

JAMES N. SANCHIRICO
ENVIRONMENTAL SCIENCE AND POLICY
UNIVERSITY OF CALIFORNIA, DAVIS
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DAVIS, CA 95616
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EXPERIENCE

University of California at Davis , Associate Professor, Environmental Science and Policy	7/2007-present
Resources for the Future , University Fellow	10/2007-10/2010
Resources for the Future , Senior Fellow, QE Division	4/2006-6/2007
Georgetown University , Adjunct Professor, Department of Economics	8/2005-6/2007
Resources for the Future , Fellow (with tenure), QE Division	10/2004-4/2006
Stanford University , Visiting Scholar, Center for Environmental Science and Policy, Institute for International Studies	9/2003-6/2004
Resources for the Future , Fellow, Quality of the Environ. (QE) Division	10/1998-9/2004

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	9/1990-12/1990

JOURNAL ARTICLES

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* Forthcoming.
30. Broad, K. and J.N. Sanchirico. Local perspectives on marine reserve creation in the Bahamas. *Ocean and Coastal Management*. Forthcoming.
29. Armsworth, P. and J.N. Sanchirico. The Effectiveness of Buying Easements as a Conservation Strategy. *Conservation Letters*. Forthcoming.
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*. Forthcoming, 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* (2007): 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. Peter J. Mumby, 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.
 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.
 12. Sanchirico, J. N. Additivity Properties in Metapopulation Models: Implications for the Assessment of Marine Reserves, *J. of Environ. Econom. Management*, 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

8. Holland, D., J.N. Sanchirico, R. Johnston and D. Joglekar. Economic Analysis for Ecosystem Based Coastal Management: An Introduction RFF Press. Approx. 250 pages. (forthcoming 2009).
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 J.E. Wilen. Economically optimal management of a metapopulation. In Spatial Ecology (S. Cantrell, eds). Chapman and Hall. (forthcoming 2009).
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, Washington, DC, 2002.

TESTIMONY, MAGAZINE ARTICLES, AND OP-EDS

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, 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/)
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.

REPORTS (Available upon request)

Holland, D., J.N. Sanchirico, K. Quigley, M. Fina. **Catch Balancing Policies in Multispecies IFQ Fisheries: An International Review**, A Report to the New Zealand Ministry of Fisheries, June 2005.

Sanchirico, J. N and J. Shih. **Role of Land Markets in Managing Nonpoint Source Pollution**. *RFF Discussion Paper* 01-58 (Revised June 2005).

Boyd, J., J. N. Sanchirico, and L. Shabman. **Habitat Benefits Assessment and Decision-making: A Report to the National Marine Fisheries Service**, *RFF Discussion paper* 04-09, March 2004.

Sanchirico, J. N. and R. Newell. **Analysis of Concentration and Consolidation in NZ Fishing Quota Markets: A Report to the New Zealand Ministry of Fisheries**, June 2003.

Harrington, W., J. N. Sanchirico and M. Walls. **Effects of Climate Change Policies on the U.S. Household Transportation Sector**, *RFF Discussion Paper* 03-17, March 2003.

Burtraw, D., L. Goulder, M. Ho, R. Morgenstern, K. Palmer, W. Pizer, J. N. Sanchirico, and J. Shih. **Distributional Impacts of Carbon Mitigation Policies**, *RFF Issue Brief* 02-03, March 2002.

Toman, M. A., W. Pizer, R. Newell, D. Burtraw, W. Harrington and J. N. Sanchirico. **An Integrated System for Analyzing Carbon Trading: A Report to the U.S. Dept. of Energy**, June 2000.

Felthoven, R., D. Larson and J. N. Sanchirico. **Assessing Economic Performance in Selected Alaska Groundfish Fisheries: A Report to the Pacific States Marine Fishery Commission**, 1999.

Sanchirico, J. N. **Marine Protected Areas as Fishery Policy: A Discussion of Costs and Benefits**, *RFF Discussion Paper* 00-23, May 2000.

TEACHING

UC Davis Teaching 2007-2008

- *ECL 290: Ecosystem Services (co-taught with Jim Quinn), Fall 2007*
- *ECL 296: Seminar in Human behavior and Environmental Policy, Fall 2007*
- *ESP 01: Environmental Science and Policy, Winter 2008, Spring 2009*

- *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*

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.*
- *Teaching Assistant, University of California at Davis, Intermediate Microeconomics 100a (Winter 1994 and 1995), Intermediate Microeconomics 100b (Fall 1993, Winter 1995), and Mathematical Programming 155 (Spring 1994 and 1995).*

PRESENTATIONS

2008

Invited Presentations

Adaptation policies to global warming impacts on the oceans, RFF Conference on Adaptation, Oct. 2008.

Spatial Management of Invasive Species. Economic Research Service, Oct. 2008

Ocean Zoning, New York University Law School, Breaking the Logjam conference, March 2008. (Presented by Josh Eagle).

2007

Invited Presentations

- To ocean zoning and beyond*, Environmental Policy and Human Behavior Seminar Series, UC Davis, Fall 2007
- Valuing ecosystem services across space: Role of mangroves in coral reef fisheries*, Ecology and Evolution Seminar Series, UC Davis, Fall 2007
- To ocean zoning and beyond*, Ocean Management Panel, Capitol Hill Oceans Week, Capitol Hill, Washington DC, June 2007.
- Economic Tools for EBM in Massachusetts*, Massachusetts Ocean Partnership Fund, Boston, MA, May 2007.
- Fishing Overcapacity*, Environmental Change and Security Program, Woodrow Wilson Center, Washington DC as part of USAID's series on Fishery Management, April 2007.
- Optimal Rebuilding of Metapopulations*, University of Minnesota, Department of Applied Economics, April 2007.
- Ecosystem Portfolios: An approach to ecosystem-based fishery management*, NOAA Chesapeake Bay Office 10th Annual Fisheries Symposium, Maryland, April 2007.
- To ocean zoning and beyond*. U.S. Coral Reef Task Force, Department of Interior, Washington DC, March 2007.

Selected Papers

- Spatial Management of Invasive Alien Species*. Presented at the AERE sessions at the AAEA meetings, Portland, OR 2007
- The Economics of Spatial-Dynamic Processes: An Application to Renewable Resources*. Presented at the Frontiers in Environmental Economics Conference, Washington DC, Feb. 2007

2006

Invited Presentations

- Connectivity in Marine Seascapes: Predicting ecological and socioeconomic costs of climate change on coral reef ecosystems* U.S. EPA STAR Global Aquatic Ecosystem Services and Multi-Stressor Progress Review Workshop June 4, 2006.
- An Economic Analysis of Recovery of Spatially Explicit Populations*. Joint workshop of NOAA Fisheries Socioeconomics Division and NOAA Fisheries Biological Assessment Division, April 19, 2006. San Francisco.
- When are no-take zones an economically optimal fishery management strategy?* Department of Agricultural Economics, Michigan State University, Feb. 2006.

Selected Papers

- Human Seascapes: Community Perspectives on Marine Management*. Presented at the AAAS meetings, St. Louis, Feb. 2006 (presented by Kenny Broad).

Discussant Remarks

- The Economic and Market Impacts of Coastal Restoration: America's Wetland Economic Forum II* Sponsored by Restore America's Estuaries (Washington DC Sept. 2006)
- Evolving Approaches to Managing Marine Recreational Fisheries*. Political Economy Forum sponsored by PERC and Environmental Defense (Bozeman, Montana Oct. 2006)

2005

Invited Presentations

- Spatial and Intertemporal Management of Invasive Alien Species: An application to Cheatgrass in the Great Basin*. USDA ERS Conference on Invasive Species Management (PREISM program), D.C., Oct. 2005.

No-take Zones as Optimal Fishery Management, NOAA Northwest Fisheries Science Center Weekly Monster Seminar Jam Series, Seattle, May 2005.

No-take Zones as Optimal Fishery Management, 3rd Spatial and Temporal Models in Ecological and Economic Systems Workshop sponsored by The Beijer International Institute of Ecological Economics and The Royal Swedish Academy of Sciences, Abdus Salam Institute for Theoretical Physics, Trieste Italy, April 2005.

No-take Zones as Optimal Fishery Management, NOAA Library Brown Bag Series, March 2005.

New Zealand Individual Fishing Quota Markets, NOAA Socioeconomic Brown Bag Series, Feb. 2005.

No-take Zones as Optimal Fishery Management, Department of Business and Economics, University of Iceland, Reykjavik, February 2005.

Selected Papers

Using Space and Connectivity to Value Mangroves as Fish Habitat, Annual meeting of the Ecological Society (Montreal 2005) (Presented by Geoff Shester).

Trophic Portfolios: A Finance-Based Approach to Ecosystem Management, AERE Natural Resources at Risk Workshop (Jackson Hole, WY, June 2005) (Presented by Martin Smith).

Asset Pricing in Created Markets for Fishing Quota, AEA Winter Meetings (Philadelphia, PA, Jan. 2005) (Presented by Kerry Papps).

Marine Reserves: The Importance of Economic and Biological Spatial Processes, AEA Winter Meetings (Philadelphia, PA, Jan. 2005) (Presented by James Wilen).

Discussant Remarks

Stanford Institute for the Environment's Workshop on "Conservation Incentives that Work for People on the Land" (Stanford University, May 2005).

NCSU NSF Biocomplexity Workshop (Sante Fe, NM, April 2005).

AEA Winter Meetings (Philadelphia, Jan. 2005)

2004

Invited Presentations

Sustainable Fisheries Management: The New Zealand Experience, International Sustainability Days Conference, Stanford University, October 2004.

Optimal Spatial Management of Renewable Resources: Matching Policy Scope to Ecosystem Scale, 2nd Spatial and Temporal Models in Ecological and Economic Systems Workshop sponsored by The Beijer International Institute of Ecological Economics and The Royal Swedish Academy of Sciences, Abdus Salam Institute for Theoretical Physics, Trieste Italy, April 2004.

Coupled Natural and Human Dynamics in Coral Reef Ecosystems of the Bahamas, Environmental Forum, Center for Environmental Science and Policy at Stanford University, Feb. 2004 (with Fiorenza Micheli and Steve Palumbi).

Additivity Properties in Metapopulation Models, Dynamic Reserve Site Selection under Economic Constraints Workshop sponsored by The Beijer International Institute of Ecological Economics and The Royal Swedish Academy of Sciences, Abdus Salam Institute for Theoretical Physics, Trieste Italy, April 2004.

Fishing Quota Markets, Department of Agricultural and Resource Economics, Oregon State University, Feb. 2004.

Discussant Remarks

2nd Spatial and Temporal Models in Ecological and Economic Systems Workshop sponsored by The Beijer International Institute of Ecological Economics and The Royal Swedish Academy of Sciences, Abdus Salam Institute for Theoretical Physics, Trieste Italy, April 2004.

Dynamic Reserve Site Selection under Economic Constraints Workshop sponsored by The Beijer International Institute of Ecological Economics and The Royal Swedish Academy of Sciences, Abdus Salam Institute for Theoretical Physics, Trieste Italy, April 2004.

2003

Invited Presentations

Additivity Properties in Metapopulation Models, Environmental and Natural Resource Economics Workshop, Dept. of Economics, Stanford University, Nov. 2003.

Ecological and Economic Linkages in Models of Renewable Resources, Camp Resources, Wilmington, North Carolina, August 2003.

Fishing Quota Markets, Department of Environmental and Resource Economics, Univ. of Massachusetts, April 2003.

Selected Papers

Additivity Properties in Metapopulation Models, North American Fishery Economics Association (Williamsburg, VA, 2003).

Additivity Properties in Metapopulation Models, Association of Environmental and Resource Economists (AERE) Workshop on Spatial Modeling (Madison, WI, June 2003).

Additivity Properties in Metapopulation Models, The Beijer International Institute of Ecological Economics and The Royal Swedish Academy of Sciences Conference on Rights and Duties in the Coastal Zone (Stockholm, June 2003).

Optimal Spatial Management of Renewable Resources: Matching Policy Scope to Ecosystem Scale, North American Fishery Economics Association (Williamsburg, VA, May 2003).

Additivity Properties in Metapopulation Models, AERE Session at the AAEA Annual Meeting (Montreal, July 2003).

Fishing Quota Markets, ASSA Winter Meetings (Washington, DC, Jan. 2003) (Presented by Richard Newell).

Optimal Spatial Management of Renewable Resources: Matching Policy Scope to Ecosystem Scale, ASSA Winter Meetings (Washington, DC, Jan. 2003).

Discussant Remarks

Association of Environmental and Resource Economists (AERE) Workshop on Spatial Modeling (Madison, WI, June 2003).

The Beijer International Institute of Ecological Economics and The Royal Swedish Academy of Sciences Conference on Rights and Duties in the Coastal Zone (Stockholm, June 2003).

2002

Invited Presentations

Optimal Spatial Management of Renewable Resources: Matching Policy Scope to Ecosystem Scale, Environmental and Natural Resource Economics Workshop, Department of Economics, Stanford University, June 2002.

Fishing Quota Markets, Environmental Forum, Center for Environ. Science and Policy at Stanford Univ., June 2002.

Fishing Quota Markets, Department of Environmental and Resource Economics, Univ. of Rhode Island, April 2002.

Reserve Site Selection in Limited-Entry Fisheries, National Marine Fisheries Service Workshop on Spatial Modeling in Fisheries, Oct. 2002.

Selected Papers

Fishing Quota Markets, AERE/EAERE World Congress (Monterey, CA, June 2002).

Fishing Quota Markets, NBER Summer Institute (Cambridge, MA, July 2002).

Fishing Quota Markets, IIFET Tenth Annual International Conference (New Zealand, August 2002).

Discussant Remarks

AERE/EAERE World Congress (Monterey, CA, June 2002).

Pre-2001

Invited Presentations

Marine Protected Areas: Moving from Recommendations to Implementation, Mid-Atlantic Fishery Management Council's Fall 2001 meeting.

Marine Protected Areas: Moving from Recommendations to Implementation, Plenary session at the Ocean Life Institute and Woods Hole Oceanographic Institution symposium, "Marine Protected Areas: Design and Implementation for Conservation and Fisheries Restoration", August 2001.

Individual Transferable Quotas (ITQs) and Bycatch: An Analysis of NZ Quota Price, International Institute of Fisheries Economics and Trade (IIFET) Tenth Annual International Conference, Oregon, July 2000.

Incorporating Space into Resource Management Symposium, "Fishing For Answers: Frontiers in Fishery Management", at the American Agricultural Economics Association (AAEA) Annual Meeting, Toronto, July 1997.

Selected Papers

A Bioeconomic Model of Marine Reserve Creation, North American Fishery Economics and Trade Meetings (New Orleans, LA, April 2001).

Optimal Spatial Management of Renewable Resources: Matching Policy Scope to Ecosystem Scale AAEA Annual Meeting (Nashville, TN, August 1999).

Optimal Spatial Management of Renewable Resources: Matching Policy Scope to Ecosystem Scale, AERE Workshop on Market Based Instruments (Boston, MA, July 1999).

Spatial Heterogeneity, Mobility and Access: The Case of Range Management in the Sahel, AAEA Annual Meeting (Nashville, TN, August 1999).

Marine Reserves: Is There a Free Lunch? European Association of Environmental and Resource Economists (EAERE) Annual Meeting (Oslo, Norway, July 1999).

The Bioeconomics of Spatial Management: An Analysis of Reserve Creation, IIFET Ninth Annual International Conference, (Tromso, Norway, July 1998).

Marine Reserves: Which Patch to Close? IIFET Ninth Annual International Conference (Tromso, Norway, July 1998).

The Bioeconomics of Spatial Exploitation in a Patchy Environment, World Congress of Environmental and Resource Economists Meeting (Venice, Italy, June 1998).

AWARDS

Quality of Research Discovery Award (Honorable Mention) for "Bioeconomics of Spatial Exploitation in a Patchy Environment", American Agricultural Economics Association, 2000.

Outstanding Dissertation Award, American Agricultural Economics Association, 1999.

Outstanding Teaching Assistant, Department of Agricultural and Resource Economics, University of California at Davis, 1995.

Sea Grant Trainee Fellowship, California Sea Grant Program, 1995-1998.

GRANTS

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*, 2004-2007.
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.

PROFESSIONAL ACTIVITIES

- *Testimony on the 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*, NOAA Science Advisory Board, June 2007-June 2010.
- *Member*, NOAA Science Advisory Board Social Science Working Group, June 2007-June 2008.
- *Member*, Science and Technical Panel Expert Committee, Global Environmental Facility (GEF), June 2007.
- *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, Nov. 2006-June 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, March 2006-December 2007.
- *Member*, California Marine Life Protection Act Initiative Baseline Science-Management Panel, June-Nov. 2006
- *Editorial Council*, Journal of Environmental Economics and Management, 2006-2008.
- *Editorial Council*, Journal of Agricultural and Resource Economics, 2006-2009.
- *Associate Editor*, Marine Resource Economics, 2001-2005.
- *Participant*, National Center for Ecological Analysis and Synthesis (NCEAS) working group, "Conservation priorities: Can we have our biodiversity and ecosystem services too?", Sept. 2005, Feb. 2006.
- *Participant*, NCEAS working group, "A synthetic approach to the science of ecosystem-based management of coastal marine ecosystems", Jan. 2006.
- *Participant*, NCEAS working group, "Ecosystem-based management for the oceans: The role of zoning", Nov. 2005.
- *Selection Committee*, National Marine Fisheries Marine Resource Economics Fellowships, 2003.
- *Selection Committee*, National Sea Grant Doctoral Dissertation grants, 2002.
- *Coordinator*, Natural Resource Economics Area of the Selected Paper Sessions for the 2002 AAEA's annual meeting.
- *Selection Committee*, Outstanding Ph.D. Dissertation, AAEA, 2001.
- *Consultant* to international and domestic non-governmental organizations.
- *Referee for peer-reviewed Journals*: American Economic Review, Econometrica, J. Environ. Econom. Management, Environ. Resource Econom., J. Econom. Behavior Organization, J. of Public Econ. Theory, Resource and Energy Econom., American J. of Agricultural Econom., J. Environ. Management, J. of Public Economic Theory, Australian J. of Ag. Econom., Ecol. Econom., Land Economics, Natural Resource Modeling, British Ecological Society, Estuaries, Marine Resource Economics, J. Policy Analysis and Management, J. of Mathematical Biology, Mathematical Biosciences, Environment and Development Economics, Conservation Biology, Physica D: Nonlinear processes, Theoretical Ecology.
- *Referee for peer-reviewed proposals*: National Science Foundation, U.S. National Sea Grant, Delaware Sea Grant, Maine Sea Grant, Rhode Island Sea Grant, Hawaii Sea Grant, Australian Natural Resource Council, Canadian Foundation for Climate and Atmospheric Sciences, The Maryland Agricultural Experiment Station, Netherlands Foundation for the Advancement of Tropical Research, and USDA PREISM program.
- *Member*, Association of Environmental and Resource Economists (AERE) and American Agricultural Economics Association (AAEA)