

LAS VEGAS VALLEY WATERSHED ADVISORY COMMITTEE

REGIONAL WATER PLAN ACCOMPLISHMENTS 2011



Lake Mead, Nevada

Member Agencies

City of Henderson
City of Las Vegas
City of North Las Vegas
Clark County
Clark County Regional Flood Control District
Clark County Water Reclamation District
Las Vegas Valley Water District
Southern Nevada Water Authority

Regional Water Quality Plan Accomplishments for Fiscal Year 2010-11

In January 2009, the Las Vegas Valley Watershed Advisory Committee (LVVWAC) adopted a Regional Water Quality Plan to help meet its mission to:

Protect, preserve and enhance the quality and quantity of water resources in the Las Vegas Valley Watershed and to sustain economic well-being and protect the environment for present and future generations.

Each LVVWAC member agency has individual responsibilities that contribute to the management of the Las Vegas Valley Watershed. Following is an outline of LVVWAC's collaborative accomplishments for fiscal year 2010-11.

Goal 1

Protect Lake Mead as a source of water for Southern Nevada and downstream users

The Las Vegas Valley accesses Nevada's Colorado River allocation through existing facilities at Lake Mead. Other Lake Mead inflows come from the Muddy River, the Virgin River and the Las Vegas Wash. In fiscal year 2010-11, the LVVWAC member agencies monitored and responded to upstream inflows to Lake Mead through the following actions:



Lake Mead Inflows

- Funding the Estuary and Lake Computer Model (ELCOM), a three-dimensional model of Lake Mead used to analyze data collected to better understand how inflow changes affect Lake Mead water quality.
- Developing the 2011 Lake Mead Monitoring Plan and Surface Water Quality Monitoring and Assessment Plan for the Las Vegas Wash.
- Conducting water-quality sampling and analysis in Lake Mead, Las Vegas Wash, Muddy River, Virgin River, Colorado River, and below Hoover Dam.
- Creating the Lower Colorado River Regional Water Quality Database utilized by all agencies collecting data in the lower Colorado River region to facilitate data sharing among agencies.

The following points provide an overview of LVVWAC's accomplishments relative to managing non-point sources from the Las Vegas Valley:

- Completed construction of Lower Narrows and Homestead weirs in the Las Vegas Wash, bringing the total number of erosion control structures completed to 14.
- Continued enforcement of conservation initiatives in the Las Vegas Valley.

- Obtained Environmental Protection Agency (EPA) and Nevada Division of Environmental Protection (NDEP) approval of the Stormwater Management Plan as required by the 2011 National Pollutant Discharge Elimination System (NPDES) permit for the Las Vegas Valley.
- Continued the execution of the Construction and Industrial Site Stormwater Inspection Program to fulfill requirements of the Stormwater Management Plan.
- Completed all monitoring required for Municipal Separate Storm Sewer System (MS4) Permit and NPDES Wastewater Discharge Permits and reported results to the State of Nevada.
- All local agencies continued participating in NDEP's Lake Mead Water Quality Forum and two of the forum's sub-committees (the Selenium Sub-Committee and the Algae Task Force).
- Each wastewater agency in the Las Vegas Valley continued their wastewater pre-treatment program to monitor and prevent contaminants and industrial wastes from entering the wastewater collection system.

The Clark County Water Reclamation District (CCWRD) and the cities of Henderson, Las Vegas and North Las Vegas operate and maintain wastewater treatment facilities. These facilities discharge highly-treated wastewater to Lake Mead via the Las Vegas Wash. LVVWAC member agencies managed, coordinated and optimized water reclamation facilities by:



Desert Breeze Resource Center

- Commencing operation of the City of North Las Vegas' Water Reclamation Facility and the City of Henderson's Southwest Water Reclamation Facility, both which utilize state-of-the-art membrane bio-reactors in their treatment processes.
- Starting construction on a state-of-the-art membrane-filtration/ozone-disinfection project at the CCWRD.
- Changing and improving five treatment facilities at the City of Las Vegas Water Pollution Control Facility and the Durango Hills Water Resource Center to optimize treatment efficiency.
- Funding a study on the effects of wastewater on the endocrine system of fathead minnows.
- Implementing a comprehensive system-wide cleaning and inspection program for the wastewater collection system to minimize Sanitary Sewer Overflows.
- Participating in water and wastewater treatment optimization studies.

Based on improvements in effluent quality, the SCOP project was deemed no longer necessary.

Goal 2
Meet or surpass federal, state and local standards and regulations

Key water quality laws, such as the Clean Water Act, the Safe Drinking Water Act and the Nevada Administrative Code, are in place to safeguard local and regional water sources. While Southern Nevada’s water treatment facilities are capable of addressing many source water quality challenges, proactive management of the Las Vegas Valley watershed remains key to protecting the region’s overall water resources. To protect Lake Mead, the Las Vegas Wash and associated tributaries, LVVWAC member agencies:

- Continued year-round phosphorus removal at wastewater treatment facilities.
- Developed and exceeded internal goals for minimizing Sanitary Sewer Overflows.
- Reported stormwater monitoring results to NDEP and complied with stormwater quality requirements.
- Executed wet weather monitoring programs, as detailed in the Stormwater Management Plan.
- Performed treatment studies that examined the removal of unregulated contaminants, such as endocrine-disrupting compounds in wastewater. These studies provided guidance on control strategies and the minimization of these contaminants in effluent discharges to the Las Vegas Wash and Lake Mead.
- The cities of Henderson and Las Vegas earned the National Association of Clean Water Agencies Platinum Peak Performance Award for years of consecutive 100 percent NPDES permit compliance.

Ensuring that Southern Nevada’s water meets or surpasses federal, state and local regulations is of key importance LVVWAC’s member agencies. As such, LVVWAC is proud to report that:

- Southern Nevada’s drinking water quality continues to meet or surpass state and federal drinking-water regulations.
- The SNWA received the Phase 3 Directors Award from the EPA’s Partnership for Safe Drinking Water.
- Weekly monitoring of Lake Mead was conducted to determine the impacts of the inflows (Las Vegas Wash, Virgin River, Muddy River and Colorado River) on SNWA Intakes.
- Quarterly endocrine disrupting compound monitoring was conducted in the Las Vegas Wash, Lake Mead and below Hoover Dam.
- Construction began on a new intake tunnel in Lake Mead at a much deeper depth to access better water quality and ensure reliability of the resource with declining lake elevations.



Goal 3

Preserve and enhance the natural, cultural, historic and recreational values of the watershed and Lake Mead

The Las Vegas Valley watershed includes the Lake Mead National Recreation Area and the Las Vegas Wash. These water sources and open lands present opportunities for recreation and support important environmental resources including wildlife and habitat. The following efforts were made by LVVWAC member agencies to manage wildlife and habitats:

- Continued the implementation of the Las Vegas Wash Wildlife Management Plan.
- Finalized and implemented the Surface Water Quality Monitoring and Assessment Plan for the Las Vegas Wash.
- Completed an avian-point count study, conducted monthly aquatic bird counts, and surveyed for the federally endangered Southwestern Willow Flycatcher and Yuma Clapper Rail in the Las Vegas Wash.
- Provided and managed recreational opportunities in the Clark County Wetlands Park that are compatible with native plants and wildlife.
- Completed two mammal studies and an invertebrate survey in the Las Vegas Wash.



Southwestern Willow Flycatcher

LVVWAC supports the mission of the National Park Service, which is to provide for the enjoyment of scenery, natural and historic objects and wildlife in a manner that will leave such resources unimpaired for future generations. LVVWAC member agencies made the following progress in minimizing impacts to cultural and historic values:

- Executed a Programmatic Agreement for the Clark County Wetlands Park between the Bureau of Reclamation, Army Corp of Engineers, SNWA, Clark County, the Nevada State Historic Preservation Office and the Advisory Council on Historic Preservation to expedite the construction of erosion-control structures in the Las Vegas Wash.
- Formed the Cultural Resources Coordinating Committee.
- Began drafting the Cultural Resource Management Plan and Research Design document.
- Minimized impacts to cultural and historical features by managing recreational activities in the Las Vegas Wash.

LVVWAC's member agencies also took the following measures to prevent and control invasive species:

- Controlled invasive plant species by removal and replacing with native plant communities in the Las Vegas Wash.
- Participated in meetings and symposiums regarding quagga mussels and evaluated their progression in Lake Mead.

LVVWAC actively worked to support recreational uses and the health of fisheries and other water-dependent wildlife by:

- Managing nutrient inputs from wastewater treatment plants to support a healthy fishery.
- Conducting an assessment of selenium concentrations in zooplankton in the Las Vegas Bay to determine potential impacts to razorback sucker larvae.
- Conducting a winter fish collection from the Las Vegas Wash, Las Vegas Bay, and Pahrnagant National Wildlife Refuge to determine if winter stress affects selenium accumulation.
- Ensuring that wastewater quality met the water-quality standards as determined by NDEP for recreation.

Goal 4 ***Coordinate water resource management***

All of LVVWAC's member agencies addressed regional water-quality planning and management efforts by working collectively and through participation in various regional committees and groups, such as the Las Vegas Wash Coordination Committee, the Lake Mead Water Quality Forum, the Boulder Basin Adaptive Management Plan Committees and the Stormwater Quality Management Committee. In fiscal year 2010-11, significant strides were made in improving the structural integrity of the Las Vegas Wash to prevent further erosion. Accomplishments include:

- Preliminary design of the Archery and Silverbowl weirs.
- Design completion of the Upper Narrows and Duck Creek Confluence weirs.
- Beginning construction of the DU Wetlands No. 1, Upper Narrows, and Duck Creek Confluence weirs.
- Completion of the Lower Narrows and Homestead weirs.
- Installation or repair of 1,500 feet of bank protection.



Homestead weir

To optimize the use of recycled water:

- The Southwest Water Reclamation Facility in Henderson began operation, providing reclaimed water to the southern part of the Las Vegas Valley.
- Recommendations set forth in the Southern Nevada Regional Water Recycling Study were implemented.
- Water reclamation facilities in the cities of Henderson and Las Vegas and the CCWRD reclaim 100 percent of their wastewater effluent, either by returning it to Lake Mead or distributing it to golf courses and other customers throughout the valley.
- Reclaimed water was efficiently utilized at the Clark County Wetlands Park to support plant communities and wildlife habitats.

Goal 5
Manage flood risks

Despite an average rainfall of approximately four inches per year, the region often experiences periods of intense rainfall and subsequent flash flood events. In fiscal year 2010-11, LVVWAC's member agencies took the following measures to minimize the loss of life and property:

- Continued the implementation of the Master Plan of Flood Control Facilities.
- Completed 18 flood control projects, such as the Simmons Street drainage improvements, Gowan Outfall and Tropical Parkway Channel East project.
- Currently there are 21 projects funded for construction.



Billboard Safety Campaign—2011 Contest Winner

Goal 6
Sustain water and energy resources for future generations

Water and wastewater treatment and delivery processes require significant energy resources, which link the need to conserve both water and energy, and develop renewable energy resources.

LVVWAC member agencies have undertaken a number of renewable energy projects that reduce dependence on non-renewable and less-efficient energy sources. Highlights of the progress include:

- The City of Las Vegas developed a pilot program, which will introduce grease and food waste to the anaerobic digesters at the wastewater treatment plant to produce biogas as an energy source.
- The start of construction on a 3 MW solar power plant in the City of Las Vegas to supply power to the main wastewater treatment plant.
- Began the construction of the Clark County Wetlands Park Nature Center, which includes a solar-energy component (scheduled for completion in 2012).
- Leveraged opportunities to share wastewater treatment and transmission facilities between wastewater agencies to reduce energy expenditures.



Enhancements to Energy and Water Conservation Programs include:

- Retrofitting the SNWA's Alfred Merritt Smith Water Treatment Facility, which included the installation of a new Energy Management System, a new chiller for cooling the main office space, and variable frequency drives on pumpstation evaporative coolers.
- The SNWA/LVWWD developed the goal of having 25% of its energy derived by renewable resources by the year 2025. Currently, SNWA/LVWWD receives 13 percent of its energy from renewable resources, and it is actively pursuing more renewable energy opportunities.
- The entities in the Las Vegas Valley have implemented a number of water-conservation programs including turf limits, fountain and water feature restrictions, seasonal water restrictions, mist system restrictions, golf course water budgets, landscape codes, vehicle washing restrictions, and surface, building, and equipment washing restrictions.

Goal 7

Build community awareness and support for regional watershed management

Understanding that the public has a direct impact on the overall quality of the Las Vegas Valley's watershed, LVWAC engaged the community to enhance awareness and support of regional watershed management. In fiscal year 2010-11, LVWAC's member agencies each contributed to presenting a unified public education program. Initiatives include:

- The CCWRD completed an education and outreach grant from NDEP on non-point source pollution entering the Las Vegas Wash and Lake Mead.
- The Clark County Wetlands Park continues to offer and conduct personal and non-personal interpretive and educational programs on watershed, habitats and stewardship.
- The Clark County Regional Flood Control District, in cooperation with the cities of Henderson, Las Vegas, North Las Vegas, and Clark County, promoted flood safety through "Flash Flood Awareness Month" with the Clark County Board of Directors; classroom presentations; a Flood Safety Awareness campaign, which used billboards, radio, television, and print media; a license plate billboard contest; a new public-service announcement for television; and the production of the Flood Channel (a 30-minute informational television program).
- The SNWA facilitated field trips for local schools to educate students about the water cycle in Las Vegas; held two Green-up events in the Las Vegas Wash; and participated in 32 outreach events.

LVWAC integrated existing stakeholder programs to specifically address watershed issues:

- All agencies promoted water conservation and water-resource management through the "Be Water Smart" and "Pain in the Drain" programs.
- A special web page was developed and posted on the SNWA website to develop greater accessibility to LVWAC information (http://www.snwa.com/wq/watershed_lvwwac.html). This page carries all LVWAC reports and presentations, as well as posted agendas and meeting minutes.

- All agencies were linked to LVVWAC website.
- The Lower Colorado River Regional Water Quality Database was linked to the LVVWAC website to provide a mechanism to access the water-quality data collected in the Las Vegas Valley.
- Presentations and updates on LVVWAC were given to the Las Vegas Wash Coordination Committee and the Lake Mead Water Quality Forum.

