

CURRICULUM VITAE

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EDUCATION

Ph.D. Marine Resource Economics, University of Rhode Island, 1977
M.A. Food and Natural Resource Economics, University of Massachusetts, 1973
B.B.A. Corporate Finance/Economics, University of Massachusetts, 1970

CAREER PROFILE

1991 to present: *Managing Owner, King and Associates, Incorporated*
Environmental economic research and consulting

1991 to present: **University of Maryland, Center for Environmental Science**
Research professor (1991 to 2014); Visiting Professor (since 2014)

1989 to 1990: *Director of Resource Economics, ICF, Incorporated, Washington, D.C.*

1979 to 1988: *Managing Owner, King and Associates, Inc. / E.R.G Pacific, Inc.*
Adjunct Professor, University of California, San Diego, Economics Dept.,
Adjunct Professor, Scripps Institution of Oceanography, La Jolla, CA

1977 to 1979 *Senior Economist, U.S. Dept. of Commerce, NOAA, Oceanic Division, La Jolla, CA*

1975 to 1976: *Assistant Professor, University of New Hampshire, Marine resource economics*

CAREER OVERVIEW

Forty years of research and consulting experience in marine resource economics, with strong emphasis on fisheries, aquaculture, seafood markets, coastal and ocean resource management, seaports, and shipping. Recent research focuses on impacts of emerging technologies on ocean and water dependent industries and markets, and related investment opportunities and regulatory challenges.

Author of over one hundred reports, papers, and book chapters dealing with economic, business, and trade issues associated with environmental/economic linkages and related policies and regulations. Project manager on over one hundred interdisciplinary science/policy research projects dealing with economic aspects of complex scientific/engineering issues. Advisor to national and international environmental protection and natural resource development agencies, non-government organizations, insurance and financial institutions, small and large businesses, and seaport administrations. Expert witness before U.S. and state congressional committees, at administrative law judge hearings, and in more than forty cases involving private litigation related to fisheries, seafood markets, and environment-based economic losses. Served on scientific committees of the U.S. National Research Council and U.S. National Academies of Science, and as senior economic consultant to the United Nations, The World Bank, and other international organizations, and as technical advisor to U.S. congressional committees and various industry/government councils.

Developed and pioneered practical applications of widely used ecosystem valuation methods and economic tools to assess and compare environmental restoration and mitigation projects and invasive species problems, and resolve coastal fishing-oil industry conflicts. Created widely used analytical method, Habitat Equivalency Analysis (HEA), for assessing and comparing gains and losses in ecosystem services and values for settling natural resource damage claims, and managing environmental trading and banking programs. Developed fishery-related risk assessment methods for Lloyd's of London. Ltd and other global insurers, and GIS- based global fishing fleet allocation/decision-support models for H.J. Heinz (Starkist), Van Camp (Chicken of the Sea), and other global seafood companies. Developed fishery management models, tax programs, and foreign fishing access and rental agreements for individual Pacific island nations and for regional Pacific island multinational fishery management organizations. Developed and applied award-winning tools for assessing environmental/economic tradeoffs associated with multi-billion dollar investments in environmentally beneficial uses of dredged material, and for performing incremental cost analysis (ICA) to justify them. Developed economic tools for assessing and comparing ballast water treatment technologies and for evaluating alternative ballast water regulatory and compliance monitoring and enforcement programs. Led innovative project addressing economics of enforcement and compliance in U.S. commercial fisheries, and contributed to similar international studies.

SELECTED REPORTS / PUBLICATIONS

Status of Global Ship Biofouling Regulations and Compliance Technologies - 2018, with Patrick Hagan and Elizabeth Price, Maritime Environmental Resource Center (MERC) Economic Working Paper # 01-2018, University of Maryland, Center for Environmental Science, January, 2018 (in draft)

Economics of Mid-Atlantic Fisheries in the year 2030, in Proceedings of the Mid-Atlantic Blue Ocean Economy-2030 Symposium, Urban Coast Institute, Monmouth University, October 12/13, 2017 (<https://www.monmouth.edu/uci/symposium2017/>)

Implementation of U.S. Coast Guard ballast water regulations is doomed to fail, The Bay Journal, September, 2017, Annapolis, MD (<https://www.bayjournal.com/opinion>)

Ocean Health and the Economics of Ballast Water Regulations, published by the International Network of Environmental Enforcement and Compliance, Washington, D.C. September, 29, 2016 (<https://www.inece.org/library/show/57ed5b6f134c7>)

Predicting Global Ballast Water Treatment Markets in Sustainable Shipping, March 18, 2016; Available online at <http://www.maritime-enviro.org/reports.php> under King Ballast Water Economic publications

Managing Uncertainty in Ballast Water Treatment Markets in Sustainable Shipping, March 14, 2016; Available online at <http://www.maritime-enviro.org/reports.php> under King Ballast Water publications.

A Preliminary National/International Study of Methods to Measure Fishery Enforcement/Compliance Outcomes Prepared for the Australian Fisheries Research & Development Corporation, Perth, Australia; February, 2016

Emerging global markets for Next-generation Wireless In-water Nutrient Sensors Prepared for The Nutrient Sensor Challenge, an interagency initiative by NOAA, EPA, and USDA to promote the development of low-cost, low- maintenance, sensor-based, in-water tools for measuring and transmitting location-specific measures of nitrogen and phosphorous concentrations. Washington, D.C., 2015

Economic and environmental benefits of wireless, sensor-based, irrigation and water management systems

in U.S. nursery and greenhouse sectors and in designing and monitoring performance of green roofs and other stormwater management practices. Report prepared for the National Institute of Food and Agriculture (NIFA) at the U.S. Dept. of Agriculture under, Specialty Crop Research Initiative (SCRI) Award no. 2009-51181-05768, October, 2014

Economic Analysis of Amendment # 28 of the Gulf of Mexico Reef fish Management Plan regarding reallocation of red snapper quota from commercial to recreational fishing sector. Prepared for the Fishermen Defense Fund, Houston TX, October, 2014

Economic impacts of proposed Endangered Species Act critical habitat designation for the South Atlantic and Carolina distinct population segments of Atlantic Sturgeon; Report prepared for U.S. Dept. of Commerce, NOAA-Fisheries, Southeast Regional Office, St. Petersburg, FL; March, 2014

Economic impacts of proposed Endangered Species Act critical habitat designation for three northern distinct population segments of Atlantic Sturgeon; Report prepared for U.S. Dept. of Commerce, NOAA-Fisheries, Northeast Regional Office, Gloucester, MA; April, 2014

Environmental Benefits of Wireless Sensor-based Irrigation Networks: Case-study Projections and Potential Adoption Rates in Horticultural Technology 23(6): 783-793, December, 2013 (with J.C. Majsztrik and E.W. Price)

The Economic Impacts of U.S. ballast water regulations in Sustainable Shipping, September 14, 2013; Available at <http://www.maritime-enviro.org/reports.php> under King Ballast Water Economic publications.

Is Port-based ballast water treatment a viable option in Sustainable Shipping, May 9, 2013; Available at <http://www.maritime-enviro.org/reports.php> under King Ballast Water Economic publications.

Economic and logistical feasibility of port-based ballast water treatment: A case study at the Port of Baltimore, with Patrick Hagan, MERC Ballast Water Economics Discussion Paper No. 6, University of Maryland Reference Number: UMCES-CBL- 2013-011, May 7, 2013

The practicability loop in ballast water treatment markets. in Sustainable Shipping, July 20, 2012; Available at <http://www.maritime-enviro.org/reports.php> under King Ballast Water Economic publications.

Preview of Global Ballast Water Treatment Markets, with P. Hagan, M. Riggio, and D. Wright, Journal of Marine Engineering and Technology (JMET), Volume 12, Issue 1, January, 2012

Costs of Stormwater Management Practices in Maryland Counties, (with Patrick Hagan). A report and accompanying spreadsheet tool prepared for Maryland Department of the Environment, Science Services Administration, October 10, 2011, available online at: <http://www.mde.state.md.us/programs/Water/TMDL/TMDLImplementation/Pages/PhaseIIBayWIPDev.aspx>

Question the shipping industry should ask IMO about ballast water, (with Patrick Hagan) in Sustainable Shipping, April 11, 2011. Available at <http://www.maritime-enviro.org/reports.php> under King Ballast Water Economic publications.

Kick-starting Ballast Water Treatment Markets in Sustainable Shipping, December 17, 2010. Available at <http://www.maritime-enviro.org/reports.php> under King Ballast Water Economic publications.

“Gaming” Ballast Water Treatment Markets in Sustainable Shipping, September 8, 2010

Available at <http://www.maritime-enviro.org/reports.php> under King Ballast Water Economic publications.

Enforcement and Compliance in U.S. Commercial Fisheries: Results from Two Recent Studies. A report prepared for the Lenfest Ocean Program, August, 2010

Preliminary Overview of Global Ballast Water Treatment Markets, (with Mark Riggio and Patrick T. Hagan). MERC Ballast Water Economics Discussion Paper Number 2, June 10, 2010; Available at <http://www.maritime-enviro.org/reports.php> under King Ballast Water Economic publications.

Verifying Compliance with Ballast Water Discharge Regulations, (with Mario N. Tamburri). In Ocean Development and International Law Journal, Volume 41, Number 2, April, 2010
Available at <http://www.maritime-enviro.org/reports.php> under King Ballast Water Economic publications.

Fisheries observers as enforcement assets: Lessons from the North Pacific, (with Read D. Porter). In Marine Policy Journal, Volume 34, Number 3, 2010

Rational noncompliance and the liquidation of Northeast groundfish resources, (with Jon G. Sutinen). In Marine Policy Journal, Volume 34, Number 1, 2010

Linking optimization and ecological models in a decision support tool for oyster restoration and management, (with E.W. North, J. Xu, R.R. Hood, R.I.E. Newell, K.T. Painter, M.L. Kellogg, M.K. Liddel, and D.F. Boesch). In Ecological Applications, Volume 20, Number 3, 2010

Can the concept of ecosystem services be practically applied to improve natural resource management decisions? In Ecological Economics, Volume 69, Issue 5, 2010

Preliminary Cost Analysis of Ballast Water Treatment Systems, (with Mark Riggio and Patrick T. Hagan). MERC Ballast Water Economics Discussion Paper Number 1; December 22, 2009
Available at <http://www.maritime-enviro.org/reports.php> under King Ballast Water Economic publications.

Reassessing the Value of U.S. Coast Guard At-sea Fishery Enforcement, (with Read Porter, and Elizabeth Price). In Ocean Development and International Law Journal, Volume 40, Number 4, 2009

The Economic Structure of California's Commercial Fisheries, (with Elizabeth Price, Steven C. Hackett, and M. Doreen Hansen). A report to California Department of Fish and Game; June 3, 2009 PDF at: <http://www.dfg.ca.gov/marine/economicstructure.asp>

An Economic, Legal and Institutional Assessment of Enforcement and Compliance in Federally Managed U.S. Commercial Fisheries, (with Elizabeth Price, Anichia Van Buren, Charlotte Shearin, Kathryn J. Mengerink, Read D. Porter, Jon G. Sutinen, Andrew Rosenberg, and Jill H. Swasey). A report supported by the Lenfest Ocean Program, March 11, 2009

Managing Patuxent River Water Quality: Looking Beyond Science and Politics to the Economics of Decision-making, (with Patrick Hagan, Lisa Wainger, and Nicole Chigounis). A report to NOAA National Ocean Service, April 15, 2007

The Future of the Patuxent River - An Economic Perspective. In The Bay Journal, Volume 16, Number 2, Alliance for the Chesapeake Bay, Annapolis, MD, February, 2007

Developing Defensible Wetland Mitigation Ratios: Standard tools for "scoring" wetland creation,

restoration, enhancement, and conservation, (with Elizabeth W. Price, University of Maryland Center for Environmental Science). A report prepared for NOAA, Office of Habitat Protection, Silver Spring, MD, February, 2007

WTO Rules create Farm Bill opportunities for Bay farmers. In The Bay Journal, Volume 15, Number 8, Alliance for the Chesapeake Bay, Annapolis, MD, November, 2005

Crunch Time for Water Quality Trading. In Choices, a journal of the American Agricultural Economics Association, Volume 20, Number 1, Spring, 2005

Sparing the rod spoils the bay. In The Bay Journal, Volume 14, Number 9, Alliance for the Chesapeake Bay, Annapolis, MD, December, 2004

Developing Defensible Wetland Mitigation Ratios: A Companion to "The Five-Step Wetland Mitigation Ratio Calculator", (with Elizabeth W. Price University of Maryland, Center for Environmental Science). A report prepared for the NOAA, Habitat Protection Division, September 30, 2004

Development of Indicators to Assess Economic Vulnerabilities to Changes in Ecosystem Services: Case Study of Counties in Maryland, USA, (with Lisa A. Wainger, et. al.). In Environmental Management, Volume 34, Number 5, Springer Publishers, New York, December, 2004

Trade-Based Carbon Sequestration Accounting. In Environmental Management, Special Issue on Carbon Sequestration, a publication of Oak Ridge National Laboratory, Oak Ridge, TN, Winter 2003

Will nutrient credit trading ever work? An assessment of supply problems, demand problems, and institutional obstacles, (with Peter J. Kuch). In The Environmental Law Reporter, a journal of the Environmental Law Institute, Washington, DC, May, 2003

Economic incentives for phasing lead out of gasoline: A review of international experiences and recommendations for the government of South Africa, (with Peter J. Kuch). In South Africa's Fuel Quality Breakthrough: Phasing out Lead in Petrol, Pretoria, South Africa; January, 2003

Managing Environmental Trades: Lessons from Hollywood, Stockholm, and Houston. In The Environmental Law Reporter, a journal of the Environmental Law Institute, Washington, DC, Fall, 2002

Anatomy of "Early" Carbon Sequestration Trading: Common sense can prevent costly and embarrassing mistakes, Special Report #5. Journal of the Forum for Environmental Law, Science, Engineering, and Finance (FELSEF), Washington, DC, Summer, 2002

Comparing investments in land-based CO₂ emission offset projects: bioenergy production vs. carbon sequestration. Chapter 19 in proceedings of the Electric Power Research Institute conference on bioenergy hosted by The World Bank, November 15-16, 2001

Assessing the economic value of biodiversity using indicators of site conditions and landscape Context. Chapter 7 in The Valuation of Biodiversity Benefits, Organization for Economic Cooperation and Development (OECD). Paris, November, 2001

Priorities for Weed Risk Assessment: Using Landscape Context to assess indicators of functions, services, and values (with Lisa Wainger). Chapter 4 in Weed Risk Assessment, edited by R.H. Groves, CSIRO Publishing, Collingwood, Australia, June, 2001

Compensation for Lost Ecosystem Services: The Need for Benefit-based Transfer Ratios and Restoration Criteria, (with James Boyd, and Lisa A. Wainger). In Stanford Environmental Law Review Volume 20: Number 2, May, 2001

Wetland Value Indicators for Scoring Wetland Mitigation Trades, (with Lisa Wainger, James Salzman, and James Boyd). In Stanford Environmental Law Review, Volume 20: Number 2, May, 2001

Reforestation Frequently Flooded Agricultural Land: Will a Market for Carbon Sequestration Credits Be Enough?, (with Leonard Shabman, Laura Zepp, and Lisa Wainger). In Journal of Sustainable Agriculture, Spring, 2001

Expanding HGM Wetland Assessment: Linking Wetland Function with Services and Values, (with Lisa A. Wainger, Candy C. Bartoldus and James S. Wakeley). Army Corps of Engineers, Waterways Experiment Station, Vicksburg, MS, October, 2000: (PDF file at: <http://www.wes.army.mil/el/wetlands/pdfs/tre100-17.pdf>)

Ecosystem Valuation, award-winning report/website, (with Marisa Mazzotta), funded by U.S. Department of Agriculture, NRCS, and U.S. Department of Commerce, NOAA, July, 2000 (www.ecosystemvaluation.org)

Valuing Ecosystem Services for Decision-Making. In Proceedings of a Workshop on Management and Mitigation of Non-Indigenous Species, (with Lisa A. Wainger), Department of Defense and Environmental Protection Agency, Legacy Resource Management Program. Washington, D.C., June, 2000

The Benefits and Costs of Reforestation Economically Marginal Cropland in the Mississippi Delta, (with Lisa A. Wainger, Leonard Shabman and Laura Zepp). Delta Land Trust, Jackson, MS, August, 2000

Expanding Wetland Assessment Procedures: Landscape Indicators of Relative Wetland Value with Illustrations for Scoring Mitigation Trades, (with Lisa A. Wainger and James W. Boyd). Army COE, Waterways Experiment Station, Vicksburg, MS, April, 2000

Assessing the economic value of biodiversity using indicators of site conditions and landscape context, (with Lisa A. Wainger). In Benefit Valuation of Biodiversity Resources, Organization for Economic Cooperation and Development, Paris, France, November, 1999

Managing Risk in Carbon Sequestration Programs: The Role of Spatial and Temporal Variables in C Credit Scoring, (with Lisa A. Wainger). U.S Department of Agriculture, Natural Resources Conservation Service, Social Sciences Institute, September, 1999

Prioritizing Weed Risks: Using Landscape Context as a Basis for Indicators of Functions, Services and Values, (with Lisa A. Wainger). First International Workshop on Weed Risk Assessment, Adelaide, Australia, CSIRO Publishing. In press. August, 1999

Prioritizing Weed Threats: An Exercise in Integrated Risk Management, (with Lisa A Wainger). U.S. Department of Agriculture, Economic Research Service; University of Maryland, Center for Environmental Studies Publication Number UMCES-CBL-99-0019, January, 1999

The Dollar Value of Wetlands: Trap Set, Bait Taken, Don't Swallow. In National Wetland Newsletter, Volume 20, Number 4, July/Aug., 1998 Environmental Law Institute, Washington, D.C.

A Study of Emerging International Management Systems. Prepared for and published by the International Environmental Business and Technology Institute, Inc., Amherst, MA; February, 1998

Criteria for Certifying that Seafood Products are From Healthy, Sustainably Managed Fisheries. World Wildlife Fund (US) and Marine Stewardship Council (UK); September, 1997

The Fungibility of Wetlands. In National Wetland Newsletter, Volume 19, Number 5, Sept/Oct, 1997
Environmental Law Institute, Washington, D.C.

Valuing Wetlands for Watershed Management. In National Wetland Newsletter, Volume 19, Number 3, May/June, 1997 Environmental Law Institute, Washington, D.C.

Economic Analysis of Noxious Weed Problems. A report prepared for the U.S. Department of Agriculture, Economic Research Service, Washington, D.C. (Draft Submitted, May 5, 1997)

Comparing Ecosystem Services and Values: With Illustrations for Performing Habitat Equivalency Analysis. Technical Report prepared for the U.S. Department of Commerce-NOAA, Resource Damage Assessment and Restoration Center, Silver Spring, MD, January, 1997

The Use of Ecosystem Assessment Methods in Natural Resource Damage Assessment. Technical Report prepared for the U.S. Department of Commerce-NOAA, Resource Damage Assessment and Restoration Center, Silver Spring, MD., January, 1997

Assessing Local Sustainability: Conceptual Framework and Practical Obstacles, (with Joel Darmstadter, Ken Frederick, Ronald Lile, and Michael Toman, Resources For the Future). Technical Report, prepared for the U.S. Dept. of Interior, Washington, D.C., January, 1997

Criteria for Targeting Market-based Initiatives to Promote Sustainable Ocean Fisheries. Prepared for the World Wildlife Fund (Washington, D.C.) and the Marine Stewardship Council (London), December, 1996

Prioritizing Investments in Vegetative Riparian Buffers: with illustrations for three Chesapeake Bay subwatersheds, (with Patrick Hagan and Curtis Bohlen). Prepared for U.S. EPA, Office of Policy Analysis, Washington, D.C., December, 1996

Wetland Location and Watershed Values. Prepared for U.S. EPA, Office of Policy Analysis, Washington, D.C., November, 1996

Wetland Location and Watershed Values: Some Hidden Costs of Mitigation Banking. A report prepared for the Water Resources Institute, U.S. Army Corps of Engineers; Fort Belvoir, Alexandria, VA; May, 1996

The Role of Ecosystem Restoration Technologies in 21st Century Economies.
Proceedings of ECOSET95, Tokyo; Sixth International Conference on Ecosystem Restoration Technologies, Japan International Marine Science and Technology Federation; Tokyo, November, 1995

The Economics of Environmental Mitigation Banking, (with Paul Scodari). In Mitigation Banking: Theory and Practice, edited by Lindell March, et. al; Island Press, Washington, D.C., July, 1995

Natural Capital Indicators, (with Pierre R. Crosson). In Developing Indicators for Environmental Sustainability, Proceedings of The 1995 Resource Policy Consortium, The World Bank, Washington, D.C., June, 1995

Natural Resource Accounting and Sustainable Watershed Management: with Illustrations for the Upper Mississippi River Basin, (with Curtis C. Bohlen and Pierre R. Crosson). A report prepared for the President's Council on Sustainable Development, Washington, D.C.; February, 1995

Expanding Opportunities for Successful Wetland Mitigation: The Private Credit Market Alternative, (with Leonard Shabman and Paul Scodari). A report of the National Mitigation Banking Study of the U.S. Army Corps of Engineers, Water Resources Institute, Alexandria, VA, April, 1994

Making Sense of Wetland Restoration Costs, (with Curtis C. Bohlen). A report prepared for U.S. EPA, Office of Policy Analysis, and the U.S. Department of Energy, CEES Contribution # UMCEES-CBL- 94-045, January, 1994

The Cost of Wetland Creation and Restoration, (with Curtis C. Bohlen). A report prepared for the US Department of Energy under Contract DE-AC22-92MT92006, CEES Contribution # UMCEES-CBL- 94- 044, March, 1994

Estimating the Cost of Wetland Restoration, (with Curtis C. Bohlen). In National Wetland Newsletter 16 (3):3-5, May/June, 1994

Wetland Compensation Costs in the Southwest United States, (with Curtis C. Bohlen). A report prepared for EPA Region IX, San Francisco. CEES Contribution # UMCEES-CBL-94-051, 1994

Wetland Compensation Costs in the Southeast United States, (with Curtis C. Bohlen). A report prepared for EPA Region IV, Atlanta. CEES Contribution # UMCEES-CBL-94-049, 1994

Stream Restoration: The Cost of Engineered and Bio-engineered Alternatives, (with Curtis C. Bohlen and Mark L. Kraus). A report prepared for the EPA, Office of Policy Analysis, Washington, D.C., CEES Contribution # UMCEES-CBL-94-046, April, 1994

Compensation Ratios for Wetland Mitigation: Guidelines and Tables for Applying the Methodology in Wetland Mitigation: A Framework for Determining Compensation Ratios, (with Curtis C. Bohlen). A report prepared for the EPA, Office of Policy Analysis, Washington, D.C, CEES Contribution # UMCEES-CBL-94-047, March, 1994

A Method of Estimating Sector Contributions to National and Regional Economic Income. A report prepared for the President's Council on Sustainable Development, Washington, D.C., September, 1994

Location and Wetland Values: Some Pitfalls of Offsite Wetland Mitigation in the Chesapeake Watershed, (with Curtis C. Bohlen). In Toward a Sustainable Coastal Watershed: The Chesapeake Experiment, edited by Steve Nelson and Paula Hill, Chesapeake Research Consortium, Edgewater, Maryland, 1994

A Technical Summary of Wetland Restoration Costs in the Continental United States, (with Curtis C. Bohlen). A report prepared for the EPA, Office of Policy Analysis, CEES Contribution # UMCEES- CBL-94-048, June, 1994

Watershed Management and Wetland Mitigation: A Framework for Determining Compensation Ratios, (with Curtis C. Bohlen and Kenneth J. Adler). A report prepared for the EPA, Office of Policy, Planning and Evaluation; Washington, D.C., July, 1993

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The Use of Economic Incentives for Environmental Protection in Developing Nations, (with Pierre Crosson

and Jason Shogren). Winrock Environmental Alliance, Morrilton, Arkansas and O.E.C.D., Paris, October, 1992

Can We Justify Sustainability: New Challenges Facing Ecological Economics. In Ecological Economics, Volume II, Proceedings of 2nd Meeting of the International Society for Ecological Economics, Stockholm, August, 1992

The Economics of Ecological Restoration. In Natural Resource Damage Assessment: Law and Economics, edited by John Duffield and Kevin Ward, John Wiley Publishers, New York, April 1992

Wetland Mitigation Banks - Avoiding Another Taxpayer Bailout. In The National Wetland Newsletter, Volume 9 Number 1, Washington, D.C., January 1992

Scientifically Defensible Compensation Ratios for Wetland Mitigation, (with Kenneth A. Adler). EPA Office of Policy Analysis, Washington, D.C., March 1992

Costing Out Restoration. In Restoration and Management Notes, the Journal of the Society for Ecological Restoration, University of Wisconsin, Summer, 1991 (pp 21)

Wetland Creation and Restoration: An Integrated Framework for Estimating Costs, Expected Results, and Compensation Ratios. EPA, Office of Policy Analysis, Washington, D.C., April, 1991 (pp 79)

Sea Level Rise and Wetlands: Economic Modeling of Impacts and Response Strategies. In Climate Change and Ocean Processes: What Are the Consequences, edited by Gary D. Sharp; Texas Institute of Oceanography, February, 1991

A Method to Estimate Compensation Ratios for Wetland Mitigation Projects. EPA, Office of Policy Analysis; Washington, D.C., May, 1990 (pp 7)

Methods to Value the Aesthetic Impacts of Marine Debris on the Beach. EPA, Office of Policy Analysis; Washington, D.C., January, 1989 (pp 13)

The Economics of Global Billfish Fisheries. In Proceedings of the Second International Billfish Symposium, National Coalition for Marine Conservation, Honolulu, 1989, (pp. 33)

Toward a More Abundant Ocean: Improving Fisheries Management in California, (with Robert Knecht and Bilitiana Cicin-Sain). National Coalition for Marine Conservation, San Diego, April, 1988. (pp. 189)

Economic Impacts and Net Economic Values Associated with Washington State Salmon and Sturgeon Fisheries. State of Washington, Department of Community Development, Olympia, March, 1988 (pp 71)

U.S. Tuna Markets - A Pacific Island Perspective. In Development of Tuna Fisheries in the Pacific Islands Region, (D. Doullman, editor), University of Hawaii, East-West Center, April, 1987 (pp. 22)

Global Tuna Markets - A Pacific Island Perspective. In Tuna Issues in the Pacific Island Region, (D. Doullman Editor), East-West Center, University of Hawaii, Honolulu. April, 1987 (pp. 88)

Recent Problems in the U.S. Tuna Industry and an Outlook. 37th Annual Tuna Conference, Lake Arrowhead, California, August, 1986

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The Economic Structure of California's Commercial Fisheries, (with Virginia G. Flagg). Sea Grant Publication Number P-T-32, Scripps Institution of Oceanography, La Jolla, March, 1985

An Economic Impact Calculator for California Fisheries. Sea Grant Publication Number P-T-41, Scripps Institution of Oceanography, La Jolla, March, 1985

Evaluating the Payoff From Fishery-Related Research and Development Projects. Sea Grant Working Paper, Scripps Institution of Oceanography, La Jolla, January, 1984

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The Economic Structure of California Seaports, (with James Liedke-Konow). Sea Grant Technical Report P-T-42, California Sea Grant College Program, La Jolla, 1984

Seaport Impacts: A Broader Basis for Analysis. Sea Grant Working Paper P-T-33, Center for Marine Studies, California State University, San Diego, 1983

Alternative Products and Markets for West Coast Mackerel Landings, (with Harry A. Bateman). West Coast Fisheries Development Foundation Technical Report, 1983

A Review of Products and Markets for California Market Squid, (with Harry A. Bateman). West Coast Fisheries Development Foundation Technical Report, 1983

The International Market for Shrimp, (with Robin Rackowe). Food and Agriculture Organization of the United Nations, Fisheries Division, Rome, 1982

A Forecasting Model for U. S. Tuna Markets. Proceedings of the Thirty-Third Annual International Tuna Conference, Lake Arrowhead, California, 1982

An Interindustry Analysis of California Fisheries, (with Kenneth L. Shellhammer). Sea Grant Technical Report Number P-T-5, California Sea Grant, Institute for Marine Resources, La Jolla, 1982

An Economic Impact Calculator for California Fisheries and Seafood Industries, (with Kenneth L. Shellhammer). Sea Grant Technical Report Number P-T-6, California Sea Grant, Institute for Marine Resources, La Jolla, 1982

A Game-Theoretic Bargaining Model of Tuna Fishing in the South Pacific: Island Nations vs. Multinational Corporations, (with Fred Galloway). Proceedings of the Western Economic Association Annual Meeting, San Francisco, 1981

Trading-off Specification and Measurement Error in Bio-economic Fishing Models. Proceedings of the Western Economic Association Annual Meeting, San Francisco, 1981

Evaluating Capital Requirements in Developing Fisheries. Center for Marine Studies Technical Report, San Diego State University, San Diego, California, 1981

International Management of Highly Migratory Species: A Reply. Journal of Marine Policy, Volume 4, Number 3, July, 1980

Projecting U.S. Consumer Demand for Tuna. Center for Marine Studies Technical Report 80-3, San Diego State University, San Diego, California, February, 1980

Global Tuna Fisheries: Status, Trends and International Outlook. National Academy of Sciences, Ocean Policy Paper, August, 1980

The Development of the Papua New Guinea Tuna Fishery. United Nations, FAO Publication WS/N7173, Food and Agriculture Organization Technical Cooperation Program, Rome, Italy, 1980

International Management of Highly Migratory Species: Centralized vs. Decentralized Economic Decision-Making. Journal of Marine Policy, Volume 3, Number 4, October, 1979

An Economic Evaluation of Alternative International Management Schemes for Highly Migratory Species. S.W.F.C. Administrative Report MS293, San Diego, California, 1978

Measuring the Economic Value of the Eastern Tropical Pacific Tuna Fishery. Proceedings of the Western Division Meetings of the American Fisheries Society, July, 1978

The Economic Theory of Natural Resources Applied to Global Tuna Fisheries. Transient Tropical Tuna, Center for Public Economics, San Diego State University, San Diego, California, 1978

The Application of Polynomial Distributed Lag Models to Problems in Fish Population Dynamics. Proceedings of the Twenty-Eighth Annual Tuna Conference, Lake Arrowhead, California, October, 1977

The Economic Impact of 1978-1980 Tuna/Porpoise Regulations. W.F.C. Admin. Report LJ-77-27, San Diego, California, 1977

The Use of Polynomial Distributed Lag Functions and Indices of Surface Water Transport in Fishery Production Models with Applications for the Georges Bank Ground Fishery. Published Ph.D. Dissertation, University of Rhode Island, University Microfilms International, Ann Arbor, Michigan, 1977

Offshore Fisheries and the 200-Mile Limit. Proceedings of the Marine Science and Ocean Affairs Program, University of New Hampshire, Durham, New Hampshire, 1976

The Use of Economic-Environmental Input-Output Analysis for Coastal Planning, (with D. A. Storey). Special Report Number 40, University of Massachusetts, Water Resources Center, Amherst, Massachusetts, 1974

CLIENTS/PROJECTS (Sorted by Private Sector, Public Sector and Non-profit sector, from most to least recent)

Private Sector

Southwest Florida Joint Wetlands Venture, Prepared a report submitted to the Army Corps of Engineers that challenged certain historical and ongoing applications of the "King equation" to assign credits to Florida-based wetland mitigation banks and form the basis for the Army Corps of Engineers allowing them to be sold as legitimate offsets to wetland impacts.

American Commodities, Incorporated, Expert consultant to plaintiff in litigation involving "breach of contract"

and “fraud” associated with the overpricing and mislabeling of China-produced frozen shrimp products that were imported to the U.S.A. as products of Malaysia in order to avoid U.S. anti-dumping duties on Chinese shrimp.

Glosteng Engineering, Serving as head economist on a study funded by the Delta Stewardship Council to determine the technical, logistical, and economic feasibility of shore-based ballast water treatment at California seaports.

Hausfeld Law Offices, Expert consultant to plaintiffs (USA Direct buyers) in price fixing lawsuit involving USA sales of canned tuna and other processed seafood products by the three large foreign-based seafood companies.

EA Engineering/NOAA Managed preparation of economic sections of Programmatic Environmental Impact Statement (PEIS) for gulf coast restoration projects related to the 2010 BP Deepwater Horizon oil spill.

EA Engineering, Inc./NOAA Managed economic analysis and drafting of report to form the basis of NMFS Section 4(b)(2) Report on impacts of proposed Endangered Species Act critical habitat designation for the South Atlantic and Carolina distinct population segments of Atlantic Sturgeon.

Integrated Statistics, Inc./NOAA Managed economic analysis and drafting of report to form the basis of NMFS Section 4(b)(2) Report on impacts of proposed Endangered Species Act critical habitat designation for three northern distinct population segments of Atlantic Sturgeon.

Avatar Environmental, EPA-funded project to develop an integrated ecological risk assessment and ecosystem valuation database to allow users to find studies that can be combined using common end points.

Weston Solutions, Inc. Environmental/economic analysis of dredged material placement options, including NER (National Ecosystem Restoration) analysis to prioritize options and establish Federal cost sharing.

Oil Spill Class Action, Lead economic expert for property owners, businesses, and commercial fishermen in lawsuit for natural resource damages resulting from the April, 1999 Pepco Chalk Point Power Station Oil Spill in the Patuxent River, Maryland

Scientific Certification Systems, Oakland, California. Development of guidelines and protocols for answering production and chain of custody questions to support global seafood certification and labeling programs of the newly formed Marine Stewardship Council.

Fuji Bank, Tokyo. Analysis of competitive forces in global fisheries and fish markets, and assessment of long-term investment risks in Asian and Latin American seafood industries.

Bumblebee Seafoods, Thailand. Analysis of competitive conditions in global tuna markets and evaluation of alternative strategies for expansion and diversification of U.S. and Thai operations.

Asian Development Bank, Manila. Prepared report on tuna export opportunities for Pacific Island nations. Included price forecasts by product, type, and fish size and an assessment of most promising joint-venture strategies in the Pacific basin.

H.J. Heinz and Co., (Star-Kist, International), Pittsburgh, Pennsylvania. Analysis of international and domestic markets for raw/frozen and canned tuna and the impact of market changes on: 1) the financial performance of various national fishing fleets and seafood processing industries and 2) long-term investment and production strategies.

Lloyd’s of London, Ltd. Retained four years (1980-1984) as lead consultant and expert witness evaluating risks, estimating losses, developing settlement offers, and supporting legal proceedings related to claims of lost earnings

from high-seas fisheries and related losses in fish processing sectors.

Castle and Cooke, Inc., San Francisco, California. Analysis of recent changes in global fisheries and markets and their short-term and long-term impacts on various segments of Asian, Latin, and Pacific seafood industries.

Worldcom Corp. Use regional economic “input-output” models to estimate state-level impacts on business sales, household income, jobs, taxes, and value added if Worldcom/MIC was not allowed to restructure and come out of bankruptcy.

Zapata-Haine Corporation, Mexico City. Evaluation of investments in high seas fisheries and global fish canning facilities and assessment of trends in international seafood markets.

Asian Development Bank/United Nations. Analysis of world shrimp demand and forecast of international shrimp markets through 1985. Report supported successful expansion of global shrimp aquaculture industry during the 1980's.

Booz-Allen, Hamilton, Inc., Los Angeles. Optimization of global fish harvesting, processing, and distribution operations by Fortune 100 firm; integrated management of seafood, fishmeal, fish oil production systems.

Exxon Company, USA, California. Forecast impacts of offshore oil development on seven central California commercial fisheries. Provided basis for cash payments to fishermen for temporary fishing area preclusions.

Banpesca (National Fisheries Development Bank of Mexico). Development of a National Tuna Development Plan and financial/economic models to evaluate investment, production and financing decisions and joint venture and marketing proposals related to global tuna fisheries.

Van Camp Seafood, P.T. Mantrust, Indonesia. Analysis of global tuna fleet allocation and tuna procurement strategies using linear programming and other computerized decision models.

Exxon Company, USA, California. Post-project analysis of economic losses to commercial fishing operations from a three-year offshore oil development project in central California. Provided basis for final settlements with seven commercial fishing fleets for temporary fishing area preclusions.

Florida Wetlandsbank, Inc. Evaluation of Florida Mitigation Banking Review Team debit/credit guidelines and related methodologies, and an evaluation of their potential financial impacts on wetland mitigation ventures in Florida.

Fishermen's Cooperative Association of San Pedro. A study of alternative products and international markets for California market squid.

Southern California Investment Bank. Forecasts of risk and economic performance for selected U.S. commercial aquaculture industries.

Bechtel Group, Inc. San Francisco. Economic/financial analysis of fishery-oil conflicts associated with potential offshore/onshore facilities in Central California.

Cities Service Oil and Gas Corp. San Francisco. Economic/financial analysis of fishery-oil conflicts associated with potential offshore/onshore facilities in Central California.

Non-profit Sector

Fishermen Defense Fund (USA), Prepared paper assessing local and national economic impacts of Amendment 28 to the Gulf of Mexico Reef fish management plan which would reallocate less annual quota to commercial fishers and more to recreational fishers.

Harry R. Hughes Center for Agro-ecology, Inc. Prepare and present economic analysis of county Watershed Implementation Plans (WIPs) at 5 regional workshops in Maryland.

Maryland Environmental Services. Environmental economic analysis of dredged material placement options and GIS-based assessments of aesthetic and other localized impacts of placement alternatives.

UMCES/Campbell Foundation. Development of optimization model for prioritizing oyster restoration in the Chesapeake Bay and examining the opportunity costs of high risk oyster restoration investments.

Canaan Valley Institute. Assessment of environmental restoration alternatives in the mid-Atlantic Highlands region and develop criteria for prioritizing sites and identifying opportunities to develop export- oriented regional industries to provide ecosystem restoration materials, equipment, and skills.

Pennsylvania Environmental Council. Consultant to the PEC and local partnership organizations on projects to develop a registry, scoring criteria, and trading protocols for a prototype water quality credit trading system for the Conestoga River watershed to be used, eventually, in the Susquehanna River and Chesapeake Bay watersheds.

Florida Southwest Water Management District. Evaluation of proposed rules for sector-based water use restrictions during moderate, extreme, and severe droughts.

Civil Engineering Research Foundation (CERF) and International Institute for Energy Conservation (IIEC). Review of international experiences with the use of economic incentives for phasing lead out of gasoline, and recommendations for developing the least-cost strategy for effectively phasing lead out of gasoline in South Africa.

National Science Foundation. Develop indicators and decision-support flow charts and prototype software to help focus wetland conservation/restoration initiatives. (through University of Rhode Island).

Canaan Valley Institute. County-level assessment of ecosystem restoration opportunities and related business opportunities and economic impacts.

Center for International Environmental Law. Applications of geographic information system to prioritize and support enforcement of environmental laws.

Resources for the Future. Legally defensible non-monetary indicators of ecosystem services and values based on site/landscape characteristics.

Winrock International, Inc. Development of carbon sequestration supply function for U.S. forest and agricultural lands to support future greenhouse gas trading.

Resources for the Future, Washington, D.C. Assessing boundary and scale issues in the development of community, regional, and national environmental and economic indicators.

Organization for Economic Cooperation and Development, Paris. Evaluate current applications of economic incentives for environmental protection in developed nations and assess potential in less developed nations.

Center for International Environmental Law. Applications of geographic information system to prioritize and support enforcement of environmental laws.

Environmental Law Institute. Economics of controlling agriculture-based nonpoint source pollution, and estimates of compliance costs for various regulatory alternatives.

World Wildlife Fund/Marine Stewardship Council. Guidelines for using non-government initiatives and industry and market-based incentives to encourage sustainable world fisheries.

East-West Center, Pacific Island Development Program, Honolulu. Prepared publication describing international trade in tropical Pacific fishery products, trade opportunities for central/western Pacific Island nations, and the role of multinationals in markets for Pacific seafood.

Pacific Fisheries Development Foundation, Honolulu, Hawaii. A benefit-cost and cost-effectiveness study of eleven fisheries and aquaculture research and development projects including: Micronesia - Port Development in Truk and Ponape; Guam - Transshipping Facilities; Saipan - High-seas Fisheries; Palau - Cold Storage/Transshipping Facilities; Samoa - Near-shore Fisheries; Tinian - Transshipping Facilities.

South Pacific Forum, Solomon Islands. Feasibility studies for tuna fishery support facilities, tuna fleet development and local cold storage and transshipping operations.

World Wildlife Fund, Washington, D.C. Development and testing of criteria for certifying that seafood products were harvested in fisheries that are sustainable and well managed.

Joint Fishing-Oil Industry Committee, Santa Barbara, California. Study of fishing industry-oil industry interactions in central California area and economic impact of OCS development on financial performance of commercial fishing operations in Santa Barbara Channel and Santa Maria Basin.

South Pacific Forum, Solomon Islands. Development of computerized databases to monitor foreign fishing in 200 mile fishing zones of seventeen member nations, and bio-economic vessel budget simulators to estimate appropriate access fees for various types of fishing vessels.

West Coast Fisheries Development Foundation, Portland, Oregon. Economic potential of alternative product forms and markets for U.S.-caught Pacific and jack mackerel.

National Coalition for Marine Conservation, Pacific Region. Conduct study of alternative ocean management policies for the state of California with consideration of recreational and non-consumptive uses of the marine environment as well as commercial ocean uses.

National Academy of Sciences, National Research Council, Washington, D.C. Analysis of global tuna fisheries, international tuna markets and the role of multinational corporations in high-seas fishery development.

Pacific Marine Fisheries Commission, Portland, Oregon. Prepared report describing the economic impacts of changing global patterns of tuna harvesting and processing and documented methodology for use in studies of changes in other fisheries.

Scripps Institution of Oceanography, Office of Sea Grant, La Jolla, California. Development of regional input-output models and economic multipliers for 19 coastal communities in California using the U.S. Dept. of Agriculture "IMPLAN" economic modeling system.

Scripps Institution of Oceanography, Office of Sea Grant. 1980/1981 Development of California Interindustry

Fisheries (CIF) model. Bio-economic extension of 1980/1981 California Interindustry Fisheries (CIF) model. Financial/economic analysis of California seaports and harbors.

Environmental Law Institute, Washington, D.C. Prepare information for the revision of the 1987 "Cost of Environmental Protection Report" under contract to the EPA, Office of Policy Analysis.

President's Council on Sustainable Development. Application of natural resource accounting to evaluate alternatives for sustainable watershed management in the Upper Mississippi River Basin.

Environmental Business Council of the U. S., Boston, MA. Prepared a report for environmental industry trade organizations evaluating the legal, institutional, and technical barriers to increasing U.S. environmental technology exports.

Environmental Business Council of the U.S., Boston, MA. Analysis of technical, institutional, and market barriers to the export of U.S.-based environmental technologies.

Environmental Defense Fund, Washington, D.C. Profile conceptual and practical problems with applying Benefit-Cost Analysis to the environment.

Greenpeace, International, Amsterdam. Analysis of global high seas fishing industries and related markets and their relationships to the incidental kill of marine mammals. Strategy development for promoting "dolphin-safe" canned tuna label in U.S. markets and similar labeling initiatives in Europe and Asia.

Public Sector

Maryland Port Administration. Integrated economic and environmental analysis of environmentally beneficial dredge material placement options, including applications to protect and restore wetlands and create island habitats in the Chesapeake Bay.

Maryland Port Administration. Economic analysis of current U.S. and pending International Maritime Organization (IMO) ballast water regulations and emerging global markets for ballast water treatment technologies and other methods to manage harmful marine invasive species.

U.S. Department of Agriculture, (USDA) Lead Economist on 5 year/\$5 million study of innovative applications of wireless moisture sensor networks to guide irrigation and nutrient management decisions in the production of specialty crops and in other intensive agricultural practices.

Maryland Department of the Environment. Development of a full cost accounting framework for urban stormwater best management practices including spreadsheets to determine planning level unit cost estimates for implementing stormwater BMPs in MD counties.

Maryland Port Administration. Integrated economic and environmental analysis of environmentally beneficial dredge material placement options, including applications to protect and restore wetlands and create island habitats in the Chesapeake Bay.

U.S. Dept. of Transportation, Maritime Administration. Assess economic feasibility of converting MARAD ships and ships involved in maritime trade to use alternative fuels and establishing supply chains for providing alternative fuels to selected U.S. seaports.

Maryland Port Administration. Economics of ballast water treatment technologies for marine invasive species.

Mid-Atlantic Regional Coastal Ocean Observing System (MARCOOS). Assessing the value of physical ocean observations to users along several pathways involving fishing, fishery management, search and rescue, shipping, offshore energy, weather predictions, etc.

U.S. Department of Commerce, NOAA. Managing economic component of the Chesapeake Inundation Prediction System (CIPS), a new NOAA storm-generated flooding prediction system for the Chesapeake Bay.

Maryland Environmental Services. Environmental economic analysis of dredged material placement options and GIS-based assessments of aesthetic and other localized impacts of placement alternatives.

NOAA, Office of Habitat Protection. Development of formulae and related guidebook and software for developing science-based and legally-defensible wetland mitigation (compensation) ratios; prepare workshops for NOAA field staff on east coast (Silver Spring, MD) and west coast (Seattle, WA).

NOAA, Office of Habitat Protection. Integrated environmental/economic analysis of derelict fishing gear (ghost traps) in the Chesapeake Bay and cost/risk/benefit analysis of alternative gear identification and retrieval systems.

USDA, Economic Research Service. Develop cost/risk profiles associated with invasive weeds using Cheatgrass in the Columbia River Basin as a case study. Use cost, risk, benefit data to test potential of innovative "risk-optimizer" software to prioritize responses on agricultural and natural lands.

EPA, Regional ecosystem Vulnerability Assessment (ReVA). Use of regional environmental risk/vulnerability indices and other landscape and land use data to guide cross-media and out-of-kind environmental trades, with illustrations for North Carolina and South Carolina.

EPA, Regional ecosystem Vulnerability Assessment (ReVA). Use of landscape indicators and other measures of geographic and socio-economic heterogeneity to develop rules to guide cross-media/inter-state environmental trading involving air and water credits in 15 counties in NC and SC in the vicinity of Charlotte, NC.

NOAA, Office of Habitat Protection. Guidelines for using economic analysis to prioritize and manage habitat protection and restoration strategies.

NOAA, Office of the Administrator. Prepare report on supply and demand conditions and other economic aspects of proposed water quality credit trading programs with special focus on the Chesapeake Bay region.

U.S. Department of Agriculture, APHIS. Development of Cost/Risk and Cost/Benefit Protocols to prioritize and manage spending to control harmful invasive plants on uncultivated land (natural habitats).

U.S. EPA, Office of Atmospheric Programs, (through Stratus Consulting, Inc.). Develop a standard method to "score" carbon sequestration credits and illustrate it using a sample of early U.S.-based carbon sequestration trades.

U.S. Environmental Protection Agency, Office of Air. Economic assessment of voluntary carbon sequestration trading in the United States – comparing cost, performance, and credits under alternative "scoring" systems.

U.S. Army Corps of Engineers, Waterways Experiment Station. The development of wetland indicators to guide national/regional wetland mitigation programs and to debit /credit wetland mitigation banking trades.

Environmental Protection Agency, Office of Policy Analysis. Economic Potential of Carbon sequestration in national and international carbon trading markets: practical methods of verifying and debiting and crediting trades that involve changes in land use and farm and forest management practices.

U.S. Department of Agriculture, Economic Research Service. Develop and test a general analytical framework for assessing the economic effects of agricultural nutrient policies on fisheries and related coastal industries.

U.S. Department of Agriculture, Forest Service and Economic Research Service. An integrated cost-risk- benefit framework for prioritizing and developing response protocols related to noxious weed threats.

U.S. Department of Agriculture/NRCS. Development of an ecosystem benefit website for field office staff; including methods and examples of related to absolute (dollar-abased) and relative (non-dollar) ecosystem value estimates to guide environmental investments and to assess and compare mitigation trades.

U.S. Department of Justice, Washington, D.C. Development of ecosystem valuation methods to facilitate the settlement of natural resource damage claims; expert witness on specific cases involving coastal oil spills.

U.S. Department of Commerce, NOAA. Methods of comparing ecosystem functions, services and values and performing habitat equivalency analysis under Jan. 5, 1996 NRDA - Final Rule (15 CFR Part 990).

U.S. Army Corps of Engineers, Water Research Institute. Wetland location and watershed values: economic and environmental equity issues associated with off-site wetland mitigation banking.

U.S. Environmental Protection Agency, Office of Policy Analysis. Framework for assessing the benefits and costs of vegetative riparian buffers: with case studies for three Chesapeake Bay area sub-watersheds.

U.S. Environmental Protection Agency, Office of Policy Analysis. Relocating wetlands—the hidden costs of wetland mitigation: including case studies for the Chesapeake Bay and San Francisco Bay watersheds.

U.S. Department of Agriculture, Economic Research Service. A framework for evaluating the costs and benefits of managing noxious weeds, prioritizing problem areas, and selecting among weed management alternatives.

Government of Thailand. Economic assessment of proposed changes in U.S. tariffs and quotas related to imported processed seafood products.

Government of Papua New Guinea. Evaluation of export markets and joint venture pricing policies for shrimp, lobster and tuna.

Federated States of Micronesia. Financial feasibility and economic impact of proposed port and fishery development projects.

U.S. Dept. of Commerce, NMFS, Honolulu. Development of Linear Economic Models to analyze the potential economic impacts of statewide Limited Entry programs applied in a multifishery context (groundfish, lobster, shrimp, tuna).

U.S. Dept. of Interior, Office of Territorial Affairs, Washington, D.C. Evaluation of joint venture and marketing arrangements involving U. S. Trust Territories and multinational corporations.

U.S. Farm Credit Bank, Pacific Region, Sacramento, California. Phase I: Financial/economic analysis of fish processing and fishery-related joint venture opportunities in Asia, Europe and Latin America. Initial negotiation with potential joint venture partners for production. Phase II: Evaluation of raw/frozen and canned tuna markets in U.S., Japan and Europe; evaluation of trading opportunities and initial discussions with marketing joint venture partners.

U.S. Dept. of Commerce, NMFS, Honolulu. Prepared report describing economics of Hawaii skipjack tuna industry and identified fishery development strategies and global market opportunities.

Federal Trade Commission, Bureau of Economics, Washington, D.C. Analysis of market and non-market barriers to entering the U.S. food processing industry.

U.S. Dept. of Commerce, NMFS, Seattle. Detailed financial analysis of U.S. high seas fishing operations including bio-economic analysis based on different resource/fishing conditions and delivery/market systems at locations around the world.

U.S. Dept. of Commerce, NMFS, La Jolla, California. Survey and analysis of financial performance for west coast salmon/albacore trollers.

Federated States of Micronesia. Evaluation of U.S. and Japanese investment proposals for new port facilities and investments in national fishing industries.

United Nations, Food and Agriculture Organization, Rome, Italy. Preparation of global fisheries chapter for "U.N. Report on State of Food and Agriculture, 1980-1985."

United Nations, Food and Agriculture Organization, Rome, Italy. Evaluation of port development and seafood industry development alternatives in the southwest Pacific.

United Nations, Food and Agriculture Organization, Rome, Italy. Evaluation of proposed food processing and marketing investments in Solomon Islands and Papua New Guinea.

United Nations, Technical Assistance Program, Rome, Italy. Assessment of financial feasibility and economic impacts of alternative industrial complexes proposed for western Pacific island nations by U.S. and Japan-based multinational corporations.

U.S. Army Corps of Engineers, Water Resources Institute. Development of decision tree framework for identifying and comparing environmental restoration alternatives.

U.S. Dept. of Commerce, NOAA, NMFS. Analysis of economic data for west coast fishing industries.

U.S. Dept. of Commerce, NOAA, NMFS. A cost and earnings study of selected fish harvesting and processing industries.

Government of Solomon Islands. Evaluation of infrastructure requirements and logistical systems to support development of high seas and coastal fishing operations and seafood processing industries.

Government of Kiribati, (Gilbert Islands). Evaluation of joint-venture, fleet acquisition and fish marketing opportunities for newly formed national fisheries corporation.

State of Washington. Economic Impacts of Alternative Fishery Management Policies Related to Salmon and Sturgeon Fisheries. Conducted analysis, prepared report, and testified at Congressional and Senate hearings.

U.S. Dept. of Commerce, NMFS, Terminal Island, California. Survey and analysis of west coast shrimp and groundfish trawlers and development of economic database for vessel budget simulators.

U.S. Interstate Commerce Commission, Washington, D.C. Study of economic impacts of proposed abandonment of Eel River Line by Northwest Pacific Railroad and assessment of transportation alternatives for Humboldt

County industries.

U.S. Department of Transportation, FHWA, Environment Division, Washington, D.C. Evaluate the cost and performance of wetland mitigation and mitigation banking alternatives related to highway projects.

U.S. Department of Energy; Pittsburgh Energy Technology Center. Evaluate the costs and cost-effectiveness of wetland creation, restoration, and enhancement projects associated with mitigation for wetland impacts related to offshore oil development.

U. S. Environmental Protection Agency, Office of Policy Analysis, Washington, D.C. Integrated ecological-economic analysis of stream restoration. Evaluation of site selection criteria and the cost-effectiveness of engineered and bio-engineered alternatives.

Agency for International Development. Evaluate potential of environmental economic tools for applications involving development-environment problems in sub-Saharan Africa.

U.S. Army Corps of Engineers, Water Resources Institute. Economics of Wetland Mitigation Banks. Evaluation of economic factors affecting supply and demand for wetland mitigation credits using four case studies.

U. S. Environmental Protection Agency, Region IX (San Francisco). Regional economic profile of wetland creation and restoration activities.

U. S. Environmental Protection Agency, Region IV (Atlanta). Economics of wetland restoration and development of methodologies for estimating appropriate mitigation "compensation ratios" for wetland regulations.

U.S. Bureau of Mines. Development and testing of a training program on the economics of ecological restoration.

U.S. Department of Interior, Minerals Management Service. Estimation and valuation of potential wetland impacts from 5-year OCS oil and gas leasing program (1992-1996) in 26 OCS lease areas.

U.S. Environmental Protection Agency, Office of Policy Analysis. Development of an environmental benefits database and an analytical framework for estimating environmental protection costs.

U.S. Department of Justice, Environment Division, Washington, D.C. Develop procedures for tracing and measuring ecological-economic linkages and estimating ecosystem values to support natural resource damage claims; provide support for related litigation.

U.S. Environmental Protection Agency, Office of Emergency and Remedial Response. Prepared economic analysis for benefits chapter of Regulatory Impact Analysis (RIM) of proposed revision to regulations governing EPA's Spill Prevention Control and Countermeasures program for oil. Project included development of market and non-market benefits associated with fishing, hunting, boating, beach-use, and tourism.

U.S. Environmental Protection Agency, Office of Radiation Programs, Radon Division. Economic analysis of user fees for training and testing of radon professionals. Project required cost and market analysis for regional programs to certify contractor proficiency in the design and use of radon testing equipment.

U.S. Environmental Protection Agency, Office of Policy Planning and Evaluation. Assessment of how offshore oil development affects coastal tourism. Project involved a comprehensive review of literature and comments received at public hearings and the development of a work plan for quantifying adverse impacts on visitations

and use of coastal recreation facilities.

U.S. Environmental Protection Agency, Office of Solid Waste. Development of methods to evaluate impacts of potentially catastrophic releases of hazardous waste on wetland functions and values in order to develop location standards.

U.S. Environmental Protection Agency, Office of Policy Analysis. Development of cost/performance guidelines for evaluating wetland creation and restoration projects.

U.S. Environmental Protection Agency, Office of Policy Analysis. Assessment of methods to value economic losses associated with the aesthetic impacts of plastic debris wash-ups on U.S. beaches.

U.S. Environmental Protection Agency, Office of Air and Radiation. Economic analysis federal indoor radon measurement training and proficiency testing program.

U.S. Environmental Protection Agency, Office of Policy Analysis. Assessment of the economic impacts of medical waste tracking systems in ten Eastern States.

U.S. Environmental Protection Agency, Office of Solid Waste. Development of rapid-response economic impact and screening tools to assess the significance and incidence of industry-specific regulatory compliance costs.

State of California, Commercial Salmon Limited Entry Review Board, Sacramento. Analysis of interim salmon management regulations and evaluation of alternatives for permanent California salmon management legislation.