirico, J.N. and J. Siikamaki. Natural Resource Economics and Policy in the 21st Century: Conservation of Ecosystem Services. **Resources** 165 Spring 2007

10. Sanchirico, J.N., M. Smith, D. Lipton. Managing Fish Portfolios. **Resources** 164 Winter 2007.
9. Sanchirico, J.N. Swimming Upstream. The Challenges of Managing the World's Fisheries. **Resources**. Summer 2006.
8. Banzhaf, S., W. Oates, J. N. Sanchirico, D. Simpson, and R. Walsh. Voting for Conservation: What is the American Electorate Revealing? **Resources**. Winter 2006.
7. Sanchirico, J.N. Designing Policies to Protect Coral-Reef Ecosystems. **Resources**. Fall 2005.
6. Sanchirico, J. N. and S. Hanna. Taking Stock of U.S. Fisheries Policy, **The Providence Journal**, Dec. 20, 2004 (op-ed).
5. Sanchirico, J. N. and S. Hanna. Taking Stock of U.S. Fisheries Policy. Picked up by **Knight-Ridder Wire Service**. (Published in **The Montana Standard**, Dec. 21, 2004, op-ed).
4. Sanchirico, J. N. and M. Callaghan. One Fish, Two Fish, Red Fish, Blue Fish: What is the Value of the Census of Marine Life? **Resources**, No. 155, Fall 2004.
3. Newell, R. and J. N. Sanchirico. Saving Fish and America's Fishermen, **The Providence Journal**, Dec. 18, 2003. (Op-ed)
2. Sanchirico, J. N. and R. Newell. Catching Market Efficiencies: Quota-based Fishery Management, **Resources**, No. 150, Spring 2003.
• *Article featured in Wall Street Journal Editorial, "A Fish Story" on Nov. 6, 2003.*
1. Sanchirico, J. N. Marine Protected Areas: Can They Revitalize Our Nation's Fisheries? **Resources**, No. 140, Summer 2000.

TEACHING

UC Davis Teaching 2007-present

Courses

- ARE 277: *Ph D Natural Resource Economics, 2012-*
- ARE 254: *Ph D Dynamic Optimization (co-taught with ARE faculty), 2008-2010, 2017*
- ESP 166N: *Ocean and Coastal Policy, 2011, 2013, 2015, 2016, 2018*
- ESP 168B: *Environmental Analysis (Capstone Course EPAP), 2015-*
- ESP 01: *Environmental Science and Policy, 2008-2014*

Seminars

- PBG 251: *Collaborative Project REACH IGERT 2012*
- ECL 298: *Ecology, Economics, and Policy (co-taught with Mike Springborn), 2010-*
- ECL 290: *Forage Fish Fisheries: Bioeconomic modeling (co-taught with Tim Essington), Fall 2011, Winter 2012*
- ECL 290: *Ecosystem Services (co-taught with Jim Quinn), Fall 2007*
- ECL 296: *Seminar in Human behavior and Environmental Policy, Fall 2007*
- ECL 298: *Bioeconomic Analysis, Spring 2008*
- *Guest lecture: ECL 200B Ecology (2 Lectures), ECL 208 Conservation Biology, Ocean and Coastal Law, and ESP 169: Water Policy and Politics, EPHE Core Course (2 lectures)*

Pre-UC Davis Appointment

- *Invited lecturer, Ph.D. Course in Environmental and Resource Economics - Multispecies Fisheries Management and Marine Reserves, University of Tromsø, Tromsø, Norway, May 29 - June 2 2006.*
- *Adjunct Professor, Georgetown University, Environmental and Natural Resource Economics (Econ 275 3 credits), Fall 2005 and Fall 2006.*
- *Guest Lecturer, William and Mary College (Washington Program), Ocean Policy Seminar, Fall 2004.*

- *Guest Lecturer*, Stanford University, Economics Dept., Ph.D. Environmental and Natural Resource Economics, Spring 2004 (3 classes).
- *Guest Lecturer*, Stanford University, Human Biology Program, Environmental Policy and Human Health, Winter 2003.
- *Guest Lecturer*, Stanford University, Economics Dept., Environmental Economics, Fall 2003.
- *Guest Lecturer*, Stanford University Law School, Ocean Policy, Fall 2003.
- *Guest Lecturer*, U.S. Dept of State, Foreign Service Economic and Commercial Studies Program, Economics and Public Policy, April 2000, December 2000, November 2001, November 2002, and December 2004.

MENTORING AT UC DAVIS (ALPHABETICAL ORDER)

Past Graduate students and post-docs:

- **Jay Abolofia**, Post-doc, NSF Coastal SEES project. 2014.
- **Santiago Bucarum**, Ph. D in Agricultural and Resource Economics, 2012, Co-chair of Committee; *First position*: Post-doc, University of Queensland.
- **Susana Cardenas**, Ph. D in Ecology, Sept. 2016, Chair of Committee; *Awards*: Edf Fellowship 2012. *First Position*; Universidad San Francisco de Quito
- **Jonathan Cook**, Ph. D in Agricultural and Resource Economics, 2013, Member of Dissertation Committee; *First position*: FSC Group (consulting firm in Oakland, CA).
- **Angela Doerr**, Ph. D in Ecology, Expected June 2014, Chair of Committee; *Awards*: Switzer Fellowship 2013. *First position*: California Science and Technology Fellow.
- **Amanda Faig**, Ph. D in Agricultural and Resource Economics, July 2016, Co-Chair of Committee. *First position*: University of Washington and NOAA Post-Doc Alaska Science Center
- **Kate Fuller**, Ph. D in Agricultural and Resource Economics, 2012, Co-chair of Committee; *First position*: Post-doc, University of California, Davis.
- **Ted Gilliland**, Ph. D in Agricultural and Resource Economics, 2017, Chair of Committee; *First position*: Asst. Prof., Mount Holyoke College
- **Sunny Jardine**, Ph. D in Agricultural and Resource Economics, 2013, Chair of Committee; *First position*: Asst. Prof., University of Delaware. *Awards*: Best Student paper (Honorable mention), North American Fishery Economics Association in 2013.
- **Julie Kellner**, Post-doc, 2011, *First position*: Research Scientist, Woods Hole Oceanographic Institute.
- **David Kling**, Ph. D in Agricultural and Resource Economics, 2013, Chair of Committee; *First position*: Asst. Prof., Oregon State University. *Awards*: NOAA Marine Resource Economics Fellowship; Outstanding Student Paper, North American Fishery Economics Association in 2013.
- **Kailin Kroetz**, Ph. D in Agricultural and Resource Economics, Expected June 2014, Chair of Committee; *Awards*: NOAA Marine Resource Economics Fellowship & 2015 AERE Dissertation Award. *First position*: Fellow, Resources for the Future.
- **Noam Ross**, Ph. D in Ecology, Sept. 2015, Member of Committee. *First position*: EcoHealth Alliance
- **Gabe Sampson**, Ph. D in Agricultural and Resource Economics, July 2016, Co-Chair of Committee. *First position*: Assistant Professor, Kansas State University
- **Haengku Yoon**, Ph. D in Agricultural and Resource Economics, 2013, Co-chair of Committee.

Current graduate students and post-docs (Spring 2018)

- **Maxime Depalle**, Ph. D in Agricultural and Resource Economics, Expected June 2018, Chair of Committee.
- **Amanda Lindsey**, Ph. D in Agricultural and Resource Economics, Expected June 2018, Chair of Committee.
- **Ernst Bertone Oehninger**, Ph. D. in Ecology, Expected June 2018, Member of Committee.
- **Shay O'Farrell**, Post-doc, NSF Coastal SEES grant, 2015-2016.
- **Tara Ursell**, Ph. D in Ecology, Expected June 2021, Co-Chair of Committee.

GRANTS AND CONTRACTS

39. Principal Investigator, **Packard Foundation**, Nearshore Small-Scale Fisheries. 2016-2017.
38. Principal Investigator, **NOAA Alaska Fisheries Science Center**, Modeling Fisher Behavior. 2015-2017.
37. Co-Investigator, Incentivized Management of Mangrove Ecosystems in Southeast Asia, **Wageningen UR**
36. Principal Investigator, **Packard Foundation**, Bio-Lewie modeling and small scale fisheries: El Nido, Phillipines. 2015-2016.
35. Principal Investigator, **National Science Foundation**, The Coupled Human Health and Environmental Dynamics of Schistosomiasis in Africa South of the Sahara, 2014-2018.
34. Principal Investigator, **National Science Foundation**, Synergies and Feedbacks between Local Direct Democracy Process and Large Scale Biodiversity Conservation, 2014-2016.
33. Investigator, **World Bank/GEF**, Capturing Coral Reef Ecosystem Services (CCRES), 2014-2018.
32. Principal Investigator, **World Bank and Nature Conservancy**, Guidance on Incorporating The Protective Service Values Of Coral Reefs And Mangroves In National Wealth Accounting, 2014.
31. Principal Investigator, **Packard Foundation**, Small-Scale Fisheries Management In Developing Countries: Moving From Theory To Practice. 2013-2014.
30. Principal Investigator, **National Science Foundation**, Novel Approaches to Understanding Human Use Patterns and Mobility for Coastal Natural Resources Management, 2013-2015.
29. Principal Investigator, **NOAA Alaska Fisheries Science Center**, *Economics of Alaskan and Sablefish Individual Fishing Quota System*. 2012.
28. Principal Investigator, **Packard Foundation**, *Monitoring Investments*, 2011.
27. Principal Investigator, **MARES program at Forest-trends**, *Catch share programs in developing countries*, 2011.
26. Principal Investigator, **Vicki and Roger Sant Foundation, Linden Trust for Conservation, and Resources for the Future**, *Preserving Blue Carbon: Global Options for Reducing Emissions from Coastal Ecosystems*. 2010-2011.
25. Principal Investigator, **NOAA Alaska Fisheries Science Center**, *Alaskan Halibut and Sablefish Fisheries*, 2010.
24. Principal Investigator, **National Science Foundation**, Removal and Restoration: Social, Economic and Ecological Dynamics of Invasive Spartina in San Francisco Bay, 2010-2013.
23. Principal Investigator, **NOAA Alaska Fisheries Science Center**, *Stellar Sea Lion Conservation*, 2009-2010.
22. Principal Investigator, **Environmental Defense Fund**, *Analysis of the West Coast Groundfish IFQ program*, 2009-2010.
21. Principal Investigator, **Resources for the Future**, *Marine and Coastal Adaptation policies*, 2008-2009.
20. Principal Investigator, **NOAA Fisheries**, *Analysis of the New Zealand Fishery Quota Markets*, 2008-2010.
19. Investigator, **Lincoln Land Institute**, *Conservation Voted: What is the American Electorate Revealing?* 2005-2006.
18. Principal Investigator, **U.S. EPA STAR**, *Effects of Climate Change on Ecosystem Services Provided by Coral Reefs and Tidal Marshes*, 2004-2008.
17. Principal Investigator, **U.S. Dept. of Agriculture, Economic Research Service**, *Spatial Management of Invasive Species: An Application to Cheatgrass Management in the Great Basin*, 2004-2006.
16. Co-principal Investigator, **New Zealand Ministry of Fisheries**, *Performance of Fishing Quota Markets*, 2004-2006.
15. Principal Investigator, **Marisla Foundation**, *Coral Reefs in the Bahamas*, 2004-2006.
14. Co-principal Investigator, **The David and Lucile Packard Foundation**, *Drawing Lines in the Ocean: The Economic, Biological and Legal Basis for Zoning the Central Coast of California*, 2004-2005.
13. Co-principal Investigator, **National Oceanic and Atmospheric Administration (NOAA), Chesapeake Bay Office**, *Trophic Portfolios in Commercial Fishing: A Finance-based Approach to Ecosystem Management with an Application to Chesapeake Bay Fisheries*, 2004-2006.

12. Principal Investigator, **NOAA Alaska Fisheries Science Center**, *Improving Estimates of Bycatch in Multi-species Fisheries*, 2004-2006.
11. Principal Investigator, **NOAA Alaska Fisheries and Northwest Science Center**, *Design of Multi-Species IFQ Systems*, 2004-2006.
10. Principal Investigator, **Alfred P. Sloan Foundation**, *What Exists? What Did Exist? Where Does or Did it Live? A Discussion of the Benefits of the Census of the Marine Life*, 2003-2004.
9. Co-principal Investigator, **NOAA**, *Risk, Uncertainty, and Cumulative Effects: The Role of Economics in NMFS Habitat Analysis*, 2003-2004.
8. Principal Investigator, **NOAA**, *A Bioeconomic Analysis of Marine Reserves: Understanding the Role of Site Selection and Connectivity*, 2001-2002.
7. Co-principal Investigator, **New Zealand Ministry of Fisheries**, *Economic Fishery Conservation Through Individual Transferable Quota: Evidence from the New Zealand Experience*, 2001-2002.
6. Investigator, **National Science Foundation: Biocomplexity Environment and the Human Dimension**, *Coupled Natural and Human Dynamics in Coral Reef Ecosystems: The Effect of Marine Reserve Network Design and Implementation on Fisheries, Biodiversity, and Humans*, 2001-2006.
5. Investigator, **Energy Foundation**, *Addressing the Distributional Impacts of Greenhouse Gas Controls*, 2001-2002.
4. Investigator, **U.S. Department of Energy**, *An Integrated System for Analyzing Carbon Trading*, 1998-2001.
3. Principal Investigator, **Resources for the Future**, *Economic Fishery Conservation Through Individual Transferable Quota: Evidence from the New Zealand Experience*, 1999-2001.
2. Principal Investigator, **Resources for the Future**, *Zoning the Oceans: The Future of Fishery Management?* 1999-2003.
1. Principal Investigator, **Michigan Department of Environmental Quality**, Office of the Great Lakes, *An Integrated Analysis of Market Based Instruments for Pollution Reduction and Land-use*. 1999-2001.

INVITED SPEAKING ENGAGEMENTS (SINCE 2009)

- *Presentation*, Trade-offs and Conflicts in Resource Management, UC Davis CMSI (Davis) (2016)
- *Presentation*, Sustainable Fisheries Workshop, Marine Stewardship Council (London) (2016)
- *Presentation*, First Wednesday Seminar Series, Resources for the Future (Washington DC) (2016)
- *Presentation*, Academic speaker series, Oregon State University (2015)
- *Presentation*, Human Dimensions of Ocean Resources Meeting, Stanford University (2015)
- *Presentation*, Arctic Management and Resources Workshop, Stockholm, Sweden (2014)
- *Presentation*, Academic speaker series, University of Gothenburg, Sweden (2014)
- *Presentation*, Pew Fellows Meeting, San Francisco (2014)
- *Presentation*, NOAA Seminar Series, Webcast (2014)
- *Presentation*, Academic speaker series, University of Delaware (2014)
- *Panelist*, ESA-40 Conference, UC Davis Law School (Oct. 4, 2013)
- *Panelist*, Resources for the Future, 60th Anniversary Conference, Washington DC (2013)
- *Presentation*, Academic speaker series, Duke University (2013)
- *Presentation*, Academic speaker series, University of Tennessee (2012)
- *Public Lecture*, Public seminar speaker series, University of Miami (2012)
- *Presentation*, Academic speaker series, University of Miami (2012)
- *Public Lecture*, UC Center, Sacramento, CA (2012)
- *Presentation*, Fisheries Econ. and Mgmt.-Future Challenges workshop, Copenhagen, Denmark (2011)
- *Presentation*, NCSE's 11th National Conf. on Science, Policy, and the Environ.: Our Changing Oceans, Washington DC (2011).
- *Presentation*, WWF Kathryn Fuller Symposium on Marine Protected Area, Washington DC (Dec. 2010)
- *Keynote address*, Natural Resource Modeling Association's annual meeting, Helsinki, June 2010.

- *Public lecture*, Aquarium of the Pacific, Long Beach, CA, May 2010
- *Presentation*, U.S. Interagency Ocean Policy Task Force, Washington DC., Sept. 2009.