

C. Mel Lytle, Ph.D.

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Profile: Dr. Mel Lytle has worked in the Utilities, Public Works and Natural Resources fields for over 25 years. He received a B.S and M.S. in Agronomy and Ph.D. in Botany (special emphasis in wetland biogeochemistry) in 1994 from Brigham Young University where he was recognized by Sigma Xi for the Outstanding Dissertation of the Year. From 1995 through 1998, he completed a Post-Doctoral Fellowship at the University of California Berkeley and research at the Stanford Synchrotron Radiation Laboratory. Since that time, his professional experience and leadership has advanced to an executive level management in Municipal Utilities and City Administration. Currently, Dr. Lytle is a Deputy City Manager for the City of Stockton, California. He is also a published author and is an invited lecturer at local, national and international workshops & symposia.

Professional Experience

2017 to Present: Deputy City Manager I, City of Stockton, California

Responsible for development of administrative and operational policy recommendations within specific functional areas where the City's interests are represented in local and regional planning intended to address statutory changes, emerging policy initiatives and special project-related efforts in the San Joaquin Delta, Water Resources, Groundwater Management, Stormwater, and regional Flood Control and Prevention.

2012 to 2017: Director of Municipal Utilities, City of Stockton, California

Responsible for the executive management of the City's Municipal Utilities Department including Water, Waste and Stormwater Enterprises with an annual budget of ~\$148 million, 12 Divisions and 217 FTE positions. Planned, organized, coordinated and directed all activities of the City's advanced water treatment and distribution facilities, Regional Wastewater Control Facility, sanitary sewer collection systems and stormwater/flood management programs; provided expert professional assistance to City's Executive Team, Technology Oversight and Procurement Steering Committees together with the continued development of working relationships with other outside agencies and organizations

2002 to 2012: Water Resources Division Head/Coordinator, Dept. of Public Works San Joaquin County, California

Responsible for senior management of all County water resources initiatives and NPDES stormwater compliance programs within the San Joaquin County Department of Public Works. Directed development of integrated regional water resources management planning, water and groundwater supply and quality project development including water right and groundwater investigations, project engineering feasibility analyses, grant writing/funding (~\$15.4 million), NEPA/CEQA compliance documents, water quality studies, expert witness and legislative advocacy for County interests at local, State and Federal proceedings

1998 to 2002: Senior Scientist, David Evans and Associates, Inc. & Cooper & Lake Environmental, Inc.

Private consultant responsible for surface water/wastewater quality studies, lake restoration, groundwater contamination, stormwater assessments and investigations, wetland ecology studies, constructed wetland feasibility investigations in Western U.S. and Latin America

1995 to 1998: Post-doctoral Fellow and Research Associate, University of California, Berkeley

Research & Project Focus: water/wastewater studies, engineered wetland biogeochemistry, wetland analysis, design and construction, Plant ecophysiology, phytoremediation, biogeochemical processes and x-ray speciation at Stanford Synchrotron Radiation Laboratory of bioaccumulated trace metals in aquatic ecosystems. *Lecturer:* Environmental Biology

1986 to 1994: Research & Teaching Assistant, Brigham Young University

Research Focus: Wetland plant ecophysiology, biogeochemical cycling and x-ray speciation of trace and heavy metals in fresh, saline and hyper-saline wetlands and nutrient uptake mechanisms in C₃ and C₄ grain crops. *Lecturer:* Plant Physiology, Plant Physiology Lab, Principles of Biology Lab, Biology for Honors, Soil Science, Soil Fertility, Saline & Sodic Soils Laboratories

1982 to 1986: Farm Manager, R. Bogetti Farms Inc., Tracy, California

Supervised all farming practices, annual budgeting and farm personnel on row-crop farms totaling over 2,000 acres in the Delta and San Joaquin Valley of California

Education

Ph.D. (1994) Botany - Brigham Young University, Provo, Utah Dissertation: *Heavy Metal Bioaccumulation in Great Basin Submersed Aquatic Macrophytes*

M.S. (1990) Agronomy – Soil Fertility/Plant Nutrition, Brigham Young University, Provo, Utah

B.S. (1988) Agronomy – Production/Agribusiness, Brigham Young University, Provo, Utah

Continuing Education

- University of California Davis Extension, Sacramento, California
 - Groundwater Law, Hydrology and Management (2003)
 - Facilitating for Groups in Conflict (2005)
 - Fluvial Geomorphology (2005)
 - Salmonid Biology (2006)
- Groundwater Resources Association of California, Sacramento, California
 - “Artificial Groundwater Recharge: Nexus of Quantity and Quality in California (2005)
- Continuing Legal Education - International, San Francisco, California
 - California Water Law & Policy (2004 - 2015)

Negotiation & Mediation Experience

Stockton East Water District Treated Water Supply and Cost Allocation Agreement between City of Stockton, California Water Service Company, Lincoln Village Maintenance District and Colonial Heights Maintenance District
Participated over 12 months on the development of a new water supply and cost allocation agreement between the major water supply agencies in the City of Stockton.

Eastern San Joaquin Integrated Conjunctive Use Program Environmental Impact Report Settlement Agreement - Participated over 18 months as a principle negotiator for San Joaquin County and Northeastern San Joaquin County Groundwater Banking Authority in the development of a Settlement Agreement signed in 2010 with East Bay Municipal Utility District.

Mokelumne River Water and Power Authority - Participated over 8 months as a principle negotiator for the Authority in the development of a Memorandum of Understanding signed in 2010 between East Bay Municipal Utility District, Amador Water Agency and Calaveras County Water District regarding stakeholder participation in Bureau of Reclamation sponsored Mokelumne River project feasibility studies.

California Partnership for the San Joaquin Valley - Participated over 2.5 years as a principle negotiator for San Joaquin County in the development of a historic Regional Water Resources Resolution in 2009 between eight San Joaquin Valley Counties including Fresno, Kern, Kings, Madera, Merced, San Joaquin, Stanislaus and Tulare.

Delta Counties Coalition – Participated in 2008 as a principle negotiator for San Joaquin County in the development of a joint resolution of founding principles for a Multi-County Coalition Agreement between Contra Costa, Sacramento, San Joaquin, Solano and Yolo Counties on regional water and related issues concerning the Sacramento-San Joaquin River Delta and greater Bay/Delta Estuary.

Mokelumne River Forum - Participated in 2005 as a principle negotiator for San Joaquin County and the Mokelumne River Water & Power Authority in the development a Memorandum of Understanding founding a 16-member agency forum to mutually develop beneficial and regionally focused solutions to meet the water supply and related needs. Forum signatories included California Department of Water Resources (DWR), Alpine County, Amador County, Amador Water Agency, Calaveras County Water District, Calaveras Public Utilities District, City of Lodi, City of Stockton, East Bay Municipal Utility District, Jackson Valley Irrigation District, North San Joaquin Water Conservation District, San

Joaquin County Flood Control and Water Conservation District and Mokelumne River Water and Power Authority, Stockton East Water District, Central San Joaquin Water Conservation District, and Woodbridge Irrigation District.

Northeastern San Joaquin County Groundwater Banking Authority – Participated as lead staff, coordinator and negotiator beginning in 2002 of an 11-member Joint Exercise of Powers Agency in San Joaquin County. Member agencies of the Authority include Central Delta Water Agency, California Water Service Company, Central San Joaquin Water Conservation District, City of Lodi, City of Stockton, North San Joaquin Water Conservation District, San Joaquin County Farm Bureau, San Joaquin County Flood Control and Water Conservation District, South Delta Water Agency, Stockton East Water District and Woodbridge Irrigation District.

Professional Experience

2012 to Present Director, Municipal Utilities Dept., Stockton, California

The Director plans, organizes, coordinates through nine direct-reports the utilities operations and maintenance functions, including water service, advanced wastewater collection and treatment and storm drainage programs for the City (~300,000). The Municipal Utilities Department (MUD) is comprised of Water, Wastewater and Stormwater Enterprises regulated and supported by user fees restricted to the specific utility. For purposes of operational efficiency, the organization is comprised of 12 divisions to operate, maintain and support the Enterprises. The Enterprises are managed to recognize the independent financial structure and regulatory requirements unique to each.

Water Utility - provides drinking water service to approximately 60% of the Stockton Metropolitan Area (~188,000) with the California Water Service Company and San Joaquin County serving the remaining. The Delta Water Supply Project Water Treatment Plant began operation in May 2012 providing up to 26 million gallons per day of treated surface water diverted from the Sacramento/San Joaquin Delta and Mokelumne River. Stockton's other water supply is derived from purchased water from Stockton East Water District and over 20 groundwater wells. The Water Utility maintains a water transmission and distribution system, which includes supply reservoirs, 600 miles of pipelines, 48,000 water meters and fire hydrants. The Water Utility also provides long-term water resources planning and supports an extensive, locally coordinated water conservation, drought awareness and education program with local school districts.

Project and Program Highlights:

- Completed \$220 million Delta Water Supply Project and commenced operations.
- Implementation of Large Landscape Pilot Program to reduce water use by customers.
- Completed Feasibility Study for Advanced Metering Infrastructure Project.
- Completed design and construction for the Ammonia Facilities Project for new advanced chloramination disinfection program.
- Completed \$55 million bonding rating improvement and refinancing effort.
- Completed installation of a 24" water line to serve the future growth area in the southeastern part of the City which includes the new State Prison Hospital.

Wastewater Utility - is comprised of a collection system of nearly 900 miles of sewer main pipeline and 27 pump stations that route sewage to the Regional Wastewater Control Facility (RWCF). The system collects from many connections within the City, special districts outside the City, and certain areas within San Joaquin County. The wastewater treatment plant is a 55-million gallon per day capacity advanced treatment facility located on nearly 700-acres that also includes oxidation ponds and a 150-acre constructed wetland in the southwestern portion of the City adjacent to the San Joaquin River. On average, 25 million gallons of wastewater is treated daily and discharged into the San Joaquin River.

Project and Program Highlights:

- \$150-million Capital Improvement and Energy Management Project (CIEMP) & Environmental Impact Report approved by City Council
- CIEMP Progressive-Design Build Project Team Selection and Project Design Phase 1 Kick-off

- New SCADA Master Plan development to support CIEMP Project Design
- New Computerized Maintenance and Management System (CityWorks) development and Department-wide implementation.
- SCADA Security Improvements Program
- Regional Water Quality Control Board new National Pollutant Discharge Elimination System (NPDES) Wastewater Permit negotiated and approved 2014.

Stormwater Utility - consists of 73 pump stations, over 600 miles of pipeline, and 22,500 drain inlets, which route stormwater from City streets into local basins and waterways. Regular maintenance of the system is necessary to prevent flooding from storm runoff. The Stormwater Utility is also responsible for oversight and compliance with the City's National Pollutant Discharge Elimination System (NPDES) permit, which requires extensive water quality monitoring and public outreach programs.

Project and Program Highlights:

- Stormwater Report of Waste Discharge was submitted to the State Water Resources Control Board 2013.
- New National Pollutant Discharge Elimination System (NPDES) Regional Stormwater Permit expected negotiations in 2016.

2002 – 2012 Division Head, San Joaquin County Public Works Dept., California

The Water Resources Division Head manages San Joaquin County's water resources and NPDES stormwater compliance programs with staff and a number of engineering, environmental consultants and attorneys. Major responsibilities have included surface water supply, groundwater and stormwater quality investigations, project engineering feasibility studies, environmental analysis, preparation of annual budgets (~\$7 million) and the management of regional coalitions and authorities with agencies for the development of surface and groundwater resource projects, and stormwater plans.

Project and Program Highlights:

Eastern San Joaquin County Integrated Regional Water Management Plan & CEQA Program Environmental Impact Report – Provided project management, direction and coordination for the completion of an integrated regional water management plan and environmental impact review for the Eastern San Joaquin Integrated Conjunctive Use Program. A four-year effort of the Northeastern San Joaquin County Groundwater Banking Authority and the collaboration of over 40 stakeholder agencies to develop objectives, plans and strategies to better manage water resources in a critically over-drafted groundwater basin (see www.gbawater.org) (Project Timetable 2005-2011; Project Budget ~\$1.35 million).

Mokelumne River Regional Water Storage and Conjunctive Use Project Feasibility Study & Project Environmental Impact Report (MORE WATER) - Initiated and provided project management and coordination in concert with the US Bureau of Reclamation to complete engineering feasibility and environmental review for a new off-stream storage facility to capture flood flows from the Mokelumne River and regulate water supply to an integrated system of conjunctive use facilities providing additional storage capability, groundwater recharge, water banking and water supply reliability for San Joaquin County and the Bay-Delta Region of California (see www.morewater.org) (Project Timetable 2003-2015; Project Budget ~\$6.6 mil).

County of San Joaquin NPDES Stormwater Management Plan - Provided management and coordination for the completion of the San Joaquin County Stormwater Management Plan. This document outlines the Stormwater Management Plan (SWMP) that was developed for and will be implemented within the jurisdictional limits of the City of Stockton and the urbanized areas of San Joaquin County. The overall goals of the program are to reduce the degradation, by urban runoff, of the beneficial uses of natural resources of the metropolitan area of Stockton (see www.sjcleanwater.org). (Project Timetable 2007-2009; Project Budget ~\$500,000).

U.S. Geological Survey Joint Salinity Intrusion Study – Provided project management and coordination for the completion of a five-year, multi-million dollar regional groundwater salinity intrusion study in San Joaquin County jointly-sponsored by the Northeastern Groundwater Banking Authority, the California State Department of Water

Resources and the U.S. Geological Survey. The study included the construction of depth-specific monitoring wells at locations along the projected saline front within San Joaquin County to improve the accuracy of groundwater quality data, assess the vertical and lateral extent of saline water migration, determine the source of the saline water and understand the hydro-geologic properties in the area of concern (<http://pubs.usgs.gov/of/2006/1309/>) (Project Timetable 2003-2008; Project Budget ~\$3 mil).

Eastern San Joaquin Basin Groundwater Management Plan – Provided management, direction and coordination for the completion of a regional groundwater management plan for the Eastern San Joaquin Sub-basin. An 18-month effort of the Northeastern San Joaquin County Groundwater Banking Authority led to the collaboration of over 35 stakeholder agencies to develop basin-wide objectives and plans to better manage groundwater resources within the basin (www.gbawater.org) (Project Timetable 2002-2004; Project Budget ~\$600,000).

1998 – 2002 Senior Scientist, Cooper & Lake Environmental Inc. and David Evans and Associates, Inc.

Senior Scientist responsible for the development and management of water resource related projects including water/wastewater quality, constructed treatment wetlands, lake, surface water, groundwater and watershed projects for private sector clients and public agencies.

Projects:

Williamson River Delta Restoration Environmental Assessment, Klamath Falls, Oregon – Evaluated potential impacts of the 4,800-acre Williamson River Delta wetland restoration program on water, wetland and watershed quality issues to Upper Klamath Lake, Oregon for the U.S. Department of Agriculture Natural Resources Conservation Service in partnership with The Nature Conservancy.

Dos Lagos Lake Quality Monitoring and Analysis Program, Corona, California – Conducted quantitative limnology studies and established a monitoring program including thermal stratification, dissolved oxygen, mixing, water column oxygen (WOD) and sediment oxygen demand (SOD) of two lakes for the development of a Lake Quality Restoration & Management Plan for a large multi-phased development in Southern California.

Laguna and Coyote Creek Watershed Quality Monitoring Program, Richland Development Company, Moraga, California – Developed and conducted a quality assurance stormwater monitoring program at the Palos Colorados development to assess the impact of storm water contaminants in local watersheds, Moraga, California.

Watershed Quality Investigations of the Klamath and Lost Rivers, Klamath Falls, Oregon – Conducted hydrological, conveyance, wetland and best management practice evaluations for the improvement of water quality in the Lower Klamath and Lost River watersheds, Oregon for the U.S. Bureau of Reclamation.

1995 -1998 Post-doctoral Fellow, Department of Environmental Biology, University of California, Berkeley

Post-doctoral Fellow responsible for the development and implementation of quantitative, multi-year field studies of constructed wetlands located throughout the United States to determine seasonal changes in the quality of various wastewaters for treatment effectiveness together with other associated research.

Electric Power Research Institute Constructed Wetland Research Program - Conducted a two-year quantitative wetland field study sponsored by the Electrical Power Research Institute to evaluate the function and engineering design of constructed wetland systems for the remediation of acid mine drainage, coal-ash leachate and oil refinery wastewater. This study was conducted over two-years with monthly field analyses & sample collections at the Chevron Water Enhancement Wetland, Chevron Oil Refinery (Richmond, California), the Allegheny Power Passive Treatment Wetland (Springdale, Pennsylvania) and the Tennessee Valley Authority Widows Creek Wetland and Coal Mine Wetlands (Flatrock, Alabama).

Tulare Lake Drainage District Wetland System Construction Study - Provided technical design, directed construction and planting of a 10-cell wetland system in the Tulare Lake Basin, California. This 5-acre wetland was planted with different wetland plants designed to test remediation of selenium in tile-drainage water. The study was conducted over 12-months and was sponsored by the Tulare Lake Drainage District, J.G. Boswell & Company, University of California Salinity Drainage Task Force, and the California State Department of Water Resources.

1990 - 1994 Department of Botany and Range, Brigham Young University, Provo, Utah

Trace Metal Bioaccumulation in Great Basin Wetland and Watershed Habitats - Conducted a two-year quantitative field study, sponsored by the Wildlife Society, at the Fish Springs National Wildlife Refuge, Bear River Migratory Bird Refuge, Clear Lake Wildlife Management Area wetlands, the Provo and Sevier River watersheds to determine the extent of heavy metal bioaccumulation among aquatic plant species utilized as waterfowl food sources. This study included the monthly monitoring and speciation of heavy metals within wetland plant tissues, surface water, sediments and wildlife tissues to determine their biogeochemical cycling, fate and potential environmental impact to feeding waterfowl species.

Relevant Lectures, Expert Witness and Advocacy Experience

2012- Present City of Stockton

Witness testimony before the Regional Water Quality Control Board Hearing on City of Stockton Wastewater Discharge Permit” June 6, 2014, Sacramento, CA

2002 – 2012 San Joaquin County, California

“Expert Witness testimony before the California State Water Resources Control Board Public Informational Proceeding to Develop Flow Criteria for the Delta Ecosystem Necessary to Protect Public Trust Resources” March 22, 2010, Sacramento, CA

“Expert Witness testimony before the California State Water Resources Control Board Regarding Emergency Drought Conditions” February 17, 2009, Sacramento, CA

“Expert Witness testimony before the California State Water Resources Control Board Revocation Hearing on U.S. Bureau of Reclamation Auburn Dam Project Water Rights” July 21, 2008, Sacramento, CA

“Expert Witness testimony at trial for a takings cause of action before the Federal Court of Claims – Stockton East Water District vs. United States” October 23, 2006, Sacramento, CA

“Testimony on U.S. House Bill 3812 (Sponsor Richard Pombo) authorization for Mokelumne River Feasibility Study” before U.S. Senate Committee on Energy and Natural Resources, Subcommittee on Water and Power, March 30, 2006, Washington, D.C.

“Testimony on U.S. House Bill 4045 (Sponsor Richard Pombo) authorization for Mokelumne River Feasibility Study” before U.S. House Subcommittee on Water & Power, May 18, 2004, Washington D.C.

Invited Lectures:

“California’s Water Legacy – Golden Path or Dusty Road?” OLLI Summer Lecture Series, University of Pacific, June 29-30, 2015, Stockton, CA

“Regional Self-Sufficiency Through Inter-Regional Actions – To Dream the Impossible Dream” Integrated Regional Water Management Conference: Working Together for California’s Water Future, Sponsored by the Dept. of Water Resources and Water Education Foundation, May 24-25, 2011, Sacramento, CA

“Peripheral Canal: Impacts on San Joaquin County Water Supply Users” Osher Lifelong Learning Institute, University of the Pacific, May 7, 2009, Stockton, CA

“Water Education Foundation 26th Annual Executive Briefing Panelist, Water 2009: Building on Change – Delta Panel”, March 12, 2009, Sacramento, CA

"The View from Ground Zero" Association of California Water Agencies - Fall Conference, Region 4 Issues Forum, December 4, 2008, Long Beach, CA

"San Joaquin County Business Council Water Summit Pre-Summit Briefing & Panelist" University of the Pacific, November 20, 2008, Stockton, CA

"Droughts, Floods, Climate Change and the Peripheral Canal - What in the World is going on with California's Water?" Annual Joint Meeting of American Public Works Association, San Joaquin Engineers Council and American Society of Civil Engineers, June 6, 2008, Stockton, California

"Regional Self-Sufficiency in Water Resource Management" Water Education Foundation 2008 Bay-Delta Dinner, June 4, 2008, Stockton, California

"Integrated Regional Conjunctive Use Project Luncheon Discussion" Association of California Water Agencies, December 12, 2006, Sacramento, California

"A Consensus-based Approach to Groundwater Management Planning for the Eastern San Joaquin Basin" Association of California Water Agencies Conference, December 2003, San Diego, California

"San Joaquin County Regional Water Supply Projects" San Joaquin Valley Engineers Association, September 2003, Stockton, California

"Future Water Supply for San Joaquin County" American Public Works Association, November 2002, Sacramento, California

"How to Succeed in Groundwater Management" California Water Policy Conference - 12, October 2002, Los Angeles, California,

1998 - 2002 Cooper & Lake Environmental Inc. and David Evans and Associates, Inc.

Invited Lectures:

"Potential Use of Treatment Wetlands for the Treatment of Domestic Sewage and Industrial Wastewaters at High Altitudes." Doe Run Peru Mining Technical Presentation, September 2001, La Oroya, Peru

Conferences:

"Use of Constructed Wetland Systems to Treat Mine and Mineral Processing Waters." 5th International Conference on Clean Technologies for the Mining Industry, May 2000, Santiago, Chile

1995 – 1998 Department of Plant & Microbial Biology, University of California, Berkeley

Invited Lectures:

"Exploiting Constructed Wetland Biogeochemistry for Applied Phytoremediation Purposes." Department of Chemistry, University of Texas at El Paso. October 1998, El Paso, Texas

"Constructed Wetland Treatment System Biogeochemical Processes." Allegheny Power Company Constructed Wetlands for Industrial Wastewater Treatment Workshop. July 1998. New Kensington, Pennsylvania

"Plant Establishment, Growth and Biomass Production in Flow-Through Treatment Wetlands." UC Salinity Drainage Program Annual Meeting, April 1998. Sacramento, California

Conferences:

"Selenium Remediation by Flow-Through Wetlands: Design, Construction and Initial Findings." 10th Annual Agroforestry Conference, Sequential Reuse of Drainage Water for Salt and Selenium Management, October 1997, Hanford, California

"XAS Analysis of Plant-based Trace Element Detoxification." 24th Annual SSRL User's Conference Workshop, October 1997, Stanford Synchrotron Radiation Laboratory, Stanford, California

“The Role of Wetland Plants in Trace Element Remediation in Constructed Wetlands.” Electric Power Research Institute, Water Toxics Assessment and Watershed Management Business Area Council Meeting, June 1997, Golden, Colorado

“Potential Use of Soft X-ray Radiation in Phytoremediation Research.” Molecular Environmental Research in the Soft X-ray Region Workshop, March 1997, Lawrence Berkeley National Laboratory, Berkeley, California

“Recent Applications of XAS to the Emerging Science of Phytoremediation.” 23rd Annual SSRL User’s Conference, October 1996, Stanford Synchrotron Radiation Laboratory, Stanford, California

1990 – 1994 Department of Botany and Range Science, Brigham Young University, Utah

Conferences:

“Seasonal changes in valence and chemical speciation of bioaccumulated manganese in Potamogeton pectinatus.” 14th Missouri Symposium, April 19-22, 1995, University of Missouri, Columbia, Missouri

“Manganese and iron accumulation by Potamogeton pectinatus L., A potential trophic channeler in freshwater wetlands.” Ecological Society of America Annual Meeting, July 31-August 4, 1993, Madison, Wisconsin

“Metabolic stress induced by organo-mercurials in a free floating aquatic macrophyte, Lemna minor L.” Ecological Society of America Annual Meeting, August 9-13, 1992, Honolulu, Hawaii

Publications

Ye, ZH, SN Whiting, Z-Q Lin, CM Lytle, JH Qian, and N Terry 2001. Removal and distribution of Fe, Mn, Co, and Ni within a Pennsylvania constructed wetland treating coal combustion by-product leachate. *Journal of Environmental Quality* 30, 1464-1473.

Lytle, CM and C Jofre 2000. Use of constructed wetland systems to treat mine and mineral processing waters. M.A. Sanchez, F. Vergara and S.H. Castro, University of Concepcion (eds). In *Proceedings of the V International Conference on Clean Technologies for the Mining Industry, Volume I*, Santiago – Chile, May, 2000, pgs. 161-171.

Lytle, C. M., 2000. Water Quality Data Review and Wetland Size Estimate for the Treatment of Wastewaters from the Klamath Straits Drain. In U.S. Bureau of Reclamation Technical Memorandum, July 2000.

Lytle, CM (1999) Treatment Wetlands: Effective Cleanup of Contaminants in Mine/Mineral Processing Waters. *Latin America Mining Record* Vol. 6, 22-23.

Lytle, CM FW Lytle, N Yang, J-H Qian, D Hansen, A Zayed and N Terry (1998). Reduction of (CrVI) to (CrIII) by wetland plants: Potential for in situ heavy metal detoxification. *Environmental Science and Technology* 32, 3087-3093.

Lytle, CM FW Lytle and N Terry (1998) X-ray spectroscopy study of a wetland plant-based heavy metal detoxification mechanism. In *Stanford Synchrotron Radiation Laboratory 1997 Activity Report*, Stanford University, Stanford, CA. 259-262.

Lytle, CM FW Lytle, A Zayed and N Terry (1997) X-ray absorption spectroscopy of bioaccumulated chromium in selected vegetable crops and water hyacinth. In *Stanford Synchrotron Radiation Laboratory 1996 Activity Report*, Stanford University, Stanford, CA. 356-357.

Smith, BN and CM Lytle (1997) Air Pollutants. Invited chapter in: M.V.N. Prasad (ed.) *Plant Ecophysiology*. Chapter 12. John Wiley & Son, New York. p. 375-392.

Lytle, CM FW Lytle and BN Smith (1996) Use of XAS to determine the speciation of bioaccumulated manganese in *Potamogeton pectinatus* (Sago pondweed). *Journal of Environmental Quality* 25, 311-316.

- Lytle, CM FW Lytle, A Zayed and N Terry (1996) Phytoconversion of Cr⁶⁺ to Cr³⁺ by Water Hyacinth — A Case for Phytoremediation. Bulletin of the Ecological Society of America 77, 235.
- Lytle, CM and BN Smith (1995) Seasonal nutrient cycling in Potamogeton pectinatus of the lower Provo river. Great Basin Naturalist 55, 164-168.
- Lytle, CM, BN Smith and CZ McKinnon (1995) Manganese accumulation in soil and plants along Utah roadways: A possible indication of motor vehicle exhaust pollution. Bulletin of the Ecological Society of America 76, 163.
- Lytle, CM, BN Smith and CZ McKinnon (1995) Manganese accumulation along Utah roadways: a possible indication of motor vehicle exhaust pollution. The Science of the Total Environment 162, 105-109.
- Lytle, CM, CZ McKinnon and BN Smith (1994) Roadside manganese in soil and plants. Naturwissenschaften 81,509-510.
- Lytle, CM and FW Lytle (1994) X-ray absorption spectroscopy an analytical tool for element chemical speciation providing enhanced characterization of hazardous wastes. In Proceedings of the Colorado Hazardous Waste Management Society, 8th Annual Regional Environmental Conference. Denver, Colorado, Report No. 23.
- Lytle, CM and BN Smith (1993) Manganese and iron accumulation by Potamogeton pectinatus L.: A potential trophic channeler in freshwater wetlands. Bulletin of the Ecological Society of America 74, 339.
- Lytle, CM and BN Smith (1992) Metabolic stress induced by organomercurials in a free-floating aquatic macrophyte, Lemna minor L. Bulletin of the Ecological Society of America 73, 257.
- Lytle, CM VD Jolley and JC Brown (1991) Iron deficiency stress response of various C₃ and C₄ grain-crop genotypes: Strategy II mechanism evaluated. Journal of Plant Nutrition 14, 341-362.
- Lytle, CM VD Jolley and JC Brown (1990) Iron-efficient and iron-inefficient oat and corn respond differently to iron-deficiency stress. Plant and Soil 130, 165-172.

Committees, Societies and Organizations

- **Board Trustee** – Reclamation District 404 - Boggs Tract (2013 to present)
- **Secretary** – San Joaquin County Advisory Water Commission (2002-2012) (www.sjwater.org)
- **Secretary** – Mokelumne River Water & Power Authority(2002-2012) (www.morewater.org)
- **Member** - California Water Plan Update 2013 - Public Advisory Committee (2011)
- **Member** - Association of California Water Agencies - Local Government Committee (2006-07)
- **Chair - Water Environment Research Foundation** (2003) Project Subcommittee *for Innovative Metals Removal for Urban Storm water Treatment* (Project Budget ~ \$650,000)

Awards, Recognitions and Academic Scholarships

California Association of Sanitation Agencies

- Organizational Excellence Award; City of Stockton Municipal Utilities Department - Focus on Safety Program. CASA 60th Annual Conference, August 19 – 21, 2015, San Diego, CA

American Public Works Association – Sacramento Chapter

- Professional Manager of the Year – Water Resources (2009)

San Joaquin Council of Governments Regional Excellence Awards

- Judges Award - “San Joaquin County Water Management Plan” (2003)
- Development Honorable Mention - “Eastern San Joaquin Groundwater Management Plan” (2005)
- Development Award - “Eastern San Joaquin Integrated Regional Water Management Plan” (2008)

County of San Joaquin, Equal Employment Opportunity Mentor Partnership Program

- Certificate of Recognition as “Mentor” (2004, 2005, 2008)

Dept. Botany & Range Science, Dept. Agronomy & Horticulture, Brigham Young University

- Sigma Xi Scientific Research Society - Outstanding Dissertation of the Year Award (1995)
- S. Paul and Hilda F. Stewart Scholarship (1994)
- Julia Greenwell Award and Botanical Science Scholarship (1992)
- Wildlife Society Grant (1991)

Personal Interests

Outdoor sports, hiking, saltwater sport fishing, sailing, photography and gardening