

Theodore D. Tomasi, Ph.D.

Managing Principal



Education and Credentials

Ph.D., Natural Resource Economics, University of Michigan, Ann Arbor, Michigan, 1984

M.A., Economics, University of Colorado, Boulder, Colorado, 1979

B.A., Environment and Public Policy, University of Colorado, Boulder, Colorado, 1978

Continuing Education and Training

University of Michigan, Institute for Social Research, summer training program in survey research

Professional Affiliations

American Economics Association
Association of Environmental and Resource Economists

Achievements and Awards

Best Paper Award from the Canadian Journal of Agricultural Economics, 1989

Ayers Brinser Award, University of Michigan, 1983

Election to Xi Sigma Pi, 1983

Resources for the Future Dissertation Fellowship, 1982

Horace H. Rackham Fellowship from the University of Michigan, 1979

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Professional Profile

Dr. Ted Tomasi has more than 30 years of experience as a natural resource economist, specializing in the valuation of natural resources and environmental changes, risk management in the context of use decisions regarding resource use, and benefit–cost analysis. Before beginning his consulting career, he served on the faculties of the University of Minnesota, University of Michigan, and Michigan State University, where he taught and conducted research on environmental policy analysis, decision-making under uncertainty, and methods for valuing ecosystem services. For the past 20 years, Dr. Tomasi has been a consultant to large private companies on environmental decision-making, including issues related to net environmental benefits of remedial decisions, the value of information in managing risks, and liability management in environmental damage cases. He has provided litigation support and expert testimony on natural resource values in numerous such matters, large and small. Among Dr. Tomasi’s other projects are climate change and carbon sequestration evaluations, sustainability in agriculture and non-point pollution control, valuing the conservation of land, and evaluating restoration and mitigation/offset programs.

Dr. Tomasi served as an advisor and economic expert for NOAA’s Damage Assessment Center and sat on expert review panels for the Type-A natural resource damage assessment (NRDA) model for both the Great Lakes and the coastal and marine environments. He has published numerous book chapters and peer-reviewed journal articles, and is a sought-after speaker in the area of environmental damage claims.

Relevant Experience

Environmental Decision-Making

Net Environmental Benefits Assessment—Contributed to the development of Net Environmental Benefits Assessment (NEBA) as an innovative tool for choosing remedial options at CERCLA and RCRA sites. Invited to give presentations on NEBA at several national conferences. Applied NEBA to evaluate remedial options at contaminated sites in Connecticut, Ohio, Michigan, and Massachusetts.

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Refugio Bay Oil Spill, California—On behalf of the responsible party, led the NRDA for a 2015 oil spill near Santa Barbara, California. Developed a decision model to advise the client on the value of additional studies to reduce uncertainties about likely damages. Presented the responsible party's technical analysis of damages in the mediation of the NRDA for this case.

ASARCO Bankruptcy, Multiple Locations—Related to a large bankruptcy proceeding, lead a team estimating remedial and natural resource damage liabilities at 15 mega-sites. Used Monte Carlo methods to specify a probability distribution of total liabilities across sites. Results were presented to the U.S. Department of Justice in support of a third-party bid to acquire assets and settle environmental claims by state and federal creditors.

Conjunctive Use of Groundwater and Surface Water under Uncertainty, Israel—Analyzed the risk management and risk-benefit issues that arise in using and valuing groundwater when surface supplies are uncertain. This led to development of the concept of the buffer value of groundwater, which then was measured for the aquifer underlying the Negev region in Israel.

Risk Management with Irreversible Decisions—Analyzed the role of irreversibility of decisions when managing risk, and studied the measurement of natural resource values in a risk-management (real options) context. The importance of learning the value of information for the timing of decisions was highlighted.

Land Valuation

Land Conservation, Texas—Developed methods for valuing land used for conservation purposes. Contributions included specifying a model of land use dynamics and associated environmental service flows that was used to scale the amount of land acquisition needed to compensate for an environmental harm.

Value of Property Donation, Delaware—Developed and applied methods for establishing the value of property donated to a public entity for conservation purposes. This has been done to value a land preservation and enhancement project as a Supplemental Environmental Project at a large industrial facility.

Value of Property Donation, Louisiana—Led a project valuing a donation of a large tract of land in Louisiana to the Nature Conservancy.

Value of Property Donation, New York—Led a project to value a donation of a parcel of land with unique ecological attributes at the confluence of the Mohawk and Hudson rivers to communities in upstate New York.

Effect of Wetlands on Urban Housing Values, Minnesota—Conducted a hedonic property value analysis in Minneapolis on the value of proximity to water-based amenities.

Groundwater Contamination and Housing Values, New Mexico—Provided litigation support on plaintiff's expert's approach to measuring damages using a hedonic property valuation model in the South Valley Superfund natural resource damage case.



Climate Change

Ecosystem Service Values of Wetlands, Louisiana—Member of a project team assisting a major oil company with evaluation of large land holdings for potential value in providing carbon sequestration and other ecosystem services.

Climate Change and Damage Assessment—Collaborating with a team preparing guidance for industrial companies on climate change and assessment of environmental liabilities associated with contaminated sites and oil spills.

Social Cost of Carbon—Member of a team advising the American Petroleum Institute on uncertainties in estimates of the social cost of carbon.

General Environmental Economics

Groundwater Valuation—Served on a scientific committee of the National Research Council of the National Academy of Sciences on valuing groundwater. In this capacity, was a contributor to a book published by National Academy Press on this topic.

Non-point Pollution Control—Investigated problems of regulating non-point source pollution. Wrote several papers on this topic with funding from the Fondazione Eni Enrico Mattei, in Milan, Italy. Employed game theory approaches to studying incentives provided by regulations for farmers to control runoff of agricultural pollutants. Conducted analyses of the benefits of controlling sediment deposition in rivers and streams, and on the design of non-point pollution policies for agricultural lands for the U.S. Soil and Water Conservation Service.

Sustainability in Agriculture, International—Served as a consultant to the International Service for National Agricultural Research in Holland on research policy implications of sustaining agricultural production. Acted as a consultant to the World Bank on the effect of uncertainty on decisions made by agricultural households and adapted an approach from operations research (dynamic programming) to evaluate these issues.

Trade Policy and Natural Resource Use—Co-investigator on a project funded by U.S. Agency for International Development. Worked on issues relating macroeconomic performance, economic growth, and natural resource use in developing countries. Conducted research on the relationship between policies directed to international trade and environmental control policies.

Political Economy of Environmental Regulations—For U.S. Agency for International Development, developed models of the interaction between political regimes and institutions, and trade and environmental policies.

Simultaneous Equation Causal Modeling of Ecological Effects, Delaware—Provided statistical expertise to a large project involving the application of ecological risk assessment and risk management approaches to physical stressors in an estuarine environment. The approach related elevated water temperatures to multiple endpoints describing water quality. This approach was used in permitting under the Clean Water Act and a point-nonpoint pollution trading analysis.



NRDA for Oil Spills

Deepwater Horizon Oil Spill, Gulf of Mexico—Principal in charge and project manager for the collection of data for the NRDA. Also served as one of two consultants on the client's strategic natural resource damage management group.

Maria Aguinda et al. v. Chevron, Ecuador—Submitted two expert reports on behalf of a client in a highly publicized case involving alleged ecosystem damages from historical oil operations in the former Napo Concession Area in the Oriente region of Ecuador. Provided support in ongoing matters related to environmental damages relevant to a bilateral treaty dispute before the Permanent Court of Arbitration in the Hague.

Texas City Y Oil Spill, Texas—Advising the responsible party on statistical matters regarding estimating injury to marine mammals and human use in an NRDA for an oil spill near Galveston, Texas.

Gravelly Run Chemical Releases, Virginia—Led the NRDA for two releases, one of ammonium bicarbonate and one of phenol, that led to fish kills in a tributary of the St. James River.

Crystal City Mineral Oil Release, Virginia—Led the NRDA for a release of mineral oil into a tributary of the Potomac River that resulted in harm to wildlife.

Lost Human Use, Multiple Locations—Led the assessment of damages for lost human uses for responsible parties on the Refugio Bay, Chalk Point, *M.V. Stuyvesant*, John Heinz, Buzzards Bay, Athos, Christina River, Bermuda Islander, and CITGO Calcasieu Estuary spills. Also, led the Trustee recreation studies for the Tampa Bay and Presidente Rivera oil spills.

Ecological Injuries, Multiple Locations—Led the use of habitat equivalency analysis to scale restoration of ecological injuries for the *M.V. Stuyvesant* and Lake Barre oil spills. Led a team conducting mortality estimates and population modeling studies for wildlife injuries on the Chalk Point, *M.V. Stuyvesant*, and Buzzards Bay oil spills. Devised a method for determining the scale of land acquisition as a restoration action for ecological losses due to the San Jacinto oil spill.

NRDA for Contaminated Sites

Damage Assessment for Dioxins and Furans, Michigan—Lead consultant on the NRDA at a complex sediment/soil site involving historical releases of dioxins and furans in the Tittabawassee and Saginaw rivers and Saginaw Bay in Michigan. This involved both ecological and human use assessments and consideration of cultural (tribal) services.

Chemical Fire, Texas—Assisted with the investigation of impacts from releases of oil and per- and polyfluoroalkyl substances (PFAS) in an estuarine system, including potential effects on water, fish, birds, sediments, and human uses of the environment.

Libby Mine, Montana—Assisting with NRDA issues at a large mining site with associated asbestos contamination, with claims filed in bankruptcy court. Evaluated damage estimates based on



contingent valuation studies by the plaintiffs' expert, and provided analysis in mediation on the matter that led to plaintiffs dropping the contingent valuation approach.

Leviathan Mine, California and Nevada—Assisting on an NRDA for acid drainage at a large mine site in the Sierra Nevada that involves ecological, recreation, and cultural (tribal) injuries.

PFAS Releases, Midwest U.S.—Leading the defense of statewide NRDA claims for releases of PFAS compounds.

Preliminary Evaluation of Damages, Minnesota—Conducted a preliminary evaluation of potential damages to a large surface water system from PFAS chemicals and potential effects on ecological and human use service provision.

Manufactured Gas Sediment Site, New Jersey—Assisting the defense of NRDA claims by the State of New Jersey that involve damages to sediments dating back more than 100 years; the matter is currently in meditation proceedings.

Urban River Damages, East Coast of U.S.—Leading the assessment of ecological and human use damages at a large and complex urban river site in a matter related to bankruptcy proceedings.

Mercury Site, Virginia and Tennessee—Assisting on the NRDA for mercury contamination in an extensive river and floodplain system in Virginia and Tennessee. This involves both ecological and human use issues.

Mercury Site, Alabama—Assisting the NRDA for mercury contamination in a river and floodplain system in in Alabama. This involves both ecological and human use issues.

Onondaga Lake, New York—Assisted with recreation injury and restoration assessments for the Onondaga Lake site.

Fox River, Wisconsin—Provided assistance to a client with a preliminary evaluation of damages associated with the Fox River site in Wisconsin.

ASARCO Bankruptcy, Multiple Locations—Led the evaluation of natural resource damages at 10 mega mining/smelting sites in the western U.S. related to the ASARCO bankruptcy. Effort supported third-party bid to acquire assets and settle environmental claims by state and federal creditors.

Port Angeles, Washington—Provided an estimate of damages using habitat equivalency analysis methods for a responsible party at a former industrial facility.

Habitat Equivalency Analysis Applications at Large Sites, Multiple Locations—Employed habitat equivalency analysis to assist clients in managing natural resource damage liability at the Chevron Port Arthur facility and the Chevron Col-Tex site.



Lost Human Use Analysis for Trustees, Multiple Locations—Conducted lost human use studies on behalf of natural resource trustees for impacts associated with the Bunker Hill Superfund site, and due to mine wastes at the Dober Mine site in Michigan.

NRDA for Groundwater

South Valley Superfund Site, New Mexico—Provided economic analysis, litigation support, and expert testimony in federal court regarding a large claim by the State of New Mexico (\$4 billion) for damages to groundwater near Albuquerque.

Groundwater Damages, Multiple Locations—Conducted analyses of groundwater damages and provided litigation support at 12 different sites in New Jersey, including expert testimony on damages at the Ewing Township site in New Jersey. This work has involved evaluation of the application of the “New Jersey Ground Water Settlement Formula” as well as developing restoration approaches for settling groundwater damage liabilities.

Other Natural Resource Damage Claims

Ecological Damages from Large Wildfires, California—Assisted in the assessment of potential injures and damages from wildfires as part of bankruptcy proceedings for a California utility.

Damages from Water and Sediment Release, Missouri—Led the assessment of damages to ecological and human use services from a catastrophic release of water from the Taum Sauk pumped-storage electricity generation facility.

Damages to Ancient Archeological Sites, California—Assisted the U.S. Department of Justice in defending a claim for damages by a tribe when work on an electric transmission line resulted in damage to several ancient archeological sites of cultural value to a tribe. Provided expert testimony in federal court evaluating plaintiff’s damage valuation methods.

Recreation

Methods for Valuing Beach Recreation, Delaware—Conducted research at the University of Delaware on methods for valuing beach recreation, incorporating the effect of knowledge of beach quality characteristics on destination choices. A sample survey was employed to collect data for the estimation of such a model.

Value of Beach Recreation, Florida—Led a project to value beaches statewide in Florida. This involved estimation of a large-scale travel cost recreation demand model for beach recreation in Florida.

Effect of Mine Waste on Recreational Use of Waterways, Michigan—Led an economic analysis of impacts of mine wastes from the Dober Mine on the value of aquatic habitat for recreation.

Acid Rain and Recreational Fishing, Minnesota—As a consultant to a power company, estimated the benefits of state acid rain control regulations. Served as an expert witness in an administrative law case in this regard.



Water Quality and Recreational Fishing, Minnesota—Led research on using recreation demand models to value water quality changes in Minnesota lakes due to changes in water clarity from nutrient loadings. This involved primary data collection via sample survey, and specification and estimation of a model of fishing demand in Minnesota. Conducted under a grant from the State of Minnesota.

Valuing Changes in Water Quality and Fishery Management on Recreational Value of Waterways, Michigan—Worked on several projects in Michigan relating to valuing water quality and fishery resources. Developed a discrete choice model of the demand for recreational fishing statewide in Michigan. The model was applicable to evaluating the benefits of fishery management decisions and analysis of the impact of surface water quality on the value of Michigan’s fishery resources.

That model was applied in the analysis of the impact of a large pumped-storage electricity generation facility, at Ludington, Michigan, on the Lake Michigan fishery. Provided expert testimony in a case surrounding the power plant and its relicensing under the Federal Energy Regulatory Commission. Co-led a team of investigators developing a recreation demand model for fishing in Michigan. This involved complex survey research and the design and implementation of statistical and economic models of fishing behavior. The model is applicable to valuing both fishery management decisions and the effect of changes in water quality on fishery resources.

Recent Expert Testimony

Deposition and testimony at trial were given in 2015 and 2018, respectively, in the matter of *Quechan Indian Tribe v. United States of America*; Case Number 02-1096; U.S. District Court for the Southern District of California.

Two expert reports were submitted to the Sucumbios Provincial Court of Justice in Ecuador on the matter of *Maria Aguinda, et al. v. Chevron Texaco Corporation*:

- Rebuttal to the calculation of supposed Economic damages due to Ecosystem losses by Mr. Richard Cabera Vega September 8, 2008.
- Rebuttal to “Evaluation of Natural Resource Service Losses related to Oil Field Development in the concession” by Dr. Lawrence W. Barnthouse.

Teaching Experience

University of Michigan: Natural Resource Economics, Forest Management, and Forest Economics (graduate and undergraduate levels).

University of Minnesota: Natural Resource Economics, Environmental Economics, and Land and Institutional Economics (Ph.D. level); Natural Resource Economics (M.A. level); and Intermediate Microeconomic Theory (undergraduate level).

Michigan State University: Dynamic Economic Models, Natural Resource Economics, and Applied Welfare Economics (Ph.D. level).



University of Delaware: Environmental Economics and Microeconomic Theory (undergraduate level).

Publications

- MacNair, D., T. Tomasi, G. Parsons, and H. Byrd. 2019. Trip equivalency analysis. In: *Natural Resource Damages: A Definitive Guide to Litigation and Resolving NRD Claims*. B. Israel (ed). American Bar Association, Section on Environment, Energy, and Resources, Chicago, IL.
- Myers, K., D. McNair, T. Tomasi and J. Schneider. 2017. Assessing the validity of stated preference data using follow-up questions. In: *Contingent Valuation of Environmental Goods: A Comprehensive Critique*. D. McFadden and K. Train (eds). Edward Elgar Publishers, Northampton, MA.
- Adamowicz, W., D. Chapman, G. Mancini, W. Munns, A. Stirling and T. Tomasi. 2008. Valuation methods. In: *Valuation of Ecological Resources: Integration of Ecology and Socioeconomics in Environmental Decision Making*. R. Stahl, L. Kapustka, W. Munns, and R. Bruins (eds). SETAC Press, Boca Raton, FL.
- Wakefield, J.R., T. Tomasi, R. Greer, and H. Byrd. 2003. Scaling primary and compensatory restoration of endangered species. pp. 209–214. In: Proc. of International Oil Spill Conference, Vol. 2003, No. 1.
- Wakefield, J.R., T. Tomasi, H. Byrd, and R. Greer. 2003. A simulation model to predict spill-induced bird mortality using beached carcass data. pp. 205–208. In: Proc. of International Oil Spill Conference, Vol. 2003, No. 1.
- Penn, A., and T. Tomasi. 2002. Calculating resource restoration for an oil discharge in Lake Barre, Louisiana. *Environ. Manag.* 29:691-702.
- Parsons, G., M. Massey, and T. Tomasi. 1999. Familiar and favorite sites in a random utility model of beach recreation. *Mar. Resour. Econ.* 14(4):299-315.
- Parsons, G., P. Jakus, and T. Tomasi. 1999. A comparison of welfare estimates from four models for linking seasonal recreational trips to multinomial logit models of site choice. *J. Environ. Econ. Manag.* 38(2):143-157.
- Smith, R., and T. Tomasi. 1999. Multiple agents and agricultural non-point source water pollution control policies. *Agricultural and Resource Economics Review* 28(1):37-43.
- Chen, K., T. Tomasi, and T. Roe. 1998. Political economy and pollution regulation: Instrument choice in a lobbying economy. In: *Designing Institutions for Environmental and Resource Management*. M. Kilgour and E. Loehman (eds). Edward Elgar Publishers, Northampton, MA.
- Jones, C., T. Tomasi, and S. Fluke. 1996. Public and private claims in natural resource damage assessments. *Harvard Environ. Law* 20(1):111-164.



Boxall, P., W. Adamowicz, and T. Tomasi. 1996. A nonparametric test of the traditional travel cost model. *Can. J. Agri. Econ.* 44(2):183-193.

Tomasi, T. 1995. Quasi-option value. In: *Handbook of Environmental Economics*. D. Bromley (ed). Basil-Blackwell, Cambridge, UK.

Smith, R., and T. Tomasi. 1995. Transaction costs and agricultural nonpoint-source water pollution control policies. *J. Agri. Resour. Econ.* 20(2):277-290.

Feather, P., D. Hellerstein, and T. Tomasi. 1995. A discrete-count model of recreation demand. *J. Environ. Econ. Manag.* 29(2):214-227.

Dosi, C., and T. Tomasi (eds). 1994. *Nonpoint Source Pollution Regulation: Issues and Analysis*. Kluwer Academic Publishers, Boston, MA.

Tomasi, T., K. Segerson, and J. Braden. 1994. Issues in the Design of Incentive Schemes for Nonpoint Source Pollution Control. In: *Nonpoint Source Pollution Regulation: Issues and Analysis*. C. Dosi and T. Graham-Tomasi (eds). Kluwer Academic Publishers, Boston, MA.

Lupi, F., H. Chen, T. Tomasi, and J. Hoehn. 1994. Site-specific qualitative variables in random utility travel cost models. *Am. J. Agr. Econ.* 76:1249-1250.

Adamowicz, W., J. Fletcher, and T. Tomasi. 1994. Functional form and the statistical properties of welfare measures: Reply. *Am. J. Agr. Econ.* 76(4):958-59.

Tsur, Y., and T. Graham-Tomasi. 1992. Buffer values of groundwater with stochastic surface water supply. *J. Environ. Econ. Manag.* 21(3):201-224.

Graham-Tomasi, T. 1991. Sustainability: Concepts and implications for agricultural research policy. In: *Agricultural Research Policy: International Quantitative Perspectives*. P.G. Pardey, J. Roseboom, and J.R. Anderson (eds). Cambridge University Press, Cambridge, UK.

Coggins, J., T. Graham-Tomasi, and T. Roe. 1991. Existence of equilibrium in lobbying economies. *Int. Econ. Rev.* 32(3):533-550.

Adamowicz, W., and T. Graham-Tomasi. 1991. Revealed preference tests of techniques for nonmarket goods valuation. *J. Environ. Econ. Manag.* 20(1):29-45.

Graham-Tomasi, T. and R. Myers. 1990. Supply-side option value: Further discussion. *Land Econ.* 66(4):205-207.

Graham-Tomasi, T., W. Adamowicz, and J. Fletcher. 1990. Errors of truncation in approximations to expected consumer surplus. *Land Econ.* 66(1):50-55.



Fletcher, J., W. Adamowicz, and T. Graham-Tomasi. 1990. The travel cost model of recreation demand: Theoretical and empirical issues. *Leisure Sci.* 12(1):119-147. (Senior authorship unassigned)

Adamowicz, W., T. Graham-Tomasi, and J. Fletcher. 1989. Inequality-constrained estimation of consumer surplus. *Can. J. Agri. Econ.* 37(3):407-420. (Senior authorship unassigned)

Adamowicz, W., J. Fletcher, and T. Graham-Tomasi. 1989. Functional form and the statistical properties of welfare measures. *Am. J. Agr. Econ.* 71(2):414-21. (Senior authorship unassigned)

Graham-Tomasi, T. 1988. A theoretical and empirical approach to the value of information in risky markets: A comment." *Rev. Econ. Stat.* 70(3):543-545.

Ramirez, J., W. Adamowicz, K.W. Easter, and T. Graham-Tomasi. 1988. An ex-post analysis of flood-control: Benefit-cost analysis and the value of information. *Water Resour. Res.* 24(8):1397-1405.

Roe, T., and T. Graham-Tomasi. 1986. Yield risk in a dynamic model of the agricultural household. In: *Agricultural Household Models: Issues, Analysis and Policy*. I. Singh, et al. (eds). Johns Hopkins University Press, Baltimore, MD. (Refereed research monograph)

Graham-Tomasi, T., C.F. Runge, and W. Hyde. 1986. Foresight and expectations in models of natural resource markets. *Land Econ.* 62(3):234-249.

Graham-Tomasi, T. 1984. The value of information in risky markets: Discussion. *Am. J. Agr. Econ.* 66(5):724-725.

