

The Colorado River During Drought: A Nevada Perspective



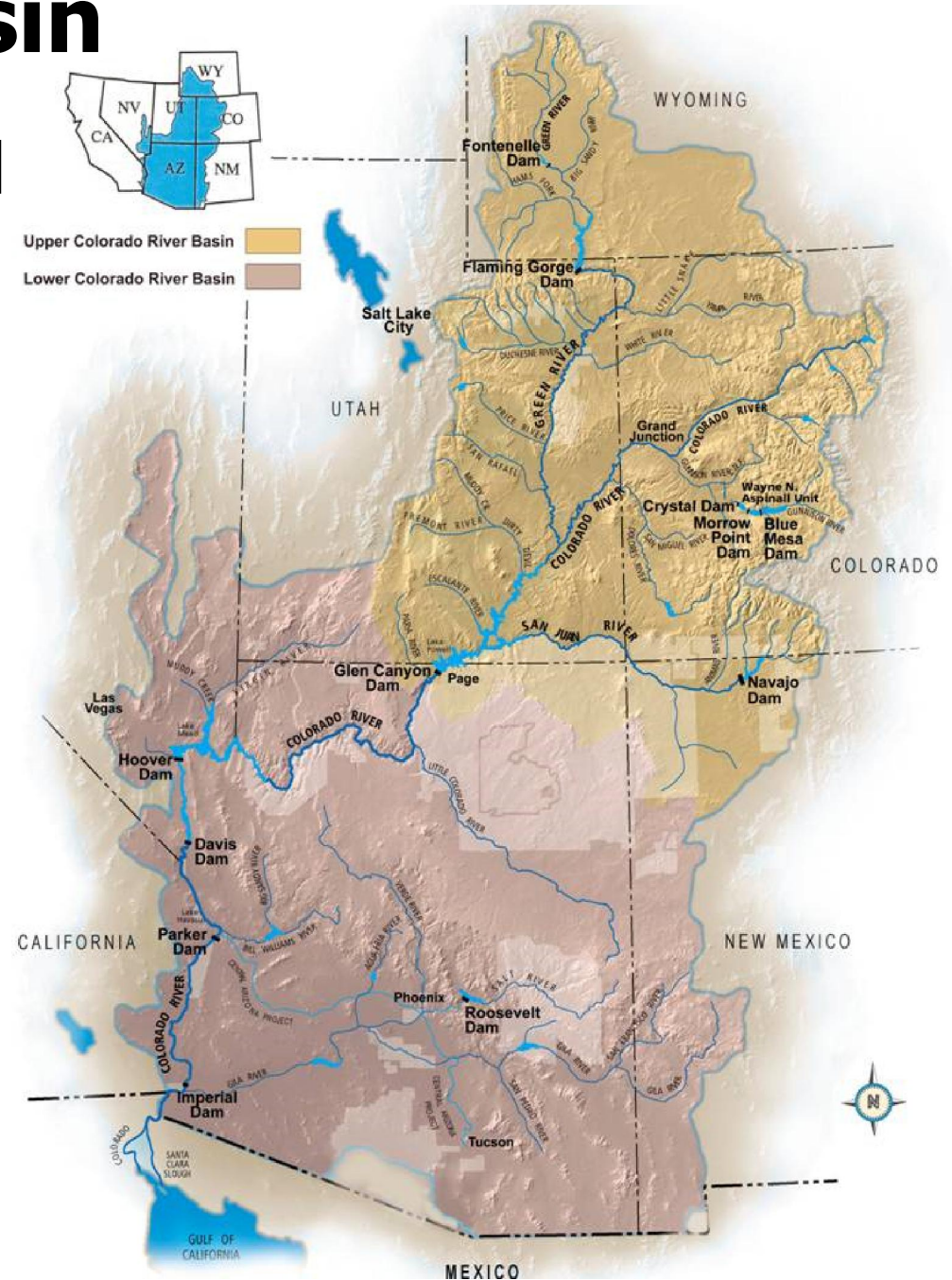
Western Water Law: The Most Current & Critical Issues Facing The West

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Senior Deputy Attorney General, State of Nevada
November 15-16, 2012



Colorado River Basin

- **242,000** mi² in U.S. and **3,000** mi² in Mexico
- **1,470** mi long
- **15.1** maf average flow
- **60** maf of storage
- **Upper Basin- 7.5 maf**
 - Wyoming
 - Colorado
 - New Mexico
 - Utah
- **Lower Basin- 7.5 maf**
 - Arizona 2.8 maf
 - California 4.4 maf
 - Nevada .03 maf



Colorado River Basin

- Mexico receives 1.5 maf annually
- 16.5 million acre-feet (maf) allocated annually
- 1.7 maf lost to evaporation annually
- 15.1 maf average annual “natural” inflow into Lake Powell over past 100 years
- 66% avg. annual inflow to Lake Powell past 9 years
- Irrigates 3 million acres
- Serves about 30 million people including Phoenix, Las Vegas, Los Angeles, Denver, Albuquerque and San Diego areas



Law of the River

1922 – Colorado River Compact

1928 – Boulder Canyon Project Act

1944 – U.S./Mexico Treaty

1948 – Upper Colorado River Basin Compact

1956 – Colorado River Storage Project Act

1964 – U.S. Supreme Court Decree (*Az v. Ca*)

1968 – Colorado River Basin Project Act

1992 – Grand Canyon Protection Act



Law of the River

1973 – Minute 242 to the Mexican Treaty

1974 – Colorado River Basin Salinity
Control Act

2001 – Interim Surplus Guidelines

2007 – Interim Guidelines

2010 – Minute 318 to the Mexican Treaty

2012 – Minute 319 to the Mexican Treaty



Drought in the Colorado River Basin



Lake Mead 2000



Elevation 1214 Feet

Lake Mead 2004



Elevation 1132 Feet

Drought in the Colorado River Basin



March 2000: Elevation 1,213 Feet



April, 2002: Elevation 1,170 Feet



Drought in the Colorado River Basin

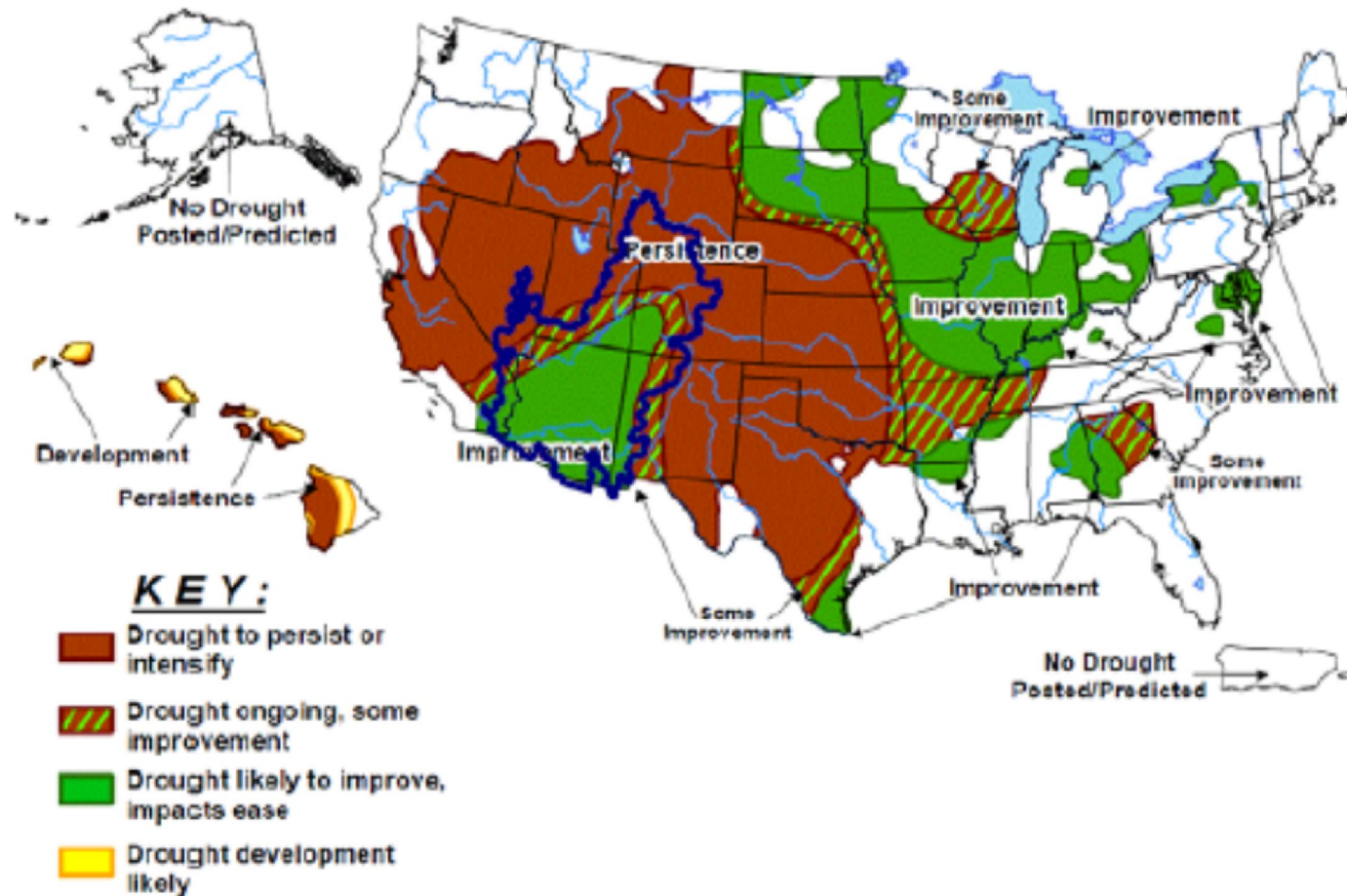


Since 2000, Lake Mead's water elevations have fallen approximately 100 feet.



Seasonal Drought Outlook

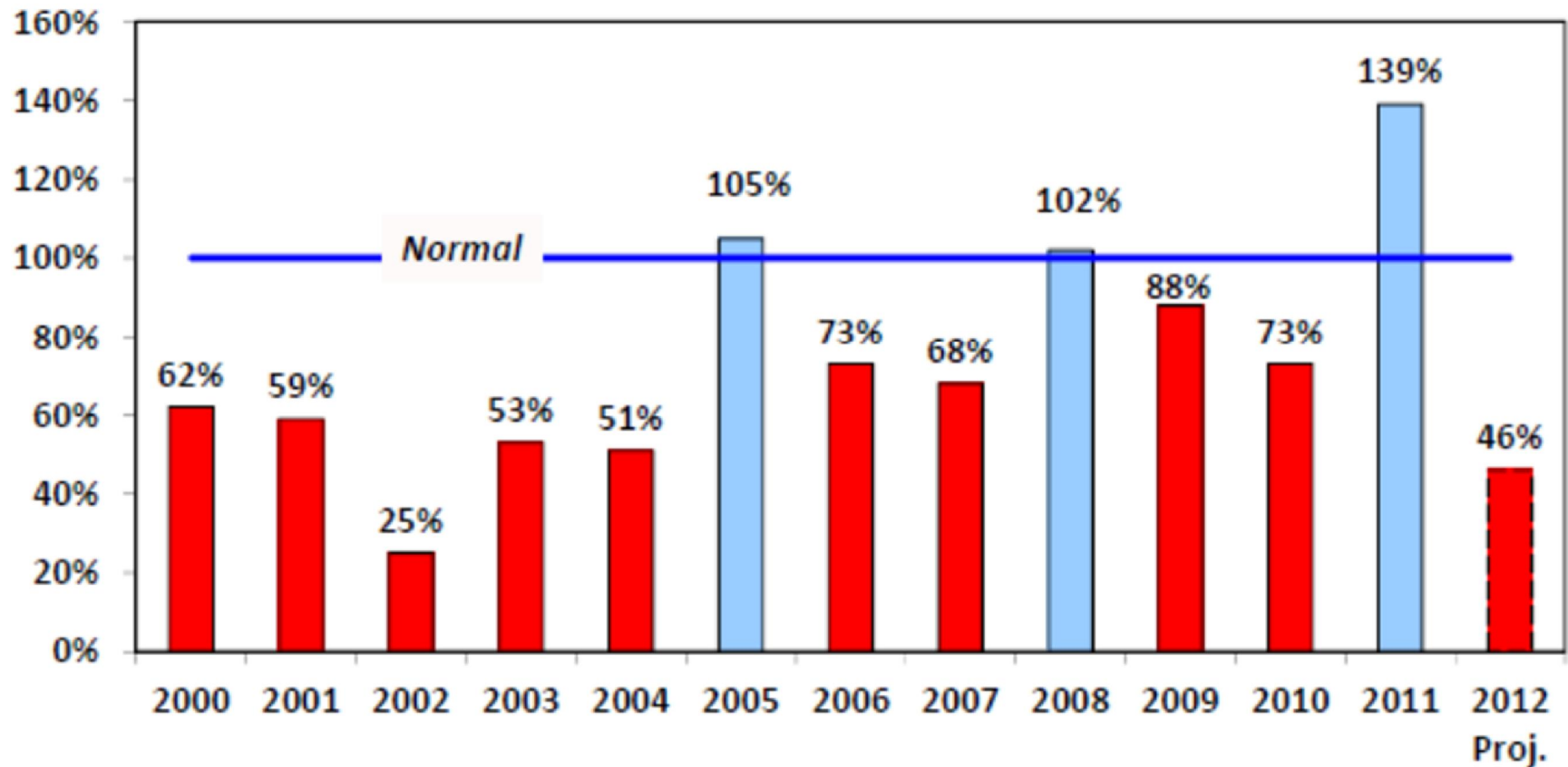
(Valid September – November 2012)



Source: National Oceanic Atmospheric Administration and the U.S. Department of Commerce



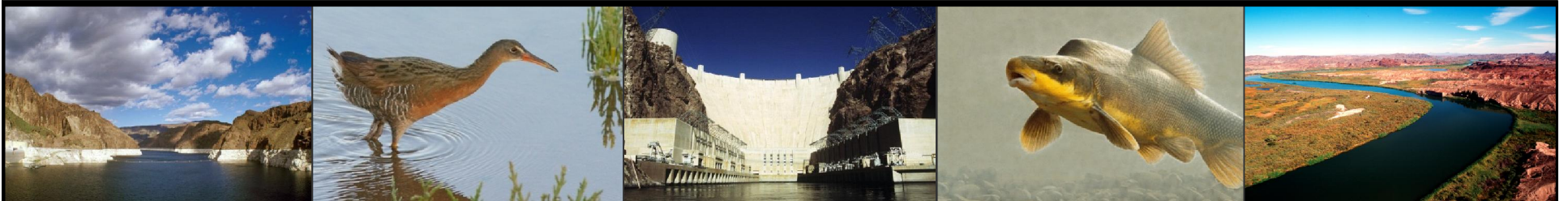
Historical and Projected Lake Powell Annual Inflows



10-Year Average (2003-2012 projection): 80% of normal

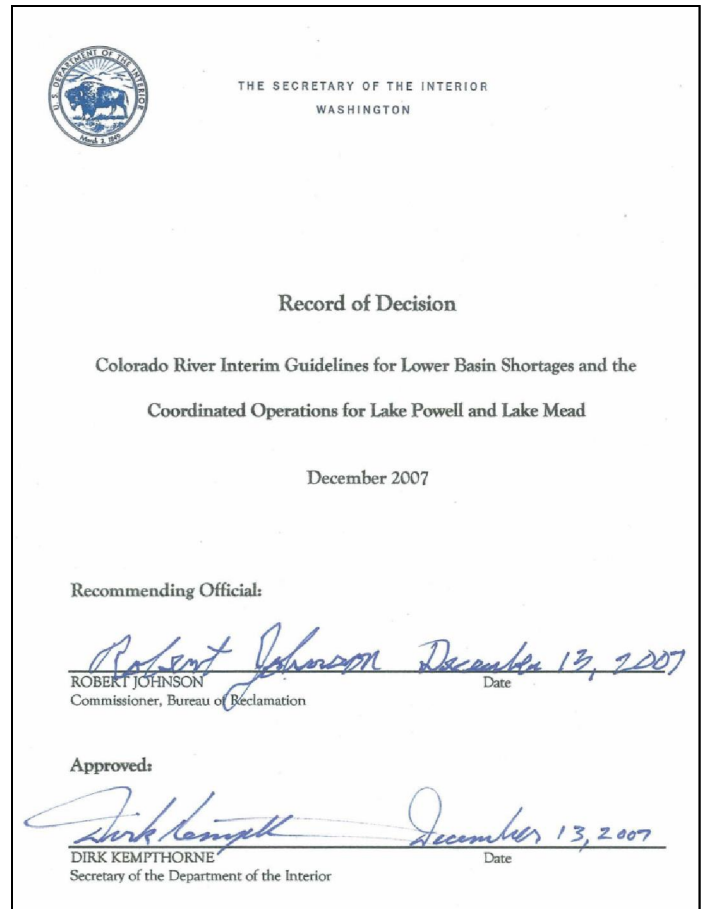
Nevada's Response to Drought

- Colorado River Management:
 - Interim Guidelines ie; ICS
 - Shortage Sharing
 - Intentionally Created Unused Apportionment
- Conservation
- Third Intake



2007 Interim Guidelines

- Provides for a coordinated operation of Lake Powell and Lake Mead under a full range of conditions
- Establishes tiered levels of shortages in the Lower Basin to conserve reservoir storage
- Creates a mechanism to promote conservation in the Lower Basin (Intentionally Created Surplus)



THE SECRETARY OF THE INTERIOR
WASHINGTON

Record of Decision

Colorado River Interim Guidelines for Lower Basin Shortages and the
Coordinated Operations for Lake Powell and Lake Mead

December 2007

Recommending Official:

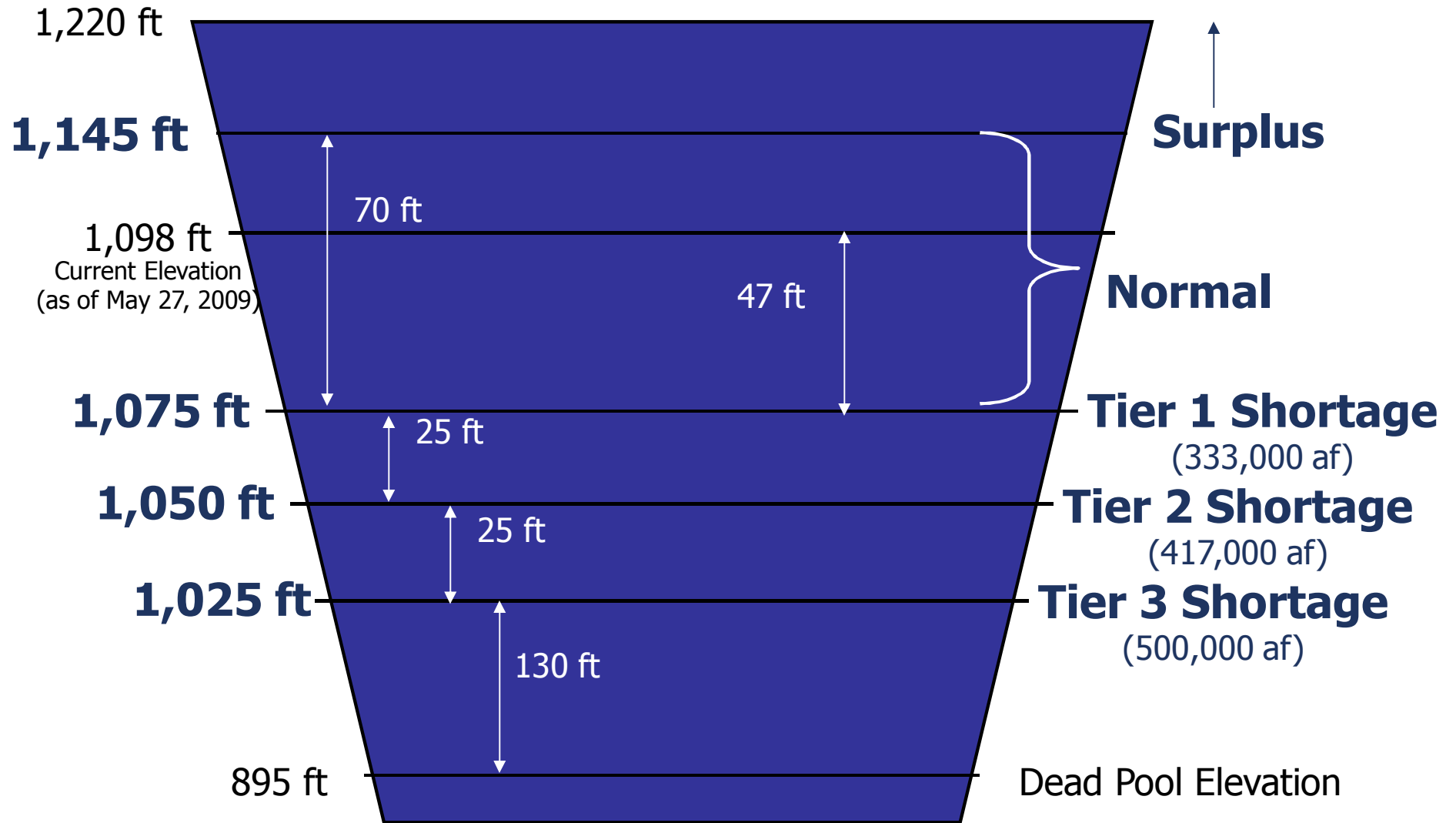
Robert Johnson December 13, 2007
ROBERT JOHNSON Date
Commissioner, Bureau of Reclamation

Approved:

Dirk Kempthorne December 13, 2007
DIRK KEMPTHORNE Date
Secretary of the Department of the Interior



Three modes of Colorado River Operation: Surplus, Normal, Shortage



Not to scale

Intentionally Created Surplus

- What is ICS
- When and how can it be used
- Examples of types



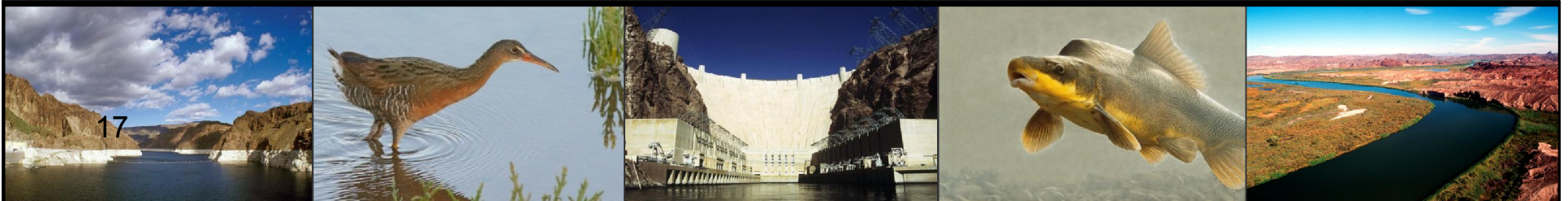
Intentionally Created Surplus (ICS)

- Nevada can create and utilize Intentionally Created Surplus by conveying Nevada groundwater and water from the Virgin and Muddy Rivers through Lake Mead
- The Shortage Sharing Agreement and Interim Guidelines provide that this water will be available during declared shortages as Developed Shortage Supply (DSS)



Tributary Conservation

- Allows a water user to follow water rights in tributaries that were in use prior to the effective date of the Boulder Canyon Project Act (1929)
 - Water is transported through the Colorado River
 - Nevada has approximately 50,000 acre-feet within this category on the Virgin and Muddy rivers (SNWA currently owns or controls about 30,000 acre-feet)
- Can be taken during shortage (DSS)



Drop 2 Reservoir Project System Efficiency ICS Project



Senator Wash

Imperial Dam

Proposed Drop 2 Reservoir

Drop 2 Project

- Purpose: To capture “non-storable” flows in the lower Colorado River (~70,000 ac-ft/yr)
- Capacity: 8,000 ac-ft
- Benefit to Nevada: 400,000 af



2007 Shortage Sharing Agreement

- States decided shortages be implemented in increments of 333,000, 417,000 and 500,000 acre-feet for Lower Division States depending upon water levels in Lake Mead
- Effective until December 31, 2036
- States expressed that Mexico should share in shortages equally in Letter to the Secretary of the Interior
- The Lower Division States proposed Mexico should be responsible for approximately 17% of the shortage volume



Final Shortage Allocations

Lake Mead Levels	Nevada's Share of the Shortage	Arizona's Share of the Shortage
1,050 -1,075 feet	13,000 af	320,000 af
1,025-1,050 feet	17,000 af	400,000 af
Below 1,025 feet	20,000 af	480,000 af

- The states will consult with the Secretary for any shortages (cumulative) above 500,000 acre-feet



Other Management Strategies

- Water Banking (Regional)
- Conservation (Local)

DROUGHT WATERING RESTRICTIONS


All water users have been assigned a watering group. **Mandatory** restrictions mean you may only run sprinklers on your group's allowed watering day(s). To locate your group, check your bill, visit snwa.com or call your water provider.

My assigned group: _____

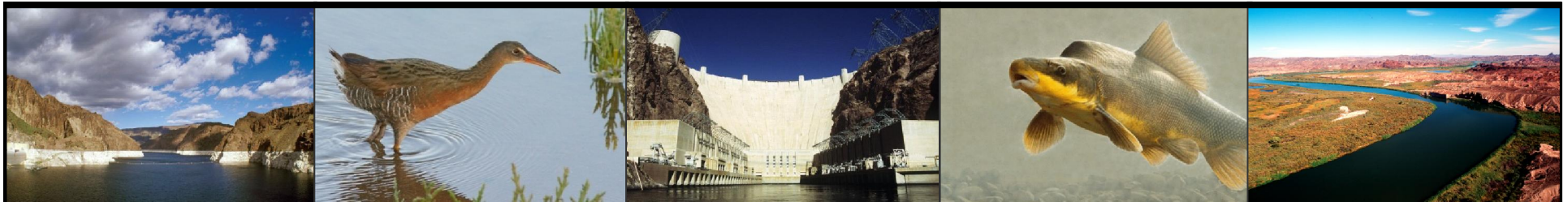
Watering Group	Winter	Spring / Fall	Summer
	November - February	March - April / September - October	May - August
A	Monday	Monday, Wednesday, Friday	Any day
B	Tuesday	Tuesday, Thursday, Saturday	Any day
C	Wednesday	Monday, Wednesday, Friday	Any day
D	Thursday	Tuesday, Thursday, Saturday	Any day
E	Friday	Monday, Wednesday, Friday	Any day
F	Saturday	Tuesday, Thursday, Saturday	Any day

For watering instructions, see inside panel.

ARIZONA WATER BANKING AUTHORITY
ANNUAL PLAN OF OPERATION
2009



Herbert R. Guenther, Chairman
December 2008



Surplus and Unused Water

- 1999 Final Rule for Offstream Storage of Colorado River Water (43 CFR Part 414)
- Regulation promulgated by the Secretary of the Interior to establish a procedural framework for facilitating interstate off-stream banking transactions including a commitment by the Secretary to release Intentionally Created Unused Apportionment (ICUA) as a part of such transactions



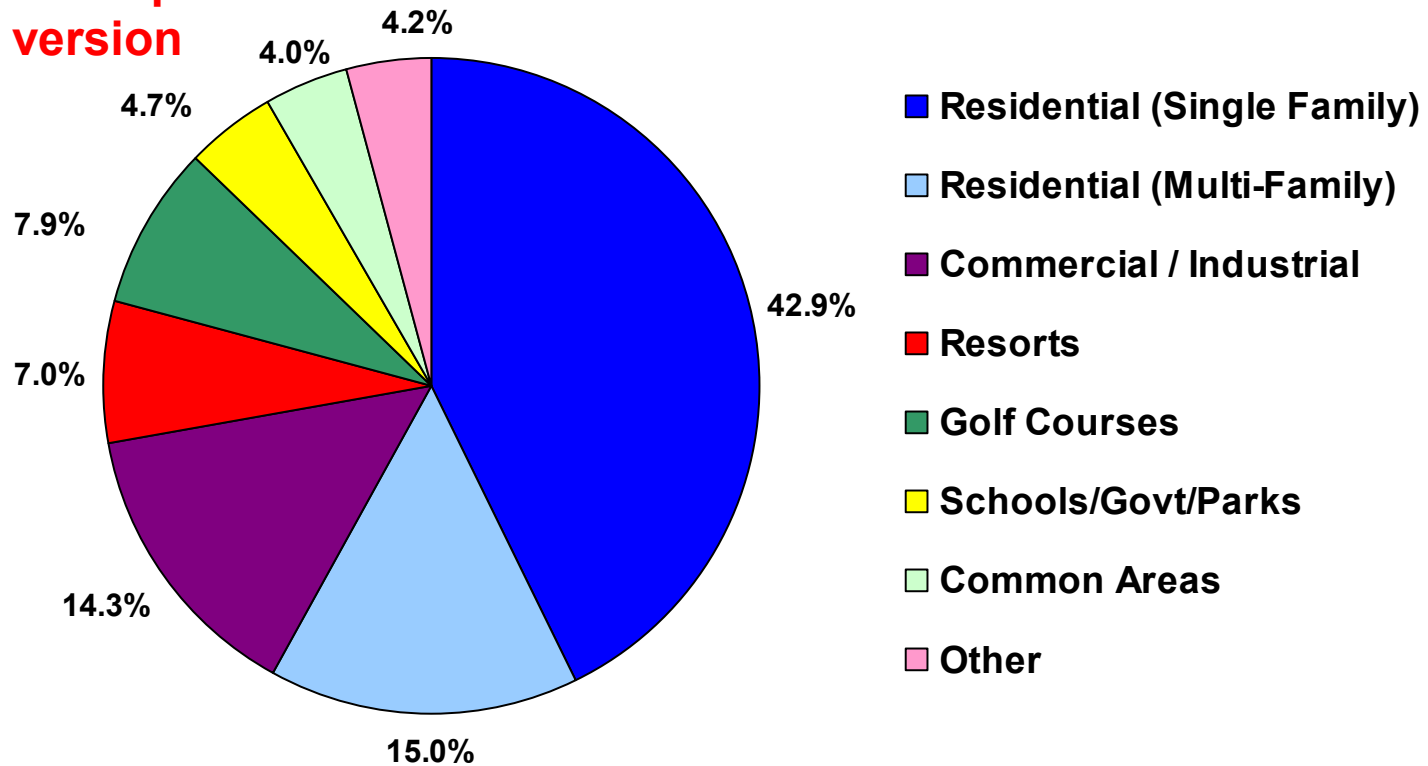
Water Banking

- Arizona Water Banking Authority
 - Nevada has stored 558,881 of Arizona's Unused Apportionment in Arizona's Bank
 - Nevada has stored 61,387 of Nevada's Unused Apportionment in Arizona's Bank
 - Nevada can make withdraws at a maximum rate of 40,000 af/year
- SIRA with California
 - 70,000 af banked to date



Water Use in Southern Nevada

**This needs to be updated
to the latest version**



Conservation/Demand Reduction

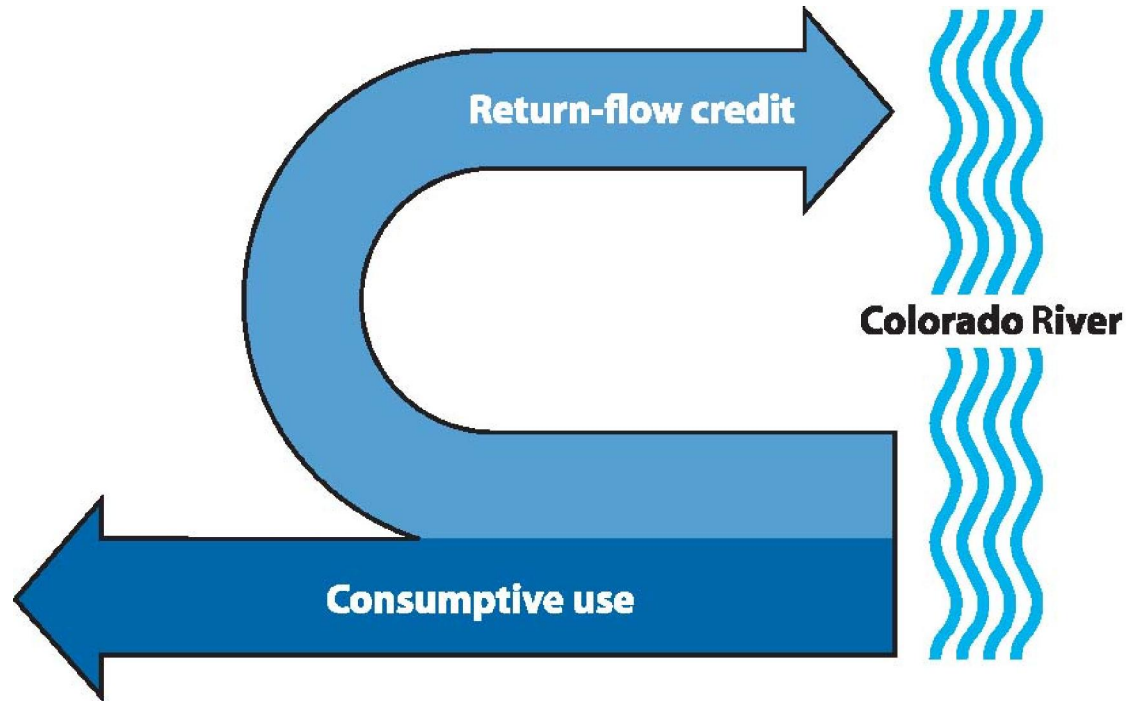
REDUCING DEMANDS:

In 2002, the SNWA initiated a drought planning process.

The process resulted in an aggressive plan to reduce water demands, which led to interim and permanent changes to how the community uses water.

- Seasonal watering schedules
- Landscape development restrictions
- Golf course water budgets
- Increased water rates
- More aggressive incentives for the Water Smart Landscapes Program

Indoor Water Use



Diversions

Southern Nevada recycles nearly every drop of water that is used indoors and receives return-flow credits for this water



Conservation



Turf Conversion Program provide resident \$1.50 rebate per sq. ft. for lawn upgraded to water-efficient plants and trees



SNWA has rebated over 117 million square feet of lawn conversion, saving over 6 billion gallons annually and More than \$122 million rebated



**SOUTHERN NEVADA
WATER AUTHORITY**



Conservation

Incentive Programs



Coupon for up to 50% off the cost of a "smart" controller

Coupon program for up to 50% off the cost of a rain sensor



Conservation



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For watering instructions, see inside panel.

Regulatory Tools

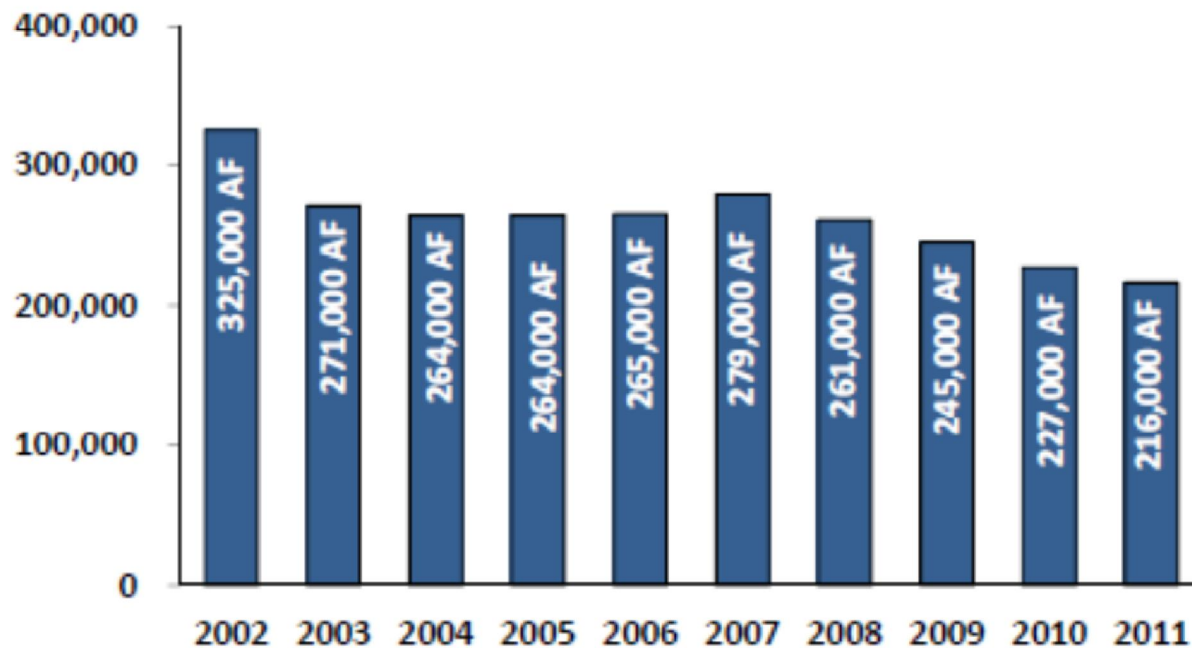
Water Waste Enforcement

- All jurisdictions use the same policy
- About 30,000 inspections per year
- Nearly 10,000 notices per year
- About 2,000 fee violations per year
- Over \$400,000 assessed annually



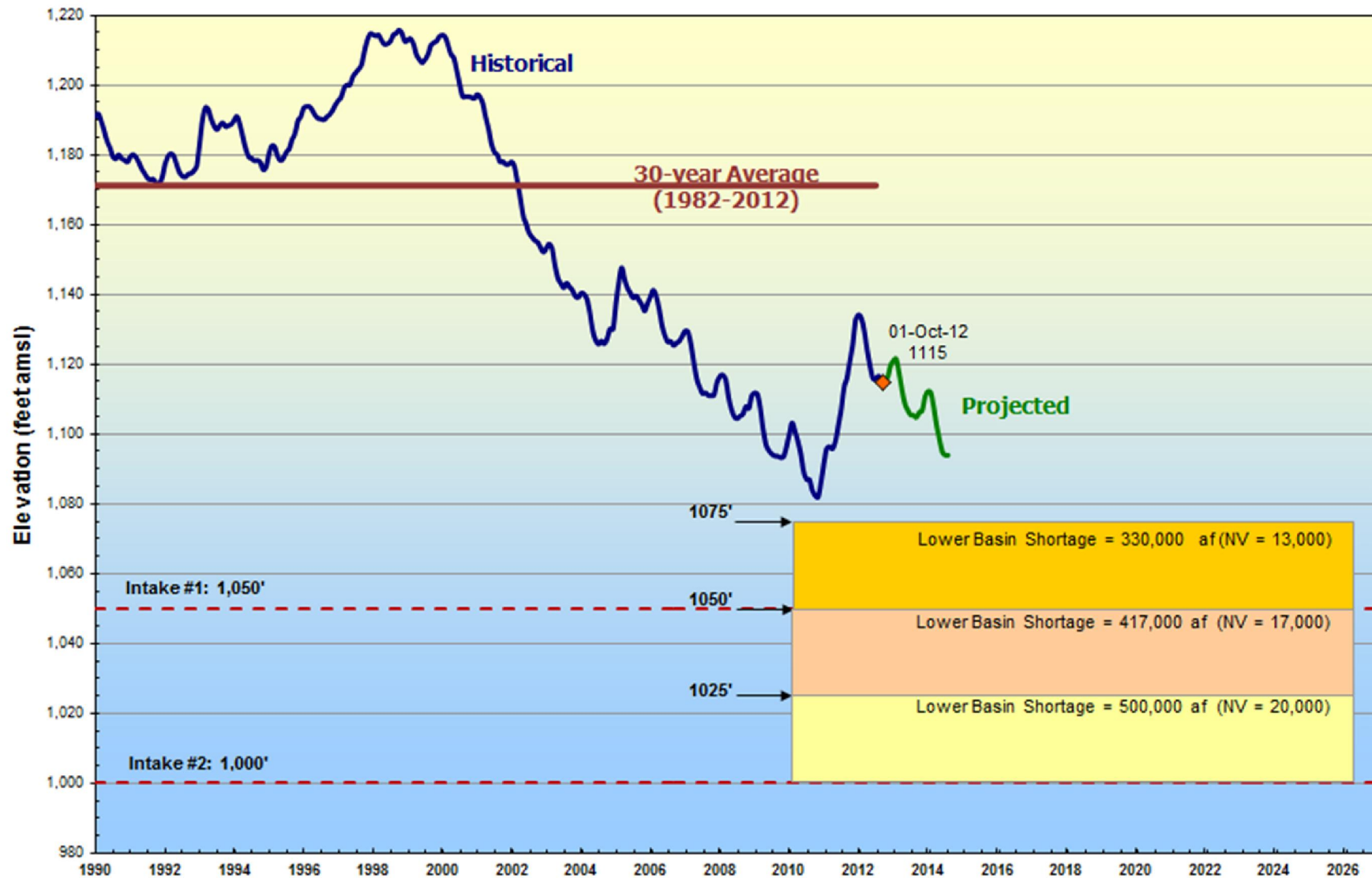
Reducing Demands

Southern Nevada's consumptive water use declined by about 36 billion gallons between 2002 and 2011, despite addition of nearly 400,000 people



Lake Mead End of Month Elevation Projections

(based on the September 2012 24-Month Study and a 9.46 maf release from Lake Powell)

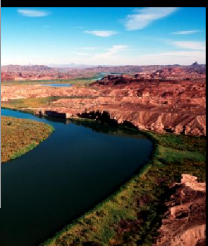
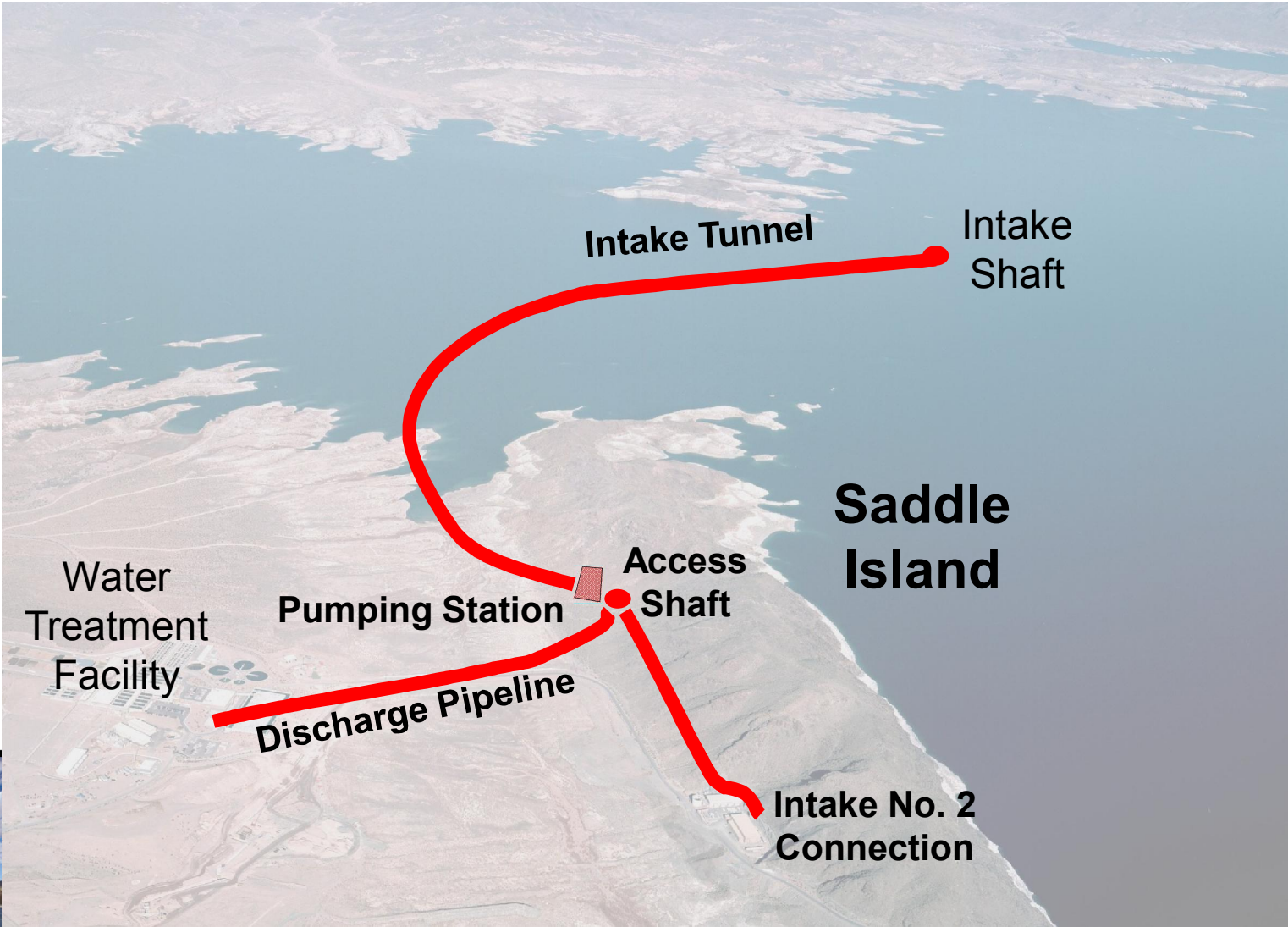


Drought Impacts

- Current Lake Mead water elevation is at 1,095 feet
Intake No. 1 will not operate at a lake levels below 1,050 feet
- Increase pumping capacity of Intake No. 2 (600 mgd to 720 mgd)
- Lake Mead Intake No. 3 will:
 - - Preserve existing capacity
 - - Provide access to cooler water at elevation 860 ft
 - - Help maintain water quality
- Estimated cost: \$817 million



Intake No. 3 Components



Questions

