

Josué Medellín-Azuara

University of California, Davis
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SUMMARY OF QUALIFICATIONS

- Project management and coordination in multidisciplinary environments.
- Experience in modeling agricultural production and water use in California
- Experience in hydro-economic optimization and simulation models and ArcGIS geodatabases and general and partial equilibrium economic models.
- Experience in economic modeling of natural resources and production in developing countries.
- Proficient in GAMS, STATA, computer modeling and programming in general.

EDUCATION

Ph.D. (2006) Ecology Environmental Policy Analysis *University of California, Davis*

M.S. (2003) Agricultural and Resource Economics *University of California, Davis*

Master in Business Administration (1998), *Escuela de Graduados en Alta Dirección de Empresa Instituto Tecnológico y de Estudios Superiores de Monterrey (ITESM), México*

B.S. (1993) Mechanical and Electrical Engineering, *Instituto Tecnológico y de Estudios Superiores de Monterrey (ITESM), México*

PROFESSIONAL EXPERIENCE

USA
2009- **Research Fellow (Project Scientist Step IV), UC Davis** Civil and Env. Engr.
Researcher in the Delta Solutions Program of the Center for Watershed Sciences

- Economic representation of water use in agriculture using georeferenced information for California and other locations.
- Hydro-economic optimization for California under climate change.
- Statewide modeling of agriculture
- Project leader for preparing Economic Analysis Guidelines Document for Water Recycling in California, with the California Waterboards
- Research on economics of nitrate management in groundwater in the Tulare and Salinas Basins of California
- Research support for the California Water Policy Initiative project with the Center for Watershed Sciences and the Public Policy Institute of California
- Development of California water use and economic information databases
 - Georeferenced California Groundwater database
 - Agriculture water use and value
 - Urban water use

USA
2007-2009 **Postdoctoral Scholar, UC Davis** Civil and Environmental Engineering.

- Researcher for the report: Comparing Futures for the Sacramento-San Joaquin Delta. Public Policy Institute of California.
- Lead researcher for the report on Water management adaptation with climate change. California Climate Change Center.
- Lead researcher for the project: water supply analysis for Baja California

USA **Consultant, Natural Heritage Institute.**

- 2007** Drafting of water resources management scenarios for the transboundary Physical Assessment Project of the Rio Grande/Rio Bravo Basin. From January 2007 to December 2007.
 Identification of opportunities to improve basin management.
- Interacting with universities, government institutions, stakeholders, and non-governmental organizations to draft water policy scenarios.
 - Review of simulated water policy scenarios elaborated in Arc-Hydro and WEAP by the main partner in the project, the University of Texas in Austin.
- USA**
2005-2006 **Consultant, El Colegio de México’s Program for the Study of Economic Change and Sustainability in Mexican Agriculture (PRECESAM) and The World Bank Project: México Economic Sector Work (ESW) Economic Assessment of Policy Interventions in the Water Sector. Evaluation of policy”.**
- Conceptualizing and building a partial equilibrium, agricultural demand model for the transboundary Rio Grande/Rio Bravo Basin (case study for the project).
 - Developed simulations to assess the impact of macroeconomic policies on local and individual agricultural production units linking a general with a partial equilibrium model.
 - Participation in the project report, presented in the IV World Water Forum in México City in March 2006.
- USA**
2005-2006 **Research Assistant, University of California, Davis, Department of Civil and Environmental Engineering. Professor Jay R. Lund.**
- Led modeling research for the Project “Climate Change and Water Resources Impacts and Adaptation in California”, funded by the California Energy Commission.
 - Led modeling research for the project “Market Based Water Management and Reuse for Agricultural, Urban and Environmental Uses in Baja California”.
 - *Organized and led Training* for the short course “California Value Integrated Network (CALVIN)” for the Korean Institute of Construction Technology (July 2007). Other workshops conducted for California public and private sector water resources management and modeling professionals within (December 2006 and October 2007).
- USA**
2003-2005 **Director, Aquatic Toxicology Outreach Program (ATOP), University of California, Davis – Environmental Toxicology. Sponsored by the John Muir Institute for the Environment.**
- Performed bioassays to test water toxicity on water samples collected by high school students within the Sacramento River watershed.
 - Managed and ran the ATOP a an multidisciplinary internship program for undergraduate students, responsible for securing funding and proper operation of the program.
- USA**
2002-2005 **Research Assistant, University of California, Davis-Department of Agricultural and Resource Economics. Professor J. Edward Taylor.**
- Developed and ran general equilibrium models for policy evaluation of village economies.
 - Applied social accounting matrixes (SAM) to evaluate policy impacts on local, regional and domestic economies, with applications to Galapagos, Honduras and Mexico.
 - Designed surveys to capture economic activity data of several sectors and



households in village economies of developing countries including Galapagos, Honduras and Mexico.

- México**
1997-2000 **Environmental Coordinator, International Truck and Engine Corporation-**
- Responsible for wastewater treatment facility operation, air emissions monitoring, waste disposal, government permitting.
 - Led the successful effort to receive the ISO 14001 registration in 2000, and the *Industria Limpia* award.
 - Firm Received ISO 14001 registration and *Industria Limpia* award
 - Participated in drafting legislation for VOC emissions standard for the Mexican truck industry with other members of the sector and the National Institute of Ecology (INE).
- México**
1994-1997 **Project Engineer, Corporativo Copamex, S.A. de C.V.**, in charge of supervising civil work, machine installation, and engineering structural and hydraulic design for projects in a pulp and paper firm, in the corporate engineering department.
- Led and supervised installation of paper converting equipment
 - Developed conceptual and detail engineering for wastewater treatment facilities, deinking plant and paper mill.
 - Selection of process equipment and design of its peripheral services

LIST OF PUBLICATIONS AND RELATED WORK

Referred Journal Papers

- Medellin-Azuara, J, Rosenstock, T., Howitt, R.E., Harter, T., Jessoe, K., Dzurella, K., Pettygrove, S., Lund, Jay R. (In Press) Agro-Economic Analysis of Nitrate Crop Source Reductions. *Journal of Water Resources Planning and Management*.
- Howitt, R.E., Medellín-Azuara, J, MacEwan, D.M, and Jay R. Lund, (2012) Calibrating Disaggregate Economic Models of Agricultural Production and Water management, *Environmental Modeling and Software*.**38**:244-258.
- Medellin-Azuara, J., Howitt, R.E. and Harou, J.J. (2012) Predicting farmer responses to water pricing, rationing and subsidies assuming profit maximizing investment in irrigation technology. *Agricultural Water Management*, **108**:73-82
- Medellin-Azuara, J. Howitt, R.E., MacEwan, D.M. and Lund, J.R. (2012) Economic Impact of Agricultural Climate Related Yield Changes in California. *Climatic Change*, 109(1):387-405.
- Connell, C.R., **Medellin-Azuara, J.**, Lund, J.R. and Madani, K. Adapting California's water system to warm vs. warm-dry climates. (In Press) *Climatic Change*, 109(1):103-149.
- Tanaka, S.K., C. Connell, K. Madani, **J. Medellín-Azuara, J.** Lund, E. Hanak, (2011) "Economic Costs and Adaptations for Alternative Regulations of California's Sacramento-San Joaquin Delta," *San Francisco Estuary and Watershed Science*.
- Medellin-Azuara, J., Julien J. Harou and Richard E. Howitt (2010). Estimating economic value of agricultural water under changing conditions and the effects of spatial aggregation. *Science of the Total Environment*, **408**(23):5639-5648. doi:10.1016/j.scitotenv.2009.08.013.
- Harou, J., **Medellín-Azuara, J.**, Zhu, T., Tanaka, S., Lund, J., Stine, S., Olivares, M. and M. Jenkins (2010) Extreme Drought and Water Management in California. *Water Resources Research*, **46**(W05522): 1-12. **Winner of the Editor's Choice Award in Water Resources Research.**
- Harou, J., Pulido-Velazquez, M.A., Rosenberg, D.E., **Medellin-Azuara, J.**, Lund, J.R., Howitt, R.E. (2009), Hydro-economic Models: Concepts, Design, Applications, and Future Prospects, *Journal of Hydrology*, **375**:334-350.

- Waller-Barrera, C., Mendoza-Espinosa, L. G., Medellín-Azuara, J. and J.R. Lund, (2009) Optimización económico-ingenieril del suministro agrícola y urbano: una aplicación de reuso del agua en Ensenada, Baja California, *Revista Ingeniería Hidráulica en México*, **24**(4):87-103.
- Medellín-Azuara, J., Mendoza-Espinosa, L.G., Lund, J.R., Harou, J.J., and Howitt, R.E. (2009) Virtues of simple hydro-economic optimization networks: Baja California, Mexico. *Journal of Environmental Management*, **90**(11):3470-3478.
- Medellín-Azuara, J., Lund, J.R., Howitt, R.E. (2009). A calibrated agricultural water demand model for three regions in northern Baja California, *Agrociencia*, **43**(2):83-96.
- Medellín-Azuara, J., L.G. Mendoza-Espinosa, J.R. Lund, and R.E. Howitt (2008). Hydro-economic analysis of water supply for the binational transboundary region of Baja California, Mexico, *Water Science and Technology: Water Supply*, **8**(2):189-196.
- Medellín-Azuara, J. Harou, J.J., Olivares, M.A., Madani, K., Lund, J.R., Howitt, R.E., Tanaka, S., Jenkins, M.W., and Zhu, T. (2008) Adaptability and Adaptations of California's Water Supply System to Dry Climate Warming. *Climatic Change*, **87** (Suppl 1):S75-S90.
- Medellín-Azuara, J., Lund, J.R. and Howitt, R.E. (2007) Water Supply Analysis for Restoring the Colorado River Delta, México. *Journal of Water Resources Planning and Management*, **133**(5):462-471.
- Medellín-Azuara, J., Mendoza-Espinosa, L.G., Lund, J.R., Ramirez-Acosta, R.J. (2007) The application of economic-engineering optimization for water management in Ensenada, Baja California, México. *Water Science and Technology*, **55**(1-2):339-347.
- Medellín-Azuara, J. and J.R. Lund (2006). Systems Analysis for Restoring the Lower Colorado River Delta. *Pacific McGeorge Global Business & Development Law Journal*, **19**(1) 2006.

Working Papers

- Medellín-Azuara, J. Analysis of urban water demand in five border cities in Baja California. *In preparation for submission.*

Books and Book Chapters

- Medellín-Azuara, J., Howitt, R.E. and J.R. Lund. Modeling Economic-Engineering Responses to Drought- The California Case (In Press). *In* Schwabe et al. Eds. (In Press). Drought in Arid and Semi-Arid Environments: A Multi-Disciplinary and Cross-Country Perspective. Springer Publishing, Dordrecht.
- Medellín-Azuara, Josue, Howitt, R.E. and Lund, J.R. (2011). Hydro-economic modeling to assess climate impact and adaptation for agriculture in California in Dinar and Mendelsohn (eds). *Handbook of Climate Change and Agriculture*. Northampton, MA: Edward Elgar Publishing.
- Guerrero, H., Yunez-Naude A. and **Medellín-Azuara, J.**, (2008). El Agua en Mexico: Consecuencias de las políticas de intervención en el sector. *Lecturas El Trimestre Económico* 100. México, D.F.: Fondo de Cultura Económica.
- Howitt, R.E. and **Medellín-Azuara, J.** (2008) Un Modelo Regional Agrícola de Equilibrio Parcial: El Caso de la Cuenca del Río Bravo in Guerrero, H., Yunez-Naude, A. and **Medellín-Azuara, J.** ed. *El Agua en Mexico: Consecuencias de las políticas de intervención en el sector. Lecturas El Trimestre Económico* 100. México, D.F.: Fondo de Cultura Económica.
- Ramírez-Acosta, R.J., Mendoza-Espinosa, L.G., **Medellín-Azuara, J.** y Lund, J.R. (2006). Economía, población y eficiencia para el abastecimiento futuro de agua potable en Baja California, en Mungaray-Lagarda, A. y Ocegueda-Hernández, J.M. (Ed.), *Estudios Económicos sobre Baja California*. (p. 199), México, D.F.: Miguel Angel Porrúa.

Selected Research Reports and other Publications

- Howitt, R.E., MacEwan, D.E., Garnache, C., **Medellin-Azuara, J.**, Marchand, P., Brown, D. (2012). Yolo Bypass Flood Date and Flow Volume Agricultural Impact Analysis. Draft Report. University of California, Davis 60p.
- Sicke, W.S., Lund, J.R., **Medellín-Azuara, J.** (2012). Climate Change Adaptations for Local Water Management in the San Francisco Bay Area. California Climate Change Center. California Energy Commission. Report: CEC-500-2012-036. Available at: <<http://www.energy.ca.gov>>.
- Hanak, E., Lund, J.R., Thompson, B., Cutter, W.B., Gray, B. Houston, D. Howitt, R., Jessoe, K., Libecap, G. **Medellin-Azuara, J.** Olmstead, S., Sumner, D. Sunding, D., Thomas, B. Wilkinson, R. (2012) Water and the California Economy. Public Policy Institute of California. Available online at < <http://www.ppic.org/main/publication.asp?i=1015>>
- Harter, T., J. R. Lund, J. Darby, G. E. Fogg, R. Howitt, K. K. Jessoe, G. S. Pettygrove, J. F. Quinn, J. H. Viers, D. B. Boyle, H. E. Canada, N. DeLaMora, K. N. Dzurella, A. Fryjoff-Hung, A. D. Hollander, K. L. Honeycutt, M. W. Jenkins, V. B. Jensen, A. M. King, G. Kourakos, D. Liptzin, E. M. Lopez, M. M. Mayzelle, A. McNally, **J. Medellin-Azuara**, and T. S. Rosenstock. 2012. Addressing Nitrate in California's Drinking Water with a Focus on Tulare Lake Basin and Salinas Valley Groundwater. Report for the State Water Resources Control Board Report to the Legislature. Center for Watershed Sciences, University of California, Davis. 78 p. <http://groundwaternitrate.ucdavis.edu>.
- Dzurella, K.N., **Medellin-Azuara, J.**, Jensen, V.B., King, A.M., De La Mora, N., Fryjoff-Hung, A., Rosenstock, T.S., Harter, T., Howitt, R., Hollander, A.D., Darby, J., Jessoe, K., Lund, J.R., & Pettygrove, G.S. (2012) Nitrogen Source Reduction to Protect Groundwater Quality. Technical Report 3 in: Addressing Nitrate in California's Drinking Water with a Focus on Tulare Lake Basin and Salinas Valley Groundwater. Report for the State Water Resources Control Board Report to the Legislature. Center for Watershed Sciences, University of California, Davis.
- Medellin-Azuara, J., Hanak, E., Howitt, R. & Lund, J. R. (2012). Transitions for the Delta Economy. pp. 62. Public Policy Institute of California, San Francisco, California. Available at <<http://www.ppic.org/>>. February 2012.
- De Souza, S., **Medellin-Azuara, J.**, Burley, N., Lund, J.R., Howitt, R., 2011. Guidelines for Preparing Economic Analysis for Water Recycling Projects. Center for Watershed Sciences, University of California, Davis: Davis, California, p. 59.
- De Souza, S., **Medellin-Azuara, J.**, Burley, N., Lund, J.R., Howitt, R., 2011. Beneficiary-Pays Analysis of Water Recycling Projects. Center for Watershed Sciences, University of California, Davis: Davis, California, p. 12.
- Howitt, R.E. MacEwan, D.J. and **Medellin-Azuara, J** (2011) Drought, Jobs, and Controversy: Revisiting 200 *Agricultural and Resource Economics Update*, Giannini Foundation of Agricultural Economics, University of California. Available online at < <http://www.agecon.ucdavis.edu/extension/update/issues/v14n6.pdf> >.
- Michaels, J., Howitt, R.E., **Medellin-Azuara, J.** and MacEwan, D.J. (2010). A retrospective estimate of the economic impacts of reduced water supplies to the San Joaquin Valley in 2009. (2010). University of the Pacific and University of California, Davis. Available at: http://forecast.pacific.edu/water-jobs/SJV_Rev_Jobs_2009_092810.pdf
- Howitt, R.E., D. MacEwan, **J. Medellín-Azuara** and J.R. Lund (2009). Economic Modeling of Agriculture and Water in California Using the Statewide Agricultural Production Model. A report for the California Department of Water Resources. Davis, University of California. Available at: <<http://tinyurl.com/2cq49j9>>
- Lund, Jay R., R. E. Howitt, **J. Medellín-Azuara**, M. W. Jenkins. (2009). Water Management Lessons for California from State-wide Hydro-economic Modeling, a Report for the California Department of Water Resources. Davis: University of California. Available at: <<http://tinyurl.com/244objh>>

- Howitt, R.E., **Medellin-Azuara, J.**, MacEwan, D.J. (2009). Measuring the Employment Impacts of Water Reductions. Technical Note, Department of Agricultural and Resource Economics and Center for Watershed Sciences. University of California, Davis, California. Available at < <http://swap.ucdavis.edu> >, last access: September 2009.
- Howitt, R.E., MacEwan D., **Medellin-Azuara, J.** (2009). Economic Impact of Reductions in Delta Exports on the Central Valley Agriculture. *Agricultural and Resource Economics Update*, Giannini Foundation of Agricultural Economics, University of California. Available online at < <http://www.agecon.ucdavis.edu/extension/update/issues/v12n3.pdf> >
- Medellin-Azuara, J., Connell C.R., Madani, K. and Lund, J.R. (2008). Water management adaptation with climate change. California Climate Change Center. California Energy Commission.
- Howitt, R.E. **Medellin-Azuara, J.** and Duncan MacEwan (2008). Measuring economic impact of agricultural yield related changes. California Climate Change Center. California Energy Commission.
- Tanaka, S.K., Connell, C.R., Madani, K., Lund, J.R., Hanak, E. and **Medellin-Azuara, J.** The Economic Costs and Adaptations for Alternative Delta Regulations. Appendix F to: Lund, J.R., Hanak, E. Fleenor, W., Bennett, W. Howitt, R., Mount, J. Moyle, P. Comparing Futures for the Sacramento-San Joaquin Delta. Public Policy Institute of California. Available at <<http://www.ppic.org>>.
- Medellin-Azuara, J., Howitt. R.E., Lund, J. R. and Hanak, E. (2008) The Economic effects on Agriculture of Water Export Salinity South of the Delta. Appendix I to: Lund, J.R., Hanak, E. Fleenor, W., Bennett, W. Howitt, R., Mount, J. Moyle, P. Comparing Futures for the Sacramento-San Joaquin Delta. Public Policy Institute of California. Available at <<http://www.ppic.org>>.
- Medellin-Azuara, J., Mendoza-Espinosa, L. G., Lund, J. R., Waller-Barrera, C., y Howitt, R. E., 2008. "Water Supply for Baja California: Economic-Engineering Analysis for Agricultural, Environmental and Urban Demands." Draft Report Prepared for the California Environmental Protection Agency, University of California, Davis, Davis, California, USA. Draft January 2008. <<http://cee.engr.ucdavis.edu/BajaCALVIN> >
- Howitt, R.; Kaplan, J.; Larson, D.; MacEwan, D.; **Medellin-Azuara, J.**; Lee, N. and Horner, G.; and "Central Valley Salinity Report" Report for the State Water Resources Control Board. University of California, Davis, California, Draft March 2008.
- Medellin-Azuara J., Harou, J.J., Olivares M.A., Lund J.R. , Howitt R.E., Tanaka S.K. , Jenkins M.J., Kaveh Madani, Zhu, T (2006). Climate Warming and Water Supply Management in California, California Climate Change Center, California Energy Commission, CEC-500-2005-195-SF.
- Medellin-Azuara, J., Richard E. Howitt and Lund, J.R. (2007). California agricultural water demands for year 2050 under historic and warming climates. California Energy Commission, PIER Program. CEC-500-2005-195.
- Jenkins, M.W., Medellin-Azuara, J. and Lund, J.R. 2007. California Urban Water Demands for Year 2050. California Energy Commission, PIER Program. CEC-500-2005-195.

Conference Proceedings

- Medellin-Azuara, J, Rosenstock, T., Howitt, R.E., Harter, T., Jessoe, K., Dzurella, K., Pettygrove, S., Lund, Jay R. (2012) Economic Analysis of Crop Nitrate Source Reductions. International Water Resources: Challenges for the 21st Century and Water Resources Education. Universities Council on Water Resources. Santa Fe, NM, July 16-19, 2008.
- Medellin-Azuara, J, De Souza, S. Burley, N. Lund, J.R., Howitt, R.E., Mills, R., Horner, G. and D. Balgobin. An Economic Analysis Guidance Document for Water Recycling Documents in California. WateReuse California Annual Water Recycling Conference: A Capital Opportunity WateREuse Foundation, Sacramento, California March 26-28, 2012.

- Harou, J. J. , Pulido-Velasquez, M., **Medellin-Azuara, J.** Rosember, D.E. and Lund, J.R. Insights for Integrated Management and Adaptation to Climate Change (2008). 13th IWRA World Water Congress. Montpellier, France. September, 1-4, 2008.
- Medellín-Azuara, J., Mendoza-Espinosa, L.G., Lund, J.R., Howitt, R.E. (2008) Hydro-economic Analysis of Water Supply for the Binational Transboundary Region of Baja California, Mexico. Accepted for presentation in the International Water Association (IWA) 2008 Congress in Vienna, Austria, September 2008.
- Medellín-Azuara, J., Mendoza-Espinosa, L.G., Lund, J.R., Howitt, R.E. (2008) Hydroeconomic Analysis of Water Supply for northern Baja California in 2025 and 2080. International Water Resources: Challenges for the 21st Century and Water Resources Education. Universities Council on Water Resources. Durham, North Carolina, July 22-24, 2008.
- Medellín-Azuara, J., Mendoza-Espinosa, L.G., Lund, J.R. and R.E. Howitt (2008). Hydroeconomic Analysis of Water Supply for Baja California, Mexico, World Environmental and Water Resources Congress 2008, Honolulu, HI. May12-16, 2008
- Waller-Barrera, C., Mendoza-Espinosa L. G., **Medellin-Azuara, J.** and Lund, J. R. (2008) Water management optimization for urban and agricultural use in semiarid Mexico. 1st IWA Mexico National Young Water Professionals Conference", Mexico City, April 9-12, 2008
- Mendoza-Espinosa, L.G., **Medellín-Azuara, J.** and Lund, J.R (2007) *An Optimization Model for Water Management in the USA-Mexico Californian Border*. Submitted for the 80th Annual Water Environment Federation Technical Exhibition and Conference. San Diego, CA October 13-17.
- Harou, J.J., **Medellín-Azuara, J.**, Zhu, T., Tanaka, S. K., Lund, J. R., Stine, S., Jenkins, M. W., and Olivares, M. A. (2006). Extreme Drought and Water Supply Management in California. Proceedings of the 2006 ASCE World Environmental and Water Resources Congress, Reston, VA.
- Medellín-Azuara, J., Lund, J.R., and R.H., Howitt (2006). Economic-Engineering Optimization for the Binational México-US Lower Colorado River Delta: The Mexicali Valley Case Study. Universities Council on Water Resources Conference on Increasing Freshwater Supplies July 18-20, 2006 Santa Fe, New México.
- Medellin-Azuara, J. Harou, J.J., Olivares, M.A. and Lund, J.R. Climate Change and Water Supply Adaptation in California 2050 (2006). Universities Council on Water Resources Conference on Increasing Freshwater Supplies July 18-20, 2006 Santa Fe, New México.

SELECTED PRESENTATIONS AND POSTERS

- Medellin-Azuara, J.**, Rosenstock, T., Howitt, R.E., Harter, T., Jessoe, K., Dzurella, K., Pettygrove, S., Lund, Jay R. (2012) Economic Analysis of Crop Nitrate Source Reductions. International Water Resources: Challenges for the 21st Century and Water Resources Education. Universities Council on Water Resources. Santa Fe, NM, July 16-19, 2008. **Presenter**
- Howitt, R.E. Lund, J., Medellin-Azuara, J., MacEwan, D., Garnache, C. Yolo Bypass and Floodplains: Land Use and economic Value. Flood Risk Assessment Group, Sacramento, California. July 20, 2012. **Co-Presenter with Lund and Howitt.**
- Medellin-Azuara, J, Hanak, E., Howitt, R.E. and Lund, J.R. Transitions for the California Delta Economy. California Water and Environmental Modeling Forum. Folsom, CA April 16-18, 2012. **Presenter.**
- Medellin-Azuara, J, De Souza, S. Burley, N. Lund, J.R., Howitt, R.E., Mills, R., Horner, G. and D. Balgobin. An Economic Analysis Guidance Document for Water Recycling Documents in California. WateReuse California Annual Water Recycling Conference: A Capital Opportunity WateReuse Foundation, Sacramento, California March 26-28, 2012. **Presenter.**
- Hanak, E. and Medellin-Azuara, J. Transitions for the California Delta Economy. An Assessment of Planning Priorities. Sacramento Economics Roundtable. Sacramento, CA March 23, 2012. **Presenter.**

- Medellin-Azuara, J. Rosenstock, T., Howitt, R., Harter, T. Pettygrove, S. Dzurella, K. Lund, J.R. (2011). Agro-Economic Analysis of Management of Nitrogen Load of Groundwater in California. Fall Conference American Geophysical Union. San Francisco, CA, December 2011.
- Ragatz, R., Lund, J.R., **Medellin-Azuara, J**, Bartolomeo, E., Sicke, W., Bates, M. and De Souza, S. (2011). Water Management Costs and Adaptations with Delta Restrictions, Climate Change and Expanded Urban Water Conservation. California Water and Environmental Modeling Forum, Asilomar, February 2011. **Poster.**
- Bartolomeo, E., **Medellin-Azuara, J.** and J.R. Lund (2011). Allocating Scarce Water Between Interior and Exterior Uses In Southern California. California Water and Environmental Modeling Forum, Asilomar, February 2011. **Poster.**
- Sicke, W., **Medellin-Azuara, J.** and J.R. Lund (2011). Climate Change Impacts to Local water management in the San Francisco Bay Area. California Water and Environmental Modeling Forum, Asilomar, February 2011. **Poster.**
- Ragatz, R., Lund, J.R., **Medellin-Azuara, J**, Bartolomeo, E., Sicke, W., Bates, M. and De Souza, S. (2011). Water Management Costs and Adaptations with Delta Restrictions, Climate Change and Expanded Urban Water Conservation.
- Medellin-Azuara, J. MacEwan, D.M., Howitt, R.E. and J.R. Lund. (2011). Agricultural Water Use Modeling and Remote Sensing. California Water and Environmental Modeling Forum, Asilomar, February 2011. **Presenter.**
- Forni, L. Purkey, D. , **Medellin-Azuara, J.** and Howitt, R.E. (2011). Economic and Hydrological Models Integration: Evaluating Future Climate Change Scenarios Using WEAP and SWAP. California Water and Environmental Modeling Forum, Asilomar, February 2011.
- Howitt, R.E, **Medellin-Azuara, J**, MacEwan, D. and J.R. Lund. (2010). Improved agricultural water use modeling in California using remote sensing. Bay-Delta Science Conference 2010. Sacramento, CA. September 2010, **Presenter.**
- Connell, C.R. , **Josué Medellín-Azuara**, Shannon Brown, Joshua Viers, Will Sicke, Matthew Bates², Daniel Nover, Marsha Sukardi, David Rheinheimer, Rachel Ragatz, Kevin Fung, Eleanor Bartolomeo, Pradnya Khimsara, Daphne Korth, Jay R. Lund (2010). Groundwater Database for California, Poster, California Water and Environmental Modeling Forum, Asilomar, February 2010.
- Medellin-Azuara, J. K. Madani, C. Connell, M. Bates, W Sicke, and J.R. Lund. (2010) The Water 2.0 Social Calendar. , **Poster**, California Water and Environmental Modeling Forum, Asilomar, February 2010,
- Connell, C.R. **Medellin-Azuara, J.** Lund, J.R. (2010) Adaptation to Climate Change. California Water and Environmental Modeling Forum, Asilomar, February 2010.
- Medellin-Azuara, J., Howitt, R.E. and J.R. Lund (2010). Transitions in the Structure of the Delta's Economy. Presentation, California Water and Environmental Modeling Forum, Asilomar, February 2010, **Presenter.**
- Howitt, R.E., **Medellin-Azuara, J**, MacEwan, D and J.R. Lund (2010) Estimating the Economic Impacts of Climate Change on California Agriculture. California Water and Environmental Modeling Forum, Asilomar, February 2010. **Presenter**
- Medellin-Azuara, J. (2009) Urban Water Demand Analysis of Five Border Cities of Northwestern Mexico. Universities Council on Water Resources. Chicago, , IL July 2009. **Presenter** Jay R. Lund.
- Medellin-Azuara, J., Howitt, R.E. Lund, J.R. and Hanak, E. (2009) Agricultural Effects of Delta Management, California Water and Environmental Modeling Forum, Asilomar, February 2009. **Presenter**
- Medellin-Azuara, J., Connell, C.R., Lund, J.R. and Howitt, R.E. Sensitivity analysis of key components in large scale hydroeconomic models. Fall Conference American Geophysical Union. San Francisco, CA, December 2008.

- Harou, J. J. , Pulido-Velasquez, M., **Medellin-Azuara, J.** Rosember, D.E. and Lund, J.R. (2008) Insights for Integrated Management and Adaptation to Climate Change. 13th IWRA World Water Congress. Montpellier, France. September, 1-4, 2008.
- Medellín-Azuara J., Mendoza-Espinosa L. G., Lund, J.R. (2008) Water supply for Baja California – development of CALVIN planning model, México. Border Infrastructure Conference. California Department of Water Resources Water Education Foundation. San Diego, California, May 28-29, 2008. **Presenter**
- Medellin-Azuara, Josue. Agua para Uso en el Delta del Río Colorado: balanceando aspectos ambientales, económicos en ingenieriles. Instituto Tecnológico y de Estudios Superiores de Monterrey, Monterrey, México. April 28, 2008. **Presenter**.
- Medellín-Azuara J., Mendoza-Espinosa L. G., Lund, J.R. (2008) Hydro-economic analysis of water Supply for Baja California, México. ASCE-EWRI World Conference, Honolulu, May 12-16, 2008. **Presenter**
- Howitt, R.E., Medellin-Azuara, J. and Lund, J.R. (2008). Modeling Economic Costs to agriculture of Changes in the Delta Export Salinity. California Water and Environmental Modeling Forum, Asilomar, February 2008.
- Medellín-Azuara J., Mendoza-Espinosa L. G., Lund, J. R. and Ramírez-Acosta R. J. (2006) Economic-engineering optimization modeling for water management in Ensenada, Baja California, México. IWA's 5th World Water Congress, Beijing, China, September 2006. **Poster**.
- Medellin-Azuara, J. Mendoza-Espinosa, L.G., Lund J.R. (2006). Análisis Económico-Ingenieril de Uso Eficiente de Agua en Baja California, Coloquio Sobre Disponibilidad y Abastecimiento de Agua en Nuestra Region. Comision Estatal de Servicios Publicos de Tijuana. Tijuana, Mexico, April 19-21. **Presenter**.
- Medellín-Azuara J., Mendoza-Espinosa L. G., Lund, J. R. and Ramírez-Acosta R. J. (2005) The application of an economic-engineering optimization model for water management in Ensenada, Baja California, México. IWA's 5th International Symposium on Wastewater Reclamation and Reuse for Sustainability. Jeju, Korea, 8-11 November 2005. **Poster**.
- Medellín-Azuara, J. (2005). “Systems Analysis for Restoring the Colorado River Delta in México”. Graduate Student Symposium. University of California, Davis. March 5. Davis, California. **Presenter**
- Medellín-Azuara, J. and J.R. Lund (2005). “Systems Analysis for Restoring the Lower Colorado River Delta”. 2005 International Law Conference. Freshwater Ecosystem Restoration: The Role of Law Process and Lawyers. McGeorge School of Law. University of the Pacific. February 19-20, 2005. **Presenter**

ACADEMIC SERVICE AND TEACHING EXPERIENCE

Member of the Editorial Board Computational Water, Energy, and Environmental Engineering. August 2012.

Member of the **Project Advisory Committee** for the project: *Evaluating Long and Short Term Planning Scenarios to Better Assess the Role of Water Reuse under Climate Change*, for the WateReuse Foundation, since 2008.

Refereed journal reviewer: *Water Resources Research, Journal of Hydrology, Water, Environmental Modeling and Software, Journal of Environmental Management, Water International, Journal of Ecology and Natural Environment, Applied Water Science, Water, Agricultural Water Management, Water Resources Management, Desalination, International Journal of Water, Scientia Iranica, Journal of Water Resources Planning and Management and African Journal of Agricultural Research, Environmental Modeling and Software, Science of the Total Environment, Water Policy.*

Proposal Reviewer of Climate Change Research Proposals, *National Oceanic and Atmospheric Administration, Sector Applications Research Program, November, 2009.*

Guest Lecturer:

“*Application of Systems Analysis in Large Scale Water Resources Modeling*”, Fall 2008, Systems Analysis for Resources Development, CE250, Graduate Level, Sacramento State University, Lecturer Kaveh Madani.

“*Transboundary Water Resources Management for Restoring the Colorado River Delta*”, 2008, Global Water Resources Group Study”, ESP278, Graduate Level, UC Davis, Dr. Joshua Viers.

“*Large-scale Water Resource System Optimization*”, 2007, Advanced Water Resources Management, ECI 270, UC Davis, Professor Jay Lund.

“*Economic Value of Water*” (Fall 2006, 2007 and 2008), Water Resources Management, ECI 267, UC Davis, Professor Jay Lund.

Teaching Assistant, University of California, Davis-Department of Agricultural and Resource Economics, Quantitative Methods in Agricultural Economics, 2002.

Research Assistant and Laboratory Instructor, ITESM-Department of Mechanical Engineering, Materials and Manufacturing Processes Laboratory, edited laboratory manual, 1993.

Member of graduate thesis committees

- Yolanda Garrido. Masters Thesis: Optimización del manejo del recurso agua en Tijuana y Rosarito, Baja California. Universidad Autónoma de Baja California-Ensenada. Instituto de Investigaciones Oceanológicas (México).
- Cynthia Waller: Masters Thesis: Modelación las Alternativas de Abastecimiento del Agua en la Zona Urbana de Ensenada y las Zonas Agrícolas de Mandadero y Valle de Guadalupe, Baja California. Instituto de Investigaciones Oceanológicas (México). Degree granted in January 2008.

Graduate Student General Research Assistance

Department of Civil and Environmental Engineering

- Rachel Ragatz (M.S. 2009- to date), hydro-economic modeling with CALVIN, data compilation
- Matthew Bates (M.S. 2009- 2010), preparation of CALVIN related software
- William Sicke (M.S. 2009- 2011), climate change California vulnerability study
- Sachi De Souza (M.S. 2009- 2011), economics of water recycling in California
- Prudentia Zinkalala (M.S. 2010 to date), economics of water recycling in California
- Heidi Chou (M.A. 2011 to date), groundwater CALVIN update
- Nathan Burley (M.S. Ph.D. 2009- to date), economics of water recycling in California
- Eleanor Bartolomeo (M.S. 2010), update of the Southern California Region of CALVIN
- Michelle Lent (M.S. 2011 to date), urban water management, CALVIN update

Graduate Group in Hydrology

- Christina Connell (M.S. and Ph.D. 2008- to date)

Agricultural and Resource Economics

- Duncan MacEwan. (M.S. 2008-2009) Modeling with SWAP.
- Laura Forni. Interphase between the SWAP and WEAP models. (M.S. 2010)

AWARDS, GRANTS AND FELLOWSHIPS

- Editor’s Choice Award (2011). Water Resources Research.
- Member of the Mexican National Network of Researchers (*Sistema Nacional de Investigadores*), Level I, September 2010.
- Mexican National Chamber of the Editorial Industry (CANIEM) award for the book: “El Agua en México”, in the category of economic essay, October 2009.
- Collaborative Grant, distinguished with the 2005 George E. Brown Award, The University of California Institute for México and the United States (UCMEXUS)
- Jastro-Shields Graduate Award, 2005, Graduate Studies, UC Davis
- Graduate Fellowship, 2000, Consejo Nacional de Ciencia y Tecnología (México)
- Undergraduate Education Scholarship, 1992-1993, Instituto Tecnológico y de Estudios Superiores de Monterrey (México)
- Academic Excellence Scholarship, 1986-1989, Instituto Tecnológico y de Estudios Superiores de Monterrey (México)

SPECIALIZED SKILLS

Languages

Spanish (native) and English (fluent)

Computer Technology/Information Systems

- Engineering: ArcGIS, AUTOCAD, I-DEAS, CAEDS, PSPICE
- Operating Systems: MS-DOS, Windows, UNIX and Apple MAC OS X
- General: Microsoft Office Suite
- Hydroeconomic modeling: WEAP, CALVIN, SIMETAW, GAMS
- Business and Statistics: Bpwin, LIMDEP, Statview, STATA, and SHAZAM
- Programming Languages: BASIC, Pascal, MS Visual Basic
- Miscellaneous: Internet, Corel Draw, Publisher y Front Page y Endnote.

Other specialized training

- Certified Auditor ISO 14001 and QS 9000
- Lean Manufacturing (by University of Tennessee in Knoxville)
- Sustainable development seminar series (ITESM-Monterrey)
- Hazardous material and waste handling seminar series (ITESM-Monterrey)

MEMBERSHIPS

American Geophysical Union
 American Waste and Management Association
 Union of Concerned Scientists

REFERENCES

Provided on request