

las vegas wash coordination committee



2022–2023 biennial report



LAS VEGAS WASH
COORDINATION COMMITTEE
1998 • 2023

mission

working to stabilize and enhance
the valuable environmental
resources of the Las Vegas Wash



Vegetation with wintery Red Rock Canyon and Las Vegas Strip in the background

LAS VEGAS WASH COORDINATION COMMITTEE

Basic Management, Inc.
Bureau of Reclamation
Citizen Members
City of Henderson
City of Las Vegas
City of North Las Vegas
Clark County Parks and Recreation
Clark County Regional Flood
Control District
Clark County Water Quality
Clark County Water Reclamation District
Colorado River Commission
Conservation District of Southern Nevada
Desert Wetlands Conservancy
Lake Las Vegas Resort
Las Vegas Boat Harbor
National Park Service
Natural Resources Conservation Service
Nevada Department of Wildlife
Nevada Division of Environmental
Protection
Nevada State Health Division
Southern Nevada Health District
Southern Nevada Water Authority
University of Nevada, Las Vegas
U.S. Army Corps of Engineers
U.S. Environmental Protection Agency
U.S. Fish and Wildlife Service
U.S. Geological Survey

LAS VEGAS VALLEY WATERSHED ADVISORY COMMITTEE

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



Bobcat on a log at the Las Vegas Wash

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LAS VEGAS WASH
COORDINATION COMMITTEE

1998 • 2023



Las Vegas bearpoppy in bloom

from the chair

Dear Friends:

In 2022, the Las Vegas Wash Coordination Committee completed capital construction on the Las Vegas Wash, and the stabilization and enhancement program moved to long-term operating conditions. With the change, this report, which had been published annually for two decades, moved to a biennial frequency.

Examples of accomplishments from 2022–2023 include:

- Convening 27 stakeholder meetings
- Re-establishing the lines and constructed positions of three weirs
- Conducting water quality monitoring, documenting reductions in key parameters
- Reporting substantial increases in detections of threatened and endangered bird species, including the first documented southwestern willow flycatcher pairs, nests and confirmed fledgling
- Hosting two Wash Green-Ups, planting 13.5 acres with the help of more than 250 volunteers

In 2023, we celebrated 25 years of the Las Vegas Wash Coordination Committee. We are grateful to all the members, partners and dedicated volunteers who have contributed to the transformation of the Las Vegas Wash from an eroding waterway to a vibrant, healthy landscape. Thank you for your support!

Sincerely,

Charles Trushel

Las Vegas Valley Watershed Advisory Committee Chair

background

As the primary drainage channel for the Las Vegas Valley watershed, the Las Vegas Wash (Wash) carries more than 200 million gallons of highly treated effluent, urban runoff and shallow groundwater to Lake Mead daily (along with occasional stormwater), and its wetlands filter sediment and other impurities from its flows. These flows help to sustain plants and animals that would not otherwise be found in the dry Mojave Desert.

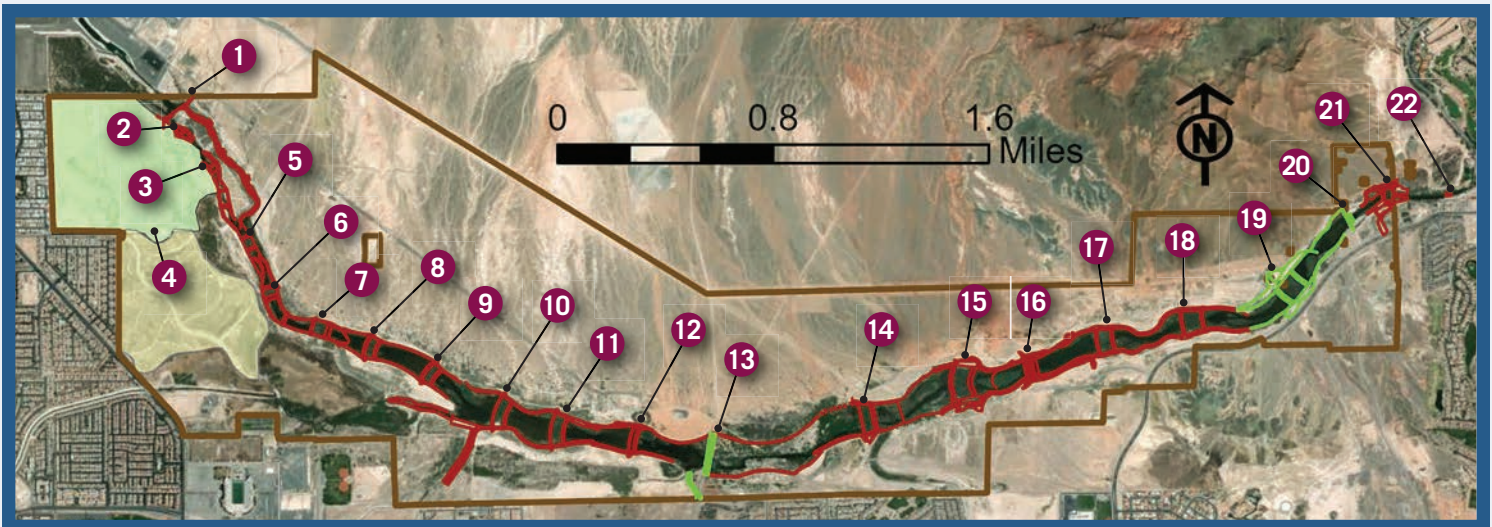
As the valley's population grew in the 20th century, the Wash's flows increased significantly, eroding the channel's bed and banks, which threatened wildlife habitats, water quality and utility infrastructure.

The Las Vegas Wash Coordination Committee (LVWCC) formed in 1998 to address long-term management and protection of the channel and its resources. The LVWCC and its study

teams developed the Las Vegas Wash Comprehensive Adaptive Management Plan (CAMP) to guide activities. The Las Vegas Wash Project Coordination Team (Wash Team) is the implementation arm of the LVWCC.

As the end of capital construction approached, the Wash Team drafted the Las Vegas Wash Long-Term Operating Plan (LTOP) to continue implementation of the CAMP and maintain Wash program assets in perpetuity. The LVWCC's funding and oversight committee, the Las Vegas Valley Watershed Advisory Committee (LVVWAC) approved the LTOP in March 2020.

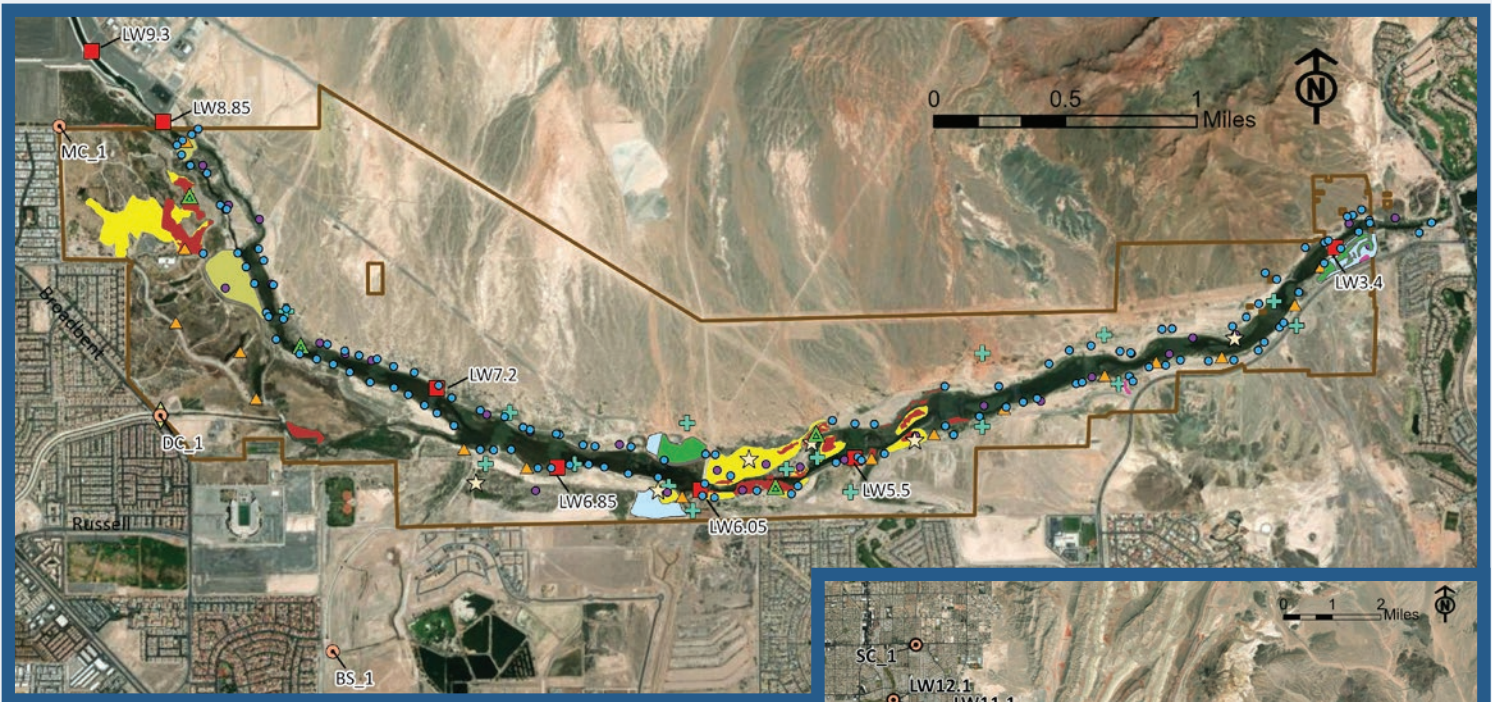
This biennial report includes maps of locations and activities, a summary of CAMP progress and a list of LTOP actions, as well as descriptions of accomplishments over the past 25 years, highlights from 2022–2023 and objectives for 2024–2025 for major programs.



LOCATIONS and STABILIZATION MAP

- | | | |
|--|--------------------------------|--|
| 1. Upper Diversion Weir, Bridge and Bypass Channel | 8. Silver Bowl Weir | 16. Calico Ridge Weir |
| 2. Monson Weir | 9. Archery Weir | 17. Lower Narrows Weir |
| 3. Visitor Center Weir | 10. Duck Creek Confluence Weir | 18. Homestead Weir |
| 4. Nature Center | 11. Upper Narrows Weir | 19. Three Kids Weir |
| 5. Tropicana Weir | 12. Sunrise Mountain Weir | 20. Rainbow Gardens Weir |
| 6. DU Wetlands No. 2 Weir | 13. Pabco Weir | 21. Powerline Crossing Weir and Bridge |
| 7. DU Wetlands No. 1 Weir | 14. Historic Lateral Weir | 22. Fire Station Weir |
| | 15. Bostick Weir | |

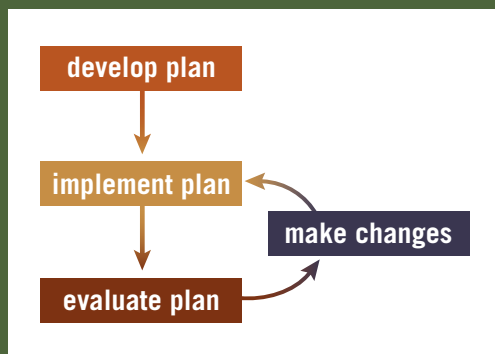
- Clark County Wetlands Park
- Nature Preserve
- In-lieu Fee Mitigation Wetlands
- Weirs
- Contractor Work



ACTIVITY MAPS

- | | |
|--|-----------------------------|
| Mainstream and Total Suspended Solids/Perchlorate Monitoring | Clark County Wetlands Park |
| Rodent and Shrew Surveys | Marsh Bird Monitoring |
| Bat Acoustic Monitoring | Tributary Sampling |
| Selenium Sampling and Stream Gaging | Avian Point Count |
| Real-time Water Quality Monitoring | Wash Green-Up |
| Shallow Groundwater Monitoring | Volunteer Planting |
| Photo Comparative Analysis Study | Weed Management |
| Southwestern Willow Flycatcher Habitat | Flood and Debris Management |
| Yellow-billed Cuckoo Habitat | |





summary of progress on CAMP action items

The LVWCC uses an adaptive process to meet its mission and presents in this section a summary of progress on the 28 CAMP action items for which it, the study teams and LVVWAC are responsible. Sixteen of the 44 total action items are addressed by others.

Jurisdictional & Regulatory, administered by the LVVWAC and LVWCC

- **Further investigate and define structure for local oversight of the CAMP:** Established by cooperative agreement, creating the LVVWAC. Southern Nevada Water Authority appointed lead agency.
- **Ensure interagency coordination:** Meetings convened at least semi-annually.

Funding, administered by the Administrative Study Team

- **Further investigate potential funding sources identified by the team:** Funding sources include local, state, federal and private contributions.
- **Anticipate future funding needs:** Operating budget prepared annually.
- **Work with the Wash management entity to review funding options:** Budgets reviewed and approved by the LVVWAC annually. Operating expenditures not reimbursed by state, federal or private grants are paid for by the member agencies.
- **Develop method to identify specific projects for grant funding:** Vetted by the study teams and Wash Team.
- **Utilize existing resources and staff whenever possible:** Regular coordination helps prevent duplication.

Erosion & Stormwater, administered by the Operations Study Team

- **Install erosion control structures:** All 21 planned weirs in place.
- **Obtain topography and geophysical data:** Collected as needed.
- **Conduct sediment transport modeling:** Models developed and runs conducted as needed.
- **Establish off-stream wetlands with alternate discharge considerations:** Feasibility study concluded wetlands primarily should be established within active floodplain.
- **Evaluate stormwater detention/retention basins:** Addressed by Clark County Regional Flood Control District master plan.

Shallow Groundwater, administered by the Research and Environmental Monitoring (REM) Study Team

- **Develop a central database:** Done.
- **Locate and inventory existing shallow monitoring wells:** Done.
- **Identify issues of concern:** Addressed through ongoing monitoring programs and stakeholder data-sharing forums.
- **Develop a long-term monitoring plan:** Finalized and implemented.
- **Develop a method to identify the potential for future contaminant discovery:** Data assessed regularly.
- **Develop and implement a notification plan:** Managed by outside agencies.
- **Promote interagency coordination:** Meetings convened at least semi-annually.
- **Develop a bibliography:** Done.

Environmental Resources, administered by the REM Study Team

- **Develop long-term management and monitoring plans:** Done.
- **Conduct additional research:** Various studies ongoing.
- **Preserve and address cultural resource issues:** Compliance addressed project by project.
- **Identify funding needs:** Vetted by the study teams and Wash Team.
- **Facilitate interagency coordination to ensure projects are implemented:** Meetings convened at least semi-annually.

Public Outreach, administered by the Administrative Study Team

- **Establish a method to continue implementation of the public outreach program:** Implementation funded annually and directed by the 2013 update of the outreach plan.
- **Continue implementation of feedback mechanisms and measurements of progress and results:** Feedback obtained at events and on lvwash.org. Progress measurements (e.g., numbers of website visitors, event attendees, etc.) recorded and reported to stakeholders.
- **Provide updates to elected officials:** Member agencies use the Wash e-newsletter and LVWCC reports to keep elected officials informed.

Addressed by Others

- **Alternate Discharge:** Deemed unnecessary for the foreseeable future, five action items.
- **Land Use:** Administered by individual member agencies, five action items.
- **Wetlands Park:** Administered by Clark County, six action items.



Yellow-backed spiny lizard basking on a rock



American avocet

LTOP actions

The LTOP includes 36 actions to preserve the ecosystem, involve the public and maintain the capital assets the LVWCC has developed. The Wash Team leads implementation. All actions are meant to be ongoing; any exception is noted.

Jurisdictional & Regulatory

- Host at least two LVVWAC meetings annually
- Host at least two LVWCC meetings and a Wash tour annually
- Host at least two meetings of each study team annually
- Host at least two Cultural Resources Coordinating Committee (CRCC) meetings annually*
- Meet with LVVWAC senior managers annually
- Maintain the Wash members' website

*CRCC dissolved. Action no longer applicable.

Funding

- Seek partnerships to help offset LTOP costs
- Seek and manage grant funding to offset LTOP costs

Erosion & Stormwater

- Administer the operations and maintenance (O&M) plan
- Conduct facility inspections
- Identify and prioritize maintenance needs
- Secure maintenance services
- Oversee maintenance activities
- Comply with regulatory and permit conditions
- Coordinate payments and funding processing
- Conduct O&M agency coordination

Shallow Groundwater

- Monitor shallow groundwater and field parameters
- Collect water level and water quality data from 16 wells quarterly
- Coordinate with agencies on Wash water quality issues and regulatory compliance

Environmental Resources

- Collect quarterly Wash water quality samples and report data annually
- Maintain real-time water quality stations weekly or bi-weekly
- Collect quarterly dry weather data on tributaries
- Measure water flow at four sites in the Wash
- Upload water quality data to the Lower Colorado River Water Quality Database
- Analyze water quality data for contaminants of potential concern
- Track regulations, rules and legislation relevant to the Wash

- Implement activities related to the weed management plan, revegetation plan and the species and habitat components of the wildlife management plan
- Track the status and trends of cultural sites
- Conduct research about Wash cultural resources

Public Outreach

- Participate in at least four local outreach events annually
- Conduct at least three Mabel Hoggard events annually
- Conduct two volunteer events at the Wash annually
- Conduct at least four tours or field trips of the Wash annually
- Provide information to the public by maintaining the lvwash.org website
- Prepare biennial report of activities
- Implement increasing awareness component of the wildlife management plan



Riparian vegetation along the Wash





Wash wetlands



stakeholder process

2022–2023 AT A GLANCE

- Held 27 stakeholder meetings
- Celebrated 25 years of the LVWCC
- Approved budgets for \$2.58 million, \$2.64 million and \$2.71 million
- Received \$614,827 and \$77,250 in grants from Bureau of Reclamation and Nevada Division of Environmental Protection, respectively, for regular programs
- Awarded \$900,500 WaterSMART grant and \$10,000 from Nevada Division of Forestry for special projects



Staff update LVWCC members during annual tour

PROJECT SUMMARY

The LVWCC stakeholder process is vital to the success of the Wash program. The 28-member group first met in 1998 and organized nine study teams to develop the CAMP. The Management Advisory Committee (MAC) provided local oversight and funding. Over time, the nine study teams were reduced to three—Operations to address stabilization, REM to oversee environmental monitoring and Administrative to guide outreach and funding—and the MAC became the LVVWAC. Today, the groups meet at least semi-annually and the LVWCC tours the Wash once a year, typically in the spring. At meetings, members hear updates on projects, receive presentations on related topics and coordinate on issues.

2022–2023 IN REVIEW

The LVWCC and REM and Administrative study teams met three times in 2022 while Operations met twice, and each group met two times the next year. At their October 2023 meeting, the LVWCC celebrated 25 years of working to stabilize and enhance the environmental resources of the Wash. Staff worked with a graphic artist to develop a special logo for the anniversary.

The LVVWAC convened four times in 2022 and in 2023. During two of the meetings, members worked with a professional facilitator to review and confirm the committee's membership and budget processes.

In January 2022, the LVVWAC approved a \$2.58 million budget to implement LTOP actions for fiscal year (FY) 2022–2023 (July–June); in March 2023, they approved a \$2.64 million budget for FY 2023–2024 and in October 2023, they approved a \$2.71 million budget for FY 2024–2025. Operating expenditures are paid for by the City of Henderson, City of Las Vegas, City of North Las Vegas, Clark County, Clark County Regional Flood Control District (CCRFCD), Clark County Water Reclamation District (CCWRD) and Southern Nevada Water Authority (SNWA).

The Bureau of Reclamation (BOR) provided grant funding of \$359,827 in FY 2022–2023 and \$255,000 in FY 2023–2024, while Nevada Division of Environmental Protection (NDEP) provided \$42,500 and \$34,750, respectively. BOR funding was provided through a five-year agreement that expires in April 2024 covering water quality monitoring in the Wash and tributaries, revegetation management,

Las Vegas Wash Wildlife Management Plan (WMP) implementation, occasional cultural resource investigations and LVWCC program management. NDEP partially funded Mabel Hoggard fifth-grade field trips and Wash Green-Ups. The grant funds reduced LVVWAC member contributions.

In addition, BOR awarded the Wash Team a \$900,500 WaterSMART grant for riparian restoration downstream of Pabco Weir, and Nevada Division of Forestry (NDF) provided a \$10,000 grant for fuels reduction and debris removal at another revegetation site. These are special projects, but match dollars will come from the LVVWAC-funded budget.

2024–2025 OBJECTIVES

The Wash Team will host semi-annual meetings related to the stakeholder process. A contractor will install a commemorative concrete bench with the 25-year LVWCC logo at the Wash. Staff will work with BOR on a new five-year agreement, apply for additional grant funds and implement grant-funded special projects.



erosion & stormwater

2022–2023 AT A GLANCE

- Removed 695 truckloads of clean spoils and vegetation from three weirs
- Re-established lines and constructed positions of three weirs, using 154 truckloads of rock riprap
- Stockpiled approximately 3,000 tons of new riprap
- Transitioned from capital improvements construction to LTOP implementation
- Received approval from the Federal Emergency Management Agency for the Letter of Map Revision
- Commenced design on stockpile and weir maintenance projects



Vegetation removal above Powerline Crossing Weir

PROJECT SUMMARY

The Wash drains urban and storm flows from the 1,600-square-mile Las Vegas Valley watershed. In the past, these flows tore at the bed and banks of the channel, increasing suspended solids and degrading water quality, but installation of weirs and bank protection have reduced erosion and sediment transport. The LVWCC has completed all 21 planned weirs and installed more than 13 miles of bank protection between the CCWRD outfall and Lake Las Vegas. The Federal Highway Administration constructed four weirs on the channel on National Park Service (NPS) land between Lake Las Vegas and Las Vegas Bay at Lake Mead. More structures are needed, an issue being evaluated by SNWA in partnership with NPS.

Sustainable floodplain management requires maintaining the investment in facilities. To that end, project managers worked with a consultant to develop a stabilization facilities assessment report, a five-year work plan and an O&M plan. Using information from these documents, Wash Team staff prepared the LTOP to guide management of program assets.

2022–2023 IN REVIEW

A contractor worked on the Pabco, Three Kids and Rainbow Gardens weirs and the channel between the Three Kids and Rainbow Gardens weirs and finished clearing vegetation from facilities to help return them to benchmark conditions in the spring of 2022. Crews removed 695 truckloads of clean spoils and vegetation and hauled them to the permitted North Stockpile. They also re-established the lines and grades of the weirs to their original designed and constructed positions using 154 truckloads of previously staged rock riprap.

In addition, the contractor delivered and stockpiled approximately 3,000 tons of riprap to be used for future weir maintenance.

The Wash project transitioned from capital improvements construction to LTOP implementation in July 2022. However, O&M in 2022 and 2023 was put on hold as biologists worked with federal and county partners on new compliance given recent increases in detections of federally listed bird species, particularly the endangered Yuma Ridgway's rail, which may be present year-round. See Environmental Resources for more information.

The consultant working with SNWA and the Federal Emergency Management Agency (FEMA) on a Letter of Map Revision (LOMR) since 2019, received approval on the LOMR from FEMA.

Design commenced on a project to repair best management practices (BMPs) at the soil stockpile site, stockpile 8, and stockpile 15, to bring them in compliance with the stormwater pollution prevention plan. Design also commenced on a maintenance project that will focus on vegetation removal and weir restoration at Visitor Center, Historic Lateral, DU Wetlands No. 1 and Upper Narrows weirs.

2024–2025 OBJECTIVES

Construction is anticipated to begin in early 2024 for repair of the stockpile BMPs. Project managers should receive compliance documentation allowing stabilization O&M to begin; weir maintenance will be conducted in accordance with terms and conditions. The amount of work completed and actual weirs worked on will depend on cost and time to complete the work. Moving forward, contractor crews will regularly maintain the structures following the five-year work plan and O&M plan.



water quality

2022–2023 AT A GLANCE

- Conducted surface water quality sampling and monitoring programs in the Wash and its tributaries
- Maintained and collected real-time water quality data from three permanent stations
- Monitored and collected samples from shallow groundwater wells along the Wash
- Added more than 24,000 lines of data to the water quality database
- Compiled and displayed long-term water quality data with Power BI reports, and published and updated the results in the SNWA internal portal



Storm flows in the Wash

PROJECT SUMMARY

Wash Team hydrologists have monitored water quality in the Wash and its tributaries regularly since 2000. The weirs and wetlands along the Wash have reduced concentrations of many parameters, including total suspended solids (TSS), nutrients, several trace metals and some organic contaminants, with the decline in TSS resulting in the removal of the Wash from the 303(d) list of impaired waters.

In addition to the regular quarterly sampling, hydrologists collect selenium, total dissolved solids (TDS) and flow data from 12 sites along eight tributaries and TSS and perchlorate samples along the Wash monthly. Field staff also monitor 16 shallow groundwater wells along the Wash quarterly, and three permanent real-time monitoring stations provide data from the Wash and its tributaries every 15 minutes.

The Wash Team developed the Las Vegas Wash Surface Water Quality Monitoring and Assessment Plan to better coordinate sampling efforts across agencies, and staff update the plan annually. Staff have also developed and implemented a shallow groundwater monitoring plan.

Water quality sampling by the Wash Team and other stakeholders yields a large amount of data that needs to be stored and accessed. The Lower Colorado River Water Quality Database contains millions of lines of data from dozens of projects covering more than 50 years of monitoring throughout the basin. The password-protected database allows members to both access and upload data.

Finally, in December 2019, the Nevada State Environmental Commission (SEC) gave the NDEP three years to develop site-specific criteria for selenium in the Wash. On behalf of the LVVWAC, CCRFCD hired an eco-toxicology consultant team to work with NDEP on this effort, to ensure the deadline was met.

2022–2023 IN REVIEW

Hydrologists conducted sampling per the schedule and uploaded data into the water quality database.

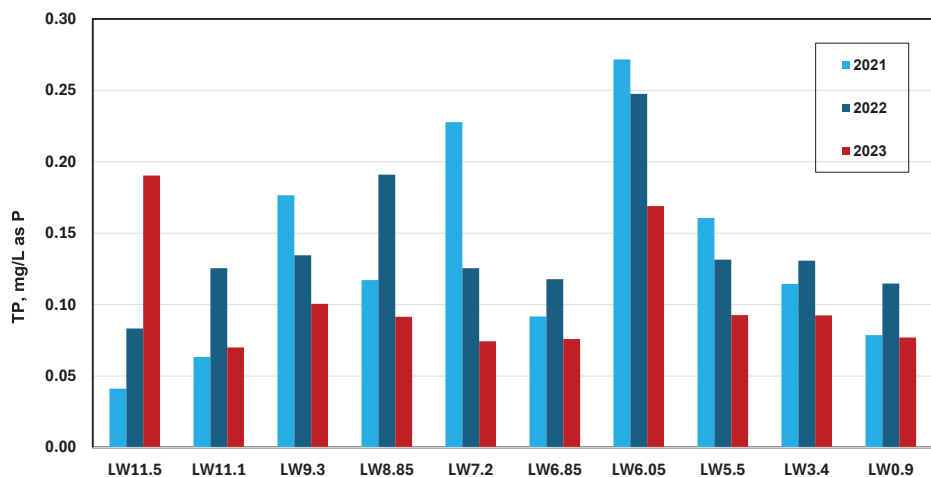
Mainstream Monitoring

Compared to 2021, water temperatures, pH, dissolved oxygen (DO) and conductance were consistent with little variation. Ammonia concentrations were low (<0.08 mg/L as N) at all sites. Nitrate plus nitrite concentrations increased about 12 percent at LW6.05

but decreased 2–19 percent at other mainstream sites. Orthophosphate (OP) and total phosphorus (TP) concentrations continued to decline at most sites downstream from LW9.3, by 5–68 percent for OP and 2–43 percent for TP. However, OP concentrations at LW6.05 increased from 2021 to 2023. Selenium stayed low (<3.0 $\mu\text{g/L}$) in 2022 and increased (still <4.5 $\mu\text{g/L}$) in 2023. Perchlorate concentrations were consistent for the upstream sites and increased at the end of the Wash. TSS concentrations continued to stay low (<10 mg/L in 2022 and <15 mg/L in 2023 between LW9.3 and LW0.9). Zinc (Zn) and manganese (Mn) continued to be low at the end of the Wash. Most metals increased from 2021 to 2023,



A hydrologist prepares mainstream samples



Annual average concentrations of total phosphorus (TP) in the Wash between 2021 and 2023

but given their low levels, these changes are not a cause for concern.

Tributary Sampling & Flow Measurements

Waters in all tributaries have relatively higher conductance and TDS. The dominant cations are calcium (Ca⁺²), magnesium (Mg⁺²) and sodium (Na⁺). The dominant anions are sulfate (SO₄⁻²), chloride (Cl⁻) and bicarbonate (HCO₃⁻). Compared to the Wash, nutrients (nitrogen and phosphorus) in all tributaries were much lower. Iron and aluminum were the most dominant metals, followed by barium, Mn, molybdenum and Zn. Arsenic, chromium, copper, lead, nickel, silver and vanadium were generally less than 25 µg/L for most tributaries. The remaining trace metals—antimony, cadmium, mercury and thallium—were detected at very low concentrations in all tributaries. Selenium concentrations in all tributaries, ranging from 1.0 µg/L to 19.3 µg/L during 2022–2023, were below the selenium maximum contaminant level (50 µg/L) for drinking water. Most tributaries have low perchlorate concentrations. However, perchlorate concentrations at BS_1 have averaged more than 5,500 µg/L since 2012. Most of the organic compounds were below the analytical detection limits.

Real-time Monitoring

Three stations are in place: one on Duck Creek (DC_1) and two on the Wash (LW11.1, downstream of Flamingo Wash and Las Vegas Creek, and LW0.9). Aqua TROLL 600 units and data loggers record and store water temperature, pH, electrical conductance and DO every 15

minutes. The LW0.9 station is connected to the Geostationary Operational Environmental Satellites program, with which water quality data can be viewed online and is transmitted to the database hourly.

Shallow Groundwater Monitoring

In 2022–2023, hydrologists monitored 16 shallow groundwater wells along the Wash quarterly. Water quality in wells located in the floodplain was strongly influenced by the Wash. TDS, nutrient and metal concentrations were fairly similar to concentrations in the Wash. However, groundwater from the wells located on the banks of the Wash had relatively higher TDS concentrations, which also increased from upstream to downstream. Perchlorate concentrations from wells located on the south side were much higher than those from wells located on the north side of the Wash. Of 19 metals analyzed, some had low concentrations or were not

detected, and others had a broad range of concentrations. Data indicate that a known up-gradient groundwater plume had a strong impact on water quality of the wells.

Water Quality Database

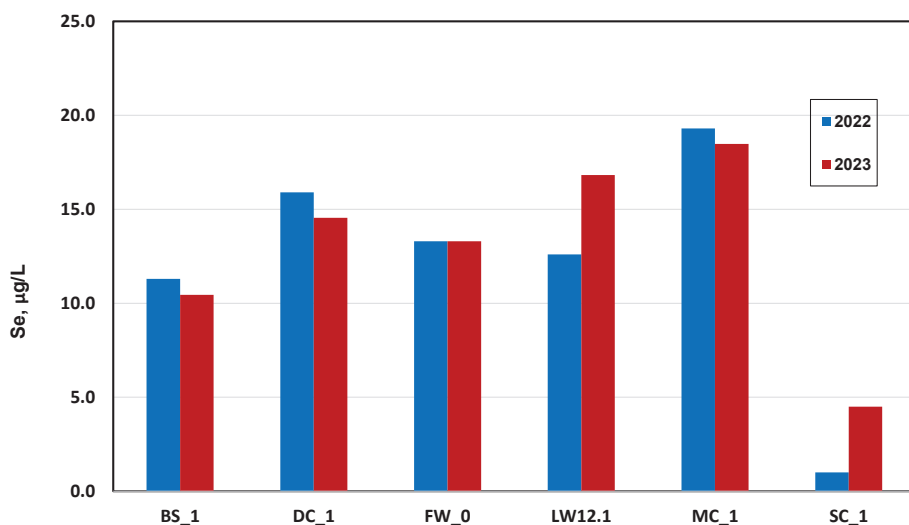
Members and staff added more than 24,000 lines of data from five projects. The database is being transferred to the Aquarius platform to allow for easier public access and more intuitive display of information. The beginning steps of this transition have begun, and it is expected that the process will be completed in the next year. Meanwhile, water quality data from several long-term monitoring projects have been compiled and demonstrated with Power BI reports published in the SNWA internal portal.

Site-specific Selenium Standard

In October 2022, NDEP proposed regulatory petitions to establish beneficial uses for wildlife propagation and non-contact recreation on the channels that are tributary to the Wash and to establish site-specific criteria for selenium along the Wash. The latter 6.0 parts per billion criteria will be protective of fishes while allowing the community to meet the new standard. The SEC approved the petitions in December 2022.

2024–2025 OBJECTIVES

All surface and ground water quality monitoring programs in the Wash and its tributaries will continue, with no major changes expected. The water quality database should move to Aquarius.



Annual average concentrations of selenium (Se) in the tributaries in 2022 and 2023



environmental resources

2022–2023 AT A GLANCE

- Planted more than 14 acres, monitored sites and reported data
- Coordinated clean-up of 960 cubic yards of trash and flood debris
- Collected panoramic photographs at 146 points
- Detected record threatened and endangered bird activity, and reinitiated Endangered Species Act consultation
- Paused avian point counts
- Surveyed for bats and small mammals
- Inventoried 38 new invertebrates
- Addressed cultural resources compliance on a project-by-project basis



Desert pocket mouse captured during small mammal surveys

PROJECT SUMMARY

The Wash stabilization and enhancement program has reversed decades of environmental degradation. The LVWCC, its partners and volunteers have replaced invasive tamarisk with a diverse native plant community, revegetating approximately 615 acres. Wash Team staff monitor revegetation sites annually, providing valuable information that has led to improved plant species selection and focused weed removal.

The habitat created by these efforts is home to more than 390 species of vertebrate and 620 species of invertebrate wildlife. The Wash Team developed the WMP to conserve native

species, protect and enhance their habitats, and increase community awareness of these resources. Surveys are conducted in support of the WMP.

In addition to its importance for flora and fauna, the Wash has been significant for humankind for thousands of years. Cultural resource experts have identified more than 30 sites in the Las Vegas Wash Archaeological District, from a site with a 10,000-year-old projectile point (the earliest evidence for Paleoindian activity in the valley), to indigenous habitations, to an early homesteader's ranch. A 10-year programmatic agreement (PA) streamlined the cultural resource compliance process until 2021.

2022–2023 IN REVIEW

Vegetation Enhancement & Management

With LTOP implementation, Wash Green-Ups decreased to one per year, in the spring. In 2022, volunteers revegetated nine acres near Sunrise Mountain Weir, the final planting to fulfill permit requirements for weir construction. Plantings now follow the Las Vegas Wash Long-Term Revegetation Management Plan and focus on enhancing existing sites. In 2023, Green-Up volunteers planted 4.5 acres near Powerline Crossing Weir, at a site originally revegetated in 2007. Other plantings in 2022–2023 revegetated an additional 0.77 acres.

Wash Team staff monitored revegetation sites in 2022 and 2023, and the project manager drafted the reports for 2021 and 2022 data. Staff monitored 78 sites in the field in 2021 and 69 sites in 2022. Of the sites that were previously monitored, 83.6 percent in 2021 and 86.8 percent in 2022 maintained or increased in cover from the prior year. Just 18 sites in 2021 and nine in 2022 had noxious weeds provide more than five percent of the vegetative cover. The revegetation contractor focused weed control on approximately 24 acres at recently planted sites.



Revegetation with Frenchman Mountain backdrop

The Wash Team coordinated flood debris clean-up after the September 2023 rain events at Upper Diversion and Tropicana weirs, removing 960 cubic yards of trash and debris. Work started in December 2023 on an NDF-grant-funded project for fuels reduction and debris removal at a revegetation site known as the Cottonwood Cells.

Wash Team staff also took panoramic photos at 146 points along the Wash for the annual photo comparative analysis project.

Wildlife

Wash Team biologists conducted annual surveys for three federally threatened and endangered (T&E) bird species. Field crews identified a record number of endangered Yuma Ridgway's rails: seven in 2022 and six in 2023. Prior to 2021 when crews found five, most surveys resulted in no detections, and the highest number confirmed at any given time was one. Field staff also identified the first endangered southwestern willow flycatcher pairs and nests in the project area. In 2022, field crews reported one pair and a failed nest. In 2023, field staff found multiple pairs and recorded several nest attempts. Of these, one produced three nestlings, one of which was confirmed to successfully fledge. Biologists detected two threatened yellow-billed cuckoos in 2022 and a record five in 2023. The 2022 birds were likely migrants, but in 2023, at least two of the cuckoos were on probable breeding territories.

Due to the increased T&E bird activity, the Wash Team drafted a biological assessment (BA) that evaluated impacts of LTOP activities on the three birds and the monarch, which is a candidate for listing, for projects funded by BOR



Banded southwestern willow flycatcher nestling



A biologist collects bat acoustic monitoring data

and/or conducted on its land. The BOR submitted the BA to U.S. Fish and Wildlife Service (USFWS) in August 2023, reinitiating section 7 consultation under the Endangered Species Act. There is an active biological opinion (BO) for desert tortoise that remains in effect. The Wash Team also provided project descriptions to Clark County, which is working to obtain incidental take coverage for the Yuma Ridgway's rail for actions on its land.

Biweekly avian point counts were paused in fall 2023. Moving forward, the contractor will conduct the counts every other year. The study has identified more than 250 species and documented statistically significant increases in species richness and abundance since 2005.

The Wash Team began acoustic monitoring for bats in January 2023. Field staff deployed three Anabat Swift detectors throughout the Wash that run nightly from sunset to sunrise. Staff check the stations and download data monthly. Sites have varied. Flash flooding took down a tree holding one detector; it was recovered and will be placed back on site in January 2024. Field staff also conducted mist netting for bats from early April through early June, capturing 23 individuals from five species: nine pallid bats, one California myotis, one Yuma myotis, nine Mexican free-tailed bats and three hoary bats. Staff swabbed all bats, and the swabs were analyzed for the presence of the fungus that causes white-nose syndrome, a deadly bat disease. All samples came back negative.

Biologists also conducted small mammal surveys at six restoration sites of various ages and habitats in 2023, using Sherman live-catch traps to detect nocturnal rodents and one-gallon pitfall traps with drift fences to detect shrews. Field personnel set traps in the evening and checked them the following morning for three consecutive days in February, April, June, July, August, October and November. The Wash Team captured 691 rodents from nine species: 273 cactus mice, 268 desert pocket mice, 57 house mice, 31 desert woodrats, 30 Merriam's kangaroo rats, 23 black rats, five western harvest mice, two brush mice and two round-tailed ground squirrels. All are native except house mouse and black rat. No desert shrews were captured.

A total of 38 new invertebrates were added to the inventory in 2022–2023, and one monarch observation was reported on iNaturalist, in 2022.

Cultural Resources

Stakeholders worked on the development of a new PA to cover weir maintenance on BOR land within the Wetlands Park but then decided that cultural resources compliance could be addressed on a project-by-project basis moving forward.

2024–2025 OBJECTIVES

The Wash Team will work with a design consultant and labor contractor on the WaterSMART riparian restoration grant downstream of Pabco Weir, removing flood deposits and planting emergents and riparian trees. The spring 2024 Wash Green-Up will be at the Lower Narrows South site. Other volunteer plantings may occur for the WaterSMART grant. NDF grant work will conclude at the Cottonwood Cells.

Field personnel will reinitiate bat capture surveys, and acoustic monitoring will continue through 2024. Biologists will conduct surveys for T&E birds, benthic macroinvertebrates and large mammals, as well as any needed desert tortoise compliance. The Wash Team also expects to receive a BO for the T&E birds from USFWS. Avian point counts will resume in spring 2025.

Finally, staff will support stabilization O&M and coordinate with BOR on cultural resources compliance.



public outreach

2022–2023 AT A GLANCE

- Hosted annual World Wetlands Day science symposiums for 230 students
- Conducted outreach with Mabel Hoggard Elementary School's fifth-grade classes
- Held two Wash Green-Ups and planting events for Hilton Hotels and the Howard Hughes Corporation, attracting nearly 290 volunteers
- Participated in or hosted 51 events, reaching more than 13,000 people
- Hosted 15,655 unique visitors on lwwash.org
- Delivered e-newsletter monthly and increased Facebook followers



Volunteers planting at a Wash Green-Up

PROJECT SUMMARY

Since 1998, the LVWCC has been helping the public grow a stronger appreciation for the Wash through its outreach program, which teaches about the Wash, why it is important to the community and the LVWCC's efforts to stabilize and enhance the channel and its resources. Since its inception, the Wash Team has participated in more than 860 events, reaching more than 332,000 people.

To implement this program, the Wash Team follows the recommendations provided in the Las Vegas Wash Outreach Plan, 2013. The plan lays out core messages, strategies and goals, and emphasizes the importance of effectiveness monitoring.

The LVWCC uses a variety of web-based resources to interact with the public. The Wash Facebook page (facebook.com/lwwash) provides an efficient way to communicate about time-sensitive topics, while a monthly e-newsletter highlights recent accomplishments and promotes upcoming activities. The lwwash.org website provides in-depth project information and houses a library of research reports and other documents. In 2021, staff redesigned the website to present information

in a more concise format, reducing the number of pages by nearly 90 percent. The site has a strong visual presentation, showcasing photographs and videos, and the ability to organize information into scrollable slides and accordion sections that can be expanded and collapsed.

2022–2023 IN REVIEW

For the past several years, the LVWCC has celebrated World Wetlands Day by hosting a science symposium for high school students at the Wetlands Park.

In 2022, the single-day event with the theme "Wetlands Action for People and Nature" attracted 108 students from three local schools. In 2023, the Wash Team also held a one-day event. The theme was "Wetlands Restoration," and 122 students from four schools participated. The symposium gives students an overview of the Wash project and other wetlands research and promotes interest in environmental fields. The students experience the Wash firsthand on a short walk after the science talks. The LVWCC also



Students participate in pH activity during outreach

offers wetlands-related photo and essay contests to encourage further engagement; the winner of each is awarded an iPad.

The Wash Team continued its longstanding relationship with Mabel Hoggard Math and Science Magnet Elementary School, leading field trips for three school years of fifth-grade students. Before field-trip day, students received an in-class introduction to the Wash. Field trips differed yearly. Students in the spring of 2022 learned about water quality and food web dynamics aboard the Desert Princess at Lake Mead. Students who attended in spring 2023 received a tour of the River Mountains Water Treatment Facility, and in fall 2023 students went on a tour of the Henderson Wastewater Treatment Facility. After the morning activities, all students visited the Wetlands Park and learned to identify and document plants and animals using the Seek and iNaturalist apps. In a follow-up classroom visit, students analyzed the data, created graphs, and presented their results to one another, helping them understand what it is like to be scientists.

The LVWCC hosted two Wash Green-Ups, one each spring. The 2022 event was held on March 12, with 101 volunteers attending. The volunteers helped plant about 5,000 native trees and shrubs on nine acres on the north bank at Sunrise Mountain Weir, and it was the final planting at this location. The 2023 event was held on April 1 on the south bank at Powerline Crossing Weir, on a site that was first revegetated in 2007. The planting event enhanced the area and provided additional wildlife habitat, with 155 volunteers helping to plant about 3,000 native trees and shrubs on 4.5 acres.

Also in 2023, 13 staff from Hilton Hotels planted 150 native trees and shrubs at Powerline Crossing South. The event concluded the enhancement efforts that started with the April 1 Green-Up. In the fall, 20 staff from the Howard Hughes Corporation planted 300 native trees and shrubs at the Lower Narrows Weir on the south side of the Wash. This was the first of two planting events scheduled for this location. First revegetated in 2011, this area is currently dominated by four-wing saltbush and creosote bush, and



Mabel Hoggard students get a tour of River Mountains water treatment plant

the goal of these planting events is to diversify the area with additional native species.

By the end of the two-year period, the Wash Team had participated in or hosted 51 events that attracted more than 13,000 people.

For the web-based side of public outreach, lwwash.org hosted 15,655 unique visitors in 2022–2023. Data managers uploaded project reports to the site's document library, and the monthly e-newsletter was delivered to 274 subscribers. Examples of articles include summaries of outreach events and highlights of some of the Wash's interesting biota, including the nesting southwestern willow flycatchers.

The Wash's Facebook page grew to 1,518 followers, a nine percent increase from 2021. This page provides an easy-to-edit platform to engage with the public, give updates on projects, share photos and recruit Wash Green-Up

volunteers. Wash posts were also shared on the SNWA Facebook and Instagram platforms for greater exposure. In 2023 alone, social media posts about the Wash generated high numbers of key metrics: 310,091 impressions, 3,778 engagements, 614 post link clicks and 47,546 video views.

2024–2025 OBJECTIVES

The Wash Team will host World Wetlands Day science symposiums and Wash Green-Ups. Mabel Hoggard field trips will continue, and the team will participate in other events in continued support of the outreach plan.

The Wash Team will also investigate further enhancements to lwwash.org, and continue to update, support and utilize data resources vital to the LVWCC and Wash project.



mission
working to stabilize and enhance
the valuable environmental resources
of the Las Vegas Wash



LAS VEGAS WASH
COORDINATION COMMITTEE
1998 • 2023

lvwash.org

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