

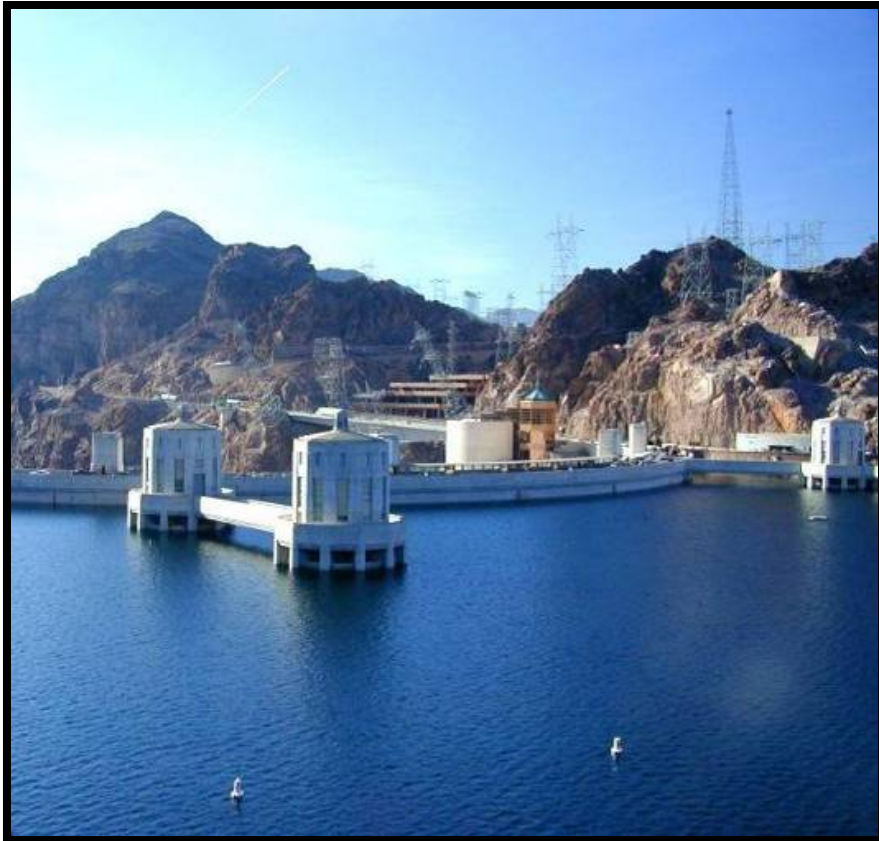
# Colorado River Commission of Nevada

## Lake Mead Issues and Lower Basin Shortage Preparedness

August 26, 2015



# Lake Mead's elevation has dropped more than 130 feet since 2000



2000

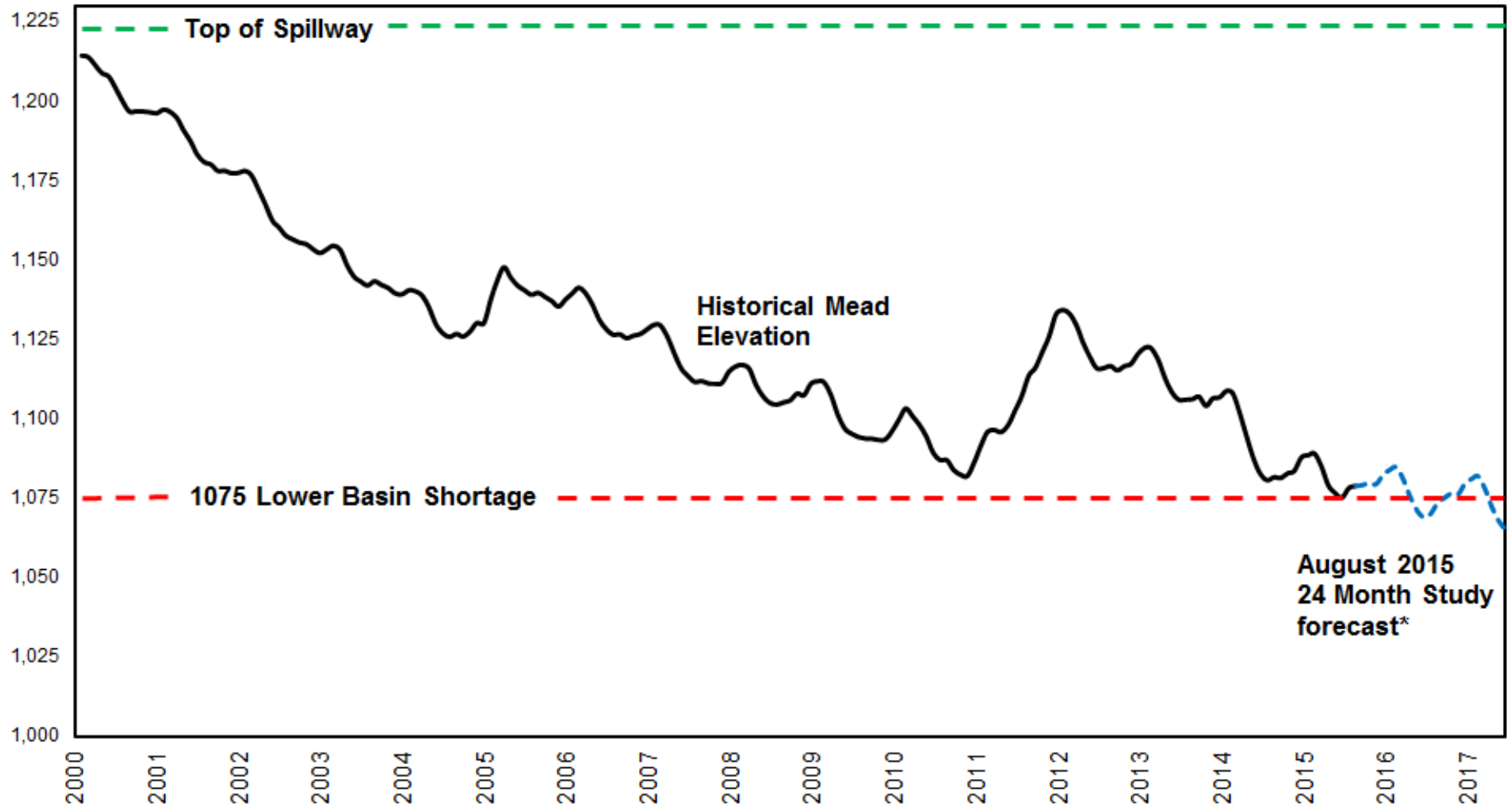
Hoover Dam, Lake Mead



2013

Hoover Dam, Lake Mead

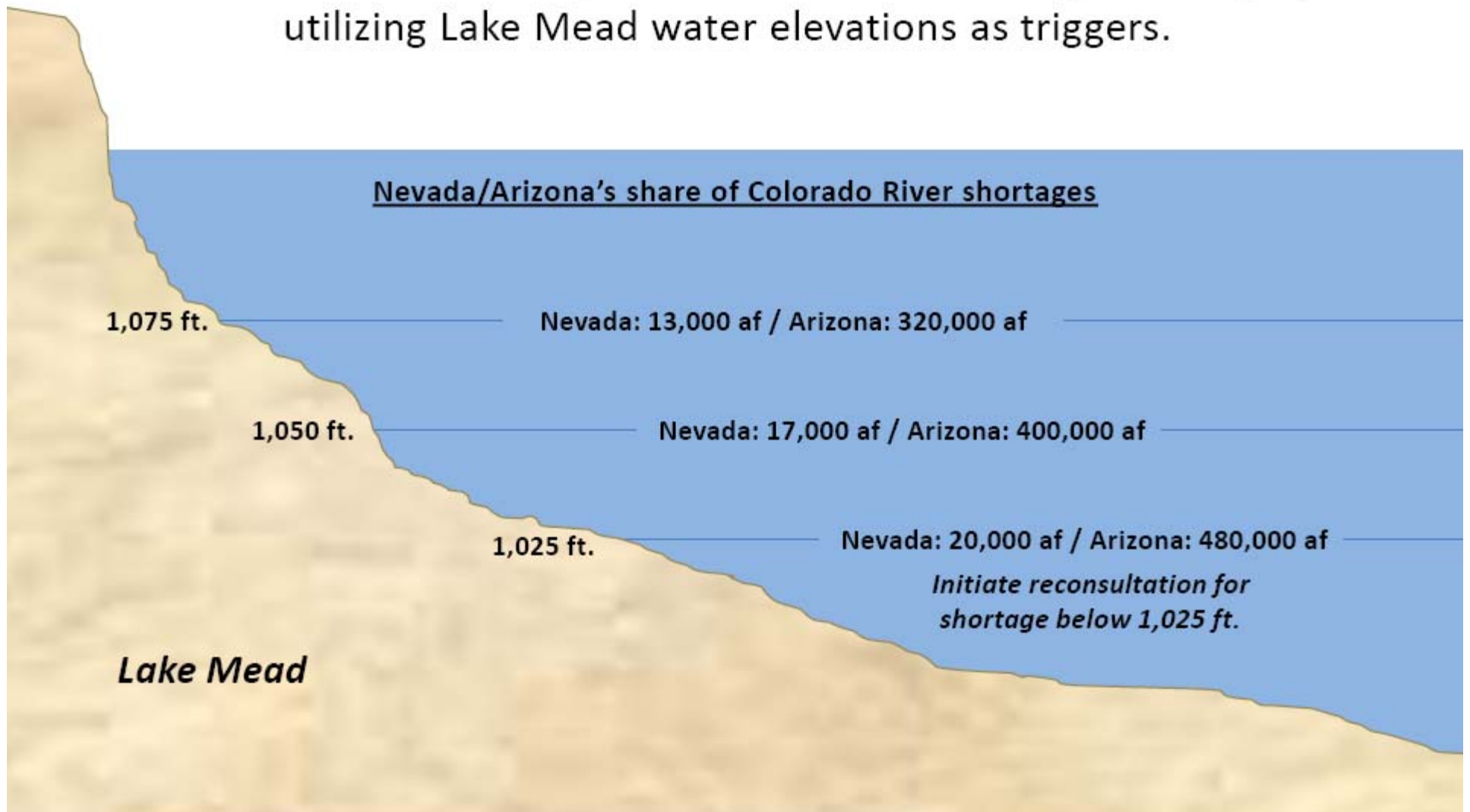
# Projected Lake Mead Elevation



Source: Bureau of Reclamation, August 24 Month Study

# Lower Basin Shortage

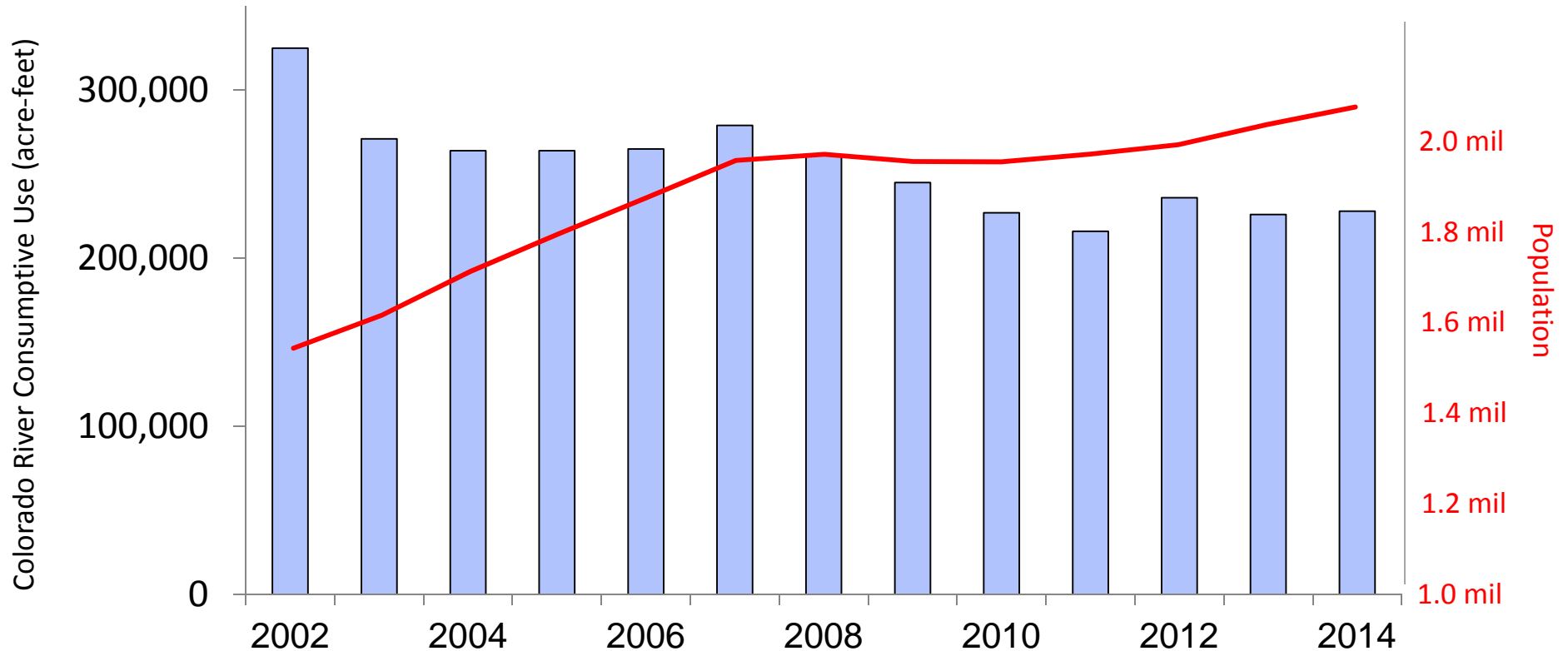
The Basin States developed a framework to manage shortages, utilizing Lake Mead water elevations as triggers.





# SNWA Conservation Progress

Reductions in consumptive use due in large part to conservation



**Southern Nevada customers used 32 billion gallons less Colorado River water in 2014 than in 2002, despite population increase of more than 520,000 people.**

# Lowering Lake Levels and Intakes

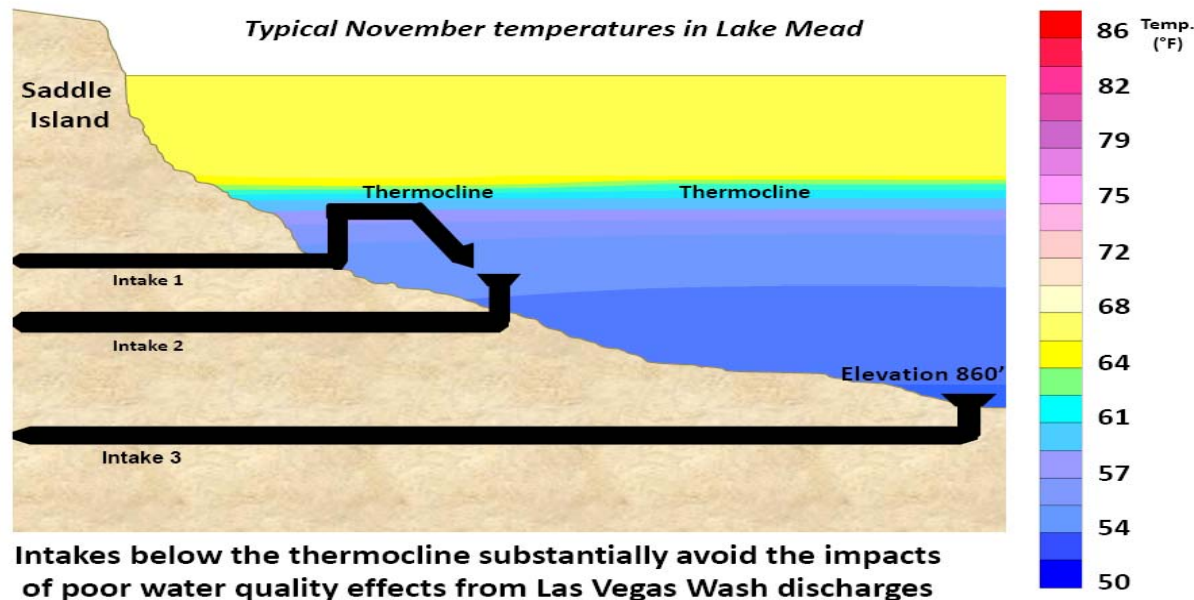
- Current intakes and pumps can withdraw water from the lake to surface elevations of ~1000ft.
- If Lake surface elevations continue to decline, there are risks of losing the ability to access and pump water.

## **Lower Elevation Intake and Pumping Station**

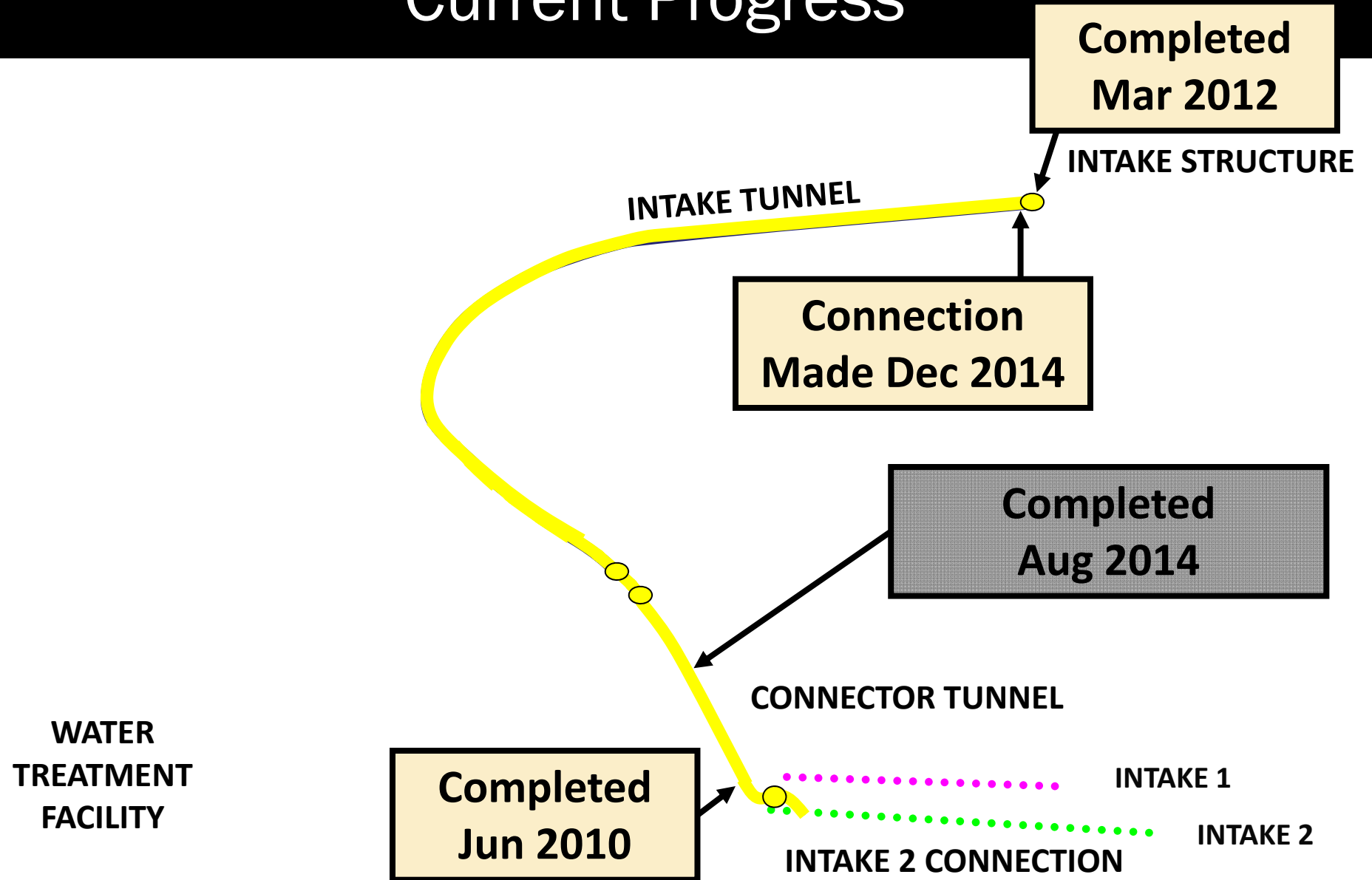
- New intake will be completed in fall 2015.
- Pumping station will not be completed for another 5 years.
- When complete will have ability to pump from depth of 860 feet.
- Cost for both is estimated at \$1.4 billion dollars.

# Water Quality Concerns from Lowering Lake Levels

- As Lake Mead lowers the warmer surface waters reach the current intakes earlier in the year (August or September currently)
- Using water from below the thermocline reduces the proportion of Las Vegas Wash water reaching the Intakes before dilution and natural treatment benefits have been fully realized.
- Once it is brought on-line (October 2015) the third intake will provide cooler, higher quality water to the treatment plants year round.
  - Current pumping plants will be used to lake surface elevations of ~1000 ft.
  - Construction has begun on a new pumping plant that will be able to draw water to elevations of ~860 ft.

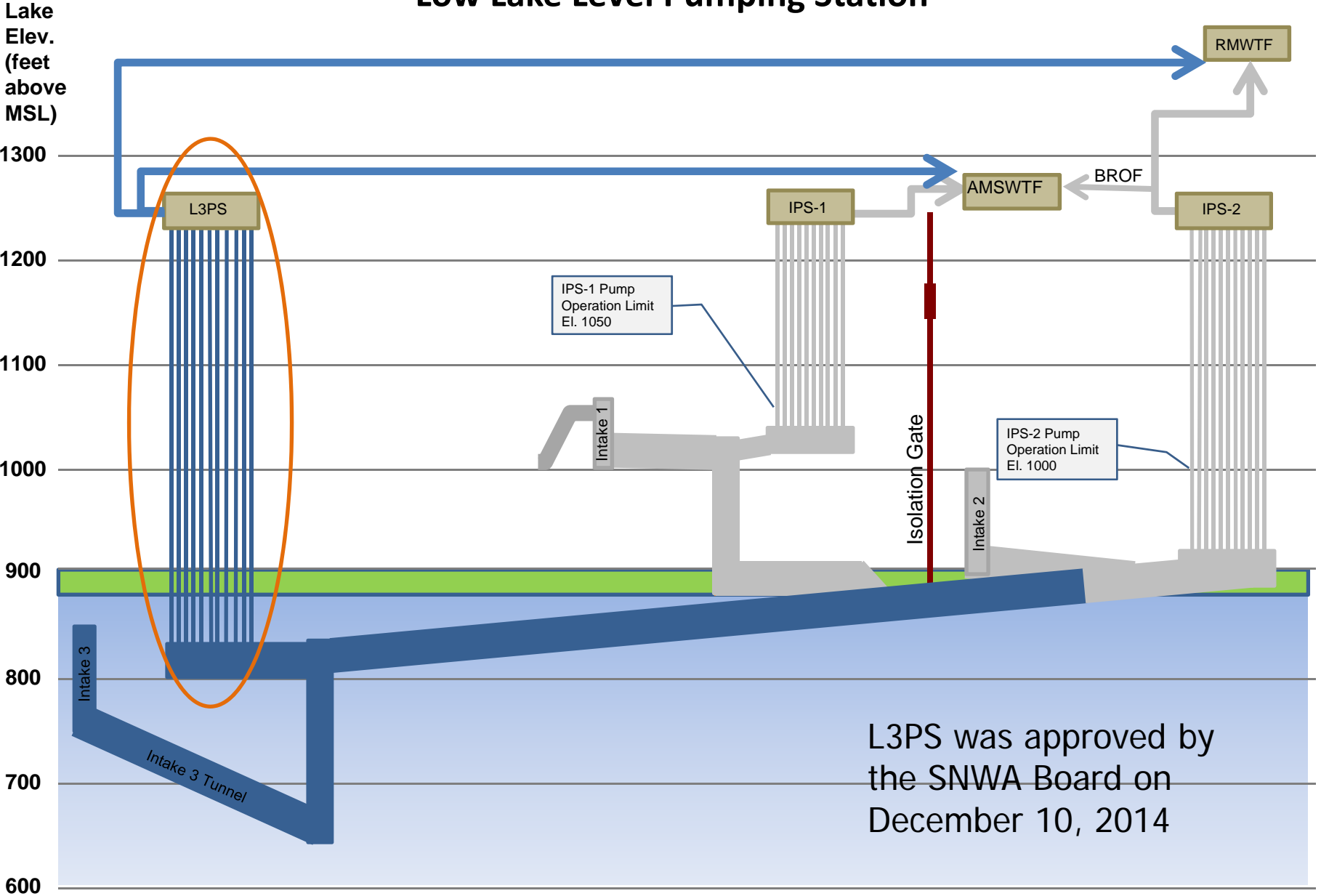


# Lake Mead Intake No. 3 Current Progress





# Low Lake Level Pumping Station

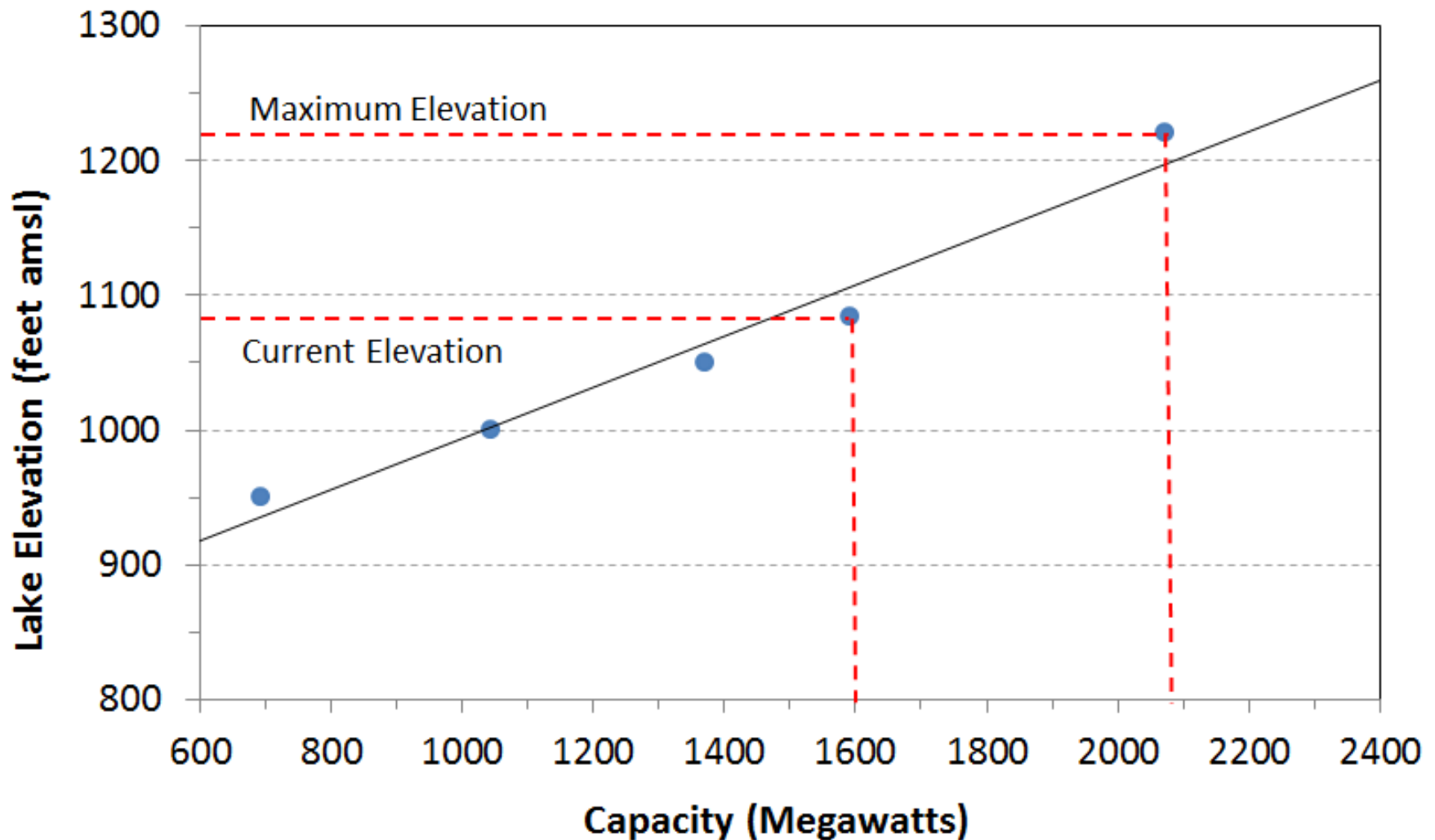


L3PS was approved by the SNWA Board on December 10, 2014

# Lower Elevation Power Generation

- Reclamation believes Hoover will be able to generate power down to an elevation of 950'.
  - The efficiency and power will be decreased.
  - Cavitation damage and rough zones will increase.
- Lower lake levels will force multiple units online thereby decreasing efficiency.
  - 5 wide head turbines with better regulation capability will be operational by 2017.
- Decreased power production often causes customers to purchase power on the open market at higher costs.
- Reduced power generation decrease funding for Colorado River Salinity Control Program.

# Reduction in Power Generation



# Glen Canyon Dam Releases

- The physical and chemical properties released from Glen Canyon Dam can influence Lake Mead.
- Temperature and salinity between the river and lake can dictate the depth at which the water inserts itself into the lake.
- Water inserted at the top layer can reinforce stratification and lead to less oxygenated conditions.
- Increased sediment delivery that reaches the water intakes can impact water treatment costs.

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