las vegas wash coordination committee

2021 year-end report

LVWCC

mission

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

Clark County Wetlands Park trail near the Bostick kiosk

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

American beaver

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from the chair

Yellow-billed cuckoo

Dear Friends:

In 2021, the Las Vegas Wash Coordination Committee entered its final year of capital construction on the Las Vegas Wash. As we take steps to return the last of our 21 weirs to their originally designed specifications, the Las Vegas Wash Project Coordination Team is preparing the stabilization and enhancement program for the move to long-term operating conditions, set to begin in July 2022. With the change, this report, which has been written annually for two decades, will move to a biennial frequency.

Despite the continuing COVID-19 pandemic and related challenges, we celebrate many accomplishments. Crews cleared and reestablished the lines and grades of seven structures. Staff conducted water quality monitoring, documenting reductions in key parameters. Biologists reported a record number of Yuma Ridgway's rails, a southwestern willow flycatcher territory and a possible yellow-billed cuckoo breeding territory. We hosted both the spring and fall Wash Green-Ups with enhanced safety protocols, welcoming hundreds of volunteers from the community back to the Las Vegas Wash. Staff also conducted extensive virtual outreach, reaching more than 2,500 students.

We are grateful to all the members, partners and dedicated volunteers who have contributed to the transformation of the Las Vegas Wash from a degraded channel to a thriving ecosystem. Thank you for your efforts!

Sincerely,

Priscilla Howell

Priscilla Howell
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, creating a green landscape with diverse wildlife in the 2,900-acre Clark County Wetlands Park (Wetlands Park).

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.

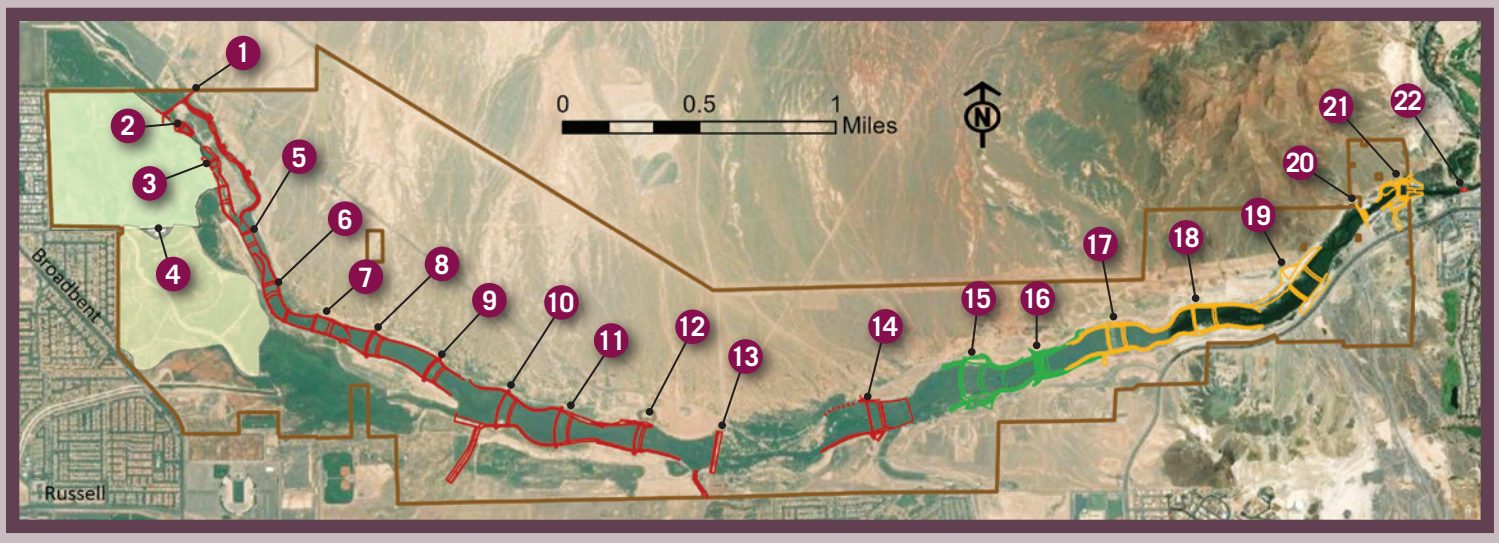
The Las Vegas Wash Coordination Committee (LVWCC) formed in 1998 to address long-term management and protection of the channel and its resources. Among its first acts, the LVWCC developed the Las Vegas Wash Comprehensive Adaptive Management Plan (CAMP)—a blueprint that includes 44 specific action items—to address the challenges facing the Wash. The LVWCC also created study teams and an oversight committee, the Las Vegas Valley Watershed Advisory Committee (LVVWAC). The Las Vegas Wash Project Coordination Team (Wash Team) is the implementation arm of the LVWCC.

This annual report includes maps of locations and activities, a summary of the LVWCC's progress on CAMP action items, descriptions of project accomplishments over the past two-plus decades, highlights from the last year and objectives for 2022 and 2023 for seven programs.

BUDGET, 2021

Operating Budget	
Local Contribution	$892,731
Bureau of Reclamation Grant	$244,400
NV Division of Environmental Protection Grant	$67,500
Total	$1,204,631
Capital Budget	$4,968,576

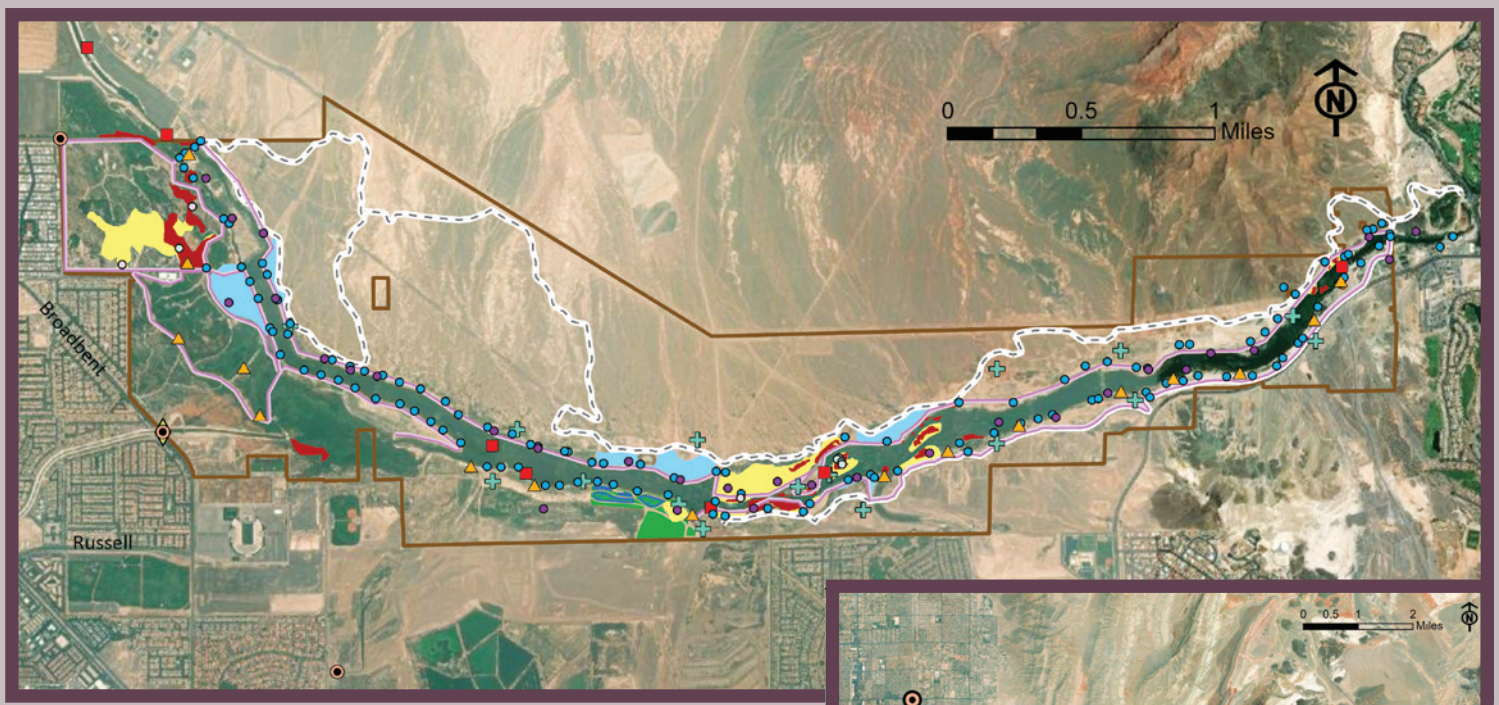
Fiscal Year July 2021–June 2022



LOCATIONS and STABILIZATION MAP

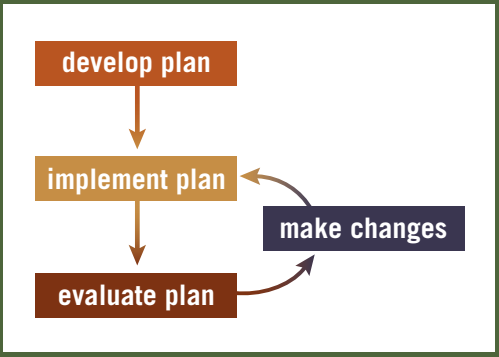
1. Upper Diversion Weir, Bridge and Bypass Channel
2. Monson Weir
3. Visitor Center Weir
4. Nature Center
5. Tropicana Weir
6. DU Wetlands No. 2 Weir
7. DU Wetlands No. 1 Weir
8. Silver Bowl Weir
9. Archery Weir
10. Duck Creek Confluence Weir
11. Upper Narrows Weir
12. Sunrise Mountain Weir
13. Pabco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

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



ACTIVITY MAPS

- Mainstream and Total Suspended Solids/ Perchlorate Monitoring
- Tributary Sampling
- Selenium Sampling and Stream Gaging
- Real-time Water Quality Monitoring
- Shallow Groundwater Monitoring
- Marsh Bird Monitoring
- Southwestern Willow Flycatcher Survey
- Yellow-billed Cuckoo Survey
- Avian Point Count
- Snake Survey
- Amphibian Survey
- Green-Up Planting
- Allegiant Planting
- Weed Management
- Photo Comparative Analysis Study



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 CAMP action items for which it, the study teams and LVVWAC are responsible.

Erosion and Stormwater, administered by the Operations Study Team

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

Alternate Discharge, administered by the LVVWAC, action items **6 – 10**

Deemed unnecessary for the foreseeable future.

Land Use, administered by individual member agencies, action items **11 – 15**

Jurisdictional and Regulatory, administered by the LVVWAC and LVWCC

16. **Further investigate and define structure for local oversight of the CAMP:** Established by cooperative and interlocal agreements, creating the LVVWAC; members act on behalf of their governing boards and councils. Southern Nevada Water Authority (SNWA) appointed lead agency.
17. **Ensure interagency coordination:** Regular meetings convened by managerial, technical and administrative staff.

Public Outreach, administered by the Administrative Study Team

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

Funding, administered by the Administrative Study Team

21. **Further investigate potential funding sources identified by the team:** Funding sources include local, state, federal and private contributions. Local contributions come from a portion of a quarter-cent sales tax and direct payments. State, federal and private contributions come from grants.
22. **Anticipate future funding needs:** Annual budgets detail funding needs for anticipated operating and capital expenditures.
23. **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 City of Henderson (5.2 percent), City of Las Vegas (9 percent), City of North Las Vegas (3.8 percent), Clark County (10 percent), CCRFCD (10 percent), Clark County Water Reclamation District (22 percent) and SNWA (40 percent). Capital expenditures not covered by grants are paid for with a portion of the quarter-cent sales tax and account loans.
24. **Develop method to identify specific projects for grant funding:** Projects vetted by the study teams and Wash Team; assessment and prioritization criteria include feasibility, cost, need for and importance of information and program benefit.
25. **Utilize existing resources and staff, whenever possible:** Regular meetings among stakeholders ensure coordination and help to prevent duplication.

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

26. **Develop a central database:** Database developed; data added when made available.
27. **Locate and inventory existing shallow monitoring wells:** Valley wells located and inventoried using existing data and geospatial technologies.
28. **Identify issues of concern:** Ongoing monitoring programs and stakeholder data-sharing forums provide for early detection of issues of concern.
29. **Develop a long-term monitoring plan:** Plan finalized and implemented.
30. **Develop a method to identify the potential for future contaminant discovery:** Data regularly assessed to evaluate potential concerns.
31. **Develop and implement a notification plan:** Managed by outside agencies.
32. **Promote interagency coordination:** See item 17.
33. **Develop a bibliography:** Bibliography completed.

Wetlands Park, administered by Clark County, action items **34** – **39**

Environmental Resources, administered by the REM Study Team

40. **Develop long-term management and monitoring plans:** Plans completed; updates and other activities ongoing to achieve goals.
41. **Conduct additional research:** Various studies ongoing.
42. **Preserve and address cultural resource issues:** SNWA works with state, federal and tribal stakeholders to preserve cultural resources where feasible and mitigate when infeasible. A 10-year programmatic agreement, resulting in the creation of a Cultural Resources Coordinating Committee and a cultural resources management plan, concluded in 2021. Stakeholders are coordinating with permitting agencies to cover operations and maintenance work on Bureau of Reclamation lands at the Wash moving forward.
43. **Identify funding needs:** Funding needs vetted by the study teams and Wash Team.
44. **Facilitate interagency coordination to ensure projects are implemented:** See item 17.

Revegetation near the Bostick kiosk

stabilization

2021 AT A GLANCE

- **Removed spoils and vegetation and reestablished lines and grades at seven weirs**
- **Continued to coordinate with biologists and stakeholders to prepare for the transition from capital improvements construction to long-term management, and found areas for habitat replacement**
- **Continued coordination with the Federal Emergency Management Agency for approval of the Letter of Map Revision**

Stockpiled rock for future stabilization projects

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 has reduced erosion and sediment transport. The LVWCC has completed all 21 planned weirs and installed more than 13 miles of bank protection between the Clark County Water Reclamation District outfall and Lake Las Vegas. The Federal Highway Administration has constructed four weirs on the channel between Lake Las Vegas and Las Vegas Bay at Lake Mead, and at least five more structures are needed, an issue being addressed by SNWA in partnership with the National Park Service.

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 operations and maintenance plan (O&M plan). Using information from these documents, Wash Team staff prepared the Las Vegas Wash Long-Term Operating Plan (LTOP) to guide management of program assets.

2021 IN REVIEW

A Bureau of Reclamation (BOR) crew removed 490 truck loads of clean spoils and vegetation from the Homestead, Lower Narrows, Three Kids, Rainbow Gardens and Powerline Crossing weirs, and hauled them to the permitted North Stockpile. In addition, the crew reestablished the lines and grades of these five weirs to their original designed and constructed positions using 231 truck loads of previously staged rock riprap.

A contractor removed vegetation and clean spoils from Calico Ridge and Bostick weirs, reestablished their lines and grades and hauled the material to the North Stockpile. The contracted crew also cleared the island between the two weirs. The island's vegetation, once dominated by thriving willows, was dying and had become overgrown with common reed. The clearing provides an opportunity to reset the habitat.

The contractor also delivered and stockpiled approximately 16,000 tons of riprap to be used for future maintenance of weirs.

Engineering staff continued to coordinate with biologists and stakeholders to prepare for the transition from capital improvements construction to long-term management of the Wash based on the LTOP. To address the loss of habitat caused by facility benchmarking and maintenance, Wash Team staff identified sites for vegetation enhancement and replacement and sought grant funding for the work.

Finally, a consultant continued to work on the Letter of Map Revision (LOMR) with the Federal Emergency Management Agency (FEMA).

2022/2023 OBJECTIVES

A contractor will work on the Three Kids and Rainbow Gardens weirs and the channel between the two structures, and crews will finish clearing approximately 65 acres of vegetation from facilities to return them to benchmark conditions. Once achieved, contractors will regularly maintain the structures following the five-year work plan and O&M plan. The Wash Team will replace wetland and riparian habitat lost through facility benchmarking, as funding permits. Lastly, the consultant will continue working to gain FEMA approval for the LOMR.

water quality

2021 AT A GLANCE

- **Conducted water quality sampling and monitoring programs along the Wash and its tributaries per the schedule and entered data into the database**
- **Documented decreases in some parameters and increases in others when comparing 2021 data to 2020**
- **Conducted fish sample collection for a site-specific selenium standard for the Wash**

The Wash flowing downstream of Pabco Weir

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.

In addition, the Wash Team implemented a bioassessment monitoring program to address U.S. Fish and Wildlife Service (USFWS) concerns about how the weir program might impact the endangered razorback sucker downstream in Lake Mead. Water, bird egg, fish and sediment samples were collected, analyzed and evaluated in comprehensive reports, and USFWS concluded the weir program posed no threat to the sucker. However, CCRFCD has been working with Nevada Division of Environmental Protection (NDEP) to establish a site-specific selenium standard for the Wash using fish tissue concentration data.

2021 IN REVIEW

Hydrologists conducted sampling and monitoring programs along the Wash and its tributaries per the schedule and uploaded data into the Lower Colorado River Water Quality Database.

Comparing data from 2020 to 2021, Wash water temperatures were higher and pH and dissolved oxygen were lower. Conductance and TDS were relatively consistent. Ammonia concentrations were low (<0.08 mg/L as N) at most sites. Nitrate plus nitrite concentrations increased about 4 percent at one site but decreased 1-38 percent at all other sites. Both orthophosphate (OP) and total phosphorus (TP) concentrations continued to decline at downstream sites, by 7-11 percent for OP and 8-37 percent for TP. Selenium decreased at 8 of 10 sites, by 1-27 percent. Perchlorate also decreased, by 10-20 percent at downstream sites. TSS concentrations continued to stay low (<10 mg/L at most sites). Zinc, chromium and copper were 25 percent, 8 percent and 18 percent lower, respectively, at the end of the study area. Some trace metal concentrations, such as arsenic, lead and nickel, increased, but given their low levels, these changes are not a cause for concern.

CCRFCD continued to work with NDEP on a site-specific selenium standard for the Wash. To assist with this effort, Wash Team biologists collected fish and sent them to a lab to be analyzed for selenium concentrations following a request from the U.S. Environmental Protection Agency.

2022/2023 OBJECTIVES

All groundwater and surface water quality monitoring programs in the Wash and its tributaries will continue.

wildlife

2021 AT A GLANCE

- **Conducted threatened and endangered bird surveys, identifying a record number of Yuma Ridgway's rails, a southwestern willow flycatcher territory and a possible yellow-billed cuckoo territory**
- **Continued biweekly avian point counts**
- **Surveyed for snakes at night, identifying four species**
- **Conducted a second amphibian survey, observing two species**
- **Added 17 invertebrate species to inventory**

A sidewinder found during night surveys

PROJECT SUMMARY

The LVWCC's stabilization and enhancement program has reversed decades of environmental degradation on the Wash. The area is now home to more than 375 species of vertebrate and 580 species of invertebrate wildlife. With data from baseline surveys and other sources, the Wash Team developed the Las Vegas Wash Wildlife Management Plan (WMP) to conserve native species, protect and enhance their habitats, and increase community awareness of these resources. The WMP includes 31 recommended actions, as well as needed baseline and effectiveness monitoring. Surveys are conducted in support of the WMP.

2021 IN REVIEW

Wash Team biologists conducted all annual threatened and endangered bird surveys in 2021. After conducting no marsh bird monitoring in 2020 due to COVID-19 pandemic closures, field crews identified a record number of federally endangered Yuma Ridgway's rails, with one recorded on the Wash at Upper Narrows Weir and four reported at Clark County's in-lieu fee mitigation wetlands. Staff also identified the first federally endangered southwestern willow flycatcher territory since 2013 in native habitat just upstream of Historic Lateral Weir, as well as one migrant at the Nature Preserve. A permitted contractor banded the territorial bird in late June. Biologists made three detections of the federally threatened yellow-billed cuckoo, two at the Nature Preserve and one at a Wash revegetation site near Pabco Weir. Staff concluded that the two sightings at the Nature Preserve represented a possible breeding territory.

Biweekly avian point counts funded by a BOR grant continued. These counts have identified about 245 species and statistically significant increases in species richness and abundance since 2005, corresponding with Wash improvements.

Staff biologists conducted night searches for snakes, baseline monitoring recommended in the WMP. For these surveys, field crews drove a utility task vehicle slowly on the paved bike trail scanning with high-intensity floodlights. The surveys were conducted from April through October for two consecutive nights twice a month. Staff observed four Mojave Desert sidewinders, three Great Basin gopher snakes, one desert nightsnake and one speckled rattlesnake. The desert nightsnake and speckled rattlesnake had not been documented during previous reptile surveys and the Mojave Desert sidewinder had only left tracks.

Staff also surveyed for amphibians at the Nature Preserve and Wash, repeating a similar effort conducted in 2004-2005. As in the prior survey, site visits identified two species: native Woodhouse's toad and non-native American bullfrog. Bullfrogs tended to be observed in the ponds around the Nature Preserve, while the toads were primarily found across revegetation sites along the Wash.

Users of the iNaturalist app, which allows the public to log photos and other types of species observations, contributed 16 of the 17 new invertebrates added to the inventory in 2021, bringing the total to 582 species.

2022/2023 OBJECTIVES

Biologists will conduct surveys for birds, small mammals and bats, as well as benthic macroinvertebrate monitoring. Staff will also carry out desert tortoise and any other compliance monitoring needed to support stabilization work.

vegetation enhancement and management

2021 AT A GLANCE

- **Hosted three planting events, revegetating 21 acres**
- **Monitored all revegetation sites along the Wash**
- **Summarized 2020 monitoring data in a report; more than 80 percent of the 138 previously monitored sites either had stable or increased vegetative cover**

A site supervisor shows volunteers how to plant at the spring Wash Green-Up

PROJECT SUMMARY

The Wash, once dominated by invasive plants, is now a diverse native landscape. Tamarisk, a noxious weed that covered 1,500 acres in 1998, covers just 25 acres. The LVWCC and its partners have replaced it with native desert shrubs such as creosote bush, Fremont's cottonwood and other riparian trees, and a variety of bulrush and other wetland species, revegetating 570 acres. Volunteers at the semi-annual Wash Green-Ups have revegetated more than half of this amount.

Wash Team staff monitor revegetation sites annually, providing valuable information that has led to improved plant species selection and focused weed removal. During the initial establishment of revegetation sites, tamarisk and other noxious weeds start to resprout when irrigation is applied, and aggressive removal of these invasive species prior to them reaching maturity and seeding allows for the native plants to thrive.

2021 IN REVIEW

Volunteers revegetated 21 acres at the spring and fall Wash Green-Ups, which resumed after a pandemic-related hiatus, installing 7,000 plants on the south side of the Wash near the Sunrise Mountain Weir. In addition to restoring the land with native vegetation, these plantings also fulfilled permit requirements for the construction of the weir. Also in the fall, volunteers from Allegiant Stadium planted 300 honey and screwbean mesquite trees to diversify the species at the spring Wash Green-Up site.

Wash Team staff monitored revegetation sites in 2021, and the project manager drafted the 2020 monitoring report. Staff monitored 150 sites in 2020, including 12 new sites primarily at the Sunrise Mountain Weir and the Historic Lateral Weir expansion. The report discusses the conditions of each site in terms of how healthy the plants appear, if trash is present and any other visual characteristics observed. In addition, the report documents each site's total cover, noxious weed species cover, species richness and Wetland Prevalence Index. Of the 138 sites that were previously monitored, the majority, 98 (71.0 percent), had the same cover as in 2019, 13 (9.4 percent) increased in cover, while 27 (19.6 percent) decreased in cover.

The Wash Team focused weed control efforts on recently planted areas at the Sunrise Mountain, Historic Lateral and Tropicana weirs. Only one of the sites monitored in 2020 had noxious weeds make up more than 5 percent of its vegetative cover and only 13 (8.7 percent) had more than 1 percent noxious weed cover. This data shows that the vegetation enhancement and management program has been very successful at replacing the noxious weeds that once dominated the Wash with native species.

A BOR grant funds revegetation site management, including weed treatments, and a grant from NDEP funds much of the Wash Green-Ups.

2022/2023 OBJECTIVES

The planned spring 2022 Wash Green-Up at the Sunrise Mountain Weir will complete the initial installation of revegetation sites along the Wash. Future planting efforts will follow the Las Vegas Wash Long-Term Revegetation Management Plan and focus on improving habitat and ensuring the long-term sustainability of sites. This will include diversifying structure by planting trees in shrub-dominated areas and a variety of flowering shrubs and groundcovers known to have high survivorship that provide food and shelter for wildlife.

cultural resources

2021 AT A GLANCE

- **Concluded the 2011 programmatic agreement and continued to work on a new agreement to cover weir maintenance on BOR lands**
- **Reviewed Hollywood Boulevard extension project proposals and multiple weir maintenance projects and identified no impacts to cultural resources**

Three Kids pithouse excavation

PROJECT SUMMARY

Given the program's transition from installing new stabilization measures throughout the Wash to maintenance and operations, cultural resource compliance needs have largely been eliminated, but the years of this work have helped reveal a fascinating history.

The Wash has long been a byway between the Las Vegas Valley and the Colorado River. 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.

Contractors began to survey the Wetlands Park and the Wash in 1999 for cultural resource compliance related to the capital improvements program to construct weirs. Between 1999 and 2003, they conducted four archaeological surveys, partially excavating two sites and fully excavating the Three Kids Site, revealing one of the only recorded indigenous habitations in the valley.

At the same time, the LVWCC began constructing weirs and other stabilization structures along the Wash. As this work progressed, SNWA, BOR and other stakeholders continued to support cultural resource surveys, compliance and research.

In 2005, contractors conducted test excavations of two sites, known as Scorpion Knoll and the Larder Site, to determine the size of the sites and to investigate buried deposits. They dug 12 backhoe trenches across the Larder Site, revealing over 60 buried storage pits with the potential for hundreds more. Evidence from the storage pits revealed use of pine nuts and mesquite, and provided the earliest date for the use of maize in the Las Vegas Valley. Researchers returned to the site in 2015 to conduct remote sensing studies to look for other significant buried deposits. This study revealed a habitation on the Larder Site dating to after AD 1200.

In 2011, Wash program stakeholders signed a 10-year programmatic agreement (PA) to streamline the cultural resource compliance process. The PA led to the creation of the Cultural Resources Coordinating Committee (CRCC) for the Wash. The CRCC met regularly to discuss construction and maintenance activities and potential research and outreach opportunities. This valuable stakeholder collaboration has shown the importance of interagency partnerships and coordination in the protection of cultural sites in the Wash.

2021 IN REVIEW

The existing PA concluded in the spring, resulting in the end of the CRCC, but stakeholders continued to work on the development of a new PA to cover weir maintenance on BOR lands within the Wetlands Park. Wash Team staff provided cultural resource reviews to Clark County on the proposed bridge alignments for an extension of Hollywood Boulevard across the Wash, as well as internal reviews for maintenance activities for multiple weirs, identifying no impacts to cultural resources.

2022/2023 OBJECTIVES

In the upcoming years, staff will continue to support stabilization and maintenance activities along the Wash and coordinate with BOR and other partners regarding a new PA and other strategies to streamline compliance.

education and outreach

2021 AT A GLANCE

- **Provided educational outreach virtually using NDEP-funded videos**
- **Held two Wash Green-Ups and a planting event with Allegiant Stadium staff, attracting more than 500 volunteers**
- **Completed the stormwater pollution poster contest, reaching more than 600 additional students and awarding three winners with prizes**
- **Introduced 2,529 students to the Wash virtually and 584 people through in-person events**

Filming a Wash video

PROJECT SUMMARY

Since 1998, the LVWCC has been helping the public grow a stronger appreciation for the Wash through its education and outreach program. This program teaches the public 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 800 events, reaching more than 319,000 people.

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

2021 IN REVIEW

The Wash Team was unable to host a World Wetlands Day event due to safety concerns relating to the COVID-19 pandemic. However, using educational videos created with NDEP grant funding, staff met virtually with 43 classrooms and reached more than 1,600 students. The videos introduce viewers to the Wash, revegetation, water quality, food webs and wildlife.

The pandemic also led to the cancellation of field trips for Mabel Hoggard fifth graders, ongoing since 1999. Staff conducted virtual outreach with the 75 students instead, showing them the videos and guiding them in a water quality experiment. Students completed a pre-assessment and post-assessment to help improve future virtual experiences.

After having to cancel events in 2020, the Wash Team was able to host both the spring and fall Wash Green-Ups using enhanced safety protocols such as mask-wearing for all participants. These events are critical to LVWCC outreach; establishing a sense of stewardship by directly involving the community with Wash enhancements. During the spring event, 154 volunteers revegetated nine acres with 2,000 plants; the lower participant limit helped ensure that social distancing could be maintained. The fall Wash Green-Up was more expansive, with 350 volunteers planting 5,000 native trees and shrubs on 12 acres. Staff also hosted a planting event with 35 volunteers from Allegiant Stadium in the fall.

The Wash Team completed the stormwater pollution poster contest that began in 2020, presenting to an additional 26 classrooms, reaching more than 600 additional students. The theme for the poster was "How you can prevent stormwater pollution." Fifty-nine students submitted a poster to the contest and three winners were selected. Prizes included Springs Preserve passes and gift cards, and the first-place winner was also awarded a Chromebook.

NDEP partially funded Mabel Hoggard educational outreach, Wash Green-Ups and the stormwater pollution poster contest.

Additional virtual outreach included Reading Week and Career Day events, reaching more than 140 students. Staff also hosted a masked field trip for 45 students at the Wash in the fall. By year's end, Wash Team staff had introduced 2,529 students to the Wash virtually and 584 people through in-person events.

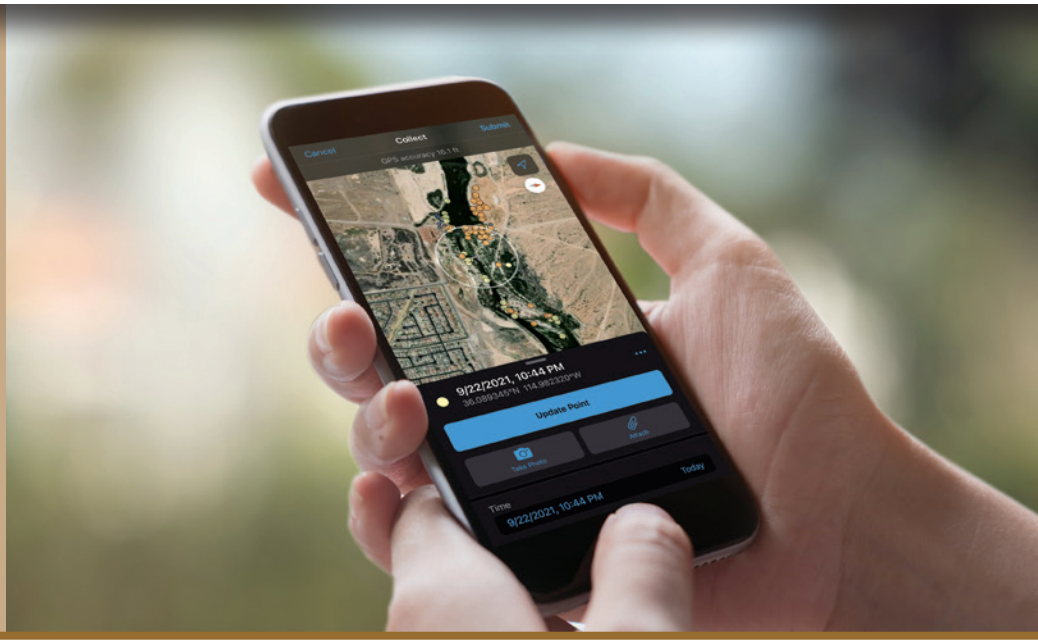
2022/2023 OBJECTIVES

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

data resources

2021 AT A GLANCE

- **Completed lvwash.org redesign, increasing user engagement**
- **Updated LVWCC logo**
- **Delivered e-newsletter monthly and increased Facebook followers to 1,387**
- **Collected panoramic photographs at 64 sites and captured aerial imagery**
- **Utilized mobile data entry for wildlife surveys**
- **Added more than 66,000 lines of data to the water quality database**



Amphibian survey data collection

PROJECT SUMMARY

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

Data resources are also vital to project managers. High-resolution imagery plays an important role for monitoring and planning maintenance activities. Aerial imagery and on-the-ground photographs are taken annually along the Wash to document landscape changes over time. GIS-based mobile software helps biologists record data on digital aerial maps in the field. In addition, the Lower Colorado River Water Quality Database stores nearly five million lines of data from 40 projects covering more than 50 years of monitoring throughout the basin. The password-protected database allows members to both access and upload data.

2021 IN REVIEW

After years of anticipation, the lvwash.org website received a full facelift in fall 2021, its first in two decades. The redesigned site has a modern look and presents information in a concise format to improve the user experience, reducing the number of pages by nearly 90 percent. It has a stronger visual presentation, showcasing photographs and videos, as well as the ability to organize information into scrollable slides and accordion sections that can be expanded and collapsed. The site is compliant with the Americans with Disabilities Act (ADA) and is now on a platform that will make updating content easier. The redesign has already increased user engagement, with visitors spending more time on the site and seeing more pages, and the average percentage of site pages viewed per visitor has increased from just 0.7 to 7.5 percent.

For the refreshed website, Wash Team staff worked with a graphic designer and stakeholders to update the LVWCC logo, which had been in use for more than 20 years and was not mobile friendly. The new logo is more reflective of the Wash project, can be presented in color or white and as a banner or medallion, and is ADA compliant.

The e-newsletter was delivered monthly to subscribers, and the Wash Facebook page reached 1,387 followers, highlighting project updates (including a short video of the amphibian survey that made local news) and more.

Wash Team staff took panoramic photos at 64 sites and about 150 points along the Wash for the annual photo comparative analysis project. A contractor flew high-resolution aerial imagery, and biologists continued to utilize GIS-based mobile software to collect data on threatened and endangered birds and expanded use of the technology to include the amphibian and snake surveys.

Lastly, members and staff added 66,407 lines of data from 11 projects to the Lower Colorado River Water Quality Database.

2022/2023 OBJECTIVES

The Wash Team will add a photo library and a real-time water quality widget to lvwash.org, construct online platforms using Basecamp software to improve stakeholder communication and coordination, and continue to update, support and utilize data resources vital to the LVWCC and Wash project.

Wetlands on the Wash

mission

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

printed on 100% post-consumer recycled paper

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