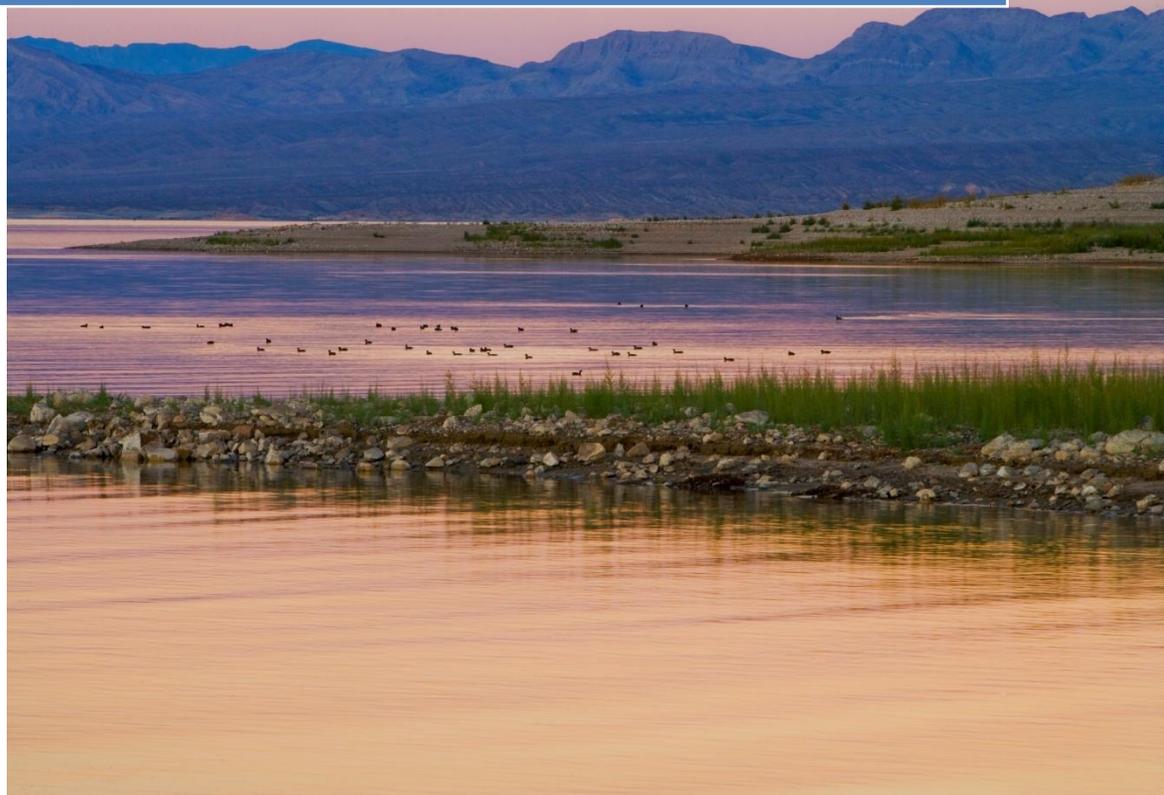


Las Vegas Valley

Watershed Advisory Committee

2012

Regional Water Plan Accomplishments



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 2012

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.

In December 2012, the LVVWAC approved a Strategy Document that further defines its goals and summarizes actions needed to fulfill the Regional Water Quality Plan.

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 2012.

Goal 1

Manage the Las Vegas Valley Watershed to help 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 2012, the LVVWAC member agencies monitored and responded to upstream inflows to Lake Mead through the following actions:

- Receiving grant funding from the Bureau of Reclamation that supports the Estuary and Lake Computer Model (ELCOM), a three-dimensional model of Lake Mead. Model runs are used to better understand the effects climate change may have on Lake Mead's water quality in the future.
- Developing the 2012 Lake Mead Monitoring Plan.
- Implementing the Surface Water Quality Monitoring and Assessment Plan for the Las Vegas Wash.
- Conducting water-quality sampling and analysis in Lake Mead, Las Vegas Wash, the Muddy River, the Virgin River, and the Colorado River above Lake Mead and below Hoover Dam.
- Leveraging 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.



Muddy River Inflows

LVVWAC accomplishments relative to managing non-point sources from the Las Vegas Valley include:

- Completed construction of DU Wetlands No. 1 Weir.
- Started construction of the Upper Narrows and Duck Creek Confluence Weirs in the Las Vegas Wash. Fourteen permanent erosion control structures are completed.
- Revegetated approximately 16 acres along the Las Vegas Wash, further armoring the banks against erosion and limiting sediment and contaminant movement downstream to Lake Mead.
- Continued support of conservation initiatives in the Las Vegas Valley.
- Obtained Environmental Protection Agency (EPA) and Nevada Division of Environmental Protection (NDEP) approval of the Storm Water Management Plan (SWMP) as required by the 2010 National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) Permit for the Las Vegas Valley.

- Continued the execution of the Construction and Industrial Site Storm Water Inspection Program to fulfill requirements of the SWMP.
- Continued development of programs to mitigate the impacts of new development required by the SWMP, including measures for large parking lots and inclusion of storm water treatment features in regional flood control detention basins.
- Completed all monitoring required for the 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 three of the forum's sub-committees (Selenium Sub-Committee, Lake Mead Ecosystem Monitoring Workgroup and the Algae Task Force).
- All local agencies continued participating in the Las Vegas Wash Coordination Committee and three of the committee's sub-committees (Operations Study Team, Administrative Study Team, and Research and Environmental Monitoring Study Team).
- 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:

- Continuing to optimize new state-of-the-art membrane bio-reactor treatment plant operations at the City of North Las Vegas and City of Henderson.
- Completing various rehabilitation and optimization efforts which resulted in increased energy efficiency, improved biological phosphorus removal, reduced chemical utilization, and decreased sludge hauling costs.
- Delivering reclaimed water from the Southwest Water Reclamation to golf course users in the City of Henderson that previously used treated drinking water for irrigation.
- Successfully completing Clean Water Act compliance inspections performed by the EPA at the City of Henderson and CCWRD. The inspection reviewed the pre-treatment, field operations, wastewater treatment, and financial functions of the utility.
- Starting construction of a state-of-the-art membrane-filtration/ozone-disinfection project at the CCWRD to be on-line the fall of 2013.
- Commencing conversion of the older treatment trains at the City of Las Vegas Water Pollution Control Facility from nitrification-only to biological nutrient removal.
- 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.
- Characterizing the disinfection ability of membrane filters by testing for various enteric viruses. Analysis was conducted by the Southern Nevada Water Authority (SNWA).
- Working with U.S. Geological Survey and U.S. Fish and Wildlife Service to complete the study on the effects of wastewater on the endocrine system of fathead minnows.

Goal 2

Meet or surpass federal, state and local standards and regulations

Key water quality laws and regulations, 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 to meet the 334 pound per day Waste Load Allocation for total phosphorus. This exceeds permit requirements, which only require phosphorus removal between March 1 and October 31.
- Developed and exceeded internal goals for minimizing Sanitary Sewer Overflows.
- Reported storm water monitoring results to NDEP and complied with storm water quality requirements.
- Executed wet weather monitoring programs, as detailed in the SWMP.
- 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.
- CCWRD has had 100 percent compliance with its discharge permit for the last three years.

Ensuring that Southern Nevada's water meets or surpasses federal, state and local regulations is of key importance to 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.
- 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. The effluent of CCWRD was also sampled.



- Construction continued 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

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.
- Continued the implementation of the Surface Water Quality Monitoring and Assessment Plan for the Las Vegas Wash.
- Conducted monthly aquatic bird count 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.
- Continued general invertebrate inventory on the Las Vegas Wash, identifying more than 20 new species and conducted second year of tamarisk-feeding invertebrate survey, documenting the arrival of the tamarisk leaf beetle.

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:

- Continued to implement the 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.
- Continued to support the Cultural Resources Coordinating Committee.
- Completed 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.



Great Blue Heron

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

- Controlled invasive plant species by removing and replacing them with native plant communities in the Las Vegas Wash.
- Participated in meetings and symposiums regarding quagga mussels; monitored 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 in Lake Mead.
- Completing a zooplankton study in Lake Mead, which concluded that stabilization and enhancement activities in the Las Vegas Wash are not impacting razorback suckers.
- Monitoring selenium concentrations in Las Vegas Wash and tributaries to Las Vegas Wash to establish background concentrations and determine sources.
- Ensuring that wastewater quality met the water-quality standards as determined by NDEP for recreation.

Goal 4

Sustain and coordinate water resources for future generations

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 Lake Mead Ecosystem Monitoring Workgroup and the Storm Water Quality Management Committee. In 2012, significant strides were made in improving the structural integrity of the Las Vegas Wash to prevent further erosion. Accomplishments include:

- Final design of the Archery and Silverbowl Weirs.
- Construction of the Upper Narrows and Duck Creek Confluence Weirs.
- Completion of the DU Wetlands No. 1, Lower Narrows and Homestead Weirs.
- Installation or repair of 2,000 feet of bank protection.
- Design completed of the Three Kids Weir.
- Design completed of erosion control structure on CCWRD property.



Las Vegas Wash Weir

To optimize the use of limited water resources:

- Henderson's Southwest Water Reclamation Facility continued 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 reclaimed 100 percent of their highly treated 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 and Henderson Bird Viewing Preserve to support plant communities and wildlife habitats.

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 completed construction of plumbing necessary to introduce grease and food waste to the anaerobic digesters at the wastewater treatment plant to produce biogas as an energy source.

- The City of Las Vegas completed construction of a 3-megawatt solar power plant. The power generated from the plant offsets a portion of the power used to treat wastewater at the main wastewater treatment facility.
- Completed the construction of the Clark County Wetlands Park Nature Center, which includes a solar-energy component.
- Discussions have started with UNLV, Sandia National Lab, and Las Vegas Valley Water District (LVVWD) to develop a solar photovoltaic test center at a reservoir location.
- Leveraged opportunities to share wastewater treatment and transmission facilities between wastewater agencies to reduce energy expenditures.

Enhancements to Energy and Water Conservation Programs include:

- The SNWA/LVVWD developed the goal of having 25 percent of its energy derived by renewable resources by the year 2025. Currently, SNWA/LVVWD receives 13 percent of its energy from renewable resources, and it is actively pursuing more renewable energy opportunities.
- The SNWA/LVVWD has completed the design for two electric vehicle charging stations. The stations are scheduled to be completed in summer 2013.
- 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 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. This year, 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 13 flood control projects, such as the Lower Flamingo Detention Basin (Charlie Frias Park), Tropicana North Detention Basin and North and South Environmental Enhancement Areas (Floyd Lamb Park).
- Funded 22 projects for construction.
- Completed design of flood control structure on CCWRD property.



Las Vegas Rain Event in 2012

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Goal 6

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, LVVWAC engaged the community to enhance awareness and support of regional watershed management. In 2012, LVVWAC's member agencies contributed to presenting a unified public education program. Initiatives included:

- The CCWRD continued to implement three education and outreach grants from NDEP through an interlocal agreement with Clark County on non-point source pollution entering the Las Vegas Wash and Lake Mead.
- The CCWRD, on behalf of Clark County, received a non-point source grant from NDEP to install a trash boom on the Las Vegas Wash.
- The Clark County Wetlands Park continued to offer and conduct personal and self-guided interpretive and educational programs on watershed protection, wildlife habitats and environmental stewardship.
- The Clark County Regional Flood Control District, in cooperation with the cities of Henderson, Las Vegas, and 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 50 outreach events.

LVVWAC 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 LVVWAC information (http://www.snwa.com/wq/watershed_lvvwac.html). This page carries all LVVWAC 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.