

ELIA M. TAPIA-VILLASEÑOR, PH.D.

Associate in Extension, Water Resources Research Center
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EDUCATION

- 2020. Ph.D., Arid Lands Resource Sciences; Minor in Hydrology.** University of Arizona, Tucson, Arizona. Dissertation: *Water Resources in the Borderlands of the Colorado River Basin: Climate Uncertainties, Anthropogenic Impacts, and U.S.-Mexico Binational Agreements.*
- 2020. Certificate in College Teaching.** University of Arizona, Tucson, Arizona.
- 2013. M.S., Geology.** Universidad de Sonora, Hermosillo, Sonora, Mexico.
- 2009. B.S., Geology.** Universidad de Sonora, Hermosillo, Sonora, Mexico.
- 2007–2008. Exchange Program, Exchanging Cities, Water and Infrastructure (ExCit).** Michigan Technological University, Houghton, Michigan.

RESEARCH INTERESTS: transboundary groundwater; hydrology; hydrogeology; groundwater availability and recharge; climate variability and drought; U.S.-Mexico water cooperation; water diplomacy; science-policy interfaces; stakeholder engagement; water governance.

ACADEMIC AND PROFESSIONAL APPOINTMENTS

- **Associate in Extension, Water Resources Research Center, University of Arizona, Tucson, Arizona.** (September 2025–present)
Conduct applied research, extension, and outreach through the Transboundary Aquifer Assessment Program (TAAP) and Water Research and Planning Innovations for Dryland Systems (Water RAPIDS), with emphasis on groundwater, climate resilience, science communication, and stakeholder engagement.
- **Independent Consultant, WSP USA Inc.** (2024–2025)
Managed water resources and regional planning projects in Latin America, including coordination of multidisciplinary technical teams and international stakeholder engagement.
- **Independent Consultant, Water Resources Research Center, University of Arizona.** (2020–2024)
Conducted transboundary aquifer reconnaissance, socioeconomic characterization, governance analysis, and stakeholder engagement in support of binational groundwater understanding.
- **Environmental Consultant - Project Manager, Golder-WSP Mexico, Hermosillo, Sonora, Mexico.** (2020–2023)
Progressed through roles in hydrogeologic modeling, water management, and project management, supporting water resources and risk-assessment projects in Latin America and the Caribbean.
- **Professor, Department of Geology and Environmental Sciences, Universidad de Sonora, Hermosillo, Sonora, Mexico.** (2019–2025)
Teaching and research in water sciences, hydrology, hydrogeology, natural hazards, remote sensing, and hydrogeologic modeling; graduate advising and departmental service.
- **Senior Research Specialist, Water Resources Research Center, University of Arizona, Tucson, Arizona.** (2018–2020)
Research and coordination for TAAP and Water RAPIDS, including binational groundwater assessment and environmental-flow research.
- **Graduate Associate, Water Resources Research Center, University of Arizona, Tucson, Arizona.** (2014–2018)
Research on transboundary aquifers, climate variability, environmental flows, and U.S.-Mexico water issues.
- **Consultant, ORTOPLAN Consultants, Hermosillo, Sonora, Mexico.** (2012–2014; 2019)
Municipal risk atlases, hydrologic and hydraulic studies, fieldwork, GIS analysis, and technical reporting.
- **Researcher, Universidad de Sonora, Hermosillo, Sonora, Mexico.** (2008–2014)
Groundwater availability, drought and climate change impacts, hydrologic and hydraulic studies, artificial recharge, aquifer evaluation, hydrogeochemistry, and numerical modeling.
- **Co-founder and Partner, ERAH Estudios de Riesgos Ambientales e Hidrológicos S.C., Hermosillo, Sonora, Mexico.** (2007–2014)
Hydrologic studies, flood-risk assessment, regulatory risk diagnostics, GIS databases, fieldwork, and technical reporting.

- **Research Assistant, Michigan Technological University, Houghton, Michigan.** (2007–2008)
Natural Disaster Mitigation Program in the Pacific Latin America; remote sensing and GIS-based hazard assessment.
- **Research Assistant, Universidad de Sonora, Hermosillo, Sonora, Mexico.** (2004–2007)
State Risk Atlas for Sonora; geological, hydrometeorological, socio-organizational, sanitary-ecological, and technological risk assessment.

SELECTED RESEARCH AND APPLIED PROJECT EXPERIENCE

- **2026. Binational Study of the Transboundary Santa Cruz River Aquifer.** Water Resources Research Center.
Hydrogeologic assessment of the transboundary Santa Cruz River Aquifer, including groundwater availability, surface water–groundwater interactions, climate variability, binational data integration, and scientific collaboration.
- **2025. Growing Water Smart: Development of a Risk Management Plan for a Transboundary Basin.** Sonoran Institute and Lincoln Institute of Land Policy. Development of a risk management plan for a transboundary basin through applied water resources planning and stakeholder engagement.
- **2025. Transboundary Regional Action Plan for Drinking Water, Basic Sanitation, and Solid Waste Management.** Inter-American Development Bank / Amazon Cooperation Treaty Organization. Consulting services for the design of a regional action plan, including baseline development, coordination with technical teams from eight Amazon countries, workshops and bilateral meetings, and preparation of regional and local planning products.
- **2023. Sonora Water Plan 2023–2053.** Statewide water resources characterization for the State of Sonora, including water for food and social welfare, the human right to water, governance for sustainability, and development of a portfolio of strategic projects and actions.
- **2023. Water Resource Efficiency Study for an Agricultural Company in Peru.** IDB Invest. Hydrologic and hydrogeologic characterization, determination of water demand by cropping system, water footprint assessment, and identification of water-efficiency measures.
- **2023. Nogales Risk Atlas 2023.** IMIP Nogales, Sonora. Determination and assessment of natural and anthropogenic hazards and risks.
- **2023. Requirements for the Design of Adaptable Climate-Resilient Primary Care Clinics in The Bahamas.** Inter-American Development Bank, Latin America and the Caribbean. Development of climate and disaster risk considerations to support resilient primary healthcare infrastructure.
- **2023. Guidelines for Disaster and Climate Change Risk Management Plans.** Inter-American Development Bank, Latin America and the Caribbean. Development of technical guidelines for disaster and climate change risk management planning.
- **2022. Dam Safety Program.** CONAGUA. Hydrologic studies and dam safety assessments for the Northwest Basin Organization in Sonora, Mexico.
- **2021. Establishment of a Resilient, Low-Carbon Sugarcane Production System in Nicaragua.** IDB Invest. Assessment of climate change impacts on water consumption and identification of adaptation and mitigation measures for sugarcane production.
- **2020–2021. Hazard and Risk Assessment for Portobelo, Panama.** Inter-American Development Bank. Hazard and risk modeling and assessment, including climate change projections and development of conceptual green and gray mitigation and adaptation measures.
- **2016. Binational Study of the Transboundary San Pedro River Aquifer.** Hydrogeologic and binational assessment contributing to characterization of the San Pedro River Aquifer across the United States–Mexico border.
- **2014. Risk Atlas for the Hermosillo Municipality.** Ortoplan Consultants. Assessment and mapping of natural and anthropogenic hazards and risks.
- **2012. Artificial Recharge Study for the Caborca, Costa de Hermosillo, and Valle de Guaymas Aquifers, Sonora.** Assessment of hydrogeologic conditions and identification of areas suitable for artificial aquifer recharge.
- **2012. Climate Change Impacts on the Marine Interface of Coastal Aquifers in Sonora.** Assessment of the Guaymas, San José de Guaymas, Yaqui Valley, and Cocoraque coastal aquifers, with emphasis on climate change and the freshwater–seawater interface.
- **2012. Hydrogeological Activities in the Santa Cruz River and San Pedro River Aquifers.** Hydrogeologic characterization and assessment supporting studies of the transboundary Santa Cruz and San Pedro aquifers.
- **2011. Risk Atlas for the Quiriego Municipality.** Ortoplan Consultants. Assessment and mapping of natural and anthropogenic hazards and risks.
- **2011. Risk Atlas for the Plutarco Elías Calles Municipality.** Ortoplan Consultants. Assessment and mapping of natural and anthropogenic hazards and risks.

- **2009. Climate Change Action Plan for the State of Sonora.** Projection, mapping, and analysis of available climate change scenarios for Sonora using CMIP3 climate model outputs.
- **2008. Risk Atlas for the State of Sonora.** Universidad de Sonora. Assessment and mapping of natural and anthropogenic hazards and risks at the state level.
- **2007. Natural Disaster Mitigation Program in Pacific Latin America.** Michigan Technological University. Applied work related to natural hazard assessment and disaster risk mitigation in Pacific Latin America.

PUBLICATIONS

PEER-REVIEWED JOURNAL ARTICLES

- Tapia-Villaseñor, E. M.,** S. B. Megdal, and E. Shamir. 2025. "Prioritizing Transboundary Aquifers in the Arizona-Sonora Region: A Multicriteria Approach for Groundwater Assessment." *Water* 17(3): 443. <https://doi.org/10.3390/w17030443>.
- Mumme, S., S. B. Megdal, R. Sanchez, H. Brause, R. Salmón, **E. M. Tapia-Villaseñor**, O. Ibáñez, C. de la Parra, and M.-B. Cruz Ayala. 2024. "Crafting Binational Groundwater Agreements: Preconditions for Progress Along the Mexico-U.S. Boundary." *Water Economics and Policy*.
- Mumme, S. P., and **E. M. Tapia-Villaseñor**. 2023. "U.S.-Mexico Groundwater Diplomacy: Lessons from the Historical Record." *Journal of the Southwest* 65(3): 362–396. <https://doi.org/10.1353/jsw.2023.a915209>.
- Minjárez Sosa, J. I., G. A. Gutiérrez Anguamea, R. Monreal, F. J. Grijalva Noriega, and **E. M. Tapia-Villaseñor**. 2022. "Hydrogeomorphologic Mapping of the Transboundary San Pedro Aquifer: A Tool for Groundwater Characterization." *Water* 14(6): 906. <https://doi.org/10.3390/w14060906>.
- Tapia-Villaseñor, E. M.,** E. Shamir, M.-B. Cruz-Ayala, and S. B. Megdal. 2022. "Assessing Groundwater Withdrawal Sustainability in the Mexican Portion of the Transboundary Santa Cruz River Aquifer." *Water* 14(2): 233. <https://doi.org/10.3390/w14020233>.
- Petersen-Perlman, J. D., T. R. Albrecht, **E. M. Tapia-Villaseñor**, R. G. Varady, and S. B. Megdal. 2021. "Science and Binational Cooperation: Bidirectionality in the Transboundary Aquifer Assessment Program in the Arizona-Sonora Border Region." *Water* 13(17): 2364. <https://doi.org/10.3390/w13172364>.
- Shamir, E., **E. M. Tapia-Villaseñor**, M.-B. Cruz-Ayala, and S. B. Megdal. 2021. "A Review of Climate Change Impacts on the USA-Mexico Transboundary Santa Cruz River Basin." *Water* 13(10): 1390. <https://doi.org/10.3390/w13101390>.
- Tapia-Villaseñor, E. M.,** and S. B. Megdal. 2021. "The U.S.-Mexico Transboundary Aquifer Assessment Program as a Model for Transborder Groundwater Collaboration." *Water* 13(4): 530. <https://doi.org/10.3390/w13040530>.
- Tapia-Villaseñor, E. M.,** E. Shamir, S. B. Megdal, and J. D. Petersen-Perlman. 2020. "Impacts of Variable Climate and Effluent Flows on the Transboundary Santa Cruz Aquifer." *JAWRA Journal of the American Water Resources Association* 56(3): 409–430. <https://doi.org/10.1111/1752-1688.12853>.
- Callegary, J. B., S. B. Megdal, **E. M. Tapia Villaseñor**, J. D. Petersen-Perlman, I. Minjárez Sosa, R. Monreal, F. Gray, and F. Grijalva Noriega. 2018. "Findings and Lessons Learned from the Assessment of the Mexico-United States Transboundary San Pedro and Santa Cruz Aquifers: The Utility of Social Science in Applied Hydrologic Research." *Journal of Hydrology: Regional Studies* 20: 60–73. <https://doi.org/10.1016/j.ejrh.2018.08.002>.
- Mott Lacroix, K. E., **E. Tapia**, and A. Springer. 2017. "Environmental Flows in the Desert Rivers of the United States and Mexico: Synthesis of Available Data and Gap Analysis." *Journal of Arid Environments* 140: 67–78. <https://doi.org/10.1016/j.jaridenv.2017.01.011>.
- Tapia-Villaseñor, E. M.,** J. I. Minjárez, C. M. Minjárez, and I. G. Espinoza. 2014. "Use of Stella Software for the Modelling of Climate Change Impacts on Water Balance for the Rio Yaqui Basin, Sonora, Mexico." *European Scientific Journal* 20(14).

BOOK CHAPTERS, REPORTS, AND OTHER SCHOLARLY PUBLICATIONS

- Megdal, S. B., S. Mumme, R. Salmón, R. Sánchez, **E. M. Tapia-Villaseñor**, M.-B. Cruz Ayala, and O. Ibáñez. 2022. "Reaching Groundwater Agreements on the Border Between Mexico and the United States: Science and Policy Fundamentals." In *Transboundary Aquifers: Challenges and the Way Forward*. UNESCO.
- Cruz Ayala, M. B., A. E. Gámez, **E. M. Tapia Villaseñor**, and J. Wurl. 2021. "Groundwater in Northwestern Mexico: Baja California Sur and Sonora: Overexploitation and Options for Mitigating Climate Change Impacts." In *Contemporary Visions of Water Cooperation and Management on the United States-Mexico Border*.
- Weinkam, G., **E. M. Tapia**, S. Eden, and A. E. Springer. 2017. *Desert Flows Methodology Guidebook*. University of Arizona Water Resources Research Center; Northern Arizona University; Desert Landscape Conservation Cooperative.
- Callegary, J. B., I. Minjárez Sosa, **E. M. Tapia Villaseñor**, et al. 2016. *San Pedro River Aquifer Binational Report*. International Boundary and Water Commission.
- Mott Lacroix, K., **E. M. Tapia**, and A. Springer. 2016. *A Desert Flows Assessment: Environmental Water Needs of Riparian and Aquatic Species in the Desert Watersheds of the U.S. and Mexico*. University of Arizona Water Resources Research Center; Northern Arizona University; Desert Landscape Conservation Cooperative.

INVITED TALKS, CONFERENCE PRESENTATIONS, AND SCHOLARLY PRESENTATIONS

- 2026, August 27.** *The Transboundary Santa Cruz River*. Permanent Forum of Binational Waters Science Talk, Tributaries of the Rio Grande and the Colorado River Basins: The Role of Groundwater. Virtual presentation.
- 2026, June 8.** *Transboundary Groundwater Aquifers: A Strategic and Vulnerable Resource in the U.S.-Mexico Border*. Universities Council on Water Resources/National Institutes for Water Resources Annual Water Resources Conference.
- 2026, April 30.** *Reconnaissance of Border Aquifers in the Arizona-Sonora Region: Supporting Binational Groundwater Assessment Through Data Harmonization*. Poster presentation, CALES Annual Research Showcase.
- 2026, April 29.** *From Flood Risk to Water Opportunity: Building Resilience in Ambos Nogales*. Santa Cruz River Research Days.
- 2026, April 28.** *Toward a Sustainable Border: U.S.-Mexico Collaboration on Groundwater*. Guest lecture, Universidad Autónoma de Chihuahua.
- 2026, March 26.** *Toward a Sustainable Border: U.S.-Mexico Collaboration on Groundwater*. Guest lecture, El Colegio de Sonora.
- 2025, December 18.** *Women in Water Diplomacy Network Convening*. Presenter, held in conjunction with the Colorado River Water Users Association 80th Annual Conference.
- 2025, November 13.** *Water, Risk, and Resilience: Shared Challenges in Ambos Nogales*. 1st Earth Sciences Symposium.
- 2025, October 8.** *Climate Change and Water Availability in the Sonora-Arizona Border Region: Challenges and Opportunities for Nogales, Sonora*. Santa Cruz County Meeting.
- 2025, September 22.** *Climate Change and Water Availability in the Sonora-Arizona Border Region: Challenges and Opportunities for Nogales, Sonora*. Invited guest lecture, Green Stormwater Infrastructure in Ambos Nogales, School of Transportation Studies.
- 2025, May 21.** *Translating Science*. Session 7: Data and Knowledge Sharing, WRRC 2025 Annual Conference, Shared Borders, Shared Waters: Working Together in Times of Scarcity, University of Arizona, Tucson, Arizona.
- 2024, April 28.** *Women in STEM: Building Networks and Overcoming Obstacles*. Encuentro de Mujeres STEM de la Facultad Interdisciplinaria de Ciencias Exactas y Naturales, Mexico.
- 2024, April 13.** *Transboundary Aquifer Assessment Program, Arizona-Sonora*. WRRC 2024 Annual Conference, Implementing Water Solutions Through Partnerships, United States.
- 2024, April 9.** *Holistic Approach to San Pedro Aquifer*. SME Arizona Conference 2024, United States.
- 2023, July 12.** *Transboundary Aquifers*. WRRC 2023 Annual Conference, What Can We Do? Solutions to Arizona's Water Challenges, University of Arizona, Tucson, Arizona.
- 2023, June 7.** *Santa Cruz River Aquifer Hydrologic Efforts*. Transboundary Aquifer Assessment Program (TAAP) Binational Meeting, Nogales, Arizona.
- 2023, March 23.** *Brief Remarks on the U.S.-Mexico Transboundary Aquifer Assessment Program (TAAP)*. Transboundary Groundwater Resilience Town Hall, New York, New York, held in connection with the 2023 UN Water Conference.
- 2022, November 15.** *Assessing the Sustainability of Groundwater Withdrawal in the Santa Cruz River Aquifer*. XLIII Semana Cultural de Geología, Mexico.
- 2022, October 27.** *Climate Change*. XXVI Congreso Nacional de Hidráulica, Mexico.
- 2022, April 22.** *Climate Change*. Día de la Tierra 2022, Mexico.
- 2021, April 27.** *Pilot Study of Methods to Support Stakeholder Prioritization of Transboundary Aquifers for Study Along the US-Mexico Border*. EGU (European Geosciences Union) General Assembly 2021, virtual conference.
- 2020, October 14.** *Conference on Transboundary Waters*. United States-Mexico Transboundary Groundwater Conference, United States.
- 2020, August 25.** *The TAAP Case of Transboundary Groundwater Collaboration*. International Association of Hydrogeologists, Transboundary Aquifers Commission Meeting.
- 2020, May 6.** *Impacts of Variable Climate and Effluent Flows on the United States-Mexico Transboundary Santa Cruz Aquifer*. EGU General Assembly 2020, online.
- 2020, February 26.** *Socio-Organizational Processes and Their Impact on Hydrology*. Semana de Protección Civil, 5ta Edición, Mexico.
- 2019, November 15.** *Assessing the Impact of Climate Change and Binational Water Management Decisions on the Transboundary Santa Cruz River Aquifer*. Semana Cultural, Departamento de Geología, Universidad de Sonora, Hermosillo, Mexico.
- 2019, November 10.** *Hydrology and Leonardo da Vinci*. Expo Artes, Simetrías y Belleza de la Naturaleza: Leonardo Da Vinci, Universidad de Sonora, Mexico.

- 2019, October 23.** *The U.S.-Mexico Transboundary Aquifer Assessment Program: Implementation, Evolution, and Lessons Learned.* Sustainable Development for the Americas: Science, Health and Engineering Policy and Diplomacy, University of Arizona, Tucson, Arizona.
- 2019, September 23.** *Impacts of Variable Climate and Effluent Flows on the Transboundary Santa Cruz Aquifer.* The Geological Society of America Annual Meeting, United States.
- 2019, April 10.** *Impacts of Variable Climate and Effluent Flows on the Transboundary Santa Cruz Aquifer.* Binational Summit on Groundwater, United States.
- 2019, April 2.** *Desert Flows Assessment: Establishing a Baseline with Science.* Desert Waters Symposium, United States.
- 2018, October 10.** *Assessing the Impact of Climate Change and Binational Water Management Decisions on the Transboundary Santa Cruz River Aquifer.* 8vo Congreso Nacional de Investigación de Cambio Climático, Sede Regional Noroeste, Mexico.
- 2018, July 10.** *Assessing the Implications of Variabilities of Climate and Effluent Discharges on Groundwater Recharge in the Transboundary Santa Cruz Aquifer.* AWRA 2018 Summer Specialty Conference: The Science, Management and Governance of Transboundary Groundwater, United States.
- 2018, June 27.** *Assessing the Implications of Variabilities of Climate and Effluent Discharges on Groundwater Recharge in the Transboundary Santa Cruz Aquifer.* Universities Council on Water Resources (UCOWR/NIWR) Conference, United States.
- 2018, May 15.** *U.S.-Mexico Transboundary Aquifer Studies and Cooperation.* Madrean Conference 2018, United States.
- 2018, May 14.** *Ensuring Environmental Flows in the Desert Watersheds of the U.S. and Mexico: Barriers, Solutions, and Successful Case Studies.* Madrean Conference 2018, United States.
- 2018, April 18.** *U.S.-Mexico Transboundary Aquifer Studies and Cooperation.* 7. Desafíos en Seguridad Hídrica y Resiliencia ante el Cambio Global en Zonas Áridas del Continente Americano, Mexico.
- 2018, February 28.** *Implications of Precipitation Uncertainties to the Water Resources in the Transboundary Santa Cruz Basin.* Two Nations One Water: U.S.-Mexico Border Water Summit, United States.
- 2018.** *Assessing the Implications of Variabilities of Climate and Effluent Discharges on Groundwater Recharge Downstream of the Nogales International Wastewater Treatment Plant (NIWTP) in the Transboundary Santa Cruz Aquifer.* University of Arizona 2018 GIDP Showcase.
- 2018.** *Assessing the Implications of Variabilities of Climate and Effluent Discharges on Groundwater Recharge Downstream of the Nogales International Wastewater Treatment Plant (NIWTP) in the Transboundary Santa Cruz Aquifer.* Poster presentation, ALRS 50th Anniversary Student Poster Contest.
- 2018.** *The U.S.-Mexico Transboundary Aquifer Assessment Program in Arizona: Current and Future Efforts.* Poster presentation, UA CALS Poster Forum.
- 2017, June 14.** *The U.S.-Mexico Transboundary Aquifer Assessment Program in Arizona: Current and Future Efforts.* Universities Council on Water Resources/National Institutes for Water Resources Annual Conference, United States.
- 2017, May 29.** *The Transboundary Aquifer Assessment Program and the Binational Study of the San Pedro Aquifer.* XVI World Water Congress, Mexico.
- 2017.** *The Desert Flows Database.* Poster presentation, UA CALS Poster Forum.
- 2015.** *The Transboundary Aquifer Assessment Program and the San Pedro River Aquifer Binational Report.* Poster presentation, University of Arizona CALS Poster Forum.
- 2013.** *Use of System Thinking for Determining Climate Change Impacts in Water Balance for the Rio Yaqui Basin, Sonora, Mexico.* 2013 Meeting of the Americas, American Geophysical Union, Cancún, Quintana Roo, Mexico.
- 2013.** *Rockfall Hazard Assessment Using Lidar Technology.* Department of Geology, Universidad de Sonora, Hermosillo, Sonora, Mexico.
- 2012.** *Assessment of Vulnerability in the Empalme–Yaqui River Delta Coastal Region.* Convención Geológica Nacional, Mexico.
- 2011.** *Assessment of Saline Intrusion Susceptibility in the Valle del Yaqui and Valle de Guaymas Aquifers Using Vulnerability Indexes.* 8th National Groundwater Meeting, San Juan del Río, Querétaro, Mexico.
- 2011.** *Mathematical Model for the Valle del Yaqui Aquifer.* Department of Geology, Universidad de Sonora, Hermosillo, Sonora, Mexico.
- 2010.** *Preliminary Assessment of Climate Change Scenarios and Their Impact on Recharge of the Valle del Río Yaqui Aquifer, Sonora.* Convención Geológica Nacional, Mexico.
- 2010.** *Evaluating Global Climate Models with Observed Precipitation and Temperature Data in Sonora, Northwestern Mexico, During the North American Monsoon.* American Geophysical Union, 2010 Meeting of the Americas, Brazil.
- 2010.** *Climate Change Scenarios in Sonora.* XXXIV Semana Cultural del Departamento de Geología, Universidad de Sonora, Hermosillo, Sonora, Mexico.

2010. *Climate Change Scenarios in the Yaqui River Basin, Sonora, and Their Impact on Aquifer Recharge.* Mexican Geological Survey (SGM), Mexico City, Mexico.

2009. *Estimating Rainfall from Lightning Occurrence in Sonora.* Reunión Anual, Unión Geofísica Mexicana, Mexico.

2008. *Estimating Rainfall from Lightning Occurrence in the State of Sonora.* Poster presentation, Reunión Anual 2008, Unión Geofísica Mexicana, A.C., Puerto Vallarta, Jalisco, Mexico.

2008. *Anthropogenic Erosion and Soil Loss.* XXXII Semana Cultural, Departamento de Geología, Universidad de Sonora, Hermosillo, Sonora, Mexico.

2006. *A Scheme for the Qualitative Evaluation of the Environmental Vulnerability of the City of Cananea, Sonora.* 5th National Meeting of Earth Sciences, Puebla, Mexico.

SELECTED SCIENCE COMMUNICATION AND MEDIA

- **2026, July 18.** Host and interviewer, *Women in Water: Dr. America Lutz Ley and Solutions to Water Scarcity.* Women in Water Initiative, Permanent Forum of Binational Waters.
- **2026, March 20.** Host and interviewer, *Women in Water: Dr. Adriana Zuñiga Teran and Sustainable Development.* Women in Water Initiative, Permanent Forum of Binational Waters.
- **2025, October 28.** Host and interviewer, *Episode 3: Water and Diplomacy, with Elizabeth A. Koch.* Women in Water Initiative, Permanent Forum of Binational Waters.

SELECTED WORKSHOPS AND SCIENTIFIC MEETINGS ORGANIZED AND FACILITATED

- 2025, December 10. Co-organizer, Final Workshop – Socialization of the Transboundary Regional Action Plan for Drinking Water, Basic Sanitation, and Solid Waste Management.** Inter-American Development Bank (IDB), Amazon Cooperation Treaty Organization (ACTO), and WSP. Final workshop with representatives of ACTO member countries presenting and discussing the Regional Action Plan, Investment Plan, and Water and Sanitation Safety Plans.
- 2025, July 24. Co-organizer, Fifth Workshop – Sectoral Modernization and Innovation Mechanisms and Investment Plan, Transboundary Regional Action Plan.** Virtual workshop. Inter-American Development Bank (IDB), Amazon Cooperation Treaty Organization (ACTO), WSP, and representatives of ACTO member countries.
- 2024, December 19. Co-organizer, Fourth Workshop – Diagnostic Analysis and Sectoral Modernization and Innovation Mechanisms, Transboundary Regional Action Plan.** Virtual workshop. Inter-American Development Bank (IDB), Amazon Cooperation Treaty Organization (ACTO), WSP, and representatives of ACTO member countries. Workshop focused on diagnostic results, prioritization of measures, stakeholder mapping, sectoral innovation, and investment guidance.
- 2024, September 10–11. Co-organizer, Transboundary Aquifer Assessment Program (TAAP) Binational Workshop.** Universidad de Sonora, Hermosillo, Sonora, Mexico.
- 2024, April 22. Co-organizer, Third Workshop – Critical Areas and Preliminary Sectoral Measures, Transboundary Regional Action Plan.** Brasília, Brazil. Hybrid workshop with the Inter-American Development Bank (IDB), Amazon Cooperation Treaty Organization (ACTO), WSP, and representatives from all eight Amazonian member countries: Bolivia, Brazil, Colombia, Ecuador, Guyana, Peru, Suriname, and Venezuela.
- 2024, February 27. Co-organizer, Second Workshop – Transboundary Assessment and Methodology for the Selection of Critical Areas, Transboundary Regional Action Plan.** Virtual workshop. Inter-American Development Bank (IDB), Amazon Cooperation Treaty Organization (ACTO), WSP, and representatives of ACTO member countries.
- 2023, June 6–7. Co-organizer, Transboundary Aquifer Assessment Program (TAAP) In-Person Meeting.** Tucson and Nogales, Arizona; the second day included a binational meeting with Mexican partners.
- 2023, May 5. Co-organizer, Kickoff Workshop – Transboundary Regional Action Plan for Drinking Water, Basic Sanitation, and Solid Waste Management.** Virtual workshop. Inter-American Development Bank (IDB), Amazon Cooperation Treaty Organization (ACTO), WSP, and representatives of ACTO member countries.
- 2022, May 16. Co-organizer, WRRRC-Universidad de Sonora Meeting on Present and Future Cooperation on Transboundary Matters.** Nogales, Arizona.
- 2020, September 17. Co-organizer, TAAP Meeting on Water Use and Climate Uncertainties in the Transboundary Santa Cruz Aquifer.** Virtual meeting.
- 2015. Facilitator, Desert Landscape Conservation Cooperative Meeting.** Aguascalientes, Mexico.

TEACHING EXPERIENCE

- Professor, Universidad de Sonora (2019–2025). Courses included Water Sciences, Hydrology, Hydrogeology, Physical Sciences, Natural Hazards, Remote Sensing, and Advanced Topics in Geology (Hydrogeological Modeling).
- Instructor, Universidad de Sonora (2012–2014). Courses included Natural Hazards, Earth Systems, and Data Analysis in Geosciences.

- Graduate and undergraduate thesis advising and committee service in hydrogeology, hydrology, climate variability, natural hazards, and groundwater modeling.

SELECTED COMPETITIVE AWARDS AND FUNDED PROPOSALS

- 2025. Growing Water Smart: Development of a Risk Management Plan for a Transboundary Basin.** Sonoran Institute and Lincoln Institute of Land Policy. Competitive award to Universidad de Sonora. **Lead proposal author and project manager.**
- 2025. Transboundary Regional Action Plan for Drinking Water, Basic Sanitation, and Solid Waste Management.** Inter-American Development Bank / Amazon Cooperation Treaty Organization. Competitive consulting contract awarded to WSP. **Co-developed the technical proposal and served as project manager.**
- 2023. Water Resource Efficiency Study for an Agricultural Company in Peru.** IDB Invest. Competitive consulting contract awarded to WSP. **Co-developed the technical proposal and served as project manager.**
- 2023. Requirements for the Design of Adaptable Climate-Resilient Primary Care Clinics in The Bahamas.** Inter-American Development Bank, Latin America and the Caribbean. Competitive consulting contract awarded to WSP. **Co-developed the technical proposal and served on the project team.**
- 2023. Guidelines for Disaster and Climate Change Risk Management Plans.** Inter-American Development Bank, Latin America and the Caribbean. Competitive consulting contract awarded to WSP. **Co-developed the technical proposal and served on the project team.**

ACADEMIC AND PROFESSIONAL SERVICE

- Member, International Association of Hydrogeologists (IAH) Transboundary Aquifers Commission (2021–present).
- Member, Women in Water Diplomacy Network (2023–present).
- Board Member, Sky Island Alliance (2022–present).
- Coordinator, Women in Water Initiative, Permanent Forum of Binational Waters (2025–present).

FELLOWSHIPS, AWARDS, AND RECOGNITIONS

- 2019.** Babbitt Dissertation Fellowship, University of Arizona. Dissertation: *Water Resources in the Borderlands of the Colorado River Basin: Climate Uncertainties, Anthropogenic Impacts, and U.S.-Mexico Binational Agreements.*
- 2017.** Herbert E. Carter Travel Award, University of Arizona.
- 2013.** Honorable Mention, M.S. in Geology, Universidad de Sonora.
- 2007.** Exchanging Cities, Water and Infrastructure (ExCit) Scholarship, Michigan Technological University.

LANGUAGES AND TECHNICAL SKILLS

- Languages: Spanish (native); English (fluent).
- GIS and spatial analysis: ArcGIS, QGIS, Global Mapper.
- Hydrologic and hydraulic modeling: HEC-HMS, HEC-RAS, FLO-2D.