SOUTHERN NEVADA
WATER UPDATE

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Director of Infrastructure Management
MAJOR RESPONSIBILITIES

CONSERVATION
Incentives, Programs, Regulation and Pricing

WATER SUPPLY PLANNING
Developing and managing regional water supplies

WATER QUALITY
Maintaining and protecting water quality

INFRASTRUCTURE
Building and operating major facilities

STEWARDSHIP
Protecting environmental resources
Seven of every 10 Nevadans rely on the Southern Nevada Water Authority (SNWA) to supply water to homes and businesses.
WATER USE

- **73%** of state's population
- **$76%** of state's economic output
- **Less than 5%** of water available for use in Nevada
Southern Nevada is nearly fully reliant on the Colorado River to meet the community’s water demands.
Since 2000, the Colorado River has been experiencing severe drought conditions, affecting Lake Mead’s water levels.
Inflow to the Colorado River Basin remains below average.
CURRENT ELEVATION
1083 ft.

39% OF CAPACITY

1075 ft.
1050 ft.
1025 ft.
1000 ft.

Dead Pool - Elevation 895 feet
860 ft.
**PROJECTED ELEVATION**
1089 ft.

January 2020

41% OF CAPACITY

- 1075 ft.
- 1050 ft.
- 1025 ft.
- 1000 ft.
- 860 ft.

Dead Pool - Elevation 895 feet
The 2007 Interim Guidelines create the operational framework for today’s Colorado River Operations. Key elements include:

• Defined shortages based upon Lake Mead’s elevation

• Coordinated operations of Lake Powell and Lake Mead, particularly under low reservoir conditions

• Created a program for the storage and delivery of conserved Colorado River and non-system water in Lake Mead – Intentionally Created Surplus
  • Only Tributary Conservation and Imported ICS are available during shortages
The 2007 Interim Guidelines authorized shortage sharing among Lower Basin States to provide certainty to water users.

<table>
<thead>
<tr>
<th>Lake Mead Levels</th>
<th>Nevada’s Share</th>
<th>Arizona’s Share</th>
<th>California’s Share</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,050 -1,075 feet</td>
<td>13,000 af</td>
<td>320,000 af</td>
<td>0 af</td>
</tr>
<tr>
<td>1,025-1,050 feet</td>
<td>17,000 af</td>
<td>400,000 af</td>
<td>0 af</td>
</tr>
<tr>
<td>Below 1,025 feet</td>
<td>20,000 af</td>
<td>480,000 af</td>
<td>0 af</td>
</tr>
</tbody>
</table>

The states also committed to consulting with the Secretary when Lake Mead is projected to fall below an elevation of 1,000 ft.
Since 2007, Lake Mead’s water levels have seen further declines.
The risk of reaching critical elevations has substantially increased since 2007 Guidelines were implemented.
Bureau of Reclamation projects Lake Mead faces a 35% risk of falling below 1,000 feet in 2026.

What happens at 1,000 feet?

- Lake Mead is holding 17% of its capacity
- Community loses access to two intakes; only Intake No. 3 remains operable
- Limited ability to meet demands of Arizona, California and Mexico
- Hoover Dam’s ability to generate hydropower reduced
Existing shortage amounts are insufficient to protect against reservoir declines if drought conditions continue.
Further declines in Lake Mead are projected.

Source: Bureau of Reclamation’s Modeling Projections
Colorado River users (U.S. Department of Interior – Bureau of Reclamation; Colorado River Basin States; and country of Mexico) have been working for years on Drought Contingency Plans.

In April 2019, Congress passed and the President signed legislation ratifying Drought Contingency Plans approved by the users.
The Drought Contingency Plans will reduce the risk of Colorado River reservoirs reaching critical elevations.

**DCP Lower Basin Goal:**
Reduce risk of Lake Mead elevations falling below 1,020 feet

**Key Elements:**
- Creates water contributions
- Removes disincentives to storing water in Lake Mead
- Enhances ability to store and access water in Lake Mead
### 2007 Interim Guidelines, Minute 323, Lower Basin Drought Contingency Plan & Binational Water Scarcity Contingency Plan

<table>
<thead>
<tr>
<th>Lake Mead Elevation (ft msl)</th>
<th>2007 Interim Guidelines Shortages</th>
<th>Minute 323 Delivery Reductions</th>
<th>Total Combined Reductions</th>
<th>DCP Contributions</th>
<th>Binational Water Scarcity Contingency Plan Savings</th>
<th>Combined Volumes by Country</th>
<th>Total Combined Volumes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>AZ</td>
<td>NV</td>
<td>Mexico</td>
<td>Lower Basin States + Mexico</td>
<td>AZ</td>
<td>NV</td>
<td>CA</td>
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<tr>
<td>1,090 - &gt;1,075</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>192</td>
<td>8</td>
<td>0</td>
</tr>
<tr>
<td>1,075 - &gt;1,050</td>
<td>320</td>
<td>13</td>
<td>50</td>
<td>383</td>
<td>192</td>
<td>8</td>
<td>0</td>
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<tr>
<td>1,050 - &gt;1,045</td>
<td>400</td>
<td>17</td>
<td>70</td>
<td>487</td>
<td>192</td>
<td>8</td>
<td>0</td>
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<tr>
<td>1,045 - &gt;1,040</td>
<td>400</td>
<td>17</td>
<td>70</td>
<td>487</td>
<td>240</td>
<td>10</td>
<td>200</td>
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<td>70</td>
<td>487</td>
<td>240</td>
<td>10</td>
<td>350</td>
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<tr>
<td>&lt;1,025</td>
<td>480</td>
<td>20</td>
<td>125</td>
<td>625</td>
<td>240</td>
<td>10</td>
<td>350</td>
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</tbody>
</table>
WATER USE

- Full Apportionment
- Elevation 1075
- Elevation 1050
- Elevation 1025
- Elevation 1000
- 2018 Use

- 300,000
- 287,000
- 283,000
- 280,000
- 270,000
- 244,000
Modeling indicates that DCP will reduce risk.

**Full Hydrology (1906-2015)**
- **2007 Projections** (1906-2005 hydrology)
- **No DCP** (August 2018 Projections)
- **With DCP** (August 2018 Projections with Upper & Lower Basin DCPs & Binational WSCP)

**Stress Test Hydrology (1988-2015)**
- **2007 Projections** (1906-2005 hydrology)
- **No DCP** (August 2018 Projections)
- **With DCP** (August 2018 Projections with Upper & Lower Basin DCPs & Binational WSCP)
MORE RESOURCES AVAILABLE UNDER SHORTAGE

NORMAL CONDITIONS

<table>
<thead>
<tr>
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<th>2018 CO River Use</th>
<th>2019 Banked Resources</th>
<th>2019 Banked Resources w/DCP</th>
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<tbody>
<tr>
<td>Arizona Bank</td>
<td>244,000</td>
<td>614,000</td>
<td>614,000</td>
</tr>
<tr>
<td>California Bank</td>
<td>330,000</td>
<td>334,000</td>
<td>334,000</td>
</tr>
<tr>
<td>ICS</td>
<td>61,000</td>
<td>610,000</td>
<td>610,000</td>
</tr>
<tr>
<td>Southern Nevada Bank</td>
<td>28,000</td>
<td>330,000</td>
<td>330,000</td>
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SHORTAGE CONDITIONS

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The DCP permits Lower Basin States to store an additional 200,000 acre-feet of banked Extraordinary Conservation ICS in Lake Mead.
DCP SUMMARY

- Reduces risk of Colorado River reservoirs reaching critical elevations
- Includes California as a participant in protecting Lake Mead
- Triggers Mexico’s agreement to store additional volumes of conserved water in Lake Mead
- Adds new levels of DCP Contributions to protect Lake Mead
- Creates additional incentives to store and access additional ICS, including during shortages
Southern Nevada has spent decades preparing for drought to ensure the reliability of water supplies for Southern Nevada.

- **WATER BANKING**: Storing water supplies for the future
- **RESOURCE PLANNING**: Working with partners & developing comprehensive plans to manage supplies
- **CONSERVATION**: Incentives, programs, regulation & pricing
- **INFRASTRUCTURE**: Constructing major facilities and asset management
In 2005, planning was initiated to protect and improve Southern Nevada’s infrastructure amid declining lake levels.
INFRASTRUCTURE – INTAKE 3

In 2015, the new Intake No. 3 was put into operation, which accesses water at the deepest part of Lake Mead.
Low Lake Level Pumping Station is under construction near Lake Mead.

When completed, the pump station will ensure water deliveries down to 875 feet.
Southern Nevada has banked approximately 2 million acre-feet for future use.
Southern Nevada recycles 99% of water used indoors, thereby extending the availability of its resources.
CONSERVATION

WATER SMART LANDSCAPES
PROGRAM FACTS

189 MILLION
Square feet of grass has been removed since the WSL program began in 1999

3,284 FOOTBALL FIELDS

96% AROUND THE EARTH

THAT'S EQUIVALENT TO:

OR

Rolling an 18” wide strip of sod

130 BILLION Gallons of water saved to date.

That’s enough water to fill the Luxor Hotel Pyramid 360 TIMES
Despite population gains, water use has declined since 2002.

- Southern Nevada Population: UP 46%
- Per Capita Water Use: DOWN 38%
- Colorado River Water Consumption: DOWN 25%
Our conservation gains have stalled in recent years.
CURRENT ENVIRONMENT

Reasons for uptick in water use:

• Economic growth
• Warmer, dryer climate
• Drought “fatigue”
• Complacency
Because landscape watering is consumptive, removing non-functional turf remains a priority.

Recent agency actions:

• Prohibition of watering on Sundays
• Increased landscape rebate to $3 per square foot
• Increased Water Efficient Technologies program rebate to $45 for consumptive uses; $15 for non-consumptive uses
• Increased enforcement
NON-FUNCTIONAL TURF

Unused turf is wasted water.

- Medians
- Roundabouts
- Neighborhood entries
- Pocket parks
- Front yards
- Unused back yards

Non-functional turf is aesthetic only; only walked on by landscapers.
NON-FUNCTIONAL TURF

<table>
<thead>
<tr>
<th>Category</th>
<th>Functional Turf to Keep</th>
<th>Non-functional Turf Remaining</th>
<th>Turf Converted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single-Family Residential</td>
<td>2,000</td>
<td>1,100</td>
<td>1,600</td>
</tr>
<tr>
<td>Multi-Family</td>
<td>100</td>
<td>1,500</td>
<td>600</td>
</tr>
<tr>
<td>Institutional</td>
<td>2,000 2,200</td>
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<td></td>
</tr>
<tr>
<td>Comm. &amp; Industrial</td>
<td>1,000 1,900</td>
<td></td>
<td>200</td>
</tr>
<tr>
<td>Golf Courses</td>
<td>3,400 1,100</td>
<td></td>
<td>900</td>
</tr>
<tr>
<td>Other</td>
<td>100 100 800</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td>7,600 5,000 4,200</td>
<td>1,000</td>
<td></td>
</tr>
</tbody>
</table>
NON-FUNCTIONAL TURF

REMAINING NON-FUNCTIONAL TURF: 5,000 acres
(218 million sq. ft)

POTENTIAL WATER SAVINGS: 12.2 billion gallons per year
(37,400 acre-feet)
Be a leader in water conservation.
Evaluate uses onsite.

- Install water-efficient fixtures
- Fix leaks
- Implement water-saving technologies
- Reduce non-essential water uses
Enroll in WET.

• Incentives for commercial & multifamily property owners who install water-efficient devices/technology

• Earn up to $45 for every 1,000 gallons saved

• Replace water fixtures or find a custom option
MGM Resorts’ company-wide efforts have saved 800+ million gallons of water, enough to fill nearly 40,000 average residential swimming pools.

MGM’s program participation:
- Converted nearly 200,000 square feet of grass to water-smart landscaping
- Upgraded cooling towers at numerous properties
- Utilizes low-flow fixtures
Brady Industries services one million pounds of laundry each day for area hotels.

Brady installed water efficient tunnel washing machines, which saves approximately 48 million gallons each year, and thousands of dollars on their water bill.
Doña Maria Tamales is a popular Mexican restaurant, with two locations in Southern Nevada.

They upgraded their old water-cooled ice machines for air-cooled ice machines, which saves approximately 681,000 gallons each year.
Convert Non-Functional Turf

- An average 15,000 square-foot conversion saves 825,000 gallons each year (or $300 a month)
- Receive $3 per square foot converted
- Visit SNWA.com to enroll

Cash rebates at snwa.com
COMMERCIAL TURF CONVERSIONS

- Commercial properties can improve water efficiency
- Turf landscapes do not offer an incentive for potential customers
- Water efficient landscapes are easier to maintain and provide cost savings
Want to learn more?

- Visit SNWA.com
- Text “UPDATE” to 74121 for water updates