

Zane L. Marshall

Southern Nevada Water Authority
Resources & Facilities
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ACADEMIC HISTORY

University of Nevada Las Vegas
4505 S. Maryland Parkway.
Las Vegas, NV 89154-5012
(702) 895-3399

EDUCATION

- 2006** Master of Arts in Science in Biology and Statistics
University of Nevada, Las Vegas
- 1996** Bachelor of Arts in Environmental Studies, Minor in Biology
University of Nevada, Las Vegas

WORK HISTORY

- May 2010-
Present** Director, Resources & Facilities
Southern Nevada Water Authority/Las Vegas Valley Water District

Leads Strategic Plan implementation and provides strategic guidance to Managers, Supervisors and lead staff. Provides technical guidance for research and monitoring initiatives. Manages departmental budgets. Represents SNWA in local and national efforts concerning sustainability and climate change. Oversees the recruitment of management and lead staff positions within the department.

- 2006-2010** Environmental Resources Division Manager
Southern Nevada Water Authority

Staff Supervision and Project Team Leadership
Managed up to 25 staff. Oversaw multidisciplinary research teams, which included senior professional staff, on various environmental and water resource related projects. Lead Strategic Plan implementation and provided strategic guidance to supervisors and staff.

Project Management

Administered research, planning and construction projects dealing with sensitive, threatened and endangered species, and national and international environmental policy. Prepared budget proposals and manage approved budgets. Acted as Principal Investigator and/or participated in field research activities. Interpreted research results, prepared reports and gave presentations to internal management, outside agencies, professional organizations and the public.

Environmental Policy and Planning

Assisted in developing the technical components of the Nevada/Utah interstate agreement concerning Snake Valley groundwater. Actively participated in environmental planning processes such as development and implementation of multi-species conservation programs and Endangered Species Act (ESA) recovery teams. Reviewed and addressed environmental documents, position papers, legal briefs and court decisions.

Environmental Compliance

Lead environmental investigations and associated analyses for large infrastructure, and participated in the preparation of reports and other documentation required by the National Environmental Policy Act, Endangered Species Act, Clean Water Act and Federal Land Policy Management Act. Interpreted environmental laws, regulations and policies relevant to the agency's mission.

Interagency Coordination and Collaboration

Established relationships with state and federal agencies and other stakeholders, both in the United States and Mexico, and worked one-on-one and in teams to identify problems and develop cooperative solutions concerning environmental resources.

Nevada State Engineer Expert Witness in Biological Resources

Prepared expert reports and provided expert testimony concerning biological resources and their association with groundwater development in hydrographic basins in central eastern Nevada.

2002-2006

Senior Biologist

Southern Nevada Water Authority

Supervised, designed and implemented scientific investigations concerning the distribution, status and ecology of sensitive biological resources, including the following taxonomic groups: small mammals, bats, raptors, passerines, fish, amphibians and vascular plants. Participated in threatened and endangered species recovery teams. Prepared and provided expert testimony to Nevada State Engineer concerning biological resources associated with groundwater development in Spring, Tikaboo and Three Lakes valleys. Represented SNWA on the Lower Colorado River Multi-Species Conservation Program Steering Committee.

1996-2002 Environmental Biologist I/II
Southern Nevada Water Authority

Conducted biological resource investigations. Managed environmental consultant contracts. Reviewed and contributed to biological research reports. Mentored interns and junior staff. Participated as a member of several threatened and endangered species recovery teams and as a technical member of several committees during the development of the Clark County Multi-Species Habitat Conservation Plan. Coordinated and participate in educational tours and workshops concerning environmental issues such as the Colorado River Basin and the Delta in Mexico, the Salton Sea and the central Great Basin. Co-represented SNWA on the Steering Committee for the development of the Lower Colorado River Multi-Species Conservation Program and chaired the Adaptive Management Subcommittee during program development.

1995-1996 Environmental Intern
Las Vegas Valley Water District/Southern Nevada Water Authority

Supported technical staff in conducting biological resource investigations. Participated in field surveys for sensitive, threatened and endangered species. Reviewed and summarized publications and reports concerning biological resources. Coordinated and oversaw the work of an environmental contractor.

1994-1995 Environmental Intern
Southwest Gas Corporation, Inc.
Corporate Office, Staff Engineering Department
5241 Spring Mountain Road
Las Vegas, Nevada 89103

Worked with supervisor to design and implement a corporate-wide environmental compliance program. Aided in the management of environmental contractors. Produced State Fire Marshal reports. Assisted in storm water runoff management and permitting, waste storage facility audits, underground storage tank compliance, and hazardous and special waste management.

1992-1994 Environmental Technician
Dames & Moore, Inc.

Performed paleoenvironmental analyses using packrat middens, sediment core samples, and pollen samples. Conducted sensitive, threatened and endangered species surveys for plants, birds, reptiles, and small mammals. Participated in cultural resource surveys and prepared artifacts for museum curation.

MILITARY HISTORY

1990-1998 Sergeant (Honorably Discharged)
United States Marine Corps Reserve
3rd Platoon, Fox Company, 2nd Battalion, 23rd Marines, 4th Marine Division
5755 Blytheville Road, Building 1032, Las Vegas, Nevada 89115
(702) 632-1501

Completed Marine Corps Boot Camp, School of Infantry and Anti-tank TOW Missile Weapon System School. Participated in infantry training exercises and performed volunteer duties as a member of the Honor Guard and Color Guard. Supervised up to 40 marines with limited oversight during Desert Storm. Developed and conducted military training courses in infantry combat techniques, combat first aid and leadership.

Badges, medals and awards include: Meritorious Unit Commendation, Selected Marine Corps Reserve and National Defense Service medals; six Expert Rifleman badges; meritorious promotions to Private First Class and Corporal; and, three meritorious awards for outstanding leadership and performance.

VOLUNTEER HISTORY

2016-Present UNLV College of Sciences Dean's Advisory Board Member
University of Nevada, Las Vegas

2013-Present Board Member (Director)
Alliance for Water Efficiency

Provide organizational oversight, review and approve budgets and expenditures, and provide strategic advice concerning organizational initiatives.

2007-2011 UNLV School of Environmental and Public Affairs Advisory Board Member
University of Nevada, Las Vegas - Environmental Studies Department

2003-2016 Board Member (Director)
Great Basin Bird Observatory

Provided organizational oversight, review and approve budgets and expenditures, and provide technical advice concerning research methods.

2001-2013 Research/Technical Cave Diver
Death Valley National Park - Devils Hole Dive Team

Participated in population counts and various research and monitoring activities concerning the endangered Devils Hole pupfish (*Cyprinodon diabolis*), and continued

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exploration of Devils Hole. Provide technical recommendations concerning Devils Hole to the Ash Meadows Recovery Team.

2003-2007 Volunteer Biologist
Great Basin Bird Observatory

Conducted breeding bird monitoring surveys in the Mojave and Great Basin Deserts as part of a statewide program.

1992-1993 Field Technician
University of Nevada, Las Vegas - Geological Sciences Department

Assisted graduate students in collecting and analyzing water samples from springs in remote backcountry locations within Grand Canyon National Park.

1992-1993 Biology Research Assistant
University of Nevada, Las Vegas - Department of Biological Sciences

Assisted graduate students in phylogenetic studies of sensitive, threatened and endangered species in a DNA sequencing laboratory. Prepared mitochondrial DNA (mtDNA) samples for amplification in polymerase chain reaction equipment. Labeled mtDNA samples with radioactive isotopes. Prepared polyacrylamide gels and ran amplified mtDNA samples through gel electrophoresis.

PUBLICATIONS

Jezkova, T., J. Jeager, Z. Marshall and B. Riddle. 2009. "Pleistocene Impacts on the Phylogeography of the Desert Pocket Mouse (*Chaetodipus penicillatus*).” Journal of Mammalogy 90(2):306-320.

POSTERS AND PRESENTATIONS

Brazilian Association of Sanitary and Environmental Engineering (ABES) Conference. September 2013. Goiania, Brazil. Presentation: "Southern Nevada's Climate Change Strategy: Resilience, Adaptation and Risk Management." Sponsored by World Bank.

U.S. State Department, World Bank Brazilia Water Program Tour. September 2013. Las Vegas, NV. Presentation: "SNWA Water Resources."

SNWA Integrated Resources Planning Advisory Committee Facility Tour. April 2013. Las Vegas, NV. Presentation: "History and Overview of Las Vegas Wash Environmental Programs."

SNWA – Israeli Delegation Meeting/Facility Tour. February 2012. Las Vegas, NV. Presentation: "Tempering the Thirst of America's Driest City – Water Efficiency Programs in Southern Nevada."

Nevada State Engineer's Hearing on SNWA's Spring, Delmar, Dry Lake and Cave Valleys Groundwater Applications. October 2011. Carson City, NV. Expert Witness testimony concerning Environmental Soundness.

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Water Utility Climate Alliance. August 2010. Las Vegas, NV. Presentation: "Southern Nevada's Water Resources: Solutions and Challenges."

White Pine County Water Advisory Board. February 2009. Ely, NV. Presentation: "Spring Valley Stipulation Monitoring Program."

Agricultural Water Summit. November 2008. Winnemucca, NV. Presentation. "Planning for a Sustainable Nevada."

Nevada State Engineer's Hearing on SNWA's Delmar, Dry Lake and Cave Valleys Groundwater Applications. February 2008. Carson City, NV. Expert Witness testimony concerning Environmental Soundness.

SNWA Board Tour of Groundwater Project Area and Spring Valley Ranches. September 2008. White Pine County, NV. Presentations.

American Society of Mammalogists. June 2007. Albuquerque, NM. Poster: "Phylogeography of the Desert Pocket Mouse (*Chaetodipus penicillatus*)."

American Society of Mammalogists. June 2007. Albuquerque, NM. Poster: "Bat and Small Mammal Species Inventory of Several Valleys in East-central Nevada and West-central Utah."

Nevada State Engineer's Hearing on SNWA's Spring Valley Groundwater Applications. September 2006. Carson City, NV. Presentation: "Biological Resource Investigations, Effects Analyses and Mitigation Planning."

Society of Independent Professional Earth Scientists. June 2006. South Lake Tahoe, NV. Presentation: "Planning for a sustainable Nevada."

Bonneville Chapter of American Fisheries Society. March 2006. Park City, UT. Presentation: "Planning for a sustainable Nevada."

Nevada Water Resources Association, Annual Meeting. February 2006. Mesquite, NV. Panel Moderator: "Biological Topics in Basin and Range Hydrogeology."

Nevada Water Resources Association, Colorado River Symposium. October 2005. Las Vegas, NV. Presentation: "Importance of the Colorado River to environmental resources".

Bureau of Land Management, Cooperating Agency Biological Resources Technical Committee for the Clark, Lincoln and White Pine Counties Groundwater Development Project. June 2005. Las Vegas, NV. Presentations: "Biological resource investigations overview", "Mojave Desert wetland, riparian and aquatic ecosystems and associated sensitive resources occurring within the biological resources study area" and "Great Basin terrestrial wildlife."

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Desert Fishes Council. November 2004. Tucson, AZ. Presentation: "In-state water resource planning and development."

American Society of Mammalogists. June 2004. Arcata, CA. Presentation: "Phylogeography of the Desert Pocket Mouse (*Chaetodipus penicillatus*) with emphasis on the conservation of *C. p. sobrinus*."

Devils Hole Workshop. June 2004. Pahrump, NV. Presentation: "Research and management concerning the Devils Hole pupfish – A status update."

University of Nevada, Las Vegas, Department of Biological Sciences, Student Symposium. October 2003. Las Vegas, NV. Presentation: "Phylogeography and conservation biology of the Desert Pocket Mouse (*Chaetodipus penicillatus sobrinus*)."

The Wildlife Society. September 1997. Snowmass, CO. Poster: "Vegetation classification of Great Basin and Mohave Desert vegetation using satellite images, GIS, and ERDAS imaging software."

Nevada Water Resources Association. 1996. Las Vegas, NV. Presentation: "Environmental resource investigations in the lower Virgin River."

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS, COMMITTEES AND RECOVERY TEAMS (Past and Present)

Professional Organizations

American Water Works Association
Association of Metropolitan Water Agencies
Desert Fishes Council
Great Basin Bird Observatory
Nevada Water Resources Association

Natural Resource Committees

Las Vegas Valley Watershed Advisory Committee (current Chair)
Las Vegas Wash Coordination Committee
Nevada State Cheetgrass Action Team
Spring Valley and DDC Valleys Stipulation Executive Committee
Clark County Multi-Species Conservation Plan Implementation and Monitoring Committee
Lower Colorado River Multi-Species Conservation Program (LCR MSCP) Steering Committee
LCR MSCP Adaptive Management Subcommittee (past Chair)
LCR Native Fishes Workgroup

Conservation and Recovery Teams

Ash Meadows Recovery Team
Big Springs Spinedace Recovery Implementation Team
Columbia Spotted Frog Conservation Team
Least Chub Conservation Team
Lower Virgin River Recovery Implementation Team

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Muddy River Recovery Implementation Program Executive Committee
Muddy River Biological Advisory Committee
Railroad Valley Recovery Implementation Team

Relict Leopard Frog Conservation Team
Southwestern Willow Flycatcher Regional Recovery Implementation Team
Virgin River Fishes Recovery Team
White River Fishes Recovery Implementation Team

SPECIAL TRAINING

Leadership Training/Certifications

UNC, Kenan-Flagler Business School Executive Development – Water and Wastewater Leadership
Institute for Executive Development - Leadership Development and Strategic Planning
Center for Creative Leadership – Leading for Organizational Impact
Las Vegas Valley Water District Leadership Academy (FranklinCovey)
Project Management
SSI Advanced Open Water Dive Instructor
USMC Non-commissioned Officer Training

Technical Training/Certifications

CEQA Compliance
CPR/First Aid
DAN Diving Emergency Management Provider
Decompression Diver SCUBA
Desert Tortoise Ecology and Survey Techniques
Full Cave SCUBA
Habitat Conservation Planning
HEP500, Habitat Evaluation Procedures
Mammalogy Field Techniques
Multivariate Statistics
NEPA/ESA Compliance
Nitrox and Advanced Nitrox SCUBA
Population Genetics
Population Viability Analysis Methods
Southwestern Willow Flycatcher Ecology and Survey Techniques
Statistical Research Design
Swift-water Rescue Technician
Vascular Plant Taxonomy