

Education

Ph.D., Management Science, Graduate School of Business, University of Chicago, 1997.

M.B.A., Graduate School of Business, University of Chicago, 1991.

B.S., Industrial Engineering, Northwestern University, 1981.

Expertise

Operations research, resource allocation, linear and integer programming, combinatorial optimization, stochastic optimization, dynamic programming, network algorithms, data analytics, clustering algorithms, column generation.

Pricing mechanisms, combinatorial auctions, smart markets, electricity markets, revenue management.

Problems of the commons, climate change, pricing of externalities, managing transaction costs, tradable rights related to the environment, allocation of water resources, hydrological optimization.

The flow of work, industrial engineering, just-in-time production, bucket brigades, process improvement, complexity reduction, productivity improvement, project management.

Supply chains, supply chain risk, supply chain metrics, logistics; inventory management, excess inventory, critical inventory; production management, capacity planning.

Vehicle and personnel scheduling, scheduling of training, transportation optimization, facility location.

Disaster response and recovery, readiness and responsiveness, civilian government processes for disaster response, FEMA processes. Army and Air Force training and material readiness and logistics.

Awards, honors

2025 MS Business Analytics Superior Teaching Award, Simon Business School.

2019 RAND Medal Award, Key Contributor, Puerto Rico Recovery Planning project.

2019 RAND Medal Award, Key Contributor, Army Greens Uniform project.

2011 Best Publication Award in Energy, INFORMS, with Mark Milke and E. Grant Read.

1997 Fellowship, National Research Council, National Academy of Sciences.

1997 Unisys, Achievement Award for Excellence.

1985 USPS Certificate of Appreciation.

Work experience

Visiting Professor of Operations Management, Simon Business School, University of Rochester, Oct 2021 to July 2025.

Operations Researcher, Adjunct, RAND Corp., Santa Monica, CA, 2021 to 2023.

Senior Operations Researcher, RAND Corp., Santa Monica, CA, 2013 to 2021. A wide variety of work in advanced data analytics, operations research, logistics, supply chains, national security, and emergency response.

Visiting Associate in Economics, Division of the Humanities and Social Sciences, California Institute of Technology, Oct-Dec 2011, unpaid sabbatical appointment. Studied economic mechanism design.

Consultant to industries, e.g., reducing waste from cutting steel stock and timber, optimization for insurance company portfolios, train transport of liquids requiring blending, optimization of urban reservoir operations and water recycling, ecological planning of a lake including community engagement, 1992-2012.

Senior Lecturer Above the Bar, Management Science, Dept. of Management, Univ. of Canterbury, Christchurch, New Zealand, Jan 2009 to Dec 2012. Taught optimization and decision analysis to undergraduates and graduates in commerce and engineering. Taught production management and quantitative methods to MBAs. Supervised graduate students.

Senior Lecturer, Management Science, Dept. of Management, Univ. of Canterbury, Christchurch, NZ, Jan 2004 to Dec 2008. Taught optimization and decision analysis to undergraduates and graduates in commerce and engineering. Taught production management and quantitative methods to MBAs. Supervised graduate students.

Lecturer, Management Science, Dept. of Management, Univ. of Canterbury, Christchurch, NZ, Aug 1998 to Dec 2004. Taught optimization and decision analysis to undergraduates and graduates in commerce, engineering, and forestry. Taught production management and quantitative methods to MBAs.

Research Fellow, Naval Postgraduate School, Monterey, CA, July 1997 to July 1998. Supported by the National Research Council (National Academy of Sciences), Washington, D.C. Developed a scheduling system for Army tank battalions using integer programming in Java. Determined ways to rigorously measure and improve military readiness. Supervised three masters students.

Modelling analyst, Unisys Corp., Elk Grove Village, IL, Oct 1994 to June 1997. Implemented optimization models for facility location. Implemented forecasting and inventory control formulas. Conducted world-wide facility location studies. Programmed multiechelon inventory control (C, FoxPro).

Consultant, RAND Corp., Systems Sciences Dept, Santa Monica, CA. Used integer programming to study readiness of Army battalions to quantify the relationship of readiness to input resources. June 1990 to June 1997.

Lecturer in Management Science, GSB, Univ. of Chicago. Taught five MBA business calculus courses to MBA students. Spring 1991 to Summer 1992.

Intern, RAND Corp., Systems Sciences Dept., Santa Monica, CA. Created a heuristic algorithm to schedule military training exercises. July to September 1990.

Operations Analyst, U.S. Postal Service, Operations Planning, Central Region Headquarters, Chicago, IL. Prioritization of new facilities, simulations to evaluate accounting effects of new automation. June 1986 to September 1988.

Industrial Engineer, U.S. Postal Service, Engineering Div., Central Region Headquarters, Chicago, IL. Employee scheduling, machine utilization studies, production control, methods improvements, facility layouts. July 1981 to June 1986.

Teaching and Mentoring

Visiting Professor of Operations Management, Simon Business School, University of Rochester, Oct 2021 to present. Masters-level courses.

- OMG 402 Operations Management, Fall B 2022, Fall B 2023, Spring B 2024, Summer 2024.
- OMG 411 Supply Chain Analytics, Fall B 2021, Spring B 2022, Spring A 2023, Spring A 2024.

- OMG 412 Service Management, Spring B 2022, Fall B 2023.
- OMG 413 Operations Strategy, Spring A 2022, Spring A 2023.

Professor, Pardee RAND Graduate School, 2014-present.

- 2021, Policy Analysis for Climate Change, with R. J. Briggs and Scott Stephenson.
- 2017, Computational Methods for Operations Research and Data Science (using Python), with Jia Xu.
- 2014 and 2016, Smart Markets and Combinatorial Auctions.

PRGS PhD committees

- Lauren Kendrick, 2018, “Ammonia Emissions from Industrial Hog Farming Efficacy of Voluntary Control Strategies.”
- Katie Loa, 2022, “Ovens and Tinderboxes in the Golden State: An Exploratory Analysis of Joint Climate Hazard Power Outage Events.”

RAND Summer Associates (PhD students): Jonathan Welburn, 2013; Amelia Musselman, 2014; Armando Bernal, 2015; Chelsea Kolb, 2016; Alejandro Vigo Camargo, 2019; Rhoann Kerh, 2019.

University of Canterbury

- Principal, Water Markets Research Group, University of Canterbury, 2005-2012. Various administrative duties, University of Canterbury, 1998-2011.
- PhD co-supervisor, Indra Mahakalanda 2011-2013, “An Integrated Water-Electricity Market Design for Multi Reservoir, Mixed Operation.”
- PhD supervisor, Antonio Pinto 2009-2013, “Market Mechanisms to Allow Trading of Impervious Cover.”
- PhD supervisor, Ranga Prabodanie 2006-2011, “A Market Mechanism for the Optimal Control of Groundwater and Surface Water Pollution from Nitrates.”
- PhD supervisor, Mohammad Babul Hasan 2004-2007, “Optimization of Production Planning for a Quota-Based Integrated Commercial Fishery.”
- PhD supervisor, Hamish Dean 1999-2001, “Minimizing Waste in the 2-Dimensional Cutting Stock Problem,” First Place, ORSNZ Young Practitioner Prize 2001; Hamish now operates ShapeShifter Technology, Ltd.
- Masters co-supervisor, Master of Commerce, Barbora Gabzdylova 2007, “Corporate Social Responsibility: Environmental Concern in New Zealand’s Wine Industry.”
- Masters co-supervisor, Tsung-Han Chang 2002-2003, “Modelling and Presenting Mathematical Programs with XML:LP.”
- Supervised 25 student projects in Honours, Masters, and MBA.

Masters’ thesis advisor, Naval Postgraduate School, Monterey, CA. Supervised three students’ theses: scheduling Navy air squadron training, planning ammunition movements in the Western Pacific fleet, and privatizing military housing on the Monterey Bay peninsula. September 1997 to November 1998.

Lecturer in Management Science, Graduate School of Business, University of Chicago. Taught five business calculus courses to MBA students. Taught tutorials on optimization and production to Executive MBA students. Spring 1991 to Summer 1992.

Course subjects taught:

- Financial applications of operations research, to graduate students in commerce.
- Smart Markets and Combinatorial Auctions, graduate students of public policy.
- Energy modeling, to graduate students in commerce.
- Data science using Python, graduate students of public policy.
- Policy Analysis for Climate Change, graduate students of public policy.
- Linear and integer programming, basic at undergraduate and graduate students in commerce, forestry, and engineering.
- Linear and integer programming, advanced, e.g., Dantzig-Wolfe and Benders algorithms and the traveling salesperson problem, to graduate students in commerce.
- Optimization modelling applications, undergraduate commerce students.
- Forecasting and decision analysis, undergraduate commerce students.
- Production and quality management, undergraduate and graduate (including MBA) students in commerce and engineering.
- Production and operations management, MBA students.
- Project management, undergraduate students in engineering.
- Quantitative methods, Seafood Masters, MBA.
- Business calculus, MBA.
- Seminars on writing, writing theses, how best to use spreadsheets, presentations with PowerPoint, elements of visual graphics, advanced use of Microsoft Word.

Programs I have taught in: undergraduate and graduate commerce; MBA, international MBA; undergraduate engineering; undergraduate forestry; Seafood Masters; Masters of Engineering Management; PhD in commerce and public policy.

Refereed articles

Unpublished RAND research cannot be listed. Topics covered disaster recovery and robust reconstruction of electric grids, water infrastructure, and roads; electrical efficiency in buildings; military supply chains and inventory management; civilian government and military administrative processes; procurement processes.

Main works are in bold.

Raffensperger, John F.; “**A price on warming with a supply chain directed market,**” *Discover Sustainability*, 2:2, 2021, <https://link.springer.com/article/10.1007/s43621-021-00011-4>. This paper proposes a state-of-art auction platform for contracts to emit greenhouse gasses and sequester carbon dioxide; the auction limits global temperature rather than emissions per se. The paper further proposes a fast implementation path beginning with private sector supply chains. Perhaps my most important work.

Raffensperger, John F., Marygail K. Brauner, and R. J. Briggs, “**Planning Hospital Needs for Ventilators and Respiratory Therapists in the COVID-19 Crisis,**” PE-A228-1, RAND Corp., Santa Monica, CA, 2020. Queuing theory applied to allocating ventilators.

Raffensperger, John F., Joshua Girardini, and Jason Mastbaum, “**New metrics and visualizations to help the Army reduce customer wait time,**” RR-2778-A, RAND Corp., Santa Monica, CA 90405, 2020. Queuing theory applied to the supply chain.

Preston, Benjamin, Michelle Miro, Paul Brenner, Christopher Gilmore, John F. Raffensperger, Jaime Madrigano, Alexandra Huttinger, Michael Blackhurst, David Catt, “Beyond Recovery: Transforming Puerto Rico’s Water Sector in the Wake of Hurricanes Irma and Maria,” RR-2608-DHS, RAND Corp., Santa Monica, CA, 90401.

Raffensperger, John F., R.A. Ranga Prabodanie, Jill A. Kostel, “**A smart market for nutrient credit trading to incentivize wetland construction**,” *J. of Hydrology*, v. 546, Mar 2017, pp. 248–261, <http://www.sciencedirect.com/science/article/pii/S0022169417300045>. Nutrient credits were continuous variables and easily priced, but the wetland selection was a binary variable, requiring special care to price in the auction.

Brauner, Marygail K., John F. Raffensperger, and Edward W. Chan, “Inventory reduction without regret: balancing storage and rebuy costs,” RAND PE-138-A, RAND Corp., 2015. Part of a larger work in which we developed a decision framework to decide how much inventory to discard. We addressed both consumables and repairables, but could not publish the full paper.

Loredo, Elvira N., John F. Raffensperger, Nancy Y. Moore, “Measuring and managing Army supply chain risk: a quantitative approach by item number and commercial entity code,” RAND RR-902-A, RAND Corp., 2015. Risk was hierarchical by supplier, part, and equipment system.

Lumbroso D. M., C. Twigger-Ross, John F. Raffensperger, J. J. Harou, M. Silcock, and A. J. K. Thompson, “**Stakeholders’ Responses to the Use of Innovative Water Trading Systems in East Anglia, England**,” *Water Resources Management*, Apr 2014. We tested a smart market for water with users. A sophisticated exercise in graph theory and GIS.

Pinto, Antonio, John F. Raffensperger, Thomas Cochrane and E. Grant Read, “**A proposed smart market design for sediment discharge**,” *J. Water Resources Planning and Mgmt*, 139:1, pp. 96-108, Jan 2013. The problem is not well known, yet it will become more important as coasts fall into the sea.

Prabodanie, R. A. Ranga, John F. Raffensperger, E. Grant Read and Mark W. Milke, “**LP models for pricing diffuse nitrate discharge permits**,” *Annals of Operations Research*, Aug 2011. A long way from implementation, state regulators will eventually see this as the best way to protect watersheds from runoff.

Raffensperger, John F., “**Matching Users’ Rights to Available Ground Water**,” *Ecological Economics*, 70:6, pp. 1041–1050, 15 April 2011. This important paper shows how to assign rights to a complex resource using constraint rights. The structure of the optimization defines what is tradable.

Raffensperger, John F., and Thomas Cochrane, “**A Smart Market for Impervious Cover**,” *Water Resources Management*, v. 24, no. 12, pp. 3065-3083, Sep 2010. This paper laid the groundwork for Antonio Pinto’s PhD thesis. Overall, the work shows how to greatly reduce the cost of flood.

Raffensperger, John F., “**The Generalized Assortment and Best Cutting Stock Problems**,” *International Transactions of Operations Research*, 17:1, pp. 35-49, Jan 2010. I was too late on publishing a column generation algorithm from my thesis, so I published a generalization of it.

Prabodanie, Ranga, John F. Raffensperger, and Mark Milke, “**A Pollution Offset System for Trading Non-point Source Water Pollution Permits**,” *J. of Env. and Resource Economics*, 45:4, pp. 499-515, 2010.

Raffensperger, John F., Mark W. Milke, and E. Grant Read, “**A Deterministic Smart Market Model for Ground Water**,” *Operations Research*, 57:6, pp. 1333-1346, Nov-Dec 2009. Winner best paper prize, INFORMS ENRE section, 13 Nov 2011. A major work subsumed by my book. The clearing model is analogous to the clearing model for wholesale electricity.

Gabzdylowa, Barbora, John F. Raffensperger, and Pavel Castka, “Sustainability in the New Zealand wine industry: drivers, stakeholders and practices,” *J. of Cleaner Production*, 17:11, July, 2009. One of my least important papers yet perhaps the most cited.

- William, Gerard, Mark Milke, and John F. Raffensperger, "Survey of New Zealand Hydrologists on Water Policy and Information Needs," *NZ Journal of Hydrology*, 48:1, pp. 1-12, 2009.
- Raffensperger, John F., and Pascal Richard, "Constructive complexity: a metric for spreadsheet model design," *International Journal of Information and Operations Management Education*, 2:4, pp. 388-406, 2008.
- Hasan, Md. Babul, and John F. Raffensperger, "**Two Pricing Methods for Solving an Integrated Commercial Fishery Planning Model**," *ORiON*, v24, n2, 2008, pp. 115-130, <http://www.orssa.org.za>. A contribution in column generation and integer programming.
- Raffensperger, John F., "The Least-Cost Low Carbohydrate Diet Is Expensive," *Nutrition Research*, 28:1, pp. 6-12, Jan 2008.
- Raffensperger, John F. and Linus Schrage, "**Scheduling Training for a Tank Battalion: How to Measure Readiness**," *Computers & Operations Research*, 25:6, pp. 1844-1864, June 2008. An algorithmic contribution in column generation and a major contribution to military readiness.
- Hasan, Md. Babul, and John F. Raffensperger, "A Decomposition-Based Pricing Method for Solving a Large-Scale MILP Model for an Integrated Fishery," *J. of Applied Math and Decision Sciences*, 2007. A contribution in column generation and integer programming.
- Lee, Jon, and John F. Raffensperger, "**Using AMPL for teaching the TSP**," *INFORMS Transactions on Education*, 7:1, 2006. Teaching the dimensions of the traveling salesperson problem.
- Hasan, Md. Babul, and John F. Raffensperger, "A mixed integer linear program for an integrated fishery," *ORiON*, 22:1, June 2006.
- Dean, H.T., Tu, Y., and John F. Raffensperger, "An improved method for calculating the no-fit polygon," *Computers & Operations Research*, 33:6, pp. 1521-1539, 2006.
- Raffensperger, John F. and Mark Milke, "A Design for a Fresh Water Spot Market," *Water Science & Technology: Water Supply*, 5:6, pp. 217-224, 2005.
- Raffensperger, John F., and Pascal Richard, "Implementing Dynamic Programs in Spreadsheets," *INFORMS Transactions on Education*, 5:2, 2005. See also Raffensperger, John F., and Richard, Pascal, "Errata: Implementing Dynamic Programs in Spreadsheets," 5:2, Jan 2005.
- Raffensperger, John F., "New Guidelines for Spreadsheets," *International Journal of Business and Economics*, 2:2, pp. 141-154, 2003.
- Raffensperger, John F., and Scott H. Swords, "**Scheduling Prowler Training**," *Naval Research Logistics*, 50, 4, 289-305, 2003.
- Raffensperger, John F., "Slow Snow Sliders - the Newsboy hits the New Zealand ski slopes," *Management Case Quarterly*, v. 5, no. 4, p. 47, 2002.
- Raffensperger, John F., and Linus Schrage, "**A new paradigm for measuring military readiness**," *Military Operations Research*, v3, n5, pp21-34, 1997. A major contribution to military readiness.
- Raffensperger, John F., *Measuring and improving the readiness of emergency organizations*, Ph.D. dissertation, Graduate School of Business, University of Chicago, 1997.
- Raffensperger, John G., M.D., and John F. Raffensperger, "Who Should Pay for Resident Education?" *J. of Pediatric Surgery*, XIX, 6, 1984. How do medical residents spend their time?

Books

- Raffensperger, John F., ***GEO-X: How 10 Big Firms Can Lead Us to End Global Warming***, 15 Aug 2023, ISBN 979-8-9882055-1-7. On Amazon Kindle, Google Books, and Apple Books. We can still hope.

Raffensperger, John F., *The Art of the Spreadsheet: Writing, Editing, and Auditing*, Amazon, 3 May 2023, ISBN-13 979-8988205531, <https://a.co/d/dw55674>. A high-quality color book showing how to bring visual immediacy to spreadsheets, following classical rules for writing text, basic algebra, and good graphics.

Raffensperger, John F., and Mark W. Milke, *Smart Markets for Water Resources: A Manual for Implementation*, Springer International Publishing, 2017, ISBN 978-3-319-55007-7, <http://www.springer.com/us/book/9783319550077>. I like to think that this will stand the test of time.

Book chapters

Raffensperger, John F., “The economic value of dietary supplements,” book chapter, in *Nutrients, Dietary Supplements, and Nutraceuticals*, ed. Ronald Ross Watson Ph.D., Univ. of Arizona, Springer, 30 Nov 2010.

Raffensperger, John F., “Just-in-time or JIT, Kanban,” invited contribution, in HG Daellenbach & RL Flood (Ed.), *The Informed Student Guide to Management Sciences*, p. 159, Cornwall, GB: Thomson Press, 2002.

Raffensperger, John F., “Spreadsheets,” invited contribution, in HG Daellenbach & RL Flood (Ed.), *The Informed Student Guide to Management Sciences*, p. 253, Cornwall, GB: Thomson Press, 2002.

Conference papers – refereed

Raffensperger, John F., “Participation in a Corporate Climate Club,” Academy of Sustainable Finance, Accounting, Accountability and Governance, American Chapter Conference 2024, 29 Feb -2 Mar 2024, Miami, FL.

Raffensperger, John F., “Matching Users’ Rights to Available Ground Water with a Smart Market,” 2nd International Conf. on Water Economics, Statistics & Finance, Alexandroupolis, Greece, 3–5 July 2009.

Raffensperger, John F., “**PLOVER 2k: Planning Openings and Values for Ellesmere’s Resilience**,” keynote presentation, Living Lakes Symposium 2, Lincoln University, Lincoln, New Zealand, 4 Nov 2009, <http://www.wet.org.nz/wp-content/uploads/2010/11/Summary-of-2009-symposium-Aug-2010.pdf>.

Prabodanie, R. A. Ranga, John F. Raffensperger, and Mark W. Milke, “Simulation-Optimization Approach for Trading Point and Non-point Source Nutrient Permits.” 18th World IMACS / MODSIM Congress, Cairns, Australia 13-17 July 2009.

Prabodanie, Ranga, and Raffensperger, John F., “Cleaning the Water: a Smart Market for Nitrates,” MODSIM Conference 2007, Christchurch NZ.

Plagmann, Manfred, and Raffensperger, John F., “**A Smart Market for Ground Water using the Eigenmodel Approach**,” MODSIM Conference 2007, Christchurch NZ.

Gabzdylova, Barbora, John F. Raffensperger, and Pavel Castka, “Corporate social responsibility: environmental concern in New Zealand’s wine industry,” Australian & New Zealand Marketing Academy (ANZMAC) Conference 2007, Dunedin, NZ, 3-5 December 2007.

John F. Raffensperger and Mark Milke, “How to Solve Our Water Crisis: a Demo Spot Market for Ground Water,” 23 May 2006, MODFLOW and More 2006 Conference, International Ground Water Modeling Center, Colorado School of Mines, Colorado.

Hasan, M.B., and Raffensperger, J.F., “Relaxation and Decomposition Methods for Solving MILP for an Integrated Fishery” 2006 Computational and Technology Application Conference, from 2-5 July 2006, Townsville, Queensland, Australia.

John F. Raffensperger and Mark Milke, “National Workshop on Consent Trading: New Options for New Zealand,” *NZHS-LAH-NZSSS Auckland 2005 Conference*, 28 Nov 2005.

John F. Raffensperger and Mark Milke, “Trading of consented groundwater allocations via auctions,” *Auckland: NZHS-LAH-NZSSS Auckland 2005 Conference*, 28 Nov - 2 Dec 2005.

Raffensperger, John F., Milke, Mark, “A Design for a Fresh Water Spot Market,” Rethymno, Crete: *International Water Association Conference on Economics, Statistics, and Finance*, July 2005.

Chang, H., Raffensperger, J.F. and Churcher, N., “Displaying linear programs and their solutions with XML and SVG,” *InVis.au2004: Proceedings of the Australasian Symposium on Information Visualisation*, vol. 35 of *Conferences in Research and Practice in Information Technology*, Christchurch, NZ, 2004.

Raffensperger, John F., “New Guidelines for Spreadsheet Style,” *Proc. of the European Symposium on Spreadsheet Risks*, Amsterdam, July, 2001, pp. 61-76.

Conference papers and presentations – unrefereed

Raffensperger, John F., R. A. Ranga Prabodanie, Jill A. Kostel, “Smart Markets’ for Nutrient Trading,” ACES Conference, Jacksonville, FL, Dec 2016.

Créquer, John, and John F. Raffensperger, “Innovative operational research methods to create the 2013 Census field scheme,” 2014 Joint NZSA+ORSNZ Conference, 23-26 Nov 2014, Victoria University of Wellington, New Zealand.

Pinto, A., Raffensperger, J.F., Cochrane, T.A., Dye, S. and Read, E.G., “Propuesta de un modelo de mercado restringido ‘Smart Market’ para usos del suelo considerando lluvias inciertas.” Universidad de Concepción, Concepción, Chile: X Congreso del Instituto Chileno de Investigación Operativa Optima 2013 VI Red-M, 27-30 Oct 2013.

Raffensperger, John. F., and Read, E. Grant, “Smart Markets for Hydrological Resources: Mechanisms and Applications,” invited presentation (full expenses), Carleton Connect Water Research Workshop, University of Melbourne, Australia, 21-22 Oct 2013.

Raffensperger, John F., and Darren Lumbroso, “Notes on a UK water market demo,” ORNSZ Conference 2012, Wellington, New Zealand, 3-4 Dec 2012.

Dye, Shane, P.R. Jackson, R. James, I. Mahakalanda, A. Pinto, J.F. Raffensperger, E.G. Read, R.A. Read and S.R. Starkey, “Integrated Modelling of Electricity and Water Markets: A Progress Report From Canterbury,” EPOC Winter Workshop, Auckland, NZ, 2012, www.epoc.org.nz/ww2012.html.

Raffensperger, John F. “Smart Markets for Hydrological Resources,” presented to:

- 8 & 23 Sep 2011, Mgmt Engg Dept and Env Engg Dept., Denmark Technical University.
- 27 Sep 2011, Dept. for Environment, Food and Rural Affairs, UK, at Univ. College London.
- 17 Dec 2011, Division of Humanities & Social Sciences, California Institute of Technology.

Starkey, S.R., S. Dye, E.G. Read, J.F. Raffensperger, and B.J. Ring, “Enhancing Urban Water Allocation: An Evolving Framework for Trading Stochastically,” 19th Triennial IFORS Conference, Melbourne, Australia, 10-15 July 2011.

Raffensperger, John F., “How water markets will reduce risk and drive infrastructure investment,” invited presentation, Water Infrastructure Investment & Planning Conference, 27-28 June 2011, Wellington, NZ. I gave the same presentation again the same day to Ministry of Agriculture & Forestry, Wellington, NZ.

Raffensperger, John F., “**Outline of a market for ecological connectivity**,” ORSNZ Conference, Auckland, NZ, 29-30 Nov 2010.

Teasley, Rebecca, John Raffensperger, and Mark Milke, “A Smart Market for Ground and Surface Water with Hydropower Generation,” ASCE World Environmental and Water Resources Congress, 16-20 May 2010, Providence, Rhode Island.

Teasley, Rebecca, Mark Milke, John Raffensperger, Marieh Zargar, “Common Pool Water Markets and Their Role in Facilitating Land Use Change in Drying Climates,” poster presentation, American Geophysical Union, Fall Meeting, 13-17 Dec 2010, San Francisco.

Zargar, Marieh, Rebecca Teasley, Mark Milke, John F. Raffensperger, “Varying Water User Demand Curves in a Groundwater Smart Market,” NZ Hydrological Soc. Conf., Dunedin, NZ, 6-10 Dec 2010.

Raffensperger, John F., “A Smart Market for Ground & Surface Water,” English and Chinese, given at (1) Peking Univ. Center for Water Research, Beijing, 22 June 2010, and (2) Chinese Univ. of Geosciences, Wuhan, 2 July 2010.

Raffensperger, John F., “The Forever Fair Water Consent Trading System,” invited presentation, NZ Fresh Water Management Forum, 15-16 Feb 2010, Wellington, New Zealand.

Raffensperger, John F., and Hughey, Kenneth, “**Modelling Values of Lake Ellesmere**,” ORNSZ Conference 2009, Christchurch, New Zealand, 3-4 Dec 2009, pp. 148-158.

Prabodanie, R. A. Ranga, and Raffensperger, John F., “Can Markets in Agricultural Discharge Permits be Competitive?” ORNSZ Conference 2009, Christchurch, New Zealand, 3-4 Dec 2009, pp. 182-189.

Pinto, Antonio, John F. Raffensperger, Thomas Cochrane, and Shane Dye, “**A Proposed Smart Market for Impervious Cover Runoff under Rainfall Uncertainty**,” Proceedings of the ORNSZ Conference 2009, Christchurch, New Zealand, 3-4 Dec 2009, pp. 190-199.

Raffensperger, John F., “**A fast column generation algorithm for the regionalization problem**,” 20th International Symposium on Math Programming, Chicago, IL, 23-28 Aug 2009. This work, unpublished, was implemented (C++ and AMPL) for Statistics New Zealand, which needed decision support to plan the census. It was a success algorithmically and managerially.

Raffensperger, John F., “Generalized smart markets for water resources,” INFORMS Conference, Washington D.C., 12-16 Oct 2008.

Pinto, Antonio, Thomas Cochrane, John F. Raffensperger, “A Proposed Smart Market for Sediment Discharge,” ORSNZ Conference, Victoria University, Wellington, NZ, 24-25 Nov 2008.

Raffensperger, John F., “A new algorithm for the collection area problem,” ORSNZ Conference, Victoria University, Wellington, NZ, 24-25 Nov 2008.

Raffensperger, John F., “Measuring & improving training readiness,” to Joseph Angello, Deputy Secretary of Defense for Readiness, Office of the Secretary of Defense, Washington D.C., 16 Oct 2008.

Raffensperger, John F., “Minimum spanning tree in a spreadsheet? The limits of spreadsheet modeling,” INFORMS Conf., Washington D.C., 12-16 Oct 2008.

Raffensperger, John F., “Water allocation & hydrological optimization,” invited lecture, Dept. of Civil Engineering, Michigan Technological University, 3 Oct 2008.

Raffensperger, John F., “An operations research framework for water ethics,” invited presentation, PKU-UNESCO Int’l Symposium on Ethics of Water Resource Mgmt, 6 Nov 2007, Beijing, China.

Raffensperger, John F., “Smart Markets – the Answer to Australia’s Water Crisis,” Conference of the Australian Society for Operations Research, 3-5 Dec 2007, Melbourne, Australia.

Presented the “**Forever Fair Consent Trading System**” to the following groups:

- Tasman District Council, to staff, farmers, farm industry reps, irrigation associations, councillors,

ministerial representatives, and Maori, 23-5-2005.

- Hawkes Bay Regional Council, staff and councillors, 24-8-2005.
- Environment Waikato, to staff, farmers, farm & irrigation reps, councillors, & Maori, 3-11-2005.
- Canterbury Federated Farmers regional presidents, 21-11-2005.
- Marlborough District Council staff, 6-12-2005.
- Environment Canterbury senior staff, 7-12-2005.

“Water Sustainability and Water Markets,” Golden Key Soc., Univ. of Canterbury, key note, 5 July 2006.

Raffensperger, John F., “The minimum data required to allocate water,” NZ Hydrological Society Conference 2006, Christchurch, NZ, Nov 2006.

Raffensperger, John F., “A tutorial on hydrogeological optimisation,” ORSNZ Conference, Christchurch, NZ, Nov 2006.

Milke, Mark, and John F. Raffensperger, “The Use of Spot Markets for Water Allocation,” Water2006 Conference, Auckland, New Zealand, 1-4 Aug 2006. (Conference paper)

John F. Raffensperger and Mark Milke, “The Forever Fair Consent Trading System, Keynote Address,” Univ. of Tokyo, Tokyo, Japan: Univ. of Tokyo Water Forum, 28 Oct 2005.

Raffensperger, John F., “**Application of column splitting to the travelling salesman problem,**” Auckland, NZ: ORSNZ 39th Annual Conference, 28-29 Nov 2004.

John F. Raffensperger, “**Solving the TSP with decomposition-based pricing,**” Copenhagen: *Math Programming Symposium*, 18 August 2003.

Raffensperger, John F., “**Decomposition-Based Pricing for the One-Dimensional Cutting Stock Problem,**” Auckland, NZ: ORSNZ Conference, Nov 2002.

Raffensperger, John F. “Principles for Successfully Writing and Auditing Spreadsheets,” Prof. Short Course, Centre for Continuing Ed., Univ. of Canterbury, 13 Nov 2001, 21 Jun 2002, 30 Oct 2002.

Raffensperger, John F., “Classifying merino wool to maximise revenue,” Wellington, *Procs. 35th ORSNZ Annual Conference*, 1-2 Dec 2000. 241-6.

Raffensperger, John F., “The marriage of dynamic programming and integer programming,” Waikato, *Procs. ORSNZ 34th Annual Conference*, 1999, pp. 49-58.

Raffensperger, John F. “The New Guidelines for Writing Spreadsheets,” INFORMS Conference, Cincinnati, May 1999.

Raffensperger, John F., “A New Paradigm for Measuring Military Readiness”. Monterey, CA: *Military Operations Research Society Symposium*, May 1998.

Raffensperger, John F. “The Readiness Problems: Scheduling Training for Emergency Organizations,” *Math Programming Symposium*, Lausanne, Switzerland, August 1997.

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Website, Wagmu, www.wagmu.com, a website to help people improve their nutrition and lower the cost of their diet. The website uses a variety of operations research techniques, including linear programming and exponential smoothing. Built as a proof of concept, now closed.

Professional service, certifications

Member, INFORMS.

Associate Editor for INFORMS Transactions on Education, 2010 to 2012.

Member, International Cost Estimating and Analysis Association.

Certified Professional Cost Estimator/Analyst, International Cost Estimating and Analysis Association.

Member of and referee for the Scientific Committee for 2nd International Conference on Water Economics, Statistics, and Finance, 3-4 July 2009, Thrace, Greece.

Refereed two PhD theses and three Masters theses.

Referee for *Aus. J. of Agricultural & Resource Economics*, *Agricultural Water Management*, MODSIM Conference 2007, *J. of Applied Mathematics and Decision Sciences*, *Proceedings of the European Spreadsheet Interest Group*, *Systems Journal*, *Military Operations Research*, *International J. of Business and Economics*, *Computers & Operations Research*, *International Journal of Entrepreneurship and Small Business*, I’ve lost track.

ORSNZ Canterbury Branch Chairman, 2000-2002. ORSNZ Council member, 2000-2002.

Editor for the *Proceedings of the ORSNZ Conference Twenty Naught One*, Nov 2001.

Organizer for the ORSNZ Conference Twenty Naught One, Christchurch, Nov 2001.

Editor for the *ORSNZ Newsletter*, Sep 2001 to Mar 2003.

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