

# Colorado River Commission of Nevada

## Natural Resources Group Hydrologic Update September 10, 2013



# Hydrologic Conditions



# Unregulated Inflow Into Lake Powell

As of August 19, 2013

	MAF*	% Avg**
• WY 2013 (projected):	4.40	41%
• April-July 2013 (observed):	2.56	36%
• Jul 2013 (observed):	0.14	13%
• Aug 2013 (projected):	0.23	46%

**\*MAF=Million Acre-Feet**

**\*\*30-year average, from 1981-2010 (current normal)**



# Storage Conditions

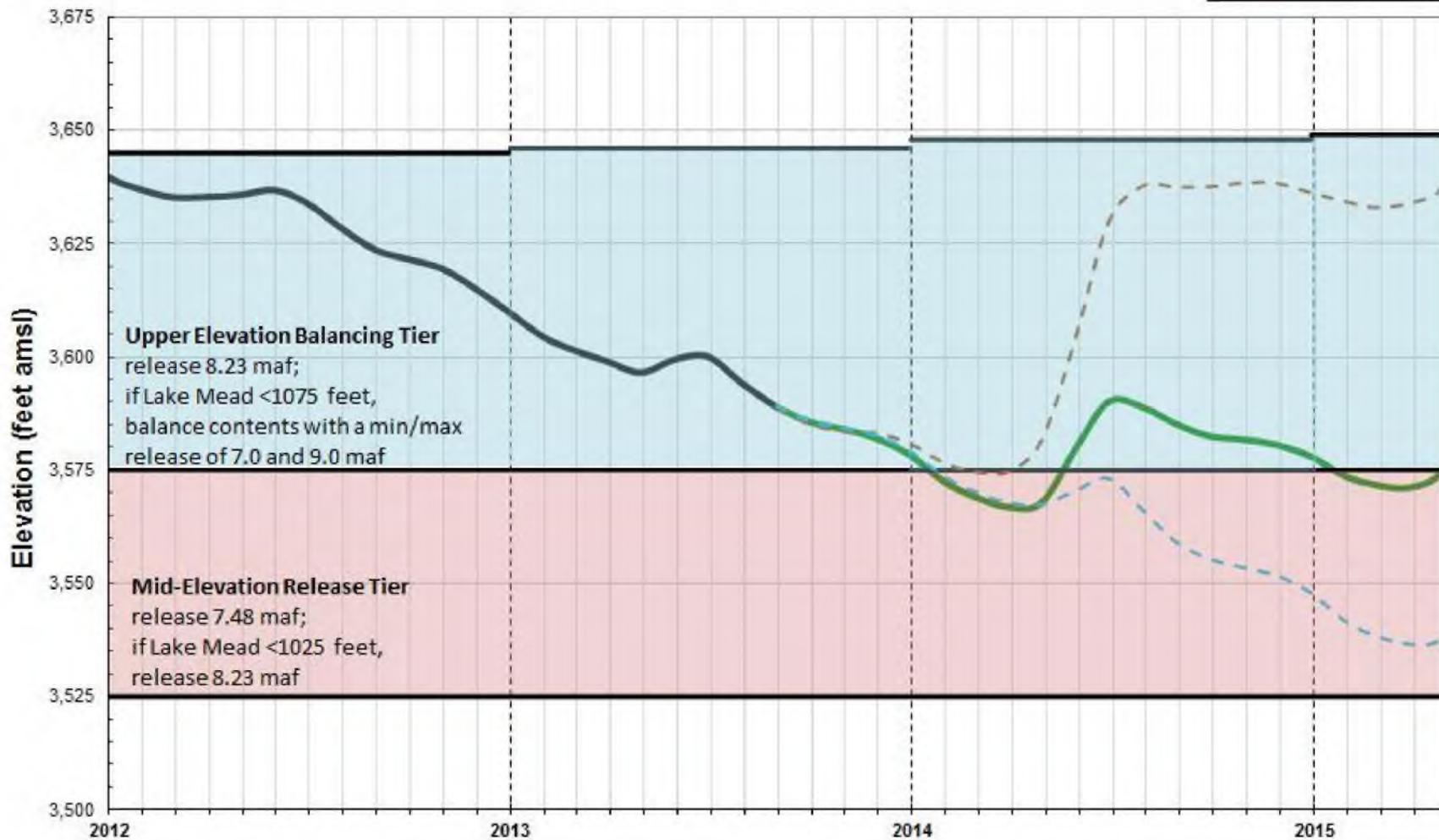
As of September 3, 2013

		<u>Percent of Capacity</u>	<u>Δ from last year</u>
Lake Mead elev.	1,106.31 ft	47%	↓ 10.18 ft
Lake Powell elev.	3,589.60 ft	44%	↓ 33.78 ft
Total System Storage (9/2013)	29.82 maf	50%	↓ 4.82 maf
Total System Storage (9/2012)	34.64 maf	58%	



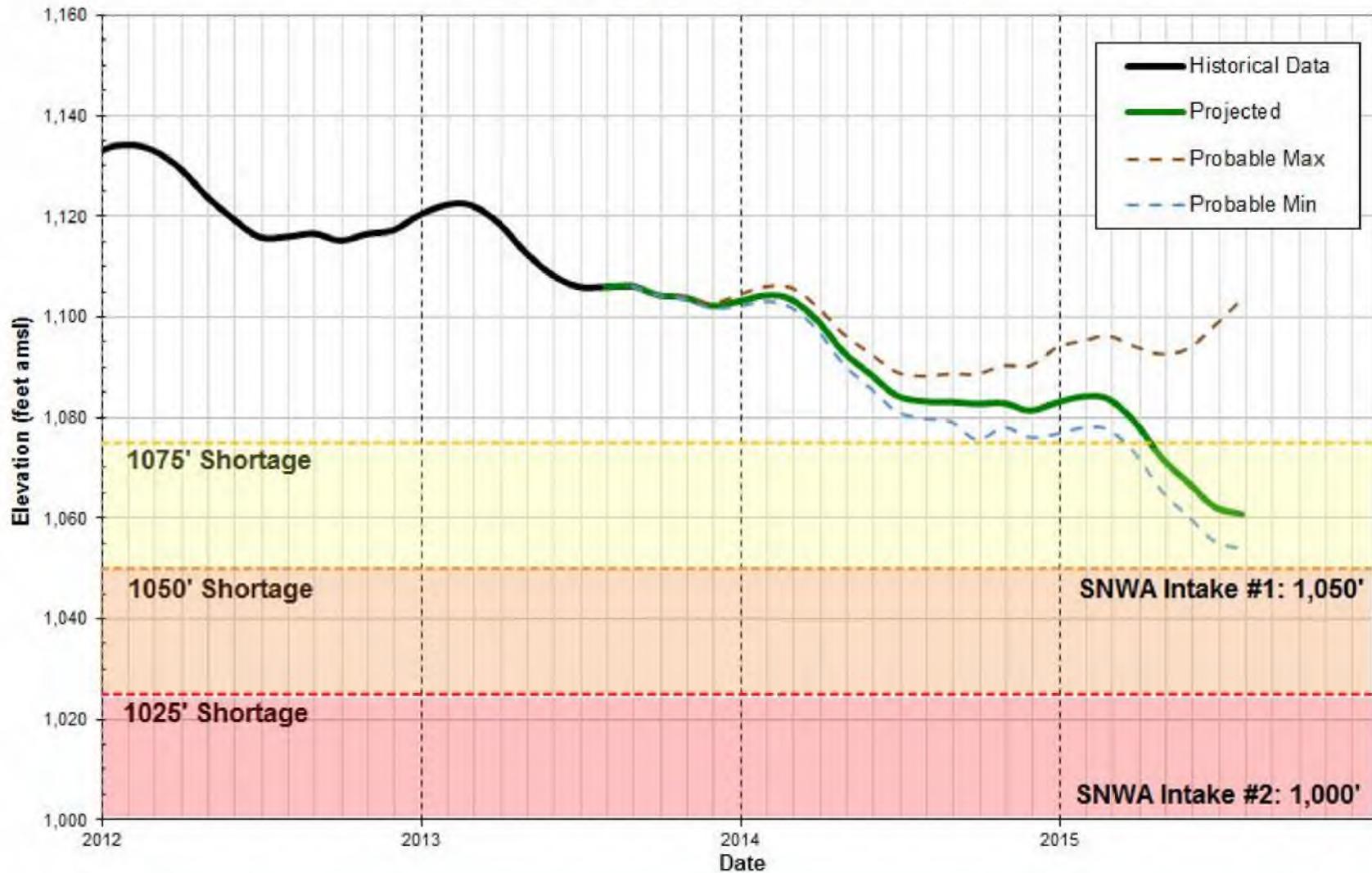
# Lake Powell End of Month Elevations

(based on AUG 2013 24-month Study)



# Lake Mead End of Month Elevation Projections

(based on the AUG 2013 24-month study)



# Precipitation - Colorado River Basin

As of September 3, 2013

## Upper Colorado Basin

WY Precip to Date

83% (24.1")

Current Basin Snowpack

NA% (NA")

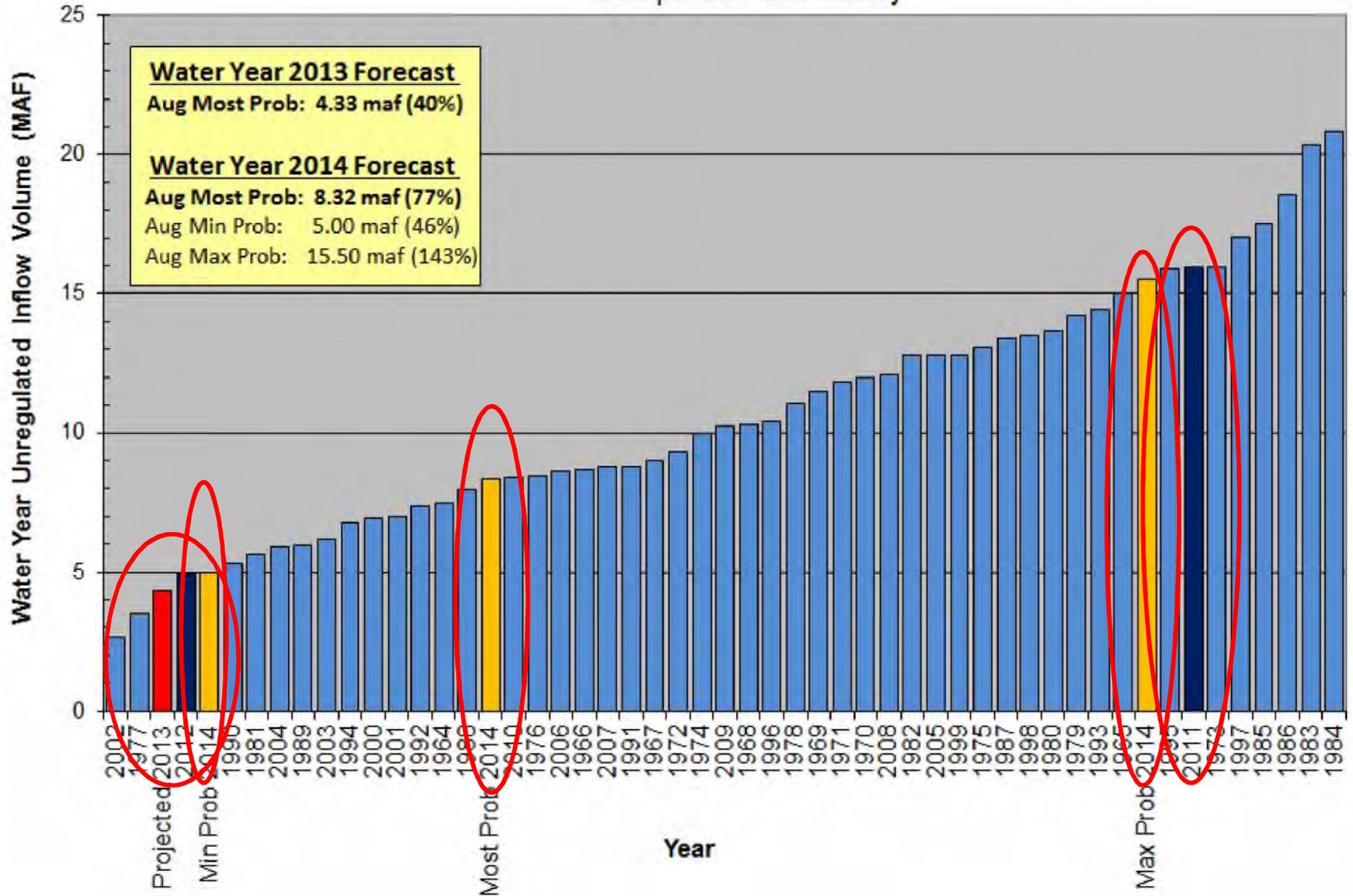
(Avg 1981-2010)



# Lake Powell Unregulated Inflow

## Water Years 2013 and 2014 Forecast (*issued August 1*)

### Comparison with History



# 2014 Lake Powell Unregulated Inflow Scenarios As Presented in Annual Operating Plan

Scenario	2014 AOP WY 2014 Developed August 2013
Minimum Probable	5.00 maf (46%)
Most Probable	8.32 maf (77%)
Maximum Probable	15.50 maf (143%)



# 2013 Annual Operating Plan

## Lake Powell Unregulated Inflow Projections WY2013

Scenario	2013 AOP WY 2013 Developed August 2012	Most Probable WY 2013 Developed August 2013
Minimum Probable	5.00 maf (46%)	4.33 maf (40%)
Most Probable	8.85 maf (82%)	
Maximum Probable	16.00 maf (148%)	



# Drought and Precipitation

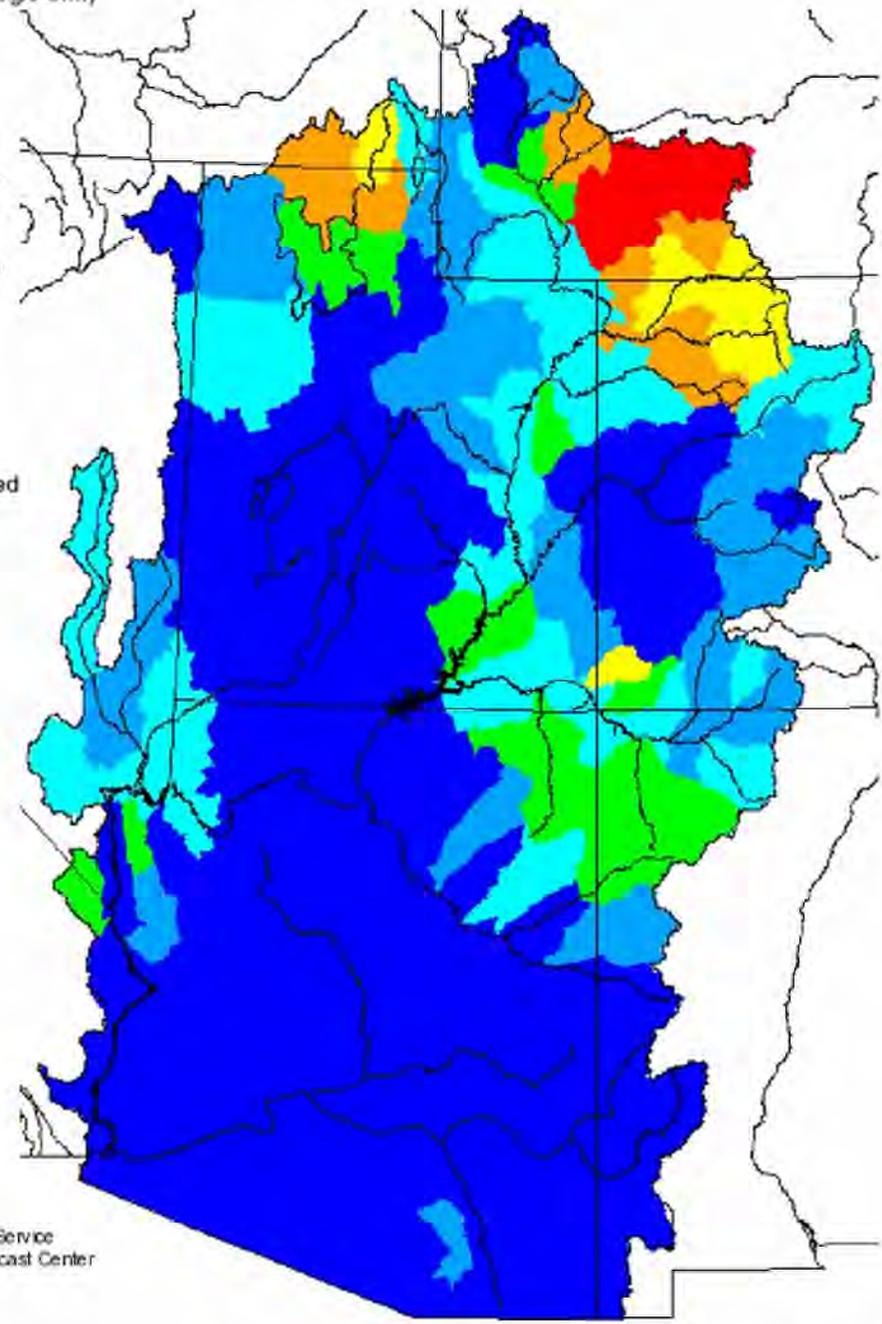


# Monthly Precipitation for July 2013

(Averaged by Hydrologic Unit)

## % Average

-  > 150%
-  129 - 150%
-  110 - 129%
-  100 - 109%
-  90 - 99%
-  70 - 89%
-  50 - 69%
-  < 50%
-  Not Reported



Prepared by  
NOAA, National Weather Service  
Colorado Basin River Forecast Center  
Salt Lake City, Utah  
[www.cbffc.noaa.gov](http://www.cbffc.noaa.gov)



MS LOW: 78° 88 LAS VEGAS TOMORROW: A CHANCE F 74° 7:29 TE



ACCIDENT: 95 & ANN NB 88 ACCIDENT: 215 & WARM :74° 7:04 EB



**FLOODING**  
KLAS-TV/DT 8 HD  
EIGHT NEWS

NG STORMS LOW: 78° 88 LAS VEGAS TOMORROW: A C 74° 7:25 OR



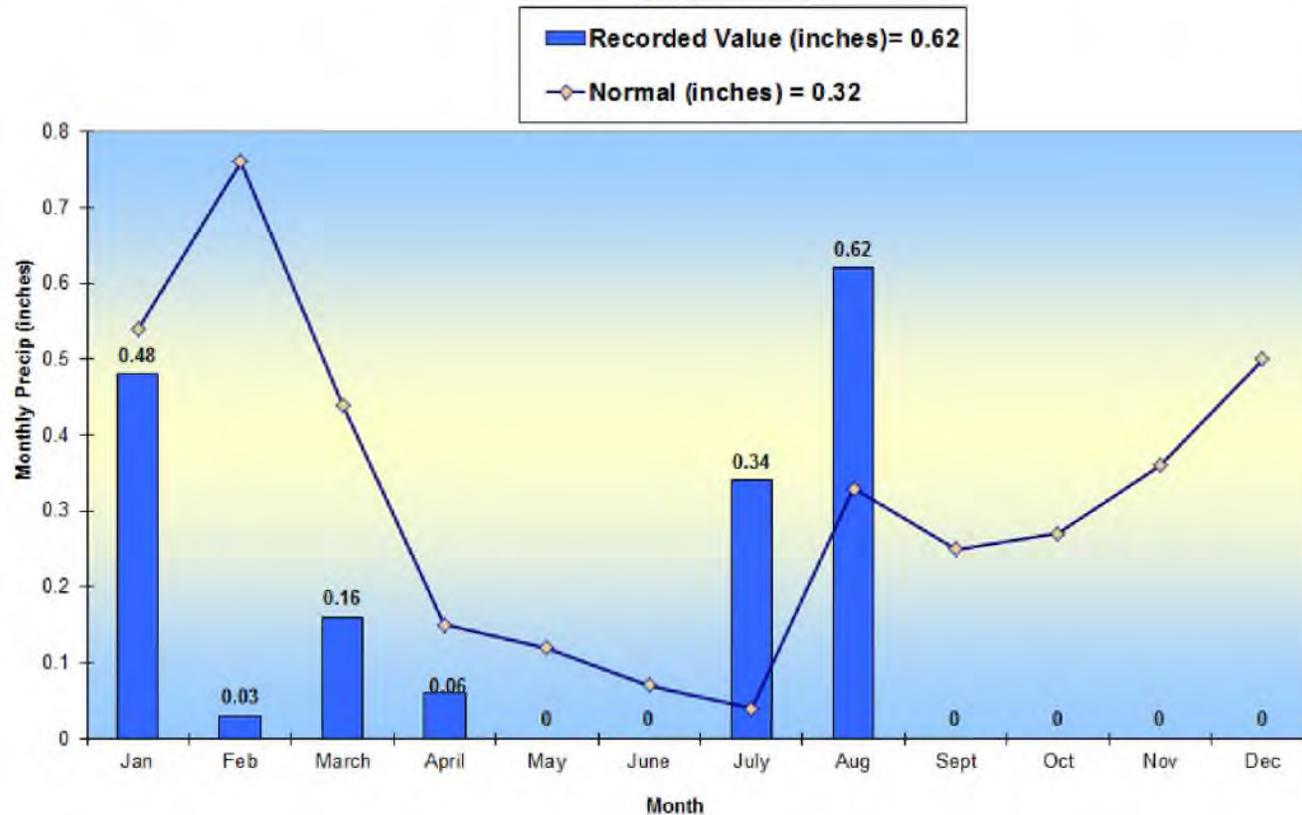
TEAM COVERAGE  
**Flash Flooding**  
near Imperial Palace 8 HD

15 & WASHINGTON NB 88 ACCIDENT: I-15 & SAHARA NI 74° 7:29 DE

# Record of Precipitation, Las Vegas, NV

As of August 31, 2013

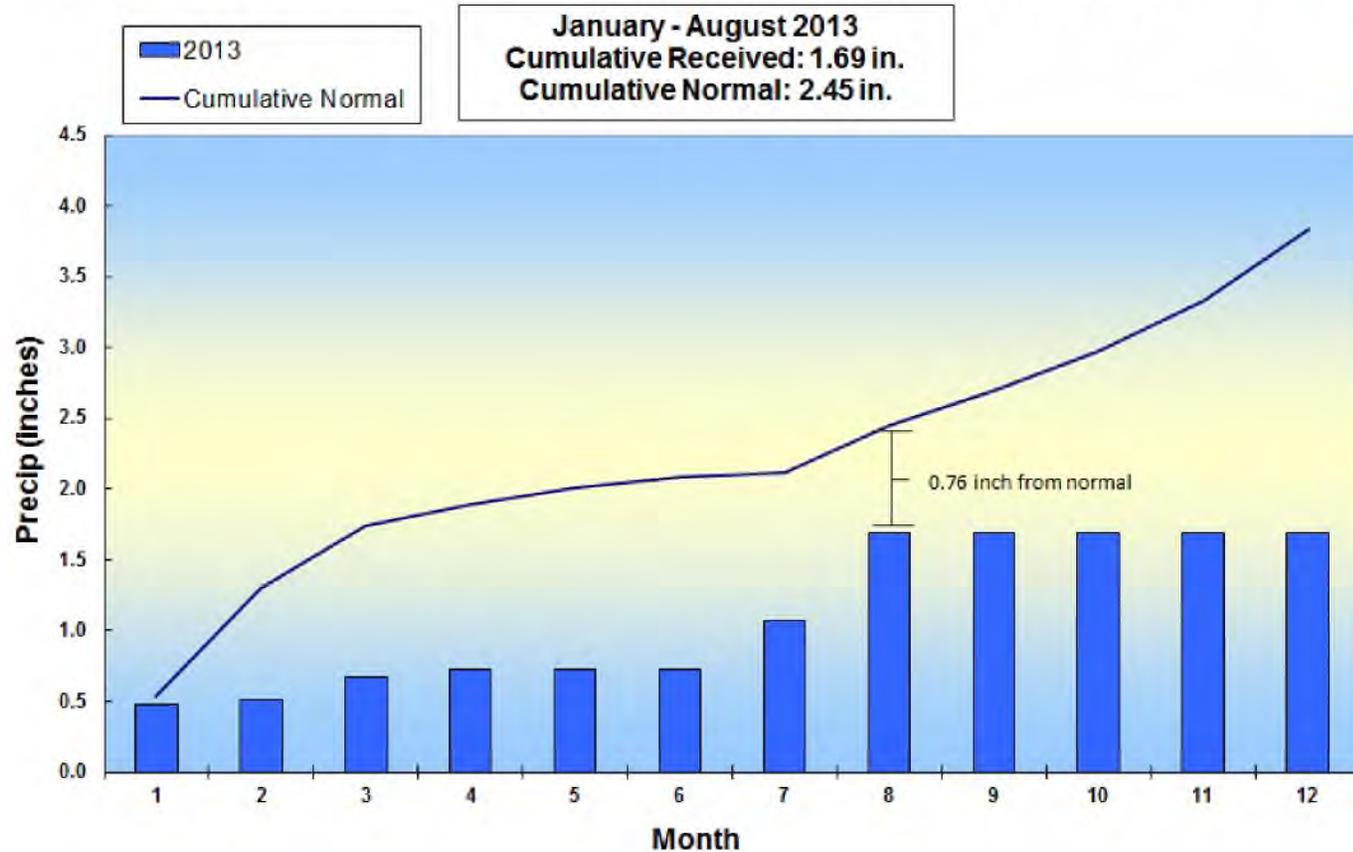
Record of Precipitation at McCarran International Airport, Las Vegas, NV  
August 2013



# Record of Precipitation, Las Vegas, NV

As of August 31, 2013

## Record of Precipitation at McCarran International Airport, Las Vegas, NV



# Lower Basin Side Inflows – 2013

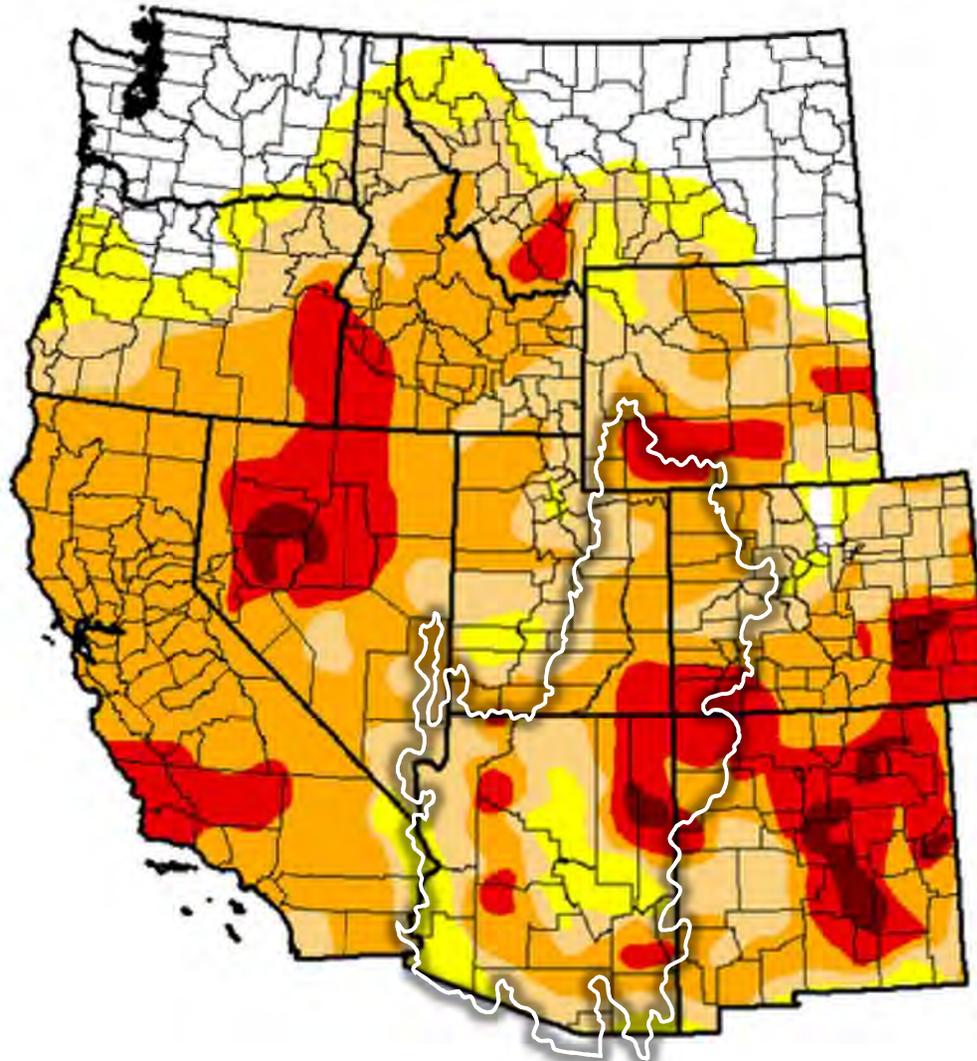
## Intervening Flow from Glen Canyon to Hoover Dam

Month	5 Year Average (KAF)	Observed Flow (KAF)	% of Average
October 2012	54	53	98%
November 2012	44	60	136%
December 2012	99	50	50%
January 2013	81	56	69%
February 2013	94	68	73%
March 2013	77	69	89%
April 2013	80	37	46%
May 2013	64	28	44%
June 2013	33	1	3%
July 2013	55	115	211%
August 2013	109	127	117%



# U.S. Drought Monitor West

September 3, 2013  
(Released Thursday, Sep. 5, 2013)  
Valid 7 a.m. EST



### Intensity:

-  D0 Abnormally Dry
-  D1 Moderate Drought
-  D2 Severe Drought
-  D3 Extreme Drought
-  D4 Exceptional Drought

*The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.*

### Author:

David Miskus  
NOAA/NWS/NCEP/CPC



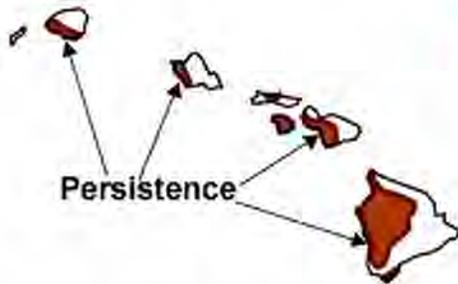
<http://droughtmonitor.unl.edu/>



Persistence



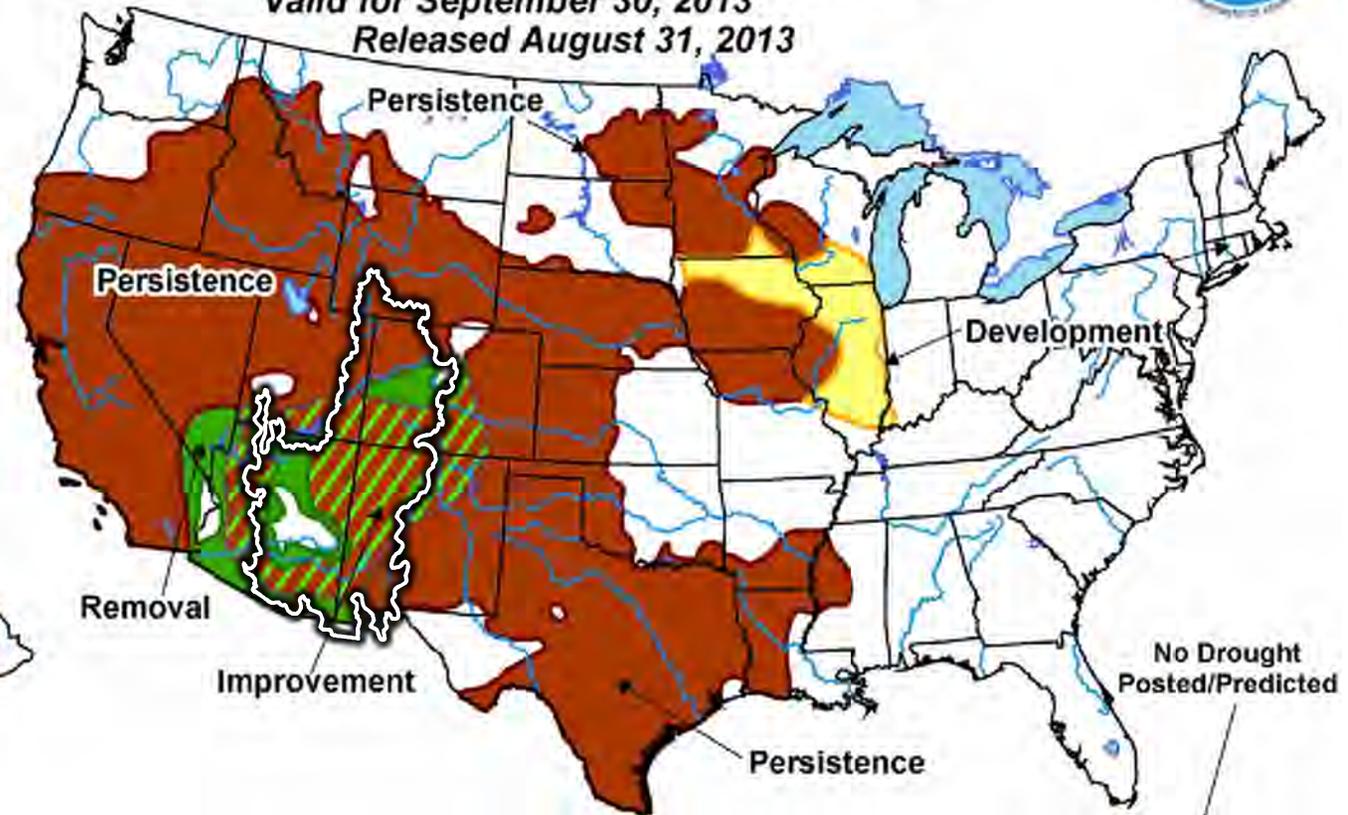
Removal



Persistence

# U.S. Monthly Drought Outlook Drought Tendency During the Valid Period

Valid for September 30, 2013  
Released August 31, 2013



## KEY:

-  Drought persists or intensifies
-  Drought remains but improves
-  Drought removal likely
-  Drought development likely

Author: Brad Pugh, Climate Prediction Center, NOAA  
[http://www.cpc.ncep.noaa.gov/products/expert\\_assessment/monthly\\_drought.html](http://www.cpc.ncep.noaa.gov/products/expert_assessment/monthly_drought.html)

Depicts large-scale trends based on subjectively derived probabilities guided by short- and long-range statistical and dynamical forecasts. Short-term events -- such as individual storms -- cannot be accurately forecast more than a few days in advance. Use caution for applications -- such as crops -- that can be affected by such events. "Ongoing" drought areas are approximated from the Drought Monitor (D1 to D4 intensity). For weekly drought updates, see the latest U.S. Drought Monitor.

NOTE: The Green and Brown hatched areas imply at least a 1-category improvement in the Drought Monitor intensity levels by the end of the period although drought will remain. The Green areas imply drought removal by the end of the period (D0 or none)

No Drought  
Posted/Predicted



# Water Use in Southern Nevada



# Water Use in Southern Nevada

## January - July

2013*:	Consumptive Use =	139,278
	<u>CR Water Banked =</u>	<u>0</u>
		139,278
2012:	Consumptive Use =	146,358
	<u>CR Water Banked =</u>	<u>0</u>
		146,358

**Difference = - 7,080 af**

\*Subject to final accounting.



# Water Use Comparison

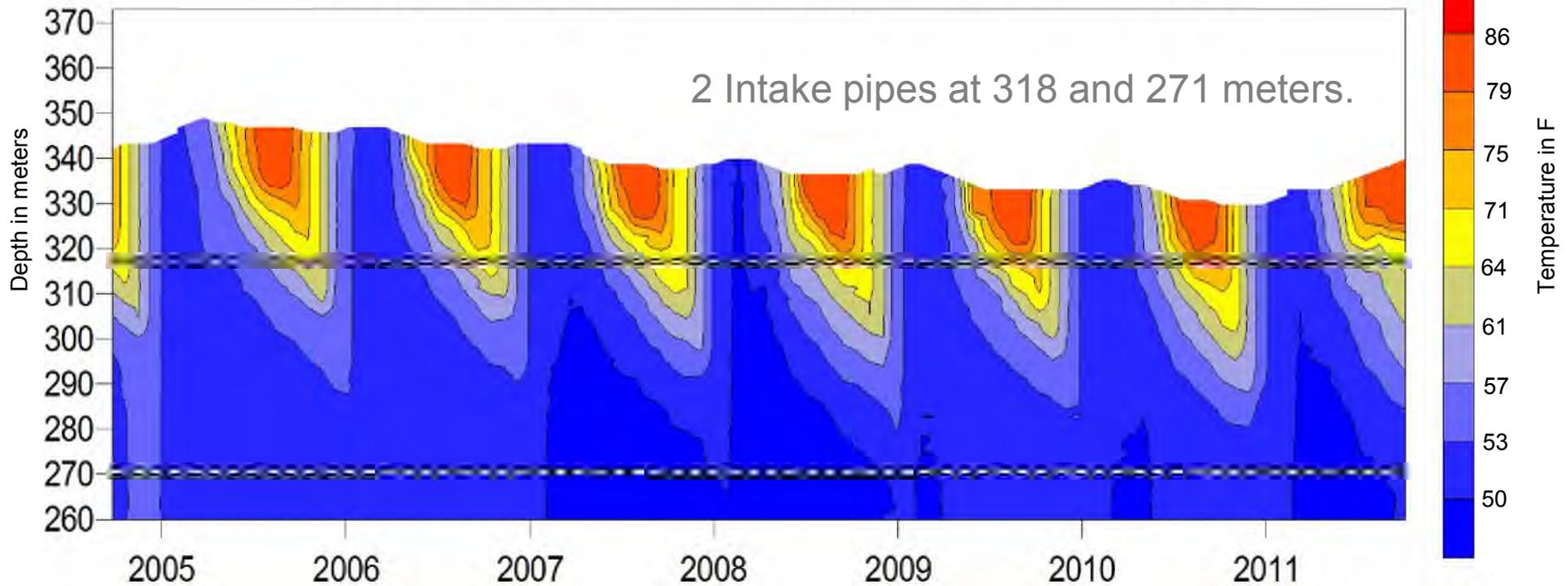
Water Use	2012	2013	Difference	% Change
Las Vegas Wash Gauged Flow below Lake Las Vegas	113,528	120,236	6,708	5.9%
Total Nevada Diversions from Colorado River	261,858	260,279	-1,579	-0.6%
Total Nevada Return Flow Credit	115,500	121,000	5,500	4.8%
Total Nevada Consumptive Use Before Interstate Banking	146,358	139,278	-7,080	-4.8%



# Lake Mead Temperature

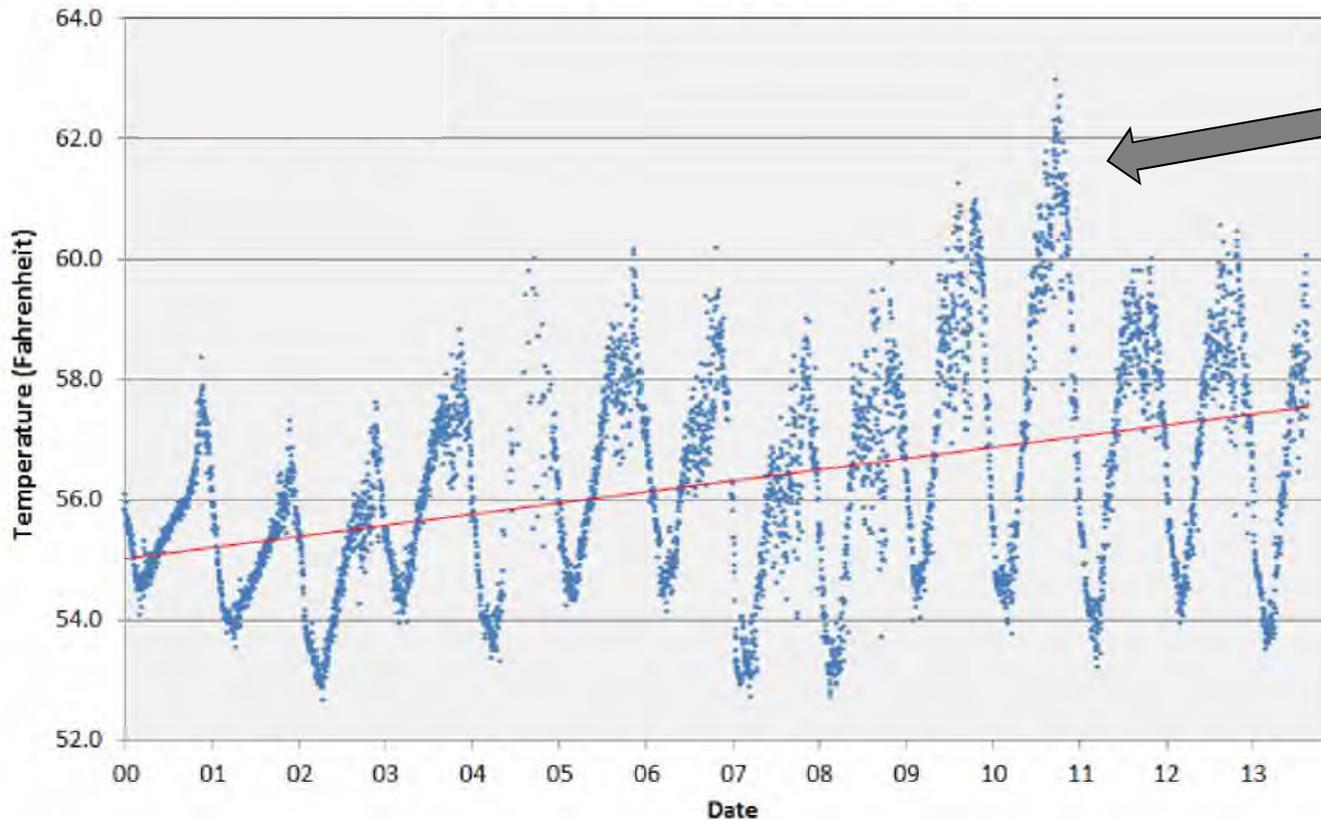


## USGS Sentinel Island Platform Data



# Hoover Dam Outfall Temperature

Hoover Outfall Temperature



As the lake lowers the upper intake takes in a larger amount of warm surface water



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