

PROTECTING THE ENVIRONMENT

THE SNWA'S ENVIRONMENTAL STEWARDSHIP EFFORTS HELP CONSERVE AND PRESERVE NATURAL RESOURCES FOR FUTURE GENERATIONS WHILE MINIMIZING CONFLICTS WITH WATER RESOURCE MANAGEMENT.

The SNWA works cooperatively with its members and community partners, as well as federal, state and local agencies as part of its long-term water resource management and planning efforts. From tree planting initiatives to species recovery and habitat conservation, this work helps to promote sustainability, ensure avoidance, mitigation or minimization of impacts during development and delivery of water resources, including the construction, operation and maintenance of regional water facilities.

In addition to the organization's proactive efforts, the SNWA adheres to strict environmental laws and regulations that govern its use and development of resources and facilities. These include the Endangered Species Act (ESA), National Environmental Policy Act (NEPA) and Clean Water Act.

By complying with environmental laws and regulations, working cooperatively with others, and by implementing the latest best management practices, the SNWA minimizes its footprint and protects valuable environmental resources for generations to come. The following summarizes specific activities that are currently planned or underway:

SNWA SUSTAINABILITY INITIATIVES

Sustainability is inseparably linked to the conservation of vital resources. This concept forms the framework for SNWA's sustainability initiatives, focusing on four main areas: water, energy, environment and personal responsibility.

As a water provider and educator in one of the region's driest communities, living a conservation ethic is an essential part the organization's work practice. The SNWA strives to provide sufficient water to the community while promoting conservation, utilizing reliable, renewable water resources and maintaining water quality with minimal impact on the environment. As described below, the SNWA has undertaken a range of initiatives that help to bolster sustainability initiatives:

- In 2024, the water saved from SNWA's conservation programs averted more than 30,300 metric tons of carbon dioxide equivalent discharge (nearly 67 million pounds) through avoided water pumping, treatment and transmission activities. That is comparable to taking nearly 7,100 cars off the road every year.
- Following the passage of modified renewable energy standards by the Nevada Legislature in 2019, the SNWA met the 2022 target of 29 percent renewables and is on track to meet the 50 percent target by 2030. The SNWA's renewable energy resources provide more than 170 million kilowatt hours of clean energy, enough to power nearly 13,000 Southern Nevada homes annually.
- The organization upgraded its fleet to include 82 percent alternative fuel vehicles or hybrids.
- The SNWA continues to minimize the environmental impacts of operations and create a greener way of working. Reducing, reusing and recycling are key components of waste reduction efforts. SNWA facilities are designed to be environmentally conscious, including certification under U.S. Leadership in Energy and Environmental Design green building program.

Understanding and Addressing Our Urban Heat Island

Many communities experience higher temperatures at their urban core than in outlying areas. This is known as the urban heat island (UHI) effect and is primarily due to development, which changes natural landscapes and vegetation. Pollution, including vehicle and building emissions, also contributes to UHI by producing greenhouse gas emissions.

Buildings, roads and parking lots absorb and re-emit the sun's heat, creating an island of higher temperature. Like climate change, urban heat islands result in increased energy consumption for cooling,



Make Tree Care a Priority

Existing, mature trees are a valuable and attractive part of any landscape. Unfortunately, a tree's root system can be disturbed during a conversion or other construction projects. Take special care to protect trees during a landscape conversion.

The SNWA helps WSL program participants by providing tips and resources that focus on protecting trees during a landscape conversion. Follow these tips to ensure trees are protected:

- Convert during the cool season, if possible.
- Identify and protect major roots.
- Use weed killer and a de-thatcher to remove grass around trees.
- Establish a protective barrier around the tree to avoid damage.
- Avoid trenching under the canopy.
- Keep watering the trees during the conversion process and use a drip system to supply water under the canopy and out to the drip line.

Visit snwa.com to learn more about SNWA tree incentives, find landscape resources and learn more about additional tree care recommendations.

elevated emissions of air pollutants and greenhouse gases associated with increased cooling demands, impacts on human health and comfort, and water quality changes due to disruptions in stormwater runoff and absorption. According to a 2017 Climate Central study, Las Vegas' urban heat island is 7.3°F hotter than surrounding areas.¹

Trees, green roofs and vegetation can help reduce UHI effects by shading building surfaces, deflecting the radiation from the sun and releasing moisture into the atmosphere.² Not only do trees shade buildings and hardscapes—blocking sunlight and reducing the heat that is absorbed and re-radiated—they also cool through a natural process called transpiration. Trees release water into the atmosphere through their leaves, which has a cooling effect on air temperatures.

The SNWA introduced two new tree programs in 2023 to help bolster shade in our community. The SNWA Board approved a “treebate” that provides an additional \$100 per tree incentive to residential and commercial participants who install trees as part of their Water Smart Landscape (WSL) conversion project, up to 100 percent canopy coverage. While the WSL program has always required project participants to achieve a minimum of 50 percent canopy coverage upon maturity, the Board authorized the added incentive to help increase shade coverage to combat UHI.

Since program inception, the SNWA has supported more than 4,266 new tree installations as part of the incentive, representing more than 1.8 million square feet of new tree canopy at maturity. Other efforts include educating program participants on tree selection, urging participants to select trees that provide meaningful canopy coverage, and providing instruction on proper tree pruning and care, focusing on protecting existing trees during landscape conversions.

Separately, the SNWA has planted approximately 1,330 trees in high-heat, low-income neighborhoods in the community through a partnership with ImpactNV. The SNWA committed \$500,000 in program funding in 2023 and will continue to support tree installations until this funding is fully expended. The SNWA is also working with Valley partners as part of the Las Vegas Urban Tree Canopy Coalition led by The Nature Conservancy. Partners are working to develop a strategic plan to coordinate urban forestry activities and resources across jurisdictions.

As further described below, the SNWA is taking other steps to understand and address UHI:



Buildings, roads and parking lots absorb and re-emit the sun's heat, creating an island of higher temperature.

- The SNWA is collaborating with Clark County and other stakeholders to quantify water and energy benefits associated with cool roof retrofits. This research will guide potential incentive programs to reduce UHI and water use associated with evaporative cooling.
- Through involvement in the Clark County-led All-In Regional Climate Collaborative, the SNWA and community partners are pursuing competitive grant funding to implement programs, policies and projects that reduce greenhouse gas emissions, mitigate UHI impacts and save water.
- The SNWA serves as a member of the Southern Nevada Strong (SNS) Steering Committee, working with regional collaborators to implement the 2015 Regional Plan and shape a stronger, more connected and sustainable future for Southern Nevada.
- The SNWA offers in-kind support to the newly developed Southern Nevada Heat Resilience Lab (SNHRL). Led by the Desert Research Institute. The lab brings together public service providers, researchers and experts to explore innovative solutions for extreme heat adaptation and response.

COLORADO RIVER

Human alterations on the Colorado River, including changes to riparian, wetland and aquatic habitats, have affected the river's ecosystem, both in the United States and in Mexico. Today, there are

several native fish, birds and other wildlife species listed as threatened or endangered under the ESA.

Lower Colorado River Multi-Species Conservation Program

Environmental issues are being addressed cooperatively by Colorado River water users, primarily through the Lower Colorado River Multi-Species Conservation Program (LCR MSCP).

Finalized in 2005, the LCR MSCP provides ESA coverage for federal and non-federal operations in the Lower Colorado River under a Biological Opinion and a Habitat Conservation Plan.³

The SNWA is a non-federal partner in the LCR MSCP, which is being implemented by the U.S. Bureau of Reclamation over a 50-year period. The program area extends more than 400 miles along the lower Colorado River, from Lake Mead to the southernmost point of the U.S./Mexico border. Lakes Mead, Mohave and Havasu, as well as the historical 100-year floodplain along the main stem of the lower Colorado River, are all included. The program area also supports implementation of conservation activities in the lower Muddy, Virgin, Bill Williams and Gila rivers. The plan will benefit at least 27 species, including native fishes, birds and other wildlife listed as threatened or endangered under the ESA.

Some of the LCR MSCP projects being conducted in Nevada include razorback sucker studies in Lake Mead, southwestern willow flycatcher surveys and habitat protection at the Big Bend Conservation Area.



The Moapa dace is endemic to the Muddy River.

Dace on the Rise

The Moapa dace only occurs in the warm springs, tributaries and upper main stem of the Muddy River, and was listed as an endangered species in 1967. The USFWS recovery plan for the Moapa dace set a goal to delist the fish when the adult population reaches 6,000 in five spring systems for five consecutive years.⁸

The SNWA has worked with its partners to implement a number of activities to benefit the Moapa dace. Efforts include improving connectivity between springs and streams, eradicating invasive fish species and restoring natural streamflow dynamics and riparian vegetation.

These actions have helped the overall Moapa dace population to increase substantially. The population increased from a low of 459 individuals in 2008 to 1,927 in 2025.

In 2005, the SNWA purchased the 15-acre Big Bend Conservation Area site along the Colorado River to protect backwater habitat for native fish. In 2008, the LCR MSCP and the U.S. Fish and Wildlife Service (USFWS) funded wildlife habitat improvements on the property. The SNWA continues to maintain the property and habitat.

By taking a proactive role in the health of the river and its native species, the SNWA and other Colorado River users are working to help ensure the long-term sustainability of this critical resource.

Colorado River Basin Water Supply and Demand Study

An Environmental and Recreational Flows Workgroup was one of three workgroups established following completion of the Colorado River Basin Water Supply and Demand Study.⁴ The SNWA is a member of this workgroup, which identified opportunities that would provide multiple benefits to improve flow and water-dependent ecological systems, power generation and recreation.

Binational Collaboration

Through interpretive minutes to the 1944 Treaty for the Utilization of Waters of the Colorado and Tijuana Rivers and of the Rio Grande, the United States and Mexico have established a framework for cooperation on environmental issues in Mexico. This includes studies related to the riparian and estuarine ecology of the Colorado River limitrophe and Delta.

The SNWA is a member of the Environmental Work Group that was established in 2010. The work group provides a forum where the two countries can explore and evaluate potential areas of cooperation. The SNWA continues to collaborate with the work group to consider opportunities for environmental improvements such as those identified in minutes 319 and 323 regarding environmental flow deliveries in the limitrophe and Delta.

Glen Canyon Dam Adaptive Management Work Group

The SNWA participates in the Glen Canyon Dam Adaptive Management Work Group (AMWG) Federal Advisory Committee. This multi-stakeholder group helps balance the needs and interests of the threatened humpback chub, recreational interests, Native American perspectives, hydropower generation, water deliveries and downstream water quality. Active participation in the AMWG and its subcommittees helps ensure the SNWA's interests in protecting water deliveries, downstream water quality and the threatened humpback chub are adequately addressed.

MUDDY RIVER

The Muddy River and its tributaries and springs provide habitat for a unique array of rare species, including the federally endangered Moapa dace (*Moapa coriacea*), southwestern willow flycatcher (*Empidonax trailii extimus*), Yuma Ridgway's rail (*Rallus obsoletus yumanensis*) (formerly Yuma clapper rail), and the federally threatened western yellow-billed cuckoo (*Coccyzus americanus occidentalis*). It is also habitat for the Virgin River chub (*Gila seminuda*), which although not listed on the Muddy River is listed as endangered on the Virgin River.

The SNWA has conducted and supported environmental studies on the Muddy River since 2004, including population and habitat surveys for these and other native, sensitive species. The SNWA is also working with federal and state agencies, environmental organizations and local stakeholders to implement conservation and recovery actions, including work at the Warm Springs Natural Area.

Warm Springs Natural Area

Located approximately seven miles northwest of the town of Moapa, the Warm Springs Natural Area contains more than two dozen warm water springs that form the headwaters of the Muddy River. The springs and river provide habitat for the federally endangered Moapa dace, a small fish that is endemic to the area. The river and surrounding riparian areas also provide habitat for 27 other listed and sensitive species, including fish, birds, bats, invertebrates and amphibians.

In 2007, the SNWA purchased the former 1,220-acre "Warm Springs Ranch," using funding secured under the Southern Nevada Public Land Management Act. Working with federal, state and local stakeholders, the SNWA completed a Stewardship Plan for the Warm Springs Natural Area in 2011.⁵ The Stewardship Plan provides a framework for use and management of the property that preserves the integrity of natural resources and allows for management of water resources.

Since acquisition of the property, the SNWA has focused on restoration of aquatic fish habitat, control and eradication of invasive species, fire prevention and general property maintenance. A public use trail system with interpretive signage also was developed to allow for low-impact public

use of the property. These conservation actions help to provide mitigation benefits for water development. For more information, including hours of operation for public exploration, visit warmspringsnv.org.

VIRGIN RIVER

The Virgin River is one of the largest riparian corridors in the desert southwest; within Nevada, the lower Virgin River is home to the federally endangered woundfin, Virgin River chub, southwestern willow flycatcher, and Ridgway's rail and the federally threatened western yellow-billed cuckoo.

The SNWA and other resource management partners have supported fish and wildlife monitoring activities in the lower Virgin River for decades. This work has provided valuable information, such as understanding the long-term dynamics of the fish community and the success of fish stocking experiments.

CLARK COUNTY

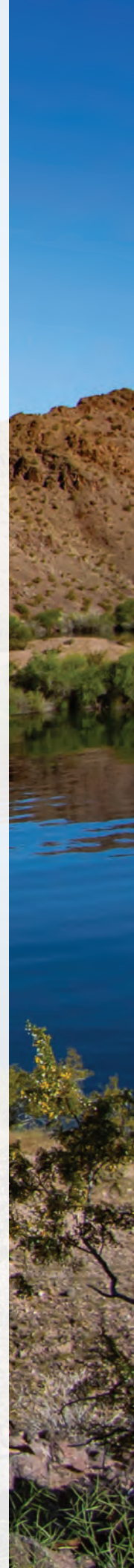
The SNWA participates in a number of environmental initiatives in Clark County to help protect and restore the environment, including the Clark County Multiple Species Habitat Conservation Plan (MSHCP) and Las Vegas Wash Comprehensive Adaptive Management Plan. These efforts directly affect the SNWA's ability to operate facilities in Clark County and deliver high quality water to the community.

Clark County Multiple Species Habitat Conservation Plan

The MSHCP was approved in 2001, and provides ESA coverage for 78 species, including the threatened desert tortoise (*Gopherus agassizii*).⁶ The key purpose of the MSHCP is to achieve a balance between the conservation and recovery of listed and sensitive species in Clark County and the orderly beneficial use of land to meet the needs of the growing population in Clark County. The SNWA actively participates in the MSHCP, which provides ESA coverage for its projects and facilities located on non-federal lands within the county.

Las Vegas Wash

The Las Vegas Wash is the primary channel through which the SNWA member agencies





Mature Vegetation Along the Wash

return water to Lake Mead for return-flow credits. These flows account for less than two percent of the flows into Lake Mead and consist of urban runoff, shallow groundwater, stormwater and highly treated wastewater from the valley's four water reclamation facilities. Decades ago, the flows of the Wash created more than 2,000 acres of wetlands, but by the 1990s, only about 200 acres of wetlands remained. The dramatic loss of vegetation reduced both the Wash's ability to support wildlife and serve as a natural water filter.

In 1998 at the request of its citizen's advisory committee, the SNWA reached out to the community in an effort to develop solutions to the problems affecting the Wash. This led to the formation of the Las Vegas Wash Coordination Committee (LVWCC), a panel representing more than two dozen local, state and federal agencies, businesses, an environmental group, the University of Nevada Las Vegas and private citizens. The committee quickly developed a Comprehensive Adaptive Management Plan for the Wash.⁷

Over more than 20 years of working together, the LVWCC and its member agencies have taken significant strides toward improving the Las Vegas Wash. Early efforts focused on reducing

the channelization of the Wash, reducing erosion and increasing the number of wetlands. Accomplishments to date include:

- Completed construction of 21 planned erosion control structures or weirs.
- Stabilized more than 13 miles of the Wash's banks
- Removed more than 565 acres of non-native tamarisk
- Revegetated more than 615 acres with native plants
- Removed more than 500,000 pounds of trash from adjacent areas
- Organized more than 19,000 volunteers
- Completed extensive wildlife and water quality monitoring programs
- Identified more than 1,000 species of wildlife
- Identified more than 270 species of vegetation
- Implemented an invasive species management program

Today, the Wash carries more than 200 million gallons of water a day to Lake Mead. The efforts to stabilize the Wash have resulted in a greater than 60 percent reduction in the amount of total suspended solids in the water, and the removal of the Wash from Nevada

Division of Environmental Protection's list of impaired waters.

Activities on the upstream reach of the Las Vegas Wash are largely complete and the SNWA is working to implement a Long-Term Operating Plan. Current efforts focus on the Lower Las Vegas Wash, the reach between Lake Las Vegas and Lake Mead. Work efforts include the repair of existing erosion control structures and the installation of new structures.

CHAPTER SUMMARY

The SNWA adheres to strict environmental laws and regulations that govern its use and development of resources and facilities. In addition, the SNWA proactively integrates environmental stewardship into public programs, facility operations and resource management. To support its long-term water resource planning and development efforts, the SNWA will:

- Support efforts to understand and address UHI, including tree planting initiatives.
- Meet the community's current and long-term water resource needs while promoting conservation, utilizing reliable, renewable water resources and maintaining water quality with minimal impact on the environment;
- Continue its environmental planning, monitoring and mitigation efforts to minimize its footprint and protect community water supplies;
- Participate in environmental programs to enhance regulatory certainty for the flexible and adaptive use of resources;
- Work with partners to conserve habitat and work towards the recovery of threatened and endangered species, as well as reducing the likelihood of additional species listings.

ENDNOTES

- 1 Climate Central, "AMERICAN WARMING: The Fastest-Warming Cities and States in the U.S."
- 2 US Environmental Protection Agency. Reduce urban heat islands, <https://www.epa.gov/heatislands/frequent-heatisland-questions-and-resources#heatislands18/4/2025>
- 3 Lower Colorado River Multi-Species Conservation Program, 2004. Lower Colorado River Multi-Species Conservation Program, Volume II: Habitat Conservation Plan. December 17, 2004.
- 4 "Colorado River Basin Water Supply and Demand Study," December 2012, U.S. Bureau of Reclamation.
- 5 SNWA, 2011. "Warm Springs Natural Area Stewardship Plan," June 2011, SNWA.
- 6 Clark County Multiple Species Habitat Conservation Plan and Environmental Impact Statement for Issuance of a Permit to Allow Incidental Take of 79 Species in Clark County, Nevada, September, 2000, Clark County Department of Comprehensive Planning and U.S. Fish and Wildlife Service.
- 7 "Las Vegas Wash Comprehensive Adaptive Management Plan," December 1999, Las Vegas Wash Coordination Committee.
- 8 "Recovery Plan for the Rare Aquatic Species of the Muddy River Ecosystem," May 16, 1996, U.S. Fish and Wildlife Service Region 1, Portland, Oregon.