# las vegas wash coordination committee



### 2020 year-end report



### mission

ert willow flowers

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

### 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 Control District Clark County Water Quality Colorado River Commission Conservation District of Southern Nevada** Lake Las Vegas Resort Las Vegas Boat Harbor **National Park Service** Nevada Department of Wildlife Nevada Division of Environmental Protection **Nevada State Health Division Southern Nevada Health District Southern Nevada Water Authority U.S. Environmental Protection Agency** U.S. Fish and Wildlife Service

#### 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



Black-tailed jackrabbit

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# from the chair

Dear Friends:

The year 2020 was challenging, as our community struggled to cope with the COVID-19 pandemic and its far-reaching impacts. Stay-athome orders in the spring led to delayed or canceled outreach events and surveys. Then, as weeks became months, we adjusted to the "new normal" and learned how to accomplish vital functions while maintaining social distance, hosting stakeholder meetings online and enacting revised safety protocols to allow field work to resume.

Despite these challenges, the Las Vegas Wash Coordination Committee and its partners achieved a great deal this year, continuing to coordinate and conduct the critical work of stabilizing and enhancing the Las Vegas Wash.

Marking a major milestone, the Las Vegas Valley Watershed Advisory Committee approved the Las Vegas Wash Long-Term Operating Plan, establishing the actions and funding that will protect the channel and its resources when we transition from project implementation to long-term management in summer 2022.

One of the final steps before that transition is to ensure all stabilization facilities operate as originally designed. With that goal in mind, crews cleared and reestablished the grades of four structures in the winter. Additionally, a resurvey of the Las Vegas Wash Archaeological District found that the district's integrity is sound despite years of construction work, thanks to careful consideration during planning. Although paused during spring because of the pandemic, staff conducted robust monitoring of birds (including reporting a possible cuckoo breeding territory) and water quality, documenting conditions in a postconstruction environment.

Ruby-crowned kinglet

For the protection of our volunteers, we canceled both the spring and fall Wash Green-Ups but safely hosted a small volunteer planting event for a local Girl Scout troop in October, helping three young women toward achieving their Gold Award. Staff also filmed several videos at the Wash to use as virtual "field trips" for students.

With the help of our partners and volunteers, we have transformed the Wash from an eroding waterway to a vibrant ecosystem that supports diverse wildlife and provides recreational opportunities and a scenic retreat for our community. Thank you for your hard work and dedication!

Sincerely,

Priscilla Howell

Priscilla Howell Las Vegas Valley Watershed Advisory Committee Chair

### background

As the final link in the Las Vegas Valley watershed, the Las Vegas Wash (Wash) channels 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, desert environment, creating a lush landscape with abundant 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 2021 for seven programs.

BUDGET, 2020		
Operating Budget		
Local Contribution	\$861,201	
Bureau of Reclamation Grant	\$275,000	
NV Division of Environmental Protection Grant	\$36,500	
Total	\$1,172,701	
Capital Budget	\$5,246,853	

Fiscal Year July 2020–June 2021



#### 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





#### **ACTIVITIES MAP**

- Mainstream and Total Supended Solids/ Perchlorate Monitoring
- Tributary Sampling
- O Selenium Sampling and Stream Gaging
- **Or Real-time Water Quality Monitoring**
- Shallow Groundwater Monitoring
  Southwestern Willow
  Flycatcher Survey
- Yellow-billed Cuckoo Survey
- Avian Point Count
- Contractor Revegetation
- Girl Scout Planting
- Weed Management





# 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 interlocal agreement, 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 **Ivwash.org**. Progress measurements (e.g., website visitors, event attendees, number of events, etc.) recorded and reported to the LVWCC and in year-end reports.
- 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 percent), City of Las Vegas (9.2 percent), City of North Las Vegas (3.7 percent), Clark County (10 percent), CCRFCD (10 percent), Clark County Water Reclamation District (22.1 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 (PA) was signed and executed by all parties in 2011. The Cultural Resources Coordinating Committee was established and developed a cultural resources management plan to guide activities. Stakeholders are discussing developing a new PA, which would cover operations and maintenance work on Bureau of Reclamation lands at the Wash.
- 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.



Cottonwoods



### stabilization

#### 2020 AT A GLANCE

- Removed spoils and vegetation and reestablished grades at four 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 Federal Emergency Management Agency for approval of the letter of map revision
- Finalized Las Vegas Wash Long-Term
  Operating Plan



Clearing vegetation and debris from the Upper Diversion Weir impoundment

#### 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, but 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 **Clark County Water Reclamation District** outfall and Lake Las Vegas. The National Park Service has constructed four weirs downstream, and six more structures are needed, an issue being addressed in partnership with SNWA.

Sustainable floodplain management requires maintaining the investment in facilities. To that end, project managers in 2019 worked with a consultant to develop a stabilization facilities assessment report, a five-year work plan, and an operations and maintenance 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. Early in winter, Bureau of Reclamation (Bureau) crews removed 1,204 truck loads of clean spoils and vegetation from the Duck Creek Confluence, Pabco, Upper Diversion and Upper Narrows weirs, and hauled them to the permitted Bureau North Stockpile. In addition, eight truck loads of previously staged rock riprap were placed and repositioned at these weirs to reestablish lines and grades to their originally designed and

**2020 IN REVIEW** 

constructed positions.

Engineering staff continued to coordinate with biologists and stakeholders to prepare for the transition from capital improvements construction to longterm management of the Wash. The Bureau and contractors are clearing approximately 65 acres of marsh and riparian vegetation through winter 2022 to return facilities to benchmark conditions. Once achieved, crews will regularly maintain the structures. These actions are based on the stabilization facilities assessment report, as well as the five-year work plan and operations and maintenance plan. The consultant who prepared these documents also continued work on the letter of map revision (LOMR) with the Federal Emergency Management Agency (FEMA).

To address the loss of habitat caused by facility benchmarking and maintenance, biologists and engineers identified sites for vegetation enhancement and replacement, and sought grant funding for the work.

Marking a major achievement in this difficult year, the LVVWAC approved the LTOP, which contains 36 actions at a cost of about \$2.4 million. This will ensure that the important work of the CAMP will continue as the program shifts to operations and maintenance. Implementation will begin in summer 2022.

#### **2021 OBJECTIVES**

Bureau crews will remove sediment and vegetation from facilities below the Pabco Weir to reestablish lines and grades to their originally designed and constructed positions. A contractor is also slated to perform work on the Bostick and Calico Ridge weirs. The consultant will continue working to gain FEMA approval for the LOMR. Finally, if sufficient grant funding is awarded, the Wash Team will enhance and expand marsh and riparian habitat to replace what has been lost through facility maintenance.



### water quality

#### 2020 AT A GLANCE

- Continued to conduct water-quality sampling and monitoring programs in the Wash and its tributaries, with some disruption because of the COVID-19 pandemic
- Demonstrated that Wash water quality is healthy and that wetlands in the channel are functioning as they should
- Organized and uploaded data into the water quality database



#### **PROJECT SUMMARY**

The stabilization and enhancement program that the LVWCC implemented has greatly improved the Wash's water quality. Hydrologists have monitored and sampled the main stem and its tributaries since 2000, and Wash data show that total suspended solids (TSS), nutrients and several trace metals have been reduced. The dramatic decrease in TSS concentrations (about 60 percent) led to the channel's removal from the 303(d) list of impaired waters for the state.

Each month, hydrologists collect flow and water-quality data—including selenium (both total and dissolved) and total dissolved solids (TDS)—from 12 sites along eight tributaries. TSS samples also are collected and analyzed monthly along the Wash, and 16 shallow groundwater wells are monitored and sampled quarterly. Three permanent real-time monitoring stations provide valuable data from strategic locations in the watershed every 20 minutes.

The Wash Team developed the Las Vegas Wash Surface Water Quality Monitoring and Assessment Plan in 2011 to coordinate efforts among sampling agencies; the plan is reviewed and updated annually. A shallow groundwater

Water quality sampling at the Wash

monitoring plan also was developed and initiated.

Additionally, Wash Team staff implemented a bioassessment monitoring plan from 2003-2018 to address U.S. Fish and Wildlife Service concerns about possible impacts to the razorback sucker in Lake Mead that were identified during informal section 7 consultation. Water, bird egg, fish and sediment samples were collected, analyzed and evaluated in comprehensive bioassessment reports. Results showed no major impacts, and the consultation and sampling have been concluded.

#### **2020 IN REVIEW**

Hydrologists completed most sample collections as scheduled, except for the second quarterly event in the Wash because of the COVID-19 pandemic. As with 2019, water-quality data collected during the year represented postconstruction conditions in the Wash. Field measurements (temperature, pH, specific conductance and dissolved oxygen), TDS and boron were similar in 2020. At the end of the Wash, selenium decreased (8 percent) and perchlorate increased (7 percent), while ammonia concentrations were much lower at most

sites. Nitrate plus nitrite concentrations decreased by about 5 percent midway along the channel but increased slightly (4 percent) at the end. Both orthophosphate and total phosphorus concentrations continued to decline, varying from a 3 percent to a 22 percent reduction at the middle and end of the Wash, respectively. TSS and many trace metals at most sites were either similar to or slightly lower than the previous year. These changes indicate that water quality is healthy and that wetlands in the channel are functioning as they should; none of the increases noted are a cause for concern.

Water-quality data collected from relevant projects by various sampling agencies were organized and uploaded into the Lower Colorado River Water Quality Database, which allows members to search and download water-quality data from both ongoing and historical monitoring programs.

#### **2021 OBJECTIVES**

All groundwater and surface water-quality monitoring programs in the Wash and its tributaries will continue in 2021, and no major changes are expected.



#### 2020 AT A GLANCE

- Delayed two surveys to 2021 and did not perform marsh bird monitoring because of stay-at-home orders
- Conducted surveys for endangered southwestern willow flycatcher and threatened yellow-billed cuckoo, identifying a possible cuckoo breeding territory
- Continued biweekly avian point counts and finalized 2005-2019 report
- Added 33 invertebrate species to inventory



Biologist conducting a bird survey above Rainbow Gardens Weir

#### **PROJECT SUMMARY**

The efforts of the LVWCC and its partners have transformed the Wash into a verdant oasis in the Mojave Desert. The area is now home to nearly 375 species of vertebrate wildlife and more than 550 species of invertebrates. After conducting years of surveys documenting the different taxa, the Wash Team developed the Las Vegas Wash Wildlife Management Plan (WMP) to conserve native species, protect and enhance their habitats. and increase environmental awareness of these resources in the community. The WMP includes 31 recommended actions, as well as needed baseline and effectiveness monitoring. Surveys are conducted in support of the WMP.

#### **2020 IN REVIEW**

Because of the COVID-19 pandemic and the governor's stay-at-home mandate in the spring, Wash Team biologists were unable to conduct night searches for snakes, the second iteration of the amphibian survey or annual marsh bird monitoring. Staff resumed regular activities in support of the WMP in June. Field crews conducted two of the three annual breeding season surveys for the southwestern willow flycatcher but detected no residents or migrants. Although this was the first time in 15 years that no willow flycatchers were recorded, it was not surprising, because normally most are detected as migrants passing through in May, when no monitoring was conducted. More than 20 years of surveys have yielded just four residents and no signs of nesting.

From June into August, field crews surveyed for the threatened yellow-billed cuckoo, making two detections at a Wash revegetation site. Staff concluded that these sightings represented a possible breeding territory. Biologists have conducted annual surveys for the cuckoo since 2013 and typically detect at least one per year. While this does not sound significant, cuckoos are generally rare in Nevada. Birders observing a Mississippi kite that took up residence at the Nature Preserve also reported cuckoo detections in early July and mid-August, but Wash Team staff did not detect any cuckoos at the site despite thorough surveys of the area. Staff in early July did confirm a Yuma Ridgway's rail reported at Clark County's in-lieu fee mitigation wetlands, and another was reported on the Wash in late September.

Except for a two-month pause in the spring, biweekly avian point counts funded by the Bureau continued and

have identified 237 species. The contractor submitted the final report summarizing 2005-2019 data, which showed statistically significant increases in species richness and abundance over the study period, corresponding with Wash improvements. Most of the increases were from species dependent on aquatic habitats, while the numbers of some riparian-dependent species have declined.

Survey reports are available on **Ivwash.org**.

As people increasingly sought the outdoors in the pandemic, postings on crowd-sourcing data apps also increased. Birders posted images of the Nature Preserve cuckoo and Wash Ridgway's rail on eBird, alerting staff to their presence. On iNaturalist, users made more than 1,500 observations of plants and animals at the Wash from March through December, which helped add 33 invertebrates to the inventory, bringing the total to 565 species.

#### **2021 OBJECTIVES**

Biologists will continue bird surveys, conduct night searches for snakes and the amphibian survey, and carry out any desert tortoise compliance needed to support stabilization work.



### vegetation enhancement and management

#### **2020 AT A GLANCE**

- Revegetated approximately 25 acres with native plants
- Hosted small volunteer planting event for Girl Scouts working on Gold Award
- Monitored revegetation sites
- Summarized 2019 vegetation monitoring data in report; maintained or increased cover on more than 90 percent of previously monitored sites
- Treated 12.8 acres of noxious weeds, including removal of a large tamarisk stand



Say's phoebe perching on irrigation in a revegetation site

#### **2020 IN REVIEW**

There were no Wash Green-Ups in 2020 because of the COVID-19 pandemic. However, a contractor and volunteers at a smaller event revegetated approximately 25 acres. The contractor planted about 1,500 trees near the Sunrise Mountain Weir; planted riparian and wetland shrubs and grasses on a half-acre area near the Pabco Weir; and hydroseeded about 12.5 acres south of the Upper Narrows Weir. In the fall, a small group of volunteers led by three Girl Scouts working toward their Gold Award planted desert willow, brittlebush and globemallow on about two acres on the south side of the Historic Lateral Weir.

Wash Team staff monitored revegetation sites in the fall. The project manager finalized the Las Vegas Wash Vegetation Monitoring Report, 2019, detailing the status of each of the 137 revegetation sites created through the spring of that year. The report details the percentage of vegetative cover for each site and for each species within a site. In 2019, three sites were monitored for the first time. Of the 134 sites that were previously monitored, 100 (74.6 percent) had the same cover as in 2018, 23 (17.2 percent) increased in cover, and just 11 (8.2 percent) decreased in cover.

Contractors also cleared or treated 12.8 acres of noxious weeds along the Wash during 2020, including removing an 11-acre stand of tamarisk near the Duck Creek Confluence Weir. With the clearing of this stand, less than 2 percent of the original tamarisk acreage remains.

Grants are vital for these activities. A Bureau grant funds revegetation site management, including weed treatments, and a Nevada Division of Forestry grant contributed to the clearing of the tamarisk stand.

#### **2021 OBJECTIVES**

The Wash Team will continue revegetation site monitoring. Planting efforts in 2021 and 2022 will focus on the south side of the Sunrise Mountain Weir. This area covers more than 25 acres and will require multiple planting events to finish the restoration. In addition, the project manager will begin to plan and implement activities based on the Las Vegas Wash Long-Term Revegetation Management Plan, which describes how to enhance the ecological benefits of existing revegetation sites.

#### **PROJECT SUMMARY**

The Wash has gradually transitioned to a diverse, native-dominated ecosystem. Erosion control projects and other activities have removed tamarisk and other non-native species, and volunteers and contractors have replanted these areas with a variety of native plants. Revegetation with native species helps fulfill the WMP objective of protecting and enhancing habitats while also helping to meet permit and grant-funding requirements.

Since its inception, the LVWCC has revegetated more than 580 acres along the Wash. Community volunteers have planted half of this acreage through the 35 semi-annual Wash Green-Up planting events held since 2001.

Continued management of nonnative weeds is a major component of the vegetation enhancement and management program. Only 28 acres remain of the 1,500 acres of tamarisk found along the Wash in 1998. Annual monitoring of all revegetation sites provides important information on the encroachment of weeds and the success rate of native habitat creation; it also informs management decisions.



### cultural resources

#### 2020 AT A GLANCE

- Hosted a virtual meeting of the Cultural Resources Coordinating Committee
- Discussed development of a new PA to cover operations and maintenance work on Bureau lands
- Completed a resurvey of the Las Vegas Wash Archaeological District that documented the district's integrity despite heavy activity and generated new photos, GIS data, maps and a final report



Exposed cultural structure from the early 1900s

#### **PROJECT SUMMARY**

Songs, oral tradition and early images from the 1900s reveal evidence that Native Americans used the Wash as a byway from the Las Vegas Valley to the Colorado River. Euro-American settlers recognized the Wash as a resource, and some built homesteads on its banks. As the valley's population grew, increasing water flowed through the Wash: the resulting erosion threatened the channel's cultural resources, including habitations and rockshelters, early settlers' homesteads and historical mining facilities. Throughout the 1960s and '70s, researchers, including the Nevada Archaeological Survey, examined the evidence for life along the Wash. The importance of the Wash's cultural history was recognized with its designation as an archaeological district in 1977. The Wash Team continues the pursuit, working with stakeholders to record, protect and interpret the Wash's cultural resources.

In 2011, a 10-year PA was developed to provide guidelines for the Section 106 consultation process for cultural resources within the Wetlands Park, as well as to outline responsibilities between the Bureau, Clark County, SNWA and other stakeholders. As part of the PA, a Cultural Resources Coordinating Committee (CRCC) was created; the group generally meets quarterly to review construction developments, research questions and give updates. This collaboration has led to a clearer understanding of each agency's role in protecting cultural resources, as well as saving time and expense.

#### **2020 IN REVIEW**

2020 was a transitional year for cultural resources work at the Wash and for the CRCC. Pandemic-related restrictions limited the amount of field work that could be conducted. However, longterm research, as well as support of weir construction and maintenance, continued to serve as an example of stakeholder collaboration and best management practices. The bulk of this collaboration occurred through the CRCC, which met once remotely in 2020. The group discussed several topics, including maintenance projects and the development of a new PA, as the current PA expires in 2021. The Bureau will lead the process for the new PA, which will cover operations and maintenance work on Bureau lands at the Wash.

The CRCC also supported a complete resurvey of the Las Vegas Wash

Archaeological District to determine the stabilization program's long-term effects on the area's sensitive cultural resources. Previous survey work in the Wash had been conducted as piecemeal projects over the course of decades. This was the first survey to consider the archaeological district in its totality as a single project.

Field work was completed in January and February, reidentifying all sites and recording several small, isolated artifacts. Despite the years of construction work, trail development, and unmonitored site visits, the archaeological district's integrity is sound, thanks to the careful consideration of cultural resources in the planning process. The contractor produced new photos, GIS data and maps—which updated site boundaries and will allow for better planning of future projects—and submitted a final report summarizing results.

#### **2021 OBJECTIVES**

The current PA will expire, and the Bureau will work with stakeholders to develop a new PA to cover stabilization activities on its land.



## education and outreach

#### 2020 AT A GLANCE

- Held two-day science symposium for World Wetlands Day, attracting nearly 250 students
- Conducted outreach with Mabel Hoggard fifth-grade classes
- Participated in or hosted 10 total in-person events, reaching 830 people
- Created six videos to be used as virtual field trips
- Visited 15 classrooms virtually, reaching 328 students for a stormwater pollution poster contest



Mabel Hoggard students getting a close-up view of an armored catfish

#### **PROJECT SUMMARY**

For more than 20 years, the LVWCC has educated the public on the Wash's importance, participating in nearly 720 events that have reached more than 315,000 people. The Wash Team also has created a strong digital footprint for the LVWCC, expanding from a public website to social media, helping its messages reach a wider audience (see Data Resources).

To help guide activities, the Wash Team follows the recommendations in the Las Vegas Wash Outreach Plan, 2013, which details core messages, strategies, goals and effectiveness monitoring. The WMP also drives efforts to increase environmental awareness of wildlife and their habitats.

#### **2020 IN REVIEW**

Before the COVID-19 pandemic impacted education and outreach, the Wash Team celebrated World Wetlands Day with its annual two-day science symposium for high school students. The late-January event at the Wetlands Park was themed "wetlands and biodiversity" and attracted nearly 250 students from 10 local schools. Each day began with a keynote speaker from Ash Meadows National Wildlife Refuge, Nevada's only Ramsar-designated wetland of international importance, followed by presentations on other wetlands, including the Wash. Students then participated in a planting event and nature walk.

The Wash Team also hosted two field trips for fifth-grade students from Mabel Hoggard Math and Science Magnet Elementary School. Prior to each trip, staff explained the importance of the Wash and its role in the valley's hydrologic cycle. On field-trip day, students spent the morning at Lake Mead aboard the Desert Princess learning about water quality and food webs. In the afternoon, they visited the Wetlands Park to be "biologists" for a day. While walking around the park, students used the Seek app to identify plants and animals they encountered. Then in a follow-up visit, students created graphs of their data and presented their findings.

Staff participated in seven other outreach events, including elementaryschool career days and the Nevada State Science Teachers Association conference. In all, Wash Team-led outreach events reached 830 people.

Although the COVID-19 pandemic forced the cancellation of all in-person events after mid-March, education and outreach efforts continued. Staff created six educational videos that introduce the Wash, describe revegetation, water quality, food webs and wildlife surveys and highlight interesting desert species.

The Wash Team also conducted a stormwater pollution poster contest. Staff virtually visited 15 fourth- and fifth-grade classes in December, teaching 328 students about stormwater pollution and its impacts on the Wash and Lake Mead. The theme was "How you can prevent stormwater pollution," and the top three poster submissions will receive a prize.

The Nevada Division of Environmental Protection (NDEP) provided funding for the Mabel Hoggard field trips, the new educational videos and the stormwater pollution poster contest.

#### **2021 OBJECTIVES**

While adhering to pandemic-related protocols, the Wash Team plans to host two NDEP-funded Wash Green-Ups with fewer volunteers. Staff also will conduct virtual "field trips" for Mabel Hoggard and other students using the new videos, as well as select winners and present awards for the stormwater pollution poster contest.



### data resources

#### 2020 AT A GLANCE

- Hosted nearly 18,000 unique page views at Ivwash.org and began website redesign
- Increased Facebook followers by almost 25 percent and represented the Wash on SNWA-connected social media platforms
- Collected panoramic photographs at 61 sites and processed aerial imagery
- Added more than 45,000 lines of data to the water quality database
- Initiated mobile data collection for select bird surveys



Students planting willow poles for World Wetlands Day, as posted on the Wash Facebook page

#### **PROJECT SUMMARY**

The LVWCC uses digital media and data management tools to share information with its members, partners and the public. The Ivwash.org website continues to serve as a central location to discover Wash history, download biological reports and learn about meetings and events. Wash Team staff distribute a monthly e-newsletter to subscribers, providing short articles concerning project updates, program accomplishments and announcements for upcoming activities. Social media platforms such as Facebook (facebook. com/LVWash), Instagram and YouTube allow the LVWCC to introduce the Wash to an even bigger audience and invite the community to sign up for volunteer events.

The Wash Team collects a variety of data throughout the year that requires storage and management. Since 1998, staff have taken panoramic photographs annually at more than 50 sites along the Wash to show changes over time. Aerial imagery is also collected and processed at least once a year. In addition, hydrologists use the Lower Colorado River Water Quality Database to store and share more than 4.9 million lines of water-quality data from 11 agencies, covering 40 projects and 673 sites. Finally, data managers have used GIS software to facilitate mobile data collection for threatened and endangered bird surveys.

#### **2020 IN REVIEW**

With outreach events largely canceled and staff working remotely during the COVID-19 pandemic, digital media became increasingly essential. The **Ivwash.org** website received 17,963 hits, and the team embarked on a large-scale redesign to make the site compliant with the Americans with Disabilities Act. The monthly e-newsletter highlighted articles about bat species found at the Wash, invasive weeds and the costs of illegal dumping, while also providing regular updates on programs and closures due to the pandemic.

The Wash's dedicated Facebook page continued to expand its reach, with the total number of followers increasing by nearly 25 percent, to 1,228. Visitors to the page saw posts celebrating World Wetlands Day, an update on the conservation status of the Mojave poppy bee and a tribute to Dawn Wells that explained the late actress's connection to the Wash. SNWA's YouTube channel hosted six Wash-related videos with a total viewership of 6,297. Additionally, social media managers posted seven Wash-specific items on the SNWA Instagram page, which has 1,025 followers, and these posts averaged 26 "likes" and 189 views per video clip.

Wash Team staff conducted the photographic comparative analysis study in September, capturing panoramic photographs from 138 points at 61 sites. Aerial imagery was also collected and processed.

COVID-19 temporarily disrupted several water-quality sampling programs. Still, members added 45,076 new lines of data to the database, covering 12 projects and 56 sites.

Lastly, field crews initiated mobile data collection for willow flycatcher and yellow-billed cuckoo surveys, enabling them to quickly and easily share bird locations and other data, although there were challenges with some application features.

#### 2021 OBJECTIVES

The Wash Team will complete the redesign of **Ivwash.org**, upload the six educational videos to the website and SNWA's YouTube channel, continue other postings, address mobile data collection issues, and generate and manage data in support of LVWCC projects.



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

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