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# MEMORANDUM

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Date: September 5, 2014

To: The Honorable Chair and Members  
Pima County Board of Supervisors

From: C.H. Huckelberry  
County Administrator 

Re: **Drought Conditions and Central Arizona Project Water Supplies**

An item on the August 5, 2014 Board of Supervisors agenda dealt with "Drought Management Plan Review – Vulnerability Assessment and Drought Mitigation Report." In approving the recommended actions to reaffirm the current drought declaration and address revisions to the current drought ordinance, the Board requested additional information with respect to drought conditions and the status of the Central Arizona Project Water Supplies. Attached is a report dated August 26, 2014 from Ms. Kathleen Chavez, Water Policy Manager, regarding both topics.

With respect to the drought conditions, the report notes that a serious drought continues in the southwest desert. However, Arizona is better positioned than the other basin states in dealing with the drought, given the existence of the groundwater management code and the establishment of the Arizona Water Banking Authority. Furthermore, Pima County has advanced a sustainability framework for County operations and for Land Use Planning and Development regulatory actions to assure that water conservation and water use efficiencies are emphasized. An important notation in this report is that water policy and drought mitigation will continue to be prominent considerations as the Colorado River System storage declines.

The Central Arizona Water Supplies are directly dependent on the condition of the Colorado River water supply. The continuing declines in Lake Mead present serious challenges for the continuation of water service to all current recipients of Colorado River water. Fortunately, municipal supply is excluded from the initial shortage restrictions that could be implemented in 2016 or 2017. However, a continuation of the current drought will place additional stress on all water supplies and potentially impact even municipal supplies in the Colorado River Basin States.

Periodic reports regarding these two important topics will be provided to the Board of Supervisors.

CHH/mjk  
Attachments

c: John Bernal, Deputy County Administrator for Public Works  
Jackson Jenkins, Director, Regional Wastewater Reclamation  
Kathleen Chavez, Water Policy Manager, Regional Wastewater Reclamation



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# Board of Supervisors Memorandum

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August 5, 2014

## Drought Management Plan Review Vulnerability Assessment in Drought Mitigation Report

### Introduction

In June of 1999, Governor Jane Dee Hull issued a Drought Emergency Declaration (PCA 99006) following the state's third-driest winter in a century. Since then, sporadic wet episodes have only interrupted, but brought no long-term relief to persistent and cumulative drought.

The reservoir system that supplies Pima County with renewable Colorado River water continues to decline as local impacts to the environment (i.e., Cienega Creek and Agua Caliente Spring) increase, and drought sensitive economic sectors suffer setbacks. Drought affects more than just the water supply; primary and secondary impacts reverberate through the environment and economy with negative consequences for the region's wildlife, public health and other socio-economic sectors. Accordingly, staff has prepared the attached *Vulnerability Assessment in Drought Mitigation Report* describing Pima County's exposure to drought, sectors impacted by drought and their relative importance to the County. Currently, all of Arizona's counties are federally designated disaster areas due to drought.

### Drought and Water Demand Forecast

Drought planning and water conservation will become increasingly important. The narrative of the last 18 years includes aberrations however the overall trend has been below or well below average precipitation and above average temperatures – similarly the best estimation of our forecast ahead.

University of Arizona researchers conclude droughts in parts of the Southwest are expected to become hotter, more severe, and more frequent as warming will continue, with longer and hotter heat waves as precipitation declines in the southern Southwest. Climate records indicate occurrences of multi-decadal drought exceeding the severity and duration of the current drought.

Dropping water levels in Lakes Mead and Powell could trigger a shortage declaration in 2016 (a 23 percent probability) or 2017 (51 percent probability), curtailing Central Arizona Project (CAP) water by 320,000 acre feet. The seven basin states that share Colorado River water have a shortage sharing agreement that identifies how much CAP water will be reduced giving the community more certainty about what sectors would receive less CAP water should a shortage be declared.

The Bureau of Reclamation Colorado River Basin Water Supply and Demand Study identified a wide range of future imbalances; the median long-term projected deficit is expected to be 3.2 million acre feet a year by 2060. The Lower Basin states (Arizona, California and Nevada) exceed their annual apportionment of 7.5 million acre feet in all study scenarios and will need additional water to meet demand.

The Arizona Department of Water Resources (ADWR) confirms this conclusion in its latest report, *Arizona's Next Century: A Strategic Vision for Water Supply Sustainability*. Conservation and maximum utilization of reclaimed water will only alleviate pressure on potable water demand, and despite declining per capita water use over the last 50 years, augmentation of water supplies through the importation of water from outside active management areas will be required.

However, ADWR also emphasizes that Arizona is not in a water crisis but that several adaptive strategies will need to be pursued. The major water providers have drought response plans in place in case the drought worsens and are employing strategies to delay implementation of increased drought response measures. Water providers have diversified their portfolios and are not dependent on just one water source (CAP, reclaimed water and groundwater) and are banking unused CAP water by recharging it in underground storage facilities. Local codes require water conserving indoor fixtures in new development (low flow toilets and faucets) and drought tolerant, desert landscaping.

### Third National Climate Assessment

The Third National Climate Assessment, released in May 2014, documents an increase in the average temperature of the US over the last century (1.3°-1.9°F) with the recent decade being the hottest on record, both nationally and worldwide; 2012 was the hottest year on record for most of the US. The probability of extreme heat events has already doubled as climate change effects are underway and, contemplating a possible 10°F increase by the end of the century, is expected to intensify. Water resource managers are cautioned of reduced surface and groundwater supplies as precipitation declines and heat alters water consumption and withdrawal, increasing the likelihood of water shortages.

The report warns of current and future disruptions that affect "human health, water supply, agriculture, transportation, energy, coastal areas, and many other sectors of society, with increasingly adverse impacts on the American economy and quality of life." While some impacts may be unique to a particular region, cascading effects on production and distribution could limit local availability of energy and food, as examples.

In particular, agricultural productivity is vulnerable as well as natural ecosystems and associated biodiversity. Reduced yield and agricultural job loss is anticipated in the

Southwest, which produces a majority of US high-value specialty crops. Aesthetic and cultural value embedded in natural habitat is not easily quantified but the many benefits of a rich ecosystem are known to “support jobs, economic growth, health and human well-being.” Drought has already caused widespread tree mortality; combined with more frequent and larger wildfires, the future conversion of sky island conifer forests to grassland is possible.

The snowpack and streamflow that supports habitat and draws tourism is also key to the Southwest’s hydrology and water supply. Decline in winter and spring snowpack, earlier snowmelt and increased evaporation reduce runoff and streamflow into the reservoir systems that supply municipal water providers. The Colorado River, already over-allocated, will become less productive at a time of increasing demand and declining reservoirs.

The attached report highlights the impacts to the Southwest. The complete report is at this link: <http://nca2014.globalchange.gov/report/regions/southwest> .

#### County Drought Response Plan and Ordinance

In 2003, Governor Janet Napolitano signed a supplemental executive order (EO 2003-12) establishing the Arizona Drought Preparedness Plan (ADPP), an adaptable framework to assist state leaders, local governments and water managers in drought mitigation. The Preparedness Plan structural components are the State Drought Monitoring Technical Committee (MTC), the Governor’s Drought Interagency Coordinating Group (ICG) and Local Drought Impact Groups (LDIG). Guidelines for response and mitigation based on each drought stage are outlined in the ADPP. The Governor’s recommendation body, the ICG, recently convened in May and unanimously recommended that drought declarations remain in place; PCA 99006 has been in effect since 1999.

In 2006, Pima County established a drought task force and monitoring committee which implemented a drought planning process based on research from the National Drought Mitigation Center (MTC). The task force coordinated and led development of a response plan which was submitted and approved by the Board of Supervisors on June 20th. Ordinance 2006-43 enacted Chapter 8.70 of the Pima County Code, establishing the drought stages, water reduction measures for each stage and prohibitions on water wasting, incorporating the guidelines recommended in the ADPP.

The MTC collects climate and weather data to produce the *Arizona Drought Monitor Report* which details short and long term drought status and serves as the indicator for the county’s drought stage. Out of 97 monthly drought monitor reports, only four months of normal conditions throughout Pima County have been recorded; all others have shown some level of drought ranging from Abnormally Dry to Extreme. Review of the short term map shows a

predominance of Severe drought with oscillating pockets of Moderate and then a reversal following precipitation - Moderate drought with pockets of Severe conditions.

The current drought ordinance does not accurately communicate actual drought conditions and front loads more stringent restrictions than the recommended response framework within the ADPP. The County has remained in a Stage 1 response position communicating Abnormally Dry conditions since 2007.

The Pima County LDIG recommends revising drought stage and trigger events (Table 8.70.050) to more accurately reflect and communicate current conditions, improve coordination with other jurisdictional declarations, correct front loading of response measures, provide more flexibility and buffer against oscillating changes of status.

#### Conclusions

As described in the attached staff report, Pima County's open space and riparian habitat are most vulnerable to the impacts of sustained drought conditions. It is important that we continue to implement adaptive management strategies that include land conservation, riparian habitat restoration and protection of groundwater-dependent ecosystems.

Programs such as the *Community Wildfire Protection Plan* ensure Pima County is ready to respond to drought-induced wildfires. Existing building and land use codes requiring low water use fixtures and drought tolerant, native landscaping have helped reduce residential and commercial water consumption. Improved water quality at our wastewater reclamation facilities allows more uses of reclaimed water to support riparian habitat, replenish the aquifer and replace groundwater uses on parks and landscaping. Continued monitoring of local and state-wide drought conditions through the Local Drought Impact Group and ADWR Drought Program will enable Pima County to take proactive, planned mitigation measures should drought conditions persist or worsen.

Pima County declared a Drought Stage 1 in 2007. The response actions associated with this declaration are voluntary reduction in water use, restaurants asked to provide water only on request and hotels and motels urged to conserve water. Because of the community's proactive approach to water conservation, it is recommended that the Stage 1 declaration remain in place. However, should drought conditions persist or worsen, the Board of Supervisors may wish to re-evaluate this declaration in collaboration with other jurisdictions to ensure our community reacts to drought impacts in a well-coordinated manner.

#### Recommendations

It is recommended that the Board take the following actions:

The Honorable Chairman and Members, Pima County Board of Supervisors  
Re: **Drought Management Plan Review Vulnerability Assessment in Drought Mitigation  
Report**

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1. Reaffirm the current Drought Stage 1 declaration
2. Approve recommended revisions to the ordinance.
3. Direct staff to continue to monitor drought status and its impacts through Local Drought Impact Group and coordinate with local water providers on drought responses.
4. Direct that relevant County departments assist LDIG by sharing information and data on drought impacts and drought preparedness.

Respectfully submitted,



C.H. Huckelberry  
County Administrator

CHH/ dr-July 22, 2014

Attachments

c: John Bernal, Deputy County Administrator for Public Works  
Jackson Jenkins, Director, Regional Wastewater Reclamation



## PIMA COUNTY

### REGIONAL WASTEWATER RECLAMATION DEPARTMENT

201 NORTH STONE AVENUE  
TUCSON, ARIZONA 85701-1207

**JACKSON JENKINS**  
DIRECTOR

PH: (520) 724-6500  
FAX: (520) 724-9635

August 26, 2014

**TO:** Jackson Jenkins, Director

**FROM:** Kathleen Chavez, Water Policy Manager 

**SUBJECT:** **Drought Status Report and CAP Status Report  
August 5, 2014 Request from the Board of Supervisors**

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At their August 5, 2014 meeting the Board of Supervisors approved the Drought Management Plan and Water Wasting Ordinance. The Board also requested a staff report on the status of drought in Pima County and the status of the Central Arizona Water supply.

Attached are the reports requested by the Board for your transmittal. Staff is planning to update the drought report on a quarterly basis.

Feel free to let me know if there are any questions.

Attachments (2)

**Report on Drought Status in Pima County  
Regional Wastewater Reclamation Department  
August 2014**

**Background**

In 1999, Governor Jane Dee Hull signed a declaration of drought emergency (PCA 99006), the state's mechanism for receiving federal assistance, which still remains in effect today. In 2003, Governor Janet Napolitano signed an executive order (EO 2003-12) establishing the Governor's Drought Task Force and directed Arizona Department of Water Resources (ADWR) to coordinate the implementation of the Arizona Drought Preparedness Plan (ADPP), a product of the Task Force to serve as an adaptable framework for state leaders, local governments and water managers to monitor and mitigate drought. At that time, 15 counties were designated as primary natural disaster areas.

The Preparedness Plan structural components are the State Drought Monitoring Technical Committee (MTC), the Drought Interagency Coordinating Group (ICG) and Local Drought Impact Groups (LDIG). The MTC, primary committee of the Preparedness Plan, collects climate and weather data to produce the Arizona Drought Monitor Report and Status Updates (in conjunction with the National Drought Mitigation Center), which details short and long term drought status affecting each watershed. The Drought Interagency Coordinating Group is a multi-jurisdictional advisory body, updating the Governor and recommending emergency declarations. LDIG is the local component of the ADPP, assessing drought conditions and recommending options for adaptation at the county level, compiling this information in an annual report to the Interagency Coordinating Group.

Citing drought conditions and ADWR's requirement that water providers put in place drought preparedness plans by January 1, 2007 (per ARS Section 45-342, both small and large providers are to submit a System Water Plan that includes a water supply plan, water conservation plan, and drought preparedness plan and provide and update to ADWR every five years), and desiring to have a coordinated effort with county water providers in drought management should there be staged water curtailments, the County Administrator forwarded to the Board of Supervisors a Drought Management Plan and draft ordinance 2006-43 (Ch. 8.70) on April 18, 2006, subsequently unanimously adopted. This Plan established a task force and a County Drought Monitoring Committee to coordinate the development of a response plan and drought monitoring system. The ordinance codified the response plan- "establishing the drought stages, water reduction measures for each stage and prohibitions on water wasting". At final adoption on June 20, 2006, conditions at the time and original drought trigger criteria (based on CLIMAS data) indicated a Stage 3 or Stage 2 declaration as appropriate pending consultation with regional water providers. Emphasis in coordinating implementation was given to the Board- "our declaration of various drought stages should be coordinated with a specific request and recommendation for such from area water providers... the Board's adoption of the Drought Response Plan and Water Wasting Ordinance allows the region's water providers to request of the County, drought emergency and water conservation measures appropriate to actual drought conditions".

Following several county Drought Monitoring Committee meetings, recommendations came forward that drought indicators be streamlined and made consistent with the ADWR Drought Monitor Report and the CLIMAS criteria dropped; the ordinance was therefore revised. In addition, the County Drought Monitoring Committee was designated to function as the ADWR structured Local Drought Impact Group. After revisions and coordination with Tucson Water and other providers, a Stage One Drought was declared on April 24, 2007.

### **Water Conservation Efforts**

The Drought Response Plan Ordinance is a situational demand management tool, not necessarily long range planning - its purpose is to curtail water usage during shortage. Within its scope, the ordinance functions as necessary to mitigate the drought effect of reduced water supply. Conservation and efficiency standards, as sketched in the ADPP, are adequately addressed in the implementation of multiple county programs and existing ordinances.

The Sustainable Action Plan for County Operations, adopted in 2008, catalogs county resource use, setting goals for improved efficiency and conservation within multiple functions of daily operation and responsibilities, including water conservation and management. The program promotes increased county use of reclaimed water, improved county building water efficiency and landscape standards and creates a baseline study of water use with required reductions through 2025. Success indicators are measured annually, such as a 120% increase in number of parks served by reclaimed water since adoption.

The City/County Water and Wastewater Study and Action Plan for Water Sustainability, adopted in 2010, expands water sustainability and conservation efforts by identifying a comprehensive list of shared regional goals and recommendations arranged in the primacy subjects of "Comprehensive Integrated Planning," "Respect for the Environment," "Water Supply," and "Demand Management." The City of Tucson and Pima County are working cooperatively to integrate water, wastewater, stormwater and land use planning in an effort to prioritize renewable water use while minimizing groundwater withdrawals and land use impacts on riparian areas, collaborating on conservation and restoration projects in key areas.

County 2006 and 2007 Water Conservation Code Amendments mandate low use fixtures and use of renewable water for new golf courses, reclaimed-ready and rain sensor irrigation as well as restrictions on fountains, water features and turf. In addition, Pima County Green Building and LEED Certification programs, established in 2008, promote the construction of sustainable homes. The County Water Resource Element of the Comprehensive Plan informs the Board of Supervisors of a development's water use impact and nearby groundwater dependent ecosystems before land use changes are made.

These initiatives enhance drought response efforts and represent forward looking planning of benefit regardless of drought stage. Continued emphasis on the successful implementation of the Sustainable Action Plan and the Action Plan for Water Sustainability will incorporate drought management measures of merit pertaining to conservation.

## **Water Augmentation Efforts**

Calculated full utilization of reclaimed water is central to water resource planning as water planners stretch available renewable supplies and limit groundwater mining in order to comply with the state's groundwater code (and associated Management Plans) and mitigate Colorado River supply uncertainty.

The County's Strategic Plan for Use of Reclaimed Water (SPUR) is a multi-department collaboration analyzing the available volume of reclaimed water and best use of that allotment to meet County goals both now and in to the future. Reclaimed water can be used in recharge projects, replenishing local aquifers while earning long term water credits or designated for the restoration of riparian areas. SPUR is an important water augmentation initiative; by replacing potable water consumption where appropriate, reclaimed application extends CAP and groundwater supplies. Pima County Regional Wastewater Reclamation Department (RWRD) is investigating the expansion of recharge to maximize accumulation of long term storage credits both at its sub-regional facilities and in partnership with other water users at underground storage facilities.

Through County participation in the Southern Arizona Water Users Association (SAWUA), support has been expressed for a pilot program that would increase the volume of CAP water stored in the Tucson management area. The Inter-AMA Storage Proposal accelerates the Arizona Water Banking Authority (AWBA) goal of firming municipal supplies by banking excess CAP water in the region's aquifers.

Additional County planning, the Water Resource Asset Management Plan (WRAMP) centralizes water asset inventory, establishes baseline data and standardized procedures and formalizes management and accounting across departments. Through enhanced management and maintenance, WRAMP seeks to maximize the County's water resources asset value consistent with Board of Supervisors Policy F 54.9.

Similarly, Tucson Water recently completed its Recycled Water Master Plan, a peer reviewed technical analysis of proposed programs to maximize utilization of recycled effluent. The utility concludes full utilization will be necessary to maintain reliability and meet future demand. Indirect potable reuse is discussed as crucial to retaining Colorado River water within the local basin.

Tucson Water's Reclaimed Water System has been producing reclaimed water for irrigation and other non-potable uses for several decades and Pima County, along with other jurisdictions, through various agreements, have taken advantage of this renewable source to supply golf courses, parks and ball fields. Jurisdictions receive a proportional share, defined by a 2000 inter-governmental agreement, which is wheeled through Tucson's reclaimed system for beneficial use determined by each local governing authority.

Wheeling provides the opportunity to take delivery of water in areas that lack infrastructure; water providers with CAP allocations but absent a connection to the CAP system have employed wheeling agreements with Tucson Water to bring renewable Colorado River water to their service areas. The Vail Water Company and Oro Valley have agreements to wheel 1,857 af and 2,000 af, respectively. Metro Water has expressed interest in wheeling a portion of its 13,460 af CAP allocation; development in a Metro Water expansion area will receive wheeled water where service was once considered not

possible. Wheeling is supported by the City/County Water and Wastewater Study and Action Plan as it brings additional renewable supply to areas that might have otherwise relied on groundwater pumping.

## **Drought in Pima County**

### **Short and Long Term Drought Mapping**

The US Drought Monitor (USDM) is produced by the National Oceanic and Atmospheric Administration, the U.S. Department of Agriculture, and the National Drought Mitigation Center (NDMC) at the University of Nebraska-Lincoln. The weekly map, a composite index that includes many indicators, is a document of climatic, hydrologic and soil conditions, as well as reported impacts, from the previous week. It is used to determine USDA secretarial disaster declarations. Drought conditions are ranked from Abnormally Dry (D0) to Exceptional (D4), as described by NDMC;

*D0-D4: The Drought Monitor summary map identifies general drought areas, labeling droughts by intensity, with D1 being the least intense and D4 being the most intense. D0, drought watch areas, are either drying out and possibly heading for drought, or are recovering from drought but not yet back to normal, suffering long-term impacts such as low reservoir levels. Short-term drought indicator blends focus on 1-3 month precipitation. Long-term blends focus on 6-60 months. Additional indices used, mainly during the growing season, include the USDA/NASS Topsoil Moisture, Keetch-Byram Drought Index (KBDI), and NOAA/NESDIS satellite Vegetation Health Indices. Indices used primarily during the snow season and in the West include snow water content, river basin precipitation, and the Surface Water Supply Index (SWSI). Other indicators include groundwater levels, reservoir storage, and pasture/range conditions. ...Additional indicators are often needed in the West, where winter snowfall in the mountains has a strong bearing on water supplies. It is this combination of the best available data, local observations and experts' best judgment that makes the U.S. Drought Monitor more versatile than other drought indicators.*

The state's MTC, advisors to the USDM, also produce a report based on the USDM maps for a Short-term Drought Status Summary- "The Monitoring Technical Committee confers weekly to advise the U.S. Drought Monitor authors on the current conditions in Arizona... At the end of each month, the Monitoring Technical Committee produces the short-term drought status summary... based on U.S. Drought Monitor maps for the past four weeks."

Additionally, the MTC authors a quarterly Long-term Drought Status Update- "Long- term drought status for each watershed is determined by comparing the precipitation and streamflow percentiles for the past 24, 36 and 48 months to a 40-year historical record."

### **Pima County Historical Drought Conditions**

Looking back at past year's findings, an analysis of the short term map shows a predominance of Severe drought with oscillating pockets of Moderate finding from January to July 2012 and then a reversal-Moderate drought with pockets of Severe from August 2012 to March 2013. April and May 2013 reflected dry conditions before monsoon activity with the entire county in Severe ranking. June 2013

through January 2014 reverted to a mixture of no drought, Abnormally Dry and Moderate conditions. 2014 began with expanding Severe drought with some Extreme conditions in the northeast corner, conditions that continued until recent monsoon arrival.

The long term map shows similar Moderate to Severe oscillation in the Santa Cruz watershed. The western portion of Pima County, in the Lower Gila watershed, experiences no drought or Abnormally Dry conditions more frequently than the others. The San Simon watershed is the more problematic area in the county, drifting into Extreme drought on several occasions; however 99% of the watershed is within tribal or federal land boundaries.

### **Summary**

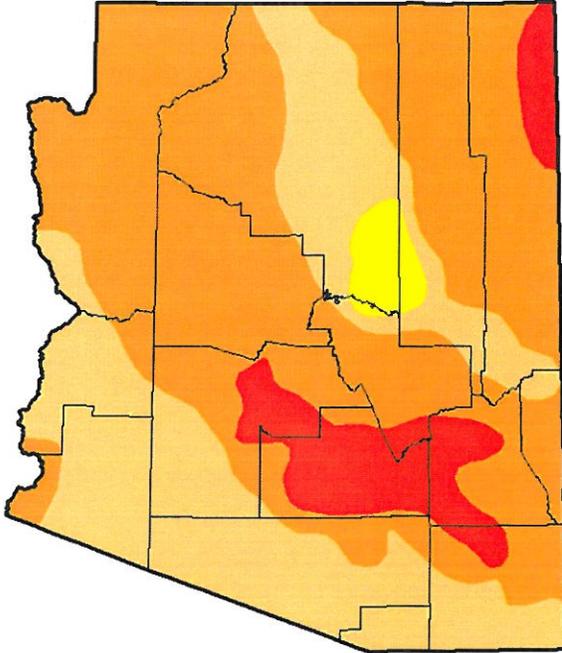
Pima County is entering its second decade of drought. Precedent exists for multi-decadal drought of more intensity as proven by climate records. Climate researchers are forecasting hotter, more severe and frequent drought in the Southwest.

Arizona is better positioned than other Basin states in dealing with drought; the Groundwater Management Code and Arizona Water Banking Authority are examples of the legal and physical infrastructure that both accounts for and limits groundwater mining while prioritizing the storage of renewable water within the state. In comparison, the banking of “wet” water rather than “paper” water is limited in the neighboring states.

Pima County has been proactive in crafting a sustainability framework both for county operations and in land use planning and development. Water conservation and efficiency are key pillars in County Code and planning. The County’s LDIG is one of only two active LDIG’s in the state and will remain ready to provide the Board of Supervisors and County Administrator the latest drought assessment and mitigation strategy. Pima County is represented at all Southern Arizona Water Users Association (SAWUA), Groundwater Users Advisory Council (GUAC), Safe Yield Task Force (SYTF), Tucson Citizens Water Advisory Committee (CWAC) meetings and other forums. Water policy and drought mitigation discussions will become even more prominent as Colorado River system storage declines.

Please review the accompanying drought, reservoir and climate updates and forecasts which staff can provide on a quarterly basis to the Board.

## U.S. Drought Monitor Arizona



**August 19, 2014**  
(Released Thursday, Aug. 21, 2014)  
Valid 8 a.m. EDT

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
<b>Current</b>	0.00	100.00	97.88	65.34	9.39	0.00
<b>Last Week</b> <i>8/22/2014</i>	0.00	100.00	97.88	69.74	12.90	0.00
<b>3 Months Ago</b> <i>5/20/2014</i>	0.00	100.00	98.17	76.28	7.69	0.00
<b>Start of Calendar Year</b> <i>12/31/2013</i>	20.72	79.28	53.58	14.73	0.00	0.00
<b>Start of Water Year</b> <i>10/1/2013</i>	14.83	85.17	61.91	25.28	0.00	0.00
<b>One Year Ago</b> <i>8/20/2013</i>	0.00	100.00	85.78	56.39	20.39	3.04

**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:**  
Richard Tinker  
CPC/NOAA/NWS/NCEP

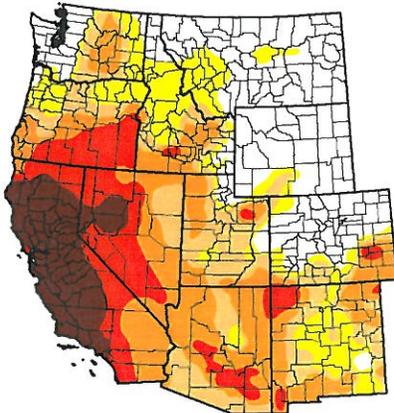


<http://droughtmonitor.unl.edu/>

### Ex. 1 Short Term Drought Status

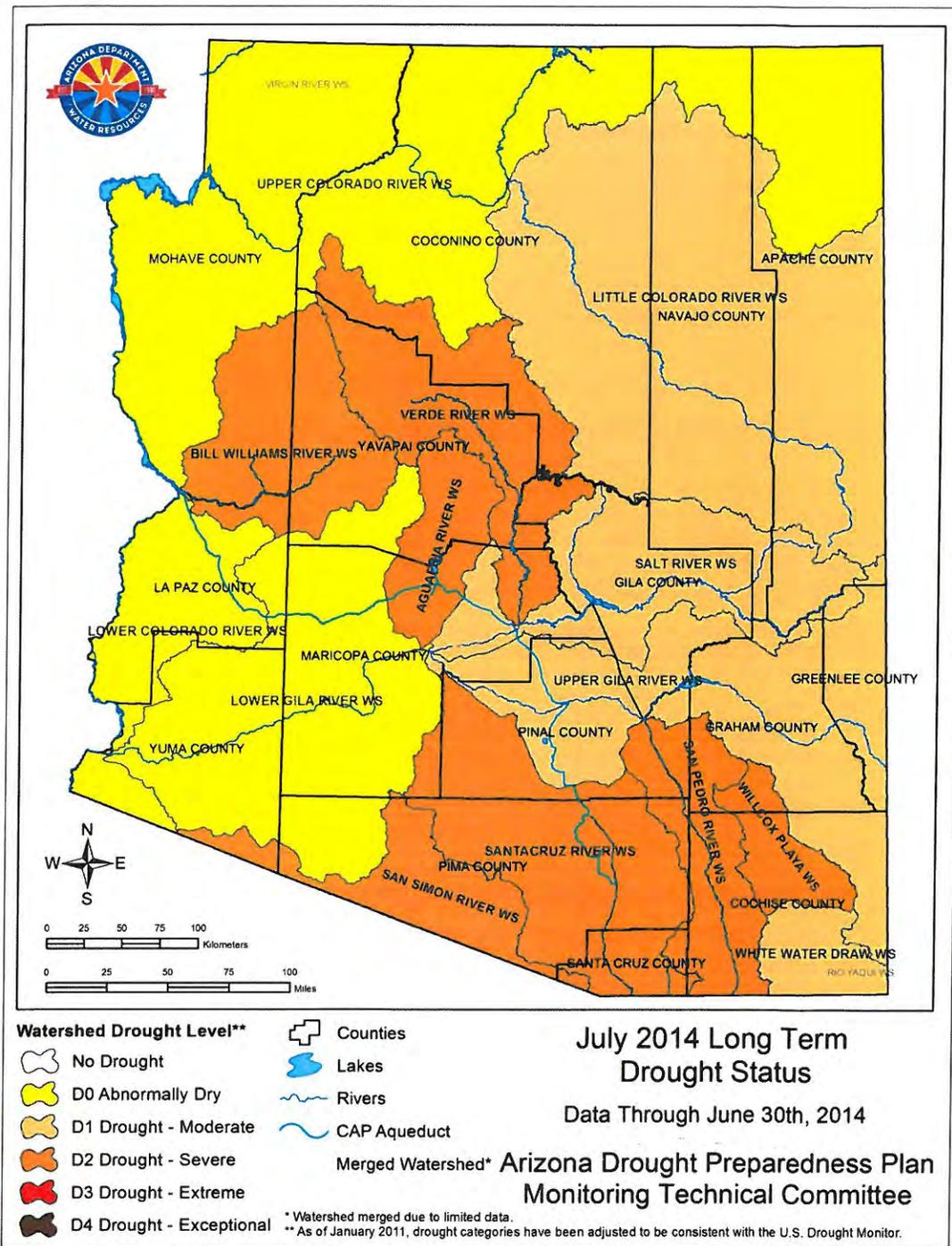
Source: US Drought Monitor Map

(The Monitoring Technical Committee confers weekly to advise the U.S. Drought Monitor authors. The U.S. Drought Monitor is produced in partnership between the National Drought Mitigation Center at the University of Nebraska-Lincoln, the United States Department of Agriculture, and the National Oceanic and Atmospheric Administration.)



Week	Date	Nothing	D0- D4	D1- D4	D2- D4	D3- D4	D4
<b>Current</b>	<a href="#">8/12/2014</a>	27.11	72.89	59.80	43.63	21.43	8.90
<b>Last Week</b>	<a href="#">8/5/2014</a>	27.71	72.29	60.17	43.74	21.35	8.94
<b>3 Months Ago</b>	<a href="#">5/13/2014</a>	31.18	68.82	60.82	47.37	19.96	4.70
<b>Start of Calendar Year</b>	<a href="#">12/31/2013</a>	22.20	77.80	51.44	31.11	7.75	0.63
<b>Start of Water Year</b>	<a href="#">10/1/2013</a>	25.25	74.75	58.96	34.18	5.57	0.63
<b>One Year Ago</b>	<a href="#">8/13/2013</a>	13.31	86.69	77.53	56.74	20.35	3.09

**Western States**  
(California: 58% D4, 82% D3-D4, 99.8% D2-D4)



### Ex. 2 Long Term Drought Status

Source: Arizona Drought Monitoring Technical Committee

(The Monitoring Technical Committee meets quarterly to produce the long-term drought status map for each watershed by comparing the precipitation and streamflow percentiles for the past 24, 36 and 48 months to a 40-year historical record.)

The next update in early November will reflect the monsoon conditions of July, August and September.

Exhibit 3

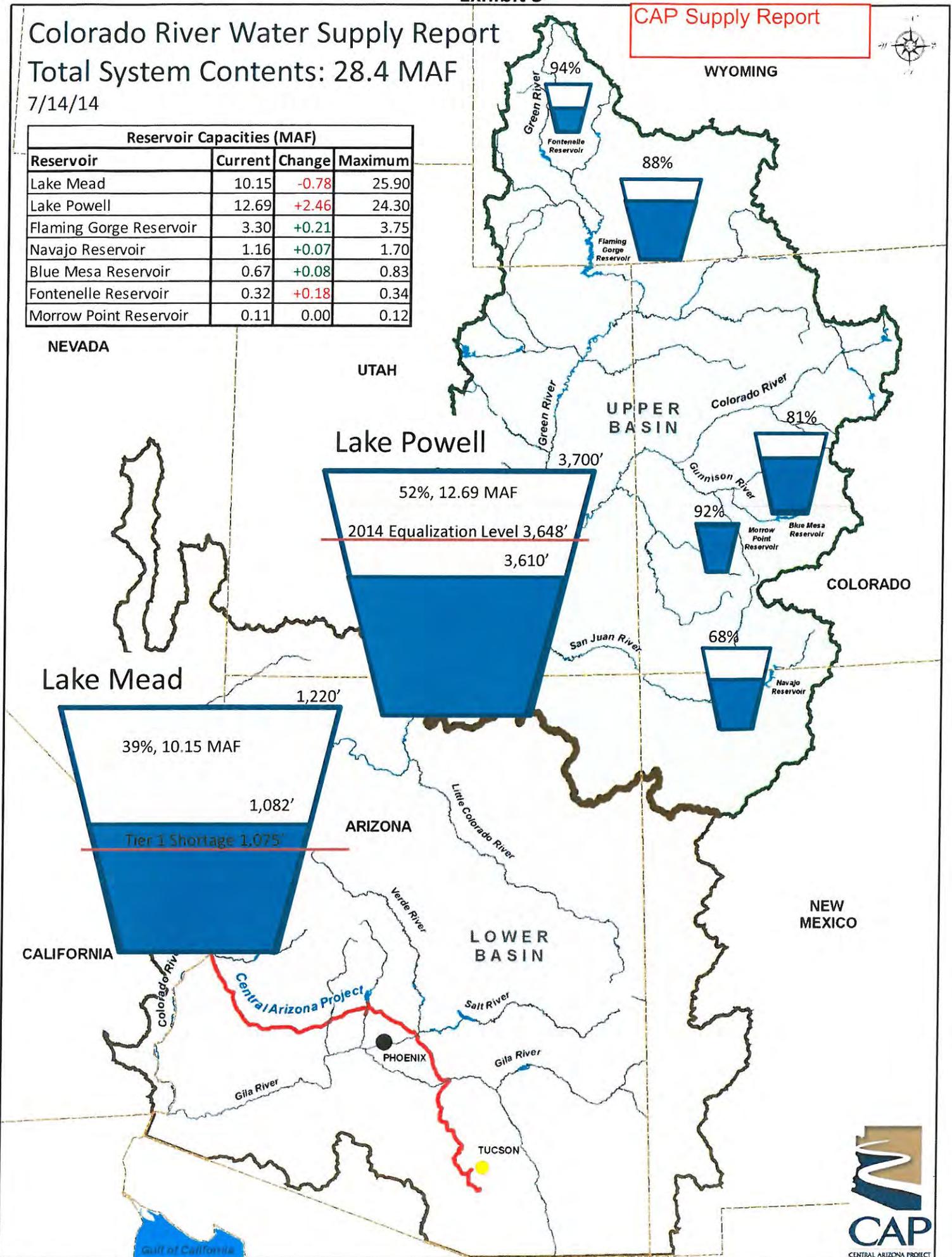
CAP Supply Report

Colorado River Water Supply Report

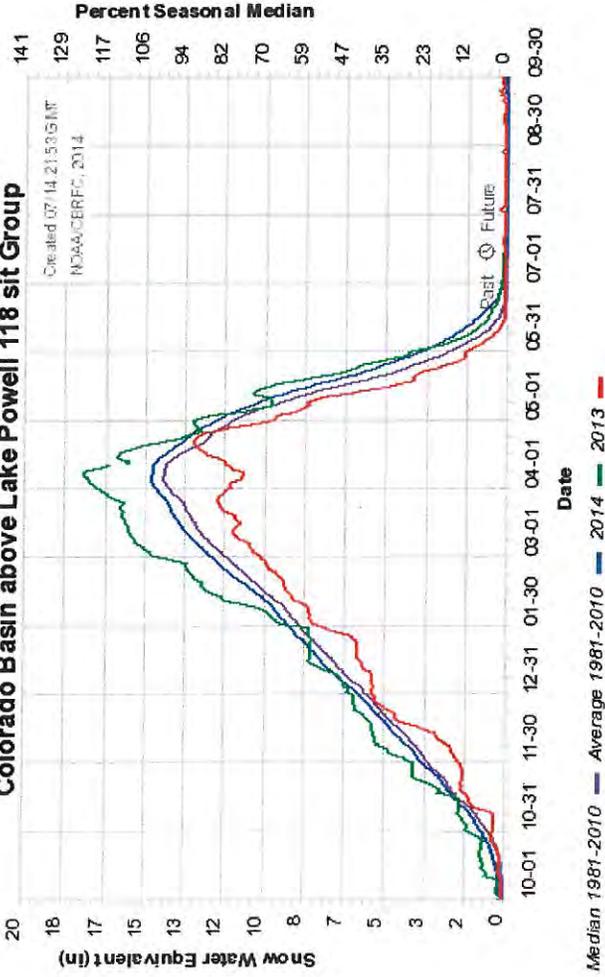
Total System Contents: 28.4 MAF

7/14/14

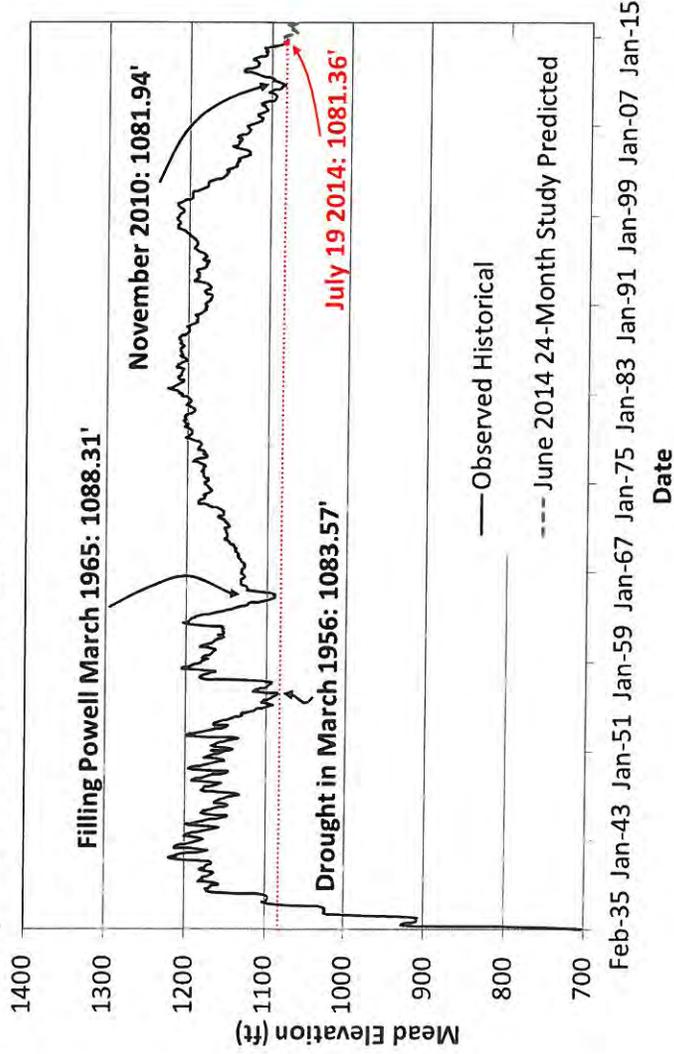
Reservoir Capacities (MAF)			
Reservoir	Current	Change	Maximum
Lake Mead	10.15	-0.78	25.90
Lake Powell	12.69	+2.46	24.30
Flaming Gorge Reservoir	3.30	+0.21	3.75
Navajo Reservoir	1.16	+0.07	1.70
Blue Mesa Reservoir	0.67	+0.08	0.83
Fontenelle Reservoir	0.32	+0.18	0.34
Morrow Point Reservoir	0.11	0.00	0.12



## Colorado Basin River Forecast Center Colorado Basin above Lake Powell 118 sit Group



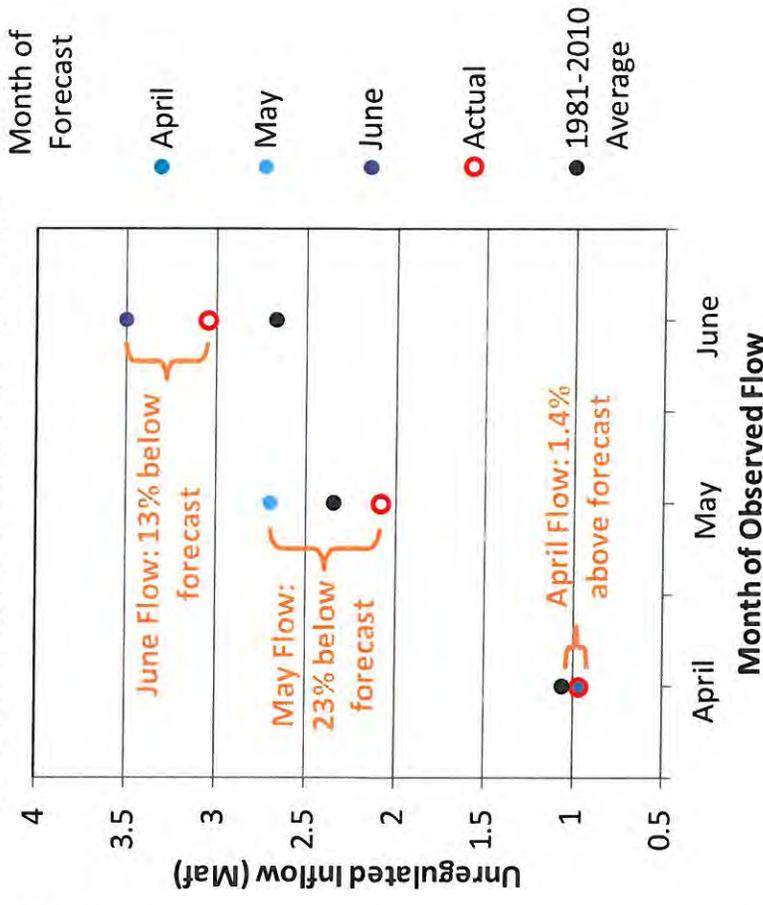
In July, Lake Mead reached the lowest recorded elevation since Hoover dam filled, highlighting the structural deficit that persists under normal inflow conditions.



## Snow Conditions

At the end of the snow season (April 2014) the SWE was estimated as 120% of the long-term median, and the forecasted unregulated inflow to Powell summed for April, May, and June was projected to be 113% of average. The current forecast is now 99% of average. The May projection overestimated monthly inflows by as much as 23%. The overestimate of inflow is due to the effects of above-average evapotranspiration and sublimation, from hot, dry conditions.

## 2014 Unregulated Inflow Forecasts



## **Ex. 4 Colorado Basin River Forecast Center (NWS/NOAA)**

### **Water Supply Forecast Discussion**

Seasonal water supply forecasts are produced November through July. This is the latest available seasonal report. The CAP Supply Report (July) states June forecasts were overestimated by 13%.

## June 1, 2014 Water Supply Forecast Discussion

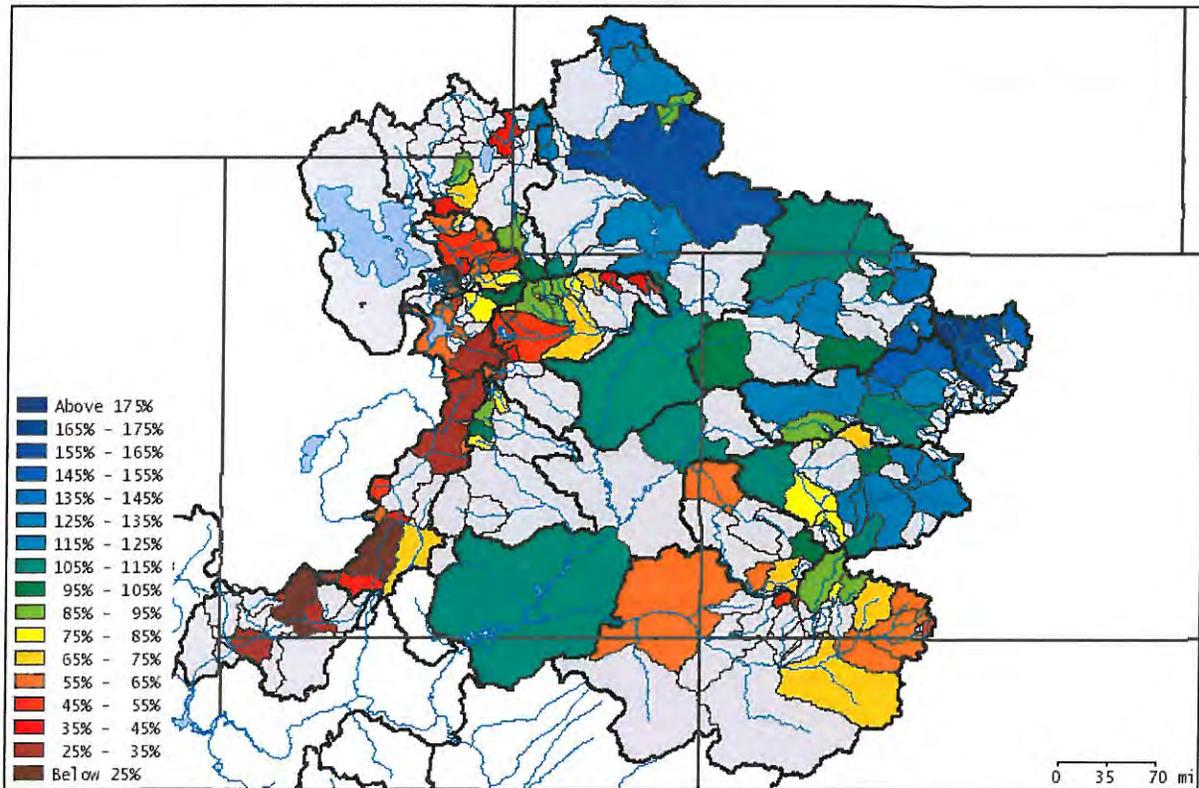
The [Colorado Basin River Forecast Center \(CBRFC\)](#) geographic forecast area includes the Upper Colorado River Basin, Lower Colorado River Basin, and Eastern Great Basin.

### Seasonal Water Supply Forecasts:

#### Quick Summary:

Final water supply forecasts for the 2014 season indicate April-July runoff volumes to be much above average in the Green River Basin above Flaming Gorge Reservoir, Yampa River Basin, Colorado River Basin above Cameo, and much of the Gunnison River Basin especially above Blue Mesa Reservoir.

Near to below average conditions are forecast for the Dolores River Basin and some headwater locations in the Weber, Duchesne and Bear River Basins. Much below average runoff volumes are likely in the San Juan Basin, Virgin River Basin, and remaining Great Basin within Utah.



April-July water supply volumes forecasts as a percent of the 1981-2010 average

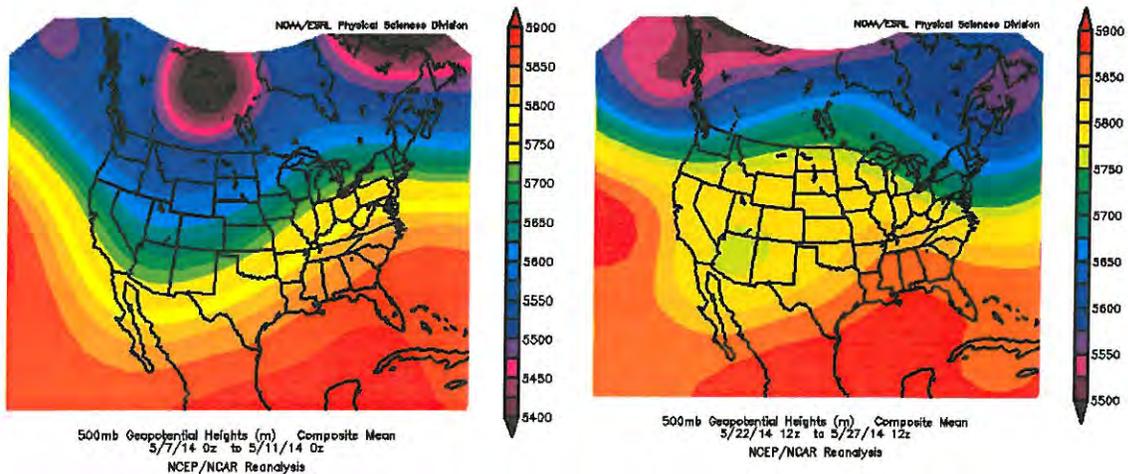
[Click here for specific site water supply forecasts](#)

## Water Supply Discussion

### Weather Synopsis:

May brought a mixed bag of weather with periods of cool and wet conditions and periods of warm dry weather typical of spring. During early May a cold winter like storm moved through the area and brought widespread precipitation with low snow levels. Snow melt slowed with the colder temperatures and streamflow levels dropped during this period. During the last week of the month a low pressure system moved through the southern half of the CBRFC area advecting mild and moist subtropical air northward ahead of it. The result was additional precipitation that was more of a convective nature similar to what is experienced during the late summer. In between weather systems, temperatures warmed and accelerated snow melt in all areas. Streamflow generally increased throughout the month.

Precipitation favored an area extending from the southern Sevier and Virgin River Basins in southwest Utah east and northeast to include lower desert basins in the Green and Colorado River region of southeast Utah. Much of western Colorado also received near to above average precipitation from northern parts of the San Juan Basin north to the Yampa River Basin. Areas north and south were much drier including the Green River basin above Flaming Gorge, Great Basin of northern Utah, and Arizona.



Mean upper air pattern during early and late May 2014

**Precipitation and Temperatures:**

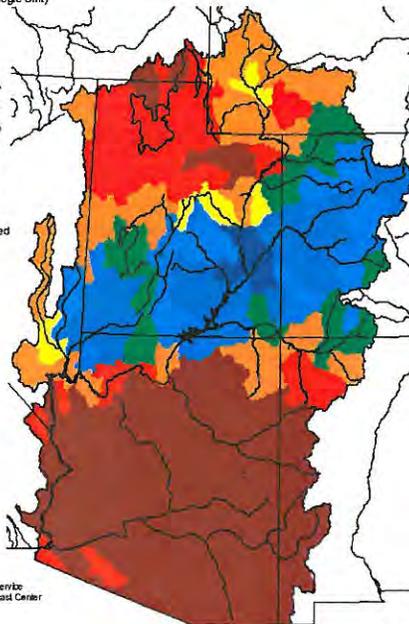
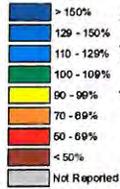
A large swath of near to above average precipitation was observed in the middle of the CBRFC area with dry conditions north and south. As can be seen in the images below, much below average precipitation extended from the Duchesne River Basin north to include the Green River Basin above Flaming Gorge, and west to include the Bear River, Weber River, Six Creeks and Provo River Basins. Much below average conditions were also observed in the Lower Colorado River Basin of Arizona. In between these areas near or above average precipitation occurred with the largest impacts to runoff forecasts in the Yampa River Basin headwaters and Colorado River headwaters above Kremmling.

The seasonal October-May precipitation graphic continues to indicate above average seasonal precipitation in the areas favored by the winter storm pattern, particularly in the headwater areas of the Colorado River Basin above Cameo, Yampa River Basin, Green River Basin above Fontenelle and the extreme northern Bear River Basin. Near or above average seasonal precipitation occurred in much of the Gunnison River Basin, parts of the Dolores River Basin, and in Animas River Basin of the San Juan. Elsewhere conditions were much drier especially from the Virgin River Basin south into Arizona.

**Monthly Precipitation for May 2014**

(Averaged by Hydrologic Unit)

**% Average**

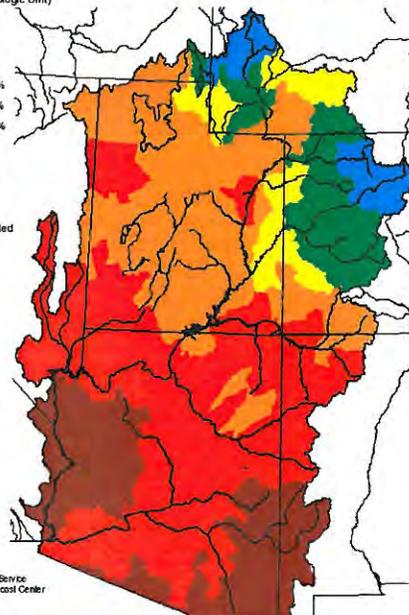
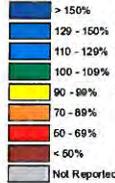


Prepared by  
NOAA, National Weather Service  
Colorado Basin River Forecast Center  
Salt Lake City, Utah  
www.cbrfc.noaa.gov

**Seasonal Precipitation, October 2013 - May 2014**

(Averaged by Hydrologic Unit)

**% Average**



Prepared by  
NOAA, National Weather Service  
Colorado Basin River Forecast Center  
Salt Lake City, Utah  
www.cbrfc.noaa.gov

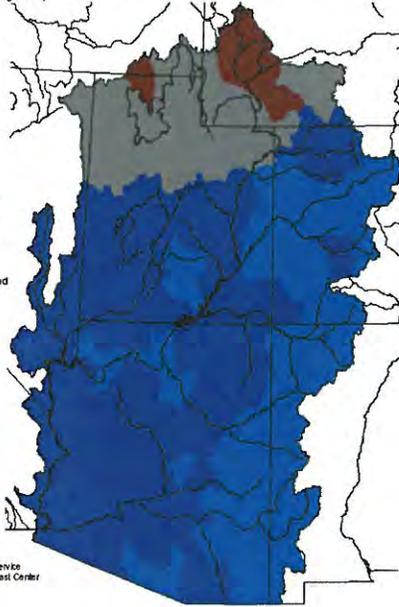
Monthly and water year precipitation graphics

Temperatures were cooler than average over most of the CBRFC for May, especially in the areas near or south of the storm track. The impact of this was more runoff being pushed from May into June for many forecast points.

### Monthly Max Temp Deviation for May 2014

(Averaged by Hydrologic Unit)

Degrees (F)

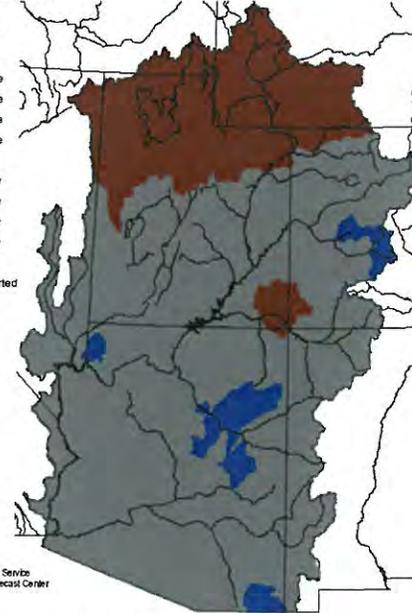


Prepared by  
NOAA, National Weather Service  
Colorado Basin River Forecast Center  
Salt Lake City, Utah  
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### Monthly Min Temp Deviation for May 2014

(Averaged by Hydrologic Unit)

Degrees (F)



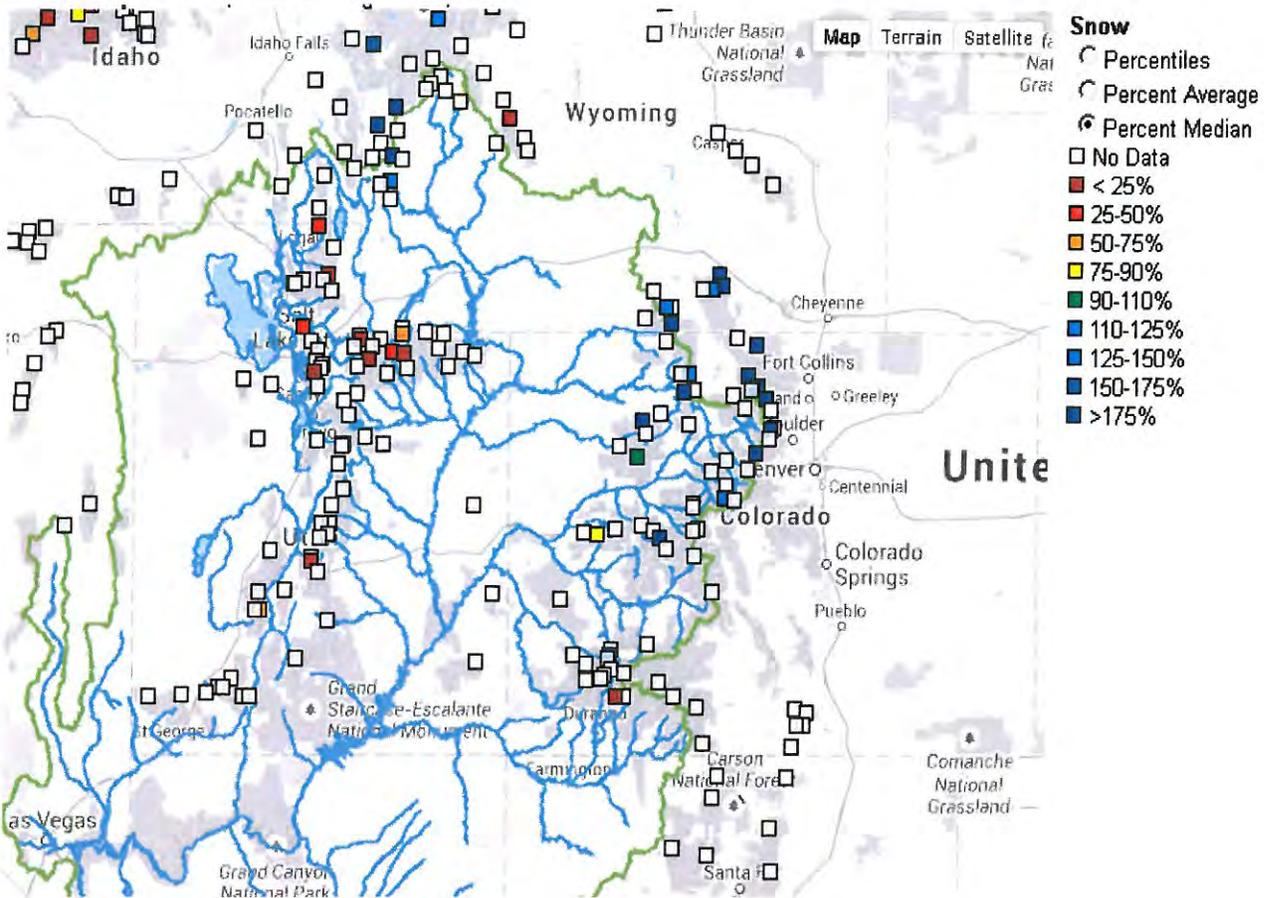
Prepared by  
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Colorado Basin River Forecast Center  
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Monthly maximum and minimum temperature departure from average.

### Snowpack:

Snow melt occurred throughout May, accelerating during warmer periods and particularly at the end of the month due to higher average temperatures and a higher sun angle. Typically many SNOTEL sites have melted out by early June and it's difficult assign a meaningful statistic, such as percent of median, to any geographical region late in the season. Observations are either few, values are low, or the historical medians for a particular date are very low. Nevertheless, the June 3rd percent of median snow map is displayed below to indicate where snow still exists at SNOTEL sites. These areas continue to be those where largest snowpack conditions existed throughout the winter and spring season including the Colorado River headwater above Kremmling, parts of the Yampa River Basin, and Green River above Flaming Gorge.

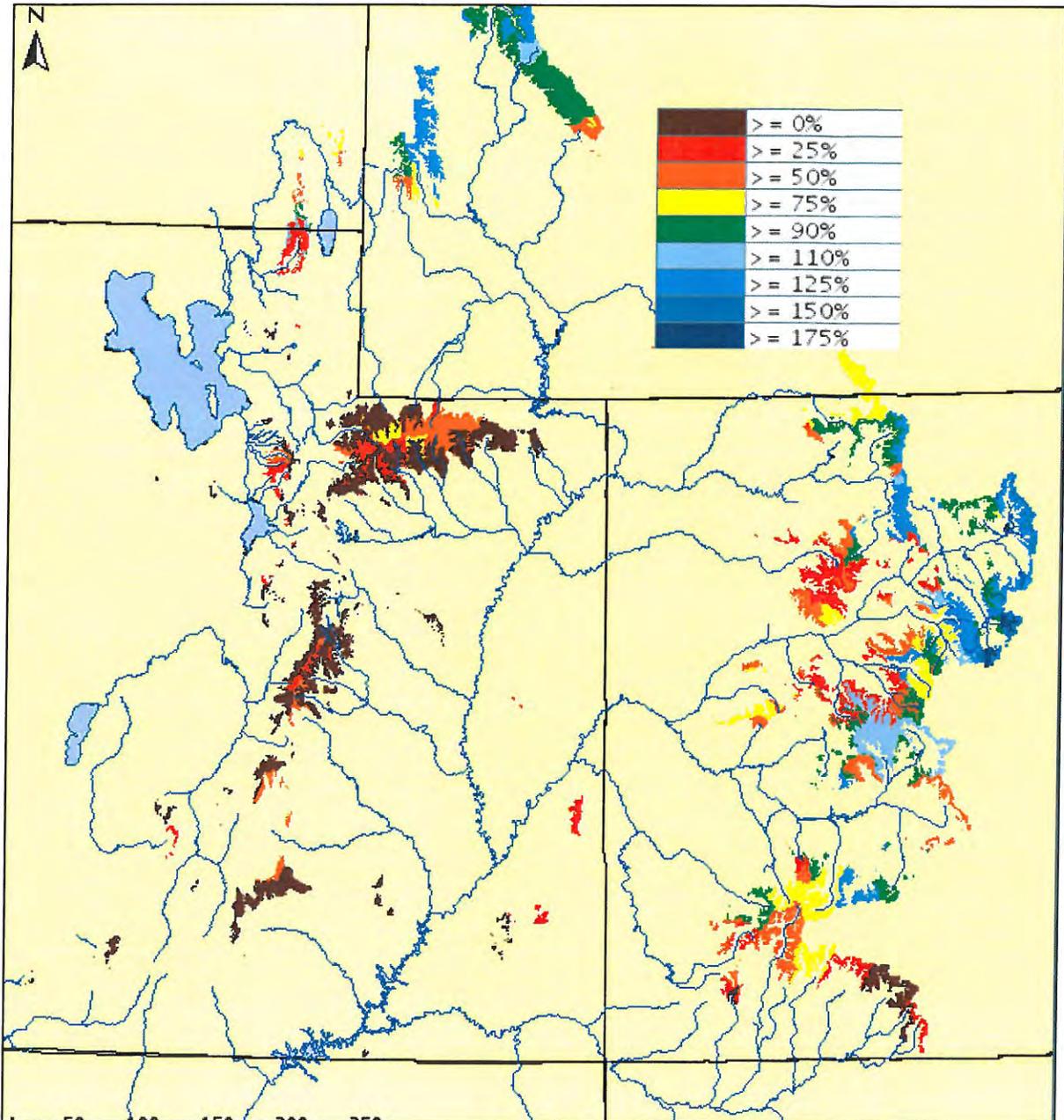
Percent median snow condition as of June 3, 2014



The image below is the modeled snow water equivalent that exists in the CBRFC hydrologic model. It shows areas where greater than 2 inches of SWE exist within the model and how they compare to the model historical average.

This image may be more meaningful in evaluating the snow conditions than the traditional SNOTEL plot above at this time of year.

Modeled snow from the CBRFC hydrologic model as of June 3 2014.

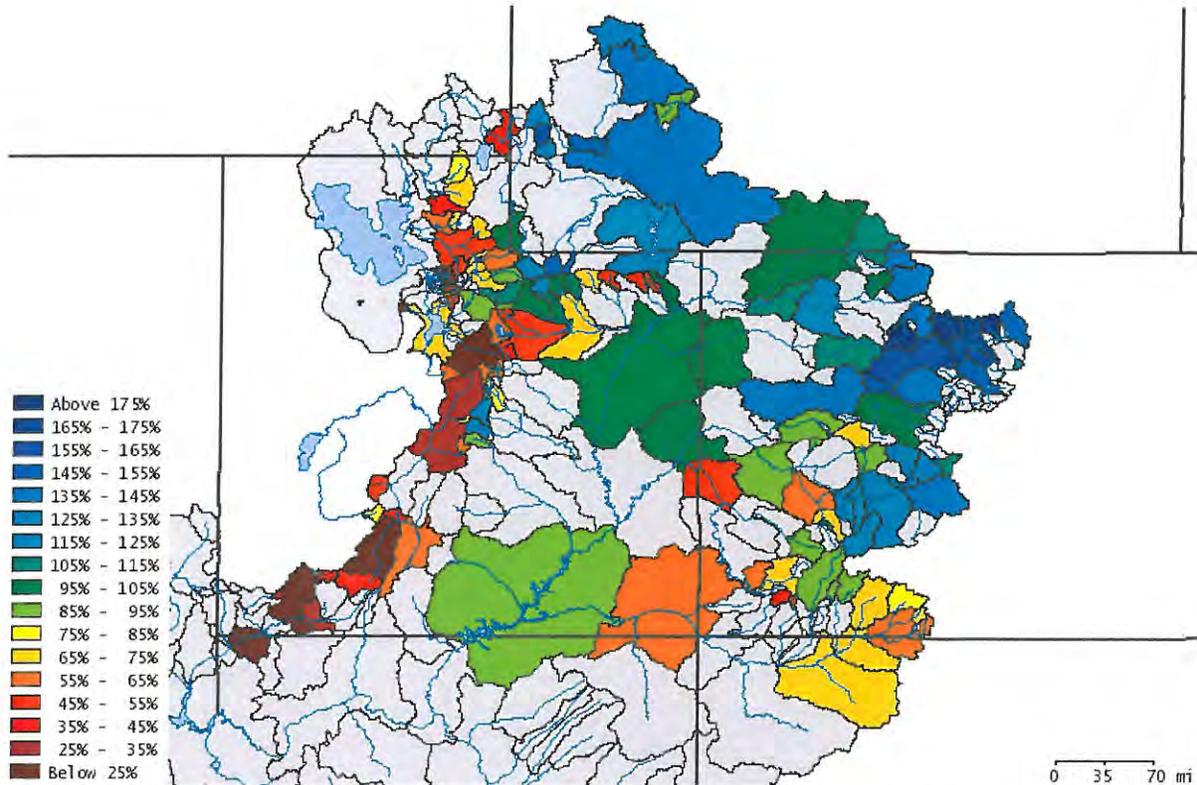


**Streamflow Volumes:**

April-May unregulated streamflow volumes are displayed as a percent of average in the map below. Much above average runoff volumes have occurred during the April-May period in the Colorado River Basin headwaters above Kremmling. Above average volumes have occurred on many streams in the Green River above Flaming Gorge, Yampa Basin, and Gunnison above Blue Mesa. Above average runoff volumes have also been observed in parts of the Bear River Basin.

Near or slightly below average runoff was observed in western parts of the Duchesne River Basin and along the Animas River and Vallecito River in the San Juan Basin. Elsewhere streamflow volumes have generally been below average with less than 25 percent of average observed in the Virgin River Basin.

Many areas experienced higher percent of average values in April compared to May as low and some mid elevation snow melted during April and cooler temperatures prevailed in May.



Observed unregulated streamflow volumes for the April-May period expressed as a percent of average. Data are provisional and subject to revision.

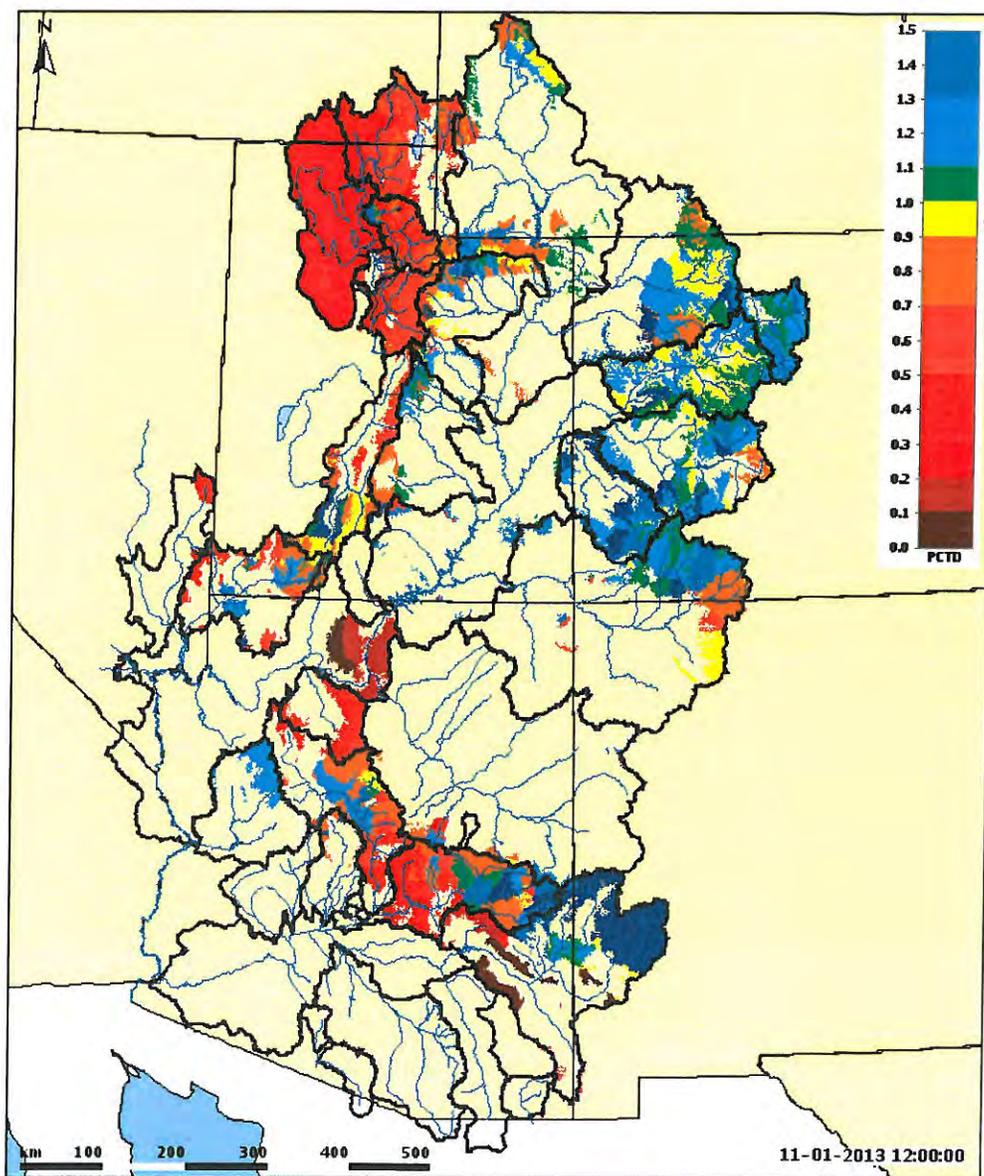
**Soil Moisture:**

Soil moisture conditions in the higher elevation headwater areas are important entering the winter, prior to snowfall, as it influences the efficiency of the snowmelt runoff the following spring. Modeled soil moisture conditions as of November 1st were above average over much of the Upper Colorado Basin, and parts of the headwaters of

the Salt and Gila Basins. Elsewhere conditions were below average.

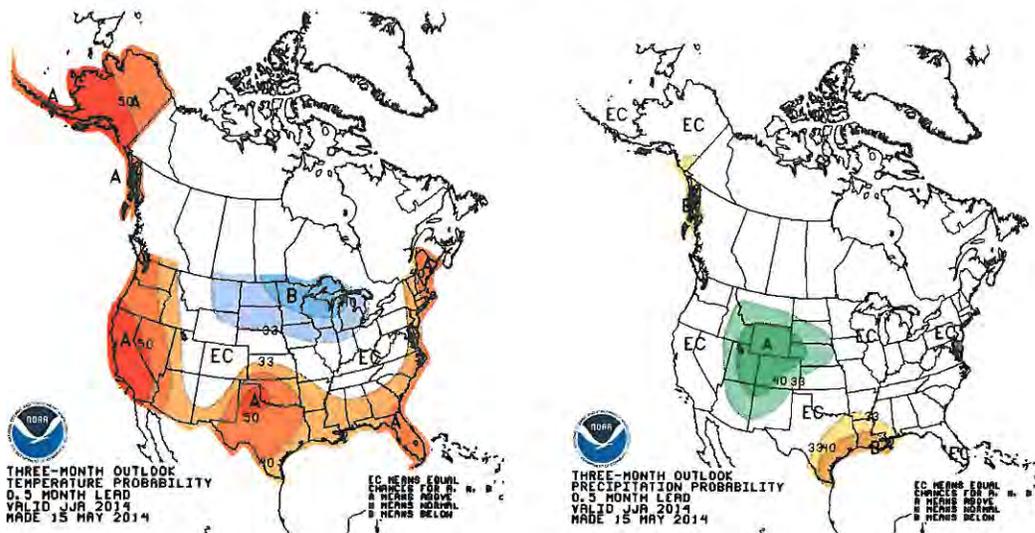
The soil moisture conditions are having an impact on forecasts, particularly in areas where the modeled soil moisture is well above average and snow conditions are near or above average. The above average soil moisture is acting to keep the forecasts at a higher level than they would be if soil moisture conditions were closer to average. The combination of above average soil moisture and above average snow conditions in the Colorado above Cameo, Gunnison above Blue Mesa, and the Yampa Basin has resulted in much above average runoff forecasts. The opposite is occurring in the Great Basin where dry soils and near to below average snowpack have combined to create low runoff volume forecasts.

In the map below areas in blue are above the historical model soil moisture average while those in the red and orange are below average



## Climate Outlook:

The El Niño Southern Oscillation (ENSO) condition is now forecast to become an El Niño event this summer and fall. El Niño can mean wetter conditions in the Lower Colorado River Basin in the winter. The latest Climate Prediction Center (CPC) seasonal outlook suggests an increased possibility of above average precipitation over much of the CBRFC in the summer, particularly the July-August period. There is a higher chance of above normal temperatures in extreme southwest Utah (Virgin River Basin) and southern Arizona. The vast majority of the CBRFC is forecast to have equal chances for above or below average temperatures this summer.



## Conclusion:

There were many minor adjustments to the April-July forecast volumes from those issued in early May. Some of this was due to April and May observed flows coming in either a little greater or less than anticipated. Above average precipitation in May impacted forecasts in the Yampa Basin River headwaters and the Colorado River Basin headwaters above Kremmling. In these areas forecasts volumes were increased. For the Colorado Basin above Kremmling many forecasts are in the top 5 of their historical record. April-May observed volumes in these areas have already been significant with several sites in the top 2 of their historical record. Forecasts were also increased slightly in the Virgin and Sevier River Basins due to above average May precipitation. However April-July volumes are still expected to be much below average in these areas.

The dry weather in the northern Great Basin of Utah (Weber, Provo, Six Creeks, and Bear River Basins) and Green River Basin above Flaming Gorge also impacted forecasts. Many April-July volumes were decreased from the May 1st forecasts, however the runoff scenarios are vastly different between these two areas. Much above average April-July volumes are still expected in the Green River Basin above Flaming Gorge, with near to below average volumes likely in the Great Basin.

Forecasts generally decreased in the Dolores River Basin as runoff in April and May did not meet expectations. In the San Juan Basin forecasts either remained unchanged or decreased slightly. The Lake Powell inflow forecast did not change from that issued on May 1st and remains at 7.55 MAF

**Ex. 5 NWS Tucson Monthly Climate Reports June/July**

2014 ranks as the 4TH DRIEST January thru July period on record, with a precipitation deficit of - 3.48".  
2014 continues to be the WARMEST on record, 3.2°F above normal.



## July 2014 climate report for Tucson Arizona



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Tucson, AZ

Weather Forecast Office



### July 2014 Climate Highlights for Tucson Arizona

- 13th warmest & 39th driest** July on record
- 7th warmest July and calendar low temperature on record-tied
- 11th July on record with all daily lows 70° or warmer
- 20th month on record with all daily lows 70° or warmer



Click to enlarge

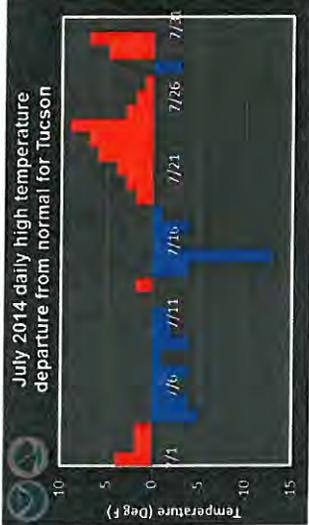
The annual Monsoon started off pretty much on time as severe thunderstorms producing heavy rain and blowing dust rolled through the area on the 3rd. Daily thunderstorm activity continued across the metro area through the 15th. Severe thunderstorms hit parts of the metro area on the 4th, 5th, 7th, & 13th while flash flooding occurred across parts of the metro area on the 5th, 7th, 13th & 15th. Rainfall amounts during the first half of the month were pretty good across the metro area with totals ranging from 1.25" to 3" with localized amounts up to 4".

The second half of the month saw two distinct breaks in the monsoonal moisture with minimal thunderstorm activity occurring across the area. Except for a few areas recording slightly over an inch of rain from the 16th to the end of the month, most of the metro area recorded less than a half an inch.

Temperature extremes for the month ranged from a high of 107° on the 24th to a low of 71° on the 15th. The average monthly temperature of 88.3° is 1.3° above normal and ranks as the **13th warmest July** on record, tied with 1900, 1947 & 2006. The monthly average low temperature of 76.6° is 2.2° above normal and ranks as the **3rd warmest on record**, tied with 2005 & 2006. Every morning low was 70° or warmer. This is the 11th July and 20th calendar month on record that this has occurred. Three high minimum daily temperature records were set or tied (listed below).

Date; Record type	New Record	old record/year
July 23; High Minimum set	86°	85° in 2006
July 30; High Minimum tied	80°	80° in 1906, 1907, 1993 & 2009
July 31; High Minimum tied	82°	82° in 1898

The 86 on July 23rd not only is tied for the 7th warmest July low temperature on record it is also the 7th warmest calendar day low temperature on record.



Click images to enlarge

As is normally the case during the summer thunderstorm season, rainfall amounts varied widely across the metro area. Using several sources like [rainlog.org](http://rainlog.org) and the [Pima County Regional Flood Control District](http://PimaCountyRegionalFloodControlDistrict) gages, ranged from one inch to slightly over 5 inches. The International airport, which is the official recording location for Tucson, recorded on 1.43" of rain. This totals ends up being ranked at the 39th driest July on record. Interesting to note that the rainfall total of 1.41" through the 15th ranked as the 25th wettest first half of the month while the 0.02" during the second half of the month ranking as the 3rd driest on record, tied with 1995.

#### July 2014 stats

Average High Temperature  
 Average Low Temperature  
 Average Temperature  
 Number of 100°+ highs  
 Number of 105°+ highs  
 Rainfall

Month	Normal	Departure
100.0°	99.7°	+ 0.3°
76.6°	74.4°	+ 2.2°
88.3°	87.0°	+ 1.3°
16	18	- 2
5	8	- 3
1.43"	2.25"	- 0.82"

#### When did daily highs/lows occur

Average high temperature time  
 Average low temperature time

Month	Average	Departure
3:48 pm	3:47 pm	1 min. later
6:08 am	5:44 am	24 min. later

## 2014

2014 continues to be the **WARMEST** on record with an average yearly temperature to date of 72.4° which is 3.2° above normal. The previous January to July warmest period on record occurred in 1989 when it was 71.5°. Rainfall is well below normal with only 2.04" being recorded at the airport. This ranks the **4TH DRIEST** January thru July period on record, behind 0.78" in 1895, 0.91" in 1947 & 1.58" in 1902. With two months left in the hydrological water year, the airport has recorded only 5.09" of rain, which ranks as the 19th driest October to July period on record.

#### 2014 stats thru July

Average High Temperature  
 Average Low Temperature  
 Average Temperature  
 Number of 100°+ highs  
 Number of 105°+ highs  
 Rainfall  
 2013-14 Water Year rainfall (Oct-Jul)

Month	Normal	Departure
86.7°	83.3°	+ 3.4°
58.1°	55.1°	+ 3.0°
72.4°	69.2°	+ 3.2°
52	41	+ 11
17	18	- 1
2.04"	5.52"	- 3.48"
5.09"	7.91"	- 2.82"

Looking ahead into August

The [Climate Prediction Center](#) forecasts slightly enhanced probabilities for **ABOVE** normal rainfall and equal chances of either below, normal or above normal temperatures.

Normal monthly high temperature	97.4°
Normal monthly low temperature	73.3°
Normal monthly temperature	85.3°
Record high temperature	112° on August 1, 1993
Record low temperature	55° on August 20, 1917
Hottest August (avg.)	90.2° in 1994
Coollest August (avg.)	80.8° in 1923
Normal rainfall	2.39"
Wettest August day	2.88" on August 1, 1935
Wettest August	7.93" in 1955
Driest August	0.08" in 1924

[Daily normals](#) | [Daily records](#)

The number of daylight hours will decrease from 13 hours 42 minutes on the 1st to 12 hours 51 minutes on the 31st, a loss of 51 minutes.

Glueck

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Comments on this new page layout/design can be sent to the [webmaster](#). Thanks.



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# NATIONAL WEATHER SERVICE

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

## June 2014 climate report for Tucson Arizona



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### June 2014 Climate Highlights for Tucson Arizona

#### 3rd Hottest June on record

15th June with no rain @ official recording site  
29 days w/triple digit highs; 2nd most for June  
Daily record highs on 2nd & 3rd

June 2014 was a hot one but Tucsonans can take comfort that it wasn't as hot as a year ago when the hottest June on record occurred. The average temperature this June, which was 89.9° and ranks as the **3rd hottest** on record, was six-tenths of a degree cooler than last June.

The month started off with record high temperatures occurring on the 2nd (108°, breaking previous record of 107° in 2013) and 3rd (107°, tying record previously set in 1988, 1990 & 1996). Triple digit high temperatures continued through mid-month with daily highs in the 101°-106° range. An upper level trough moved through the state on the 17th and combined with a little pre-monsoonal moisture, developed isolated thunderstorms across the metro area. Central Tucson and the east side of the metro area recorded measurable rain with totals generally less than a tenth of an inch, with localized spots on the east side up to two-tenths of an inch. There were even reports of small hail from the thunderstorms. Although a thunderstorm was reported at the Tucson International airport on the 17th between 12 noon and 1 PM, no rain was recorded.

The passage of the upper level trough left enough cooler air across the metro area in its wake on the 18th that the high temperature only hit 99°. This not only ended the 2014 triple digit streak at 19 days it also ended the June streak of triple digit highs at 67 days. The last sub-triple digit high during June occurred in 2012 on the 10th. The previous June triple digit streak was 36 days from June 11, 1993 to June 16, 1994.

Another triple digit streak began on the 19th and lasted through the end of the month. Overall 29 days were in the triple digits which is one day off the June record of 30 days which occurred last year. Remember that June 2013 became the first month on record to have every day be in triple digits.

Temperature extremes for the month ranged from a high of 108° on the 2nd & 4th to a low of 67° on the 6th. The monthly average high temperature of 103.8° is 3.5° above normal and ranks as the **5th hottest on record**. The monthly average low temperature of 74.1° is 4.8° above normal and ranks as the **2nd warmest on record**. In addition to the two record highs early in the month, a pair of high minimum daily temperature records were also set. The low on the 11th of 77° tied the record previously set in 1921, 1956 & 1979. The other high minimum temperature record occurred on the 14th with a low of 81°. This broke the daily record of 80° which occurred in 1959.

In a non-weather related event. An earthquake was felt across the metro area and southeast Arizona on the evening of the 28th. The [United States Geological Survey](#) (USGS) placed the epicenter of the [5.2 magnitude earthquake](#) near Duncan, Arizona.



Click to enlarge

Tucson, AZ

Weather Forecast Office





Click images to enlarge

Rainfall across the metro area, using several sources like [rainlog.org](http://rainlog.org) and the [Pima County Regional Flood Control District](http://Pima County Regional Flood Control District) gages, ranged from zero to 0.20". The highest totals were on the east side of the metro area. The International airport, which is the official recording location for Tucson, recorded not a drop of rain. This is the 15th June on record where no rain was recorded at the official recording spot in Tucson.

#### June 2014 stats

Average High Temperature + 3.5°  
 Average Low Temperature + 4.8°  
 Average Temperature + 4.1°  
 Number of 100°+ highs + 10  
 Number of 105°+ highs + 2  
 Rainfall - 0.20"

**Month** 103.8°  
**Normal** 100.3°  
**Departure** + 3.5°  
 74.1°  
 69.3°  
 + 4.8°  
 88.9°  
 84.8°  
 + 4.1°  
 29  
 19  
 + 10  
 11  
 9  
 + 2  
 0.00"  
 0.20"  
 - 0.20"

#### When did daily highs/lows occur

Average high temperature time 3:55 pm  
 Average low temperature time 5:24 am

**Month** 3:55 pm  
**Average** 3:55 pm  
**Departure** no change  
 5:24 am  
 5:34 am  
 10 min. early

## 2014

The first half of 2014 goes into the record books as the **WARMEST** on record with an average yearly temperature to date of 69.7° which is 3.6° above normal. The previously warmest first half of the year was 68.7° in 1986. Rainfall is well below normal with only 0.61" being recorded at the airport. This ranks the **3RD DRIEST** January thru June period on record, behind 0.32" in 1959 and 0.58" in 2011. With three months left in the hydrological water year, the airport has recorded only 3.66" of rain, which ranks as the 33rd driest October to June period on record, tied with 2008-09 water year.

#### 2014 stats

Average High Temperature 84.4°  
 Average Low Temperature 55.0°  
 Average Temperature 69.7°  
 Number of 100°+ highs 36  
 Number of 105°+ highs 12  
 Rainfall 0.61"  
 2013-14 Water Year rainfall (Oct-Jun) 3.66"

**Month** 84.4°  
**Normal** 80.5°  
**Departure** + 3.9°  
 55.0°  
 51.8°  
 + 3.2°  
 69.7°  
 66.1°  
 + 3.6°  
 36  
 23  
 + 7  
 12  
 10  
 + 2  
 0.61"  
 3.27"  
 - 2.66"  
 3.66"  
 5.66"  
 - 2.00"

Looking ahead into July

The [Climate Prediction Center](#) forecasts slightly enhanced probabilities for **ABOVE** normal precipitation and equal chances of either below, normal or above normal temperatures.

Normal monthly high temperature 99.7°  
Normal monthly low temperature 74.4°  
Normal monthly temperature 87.0°  
Record high temperature 114° on July 25, 1995  
Record low temperature 49° on July 3, 1911  
Warmest July (avg.) 90.6° in 2005  
Coldest July (avg.) 81.4° in 1912  
Normal rainfall 2.25"  
Wettest July day 3.93" on July 29, 1958  
Wettest July 6.24" in 1921  
Driest July 0.04" in 1995

[Daily normals](#) | [Daily records](#)

The number of daylight hours will decrease from 14 hours 13 minutes on the 1st to 13 hours 44 minutes on the 31st, a loss of 29 minutes.

Glueck

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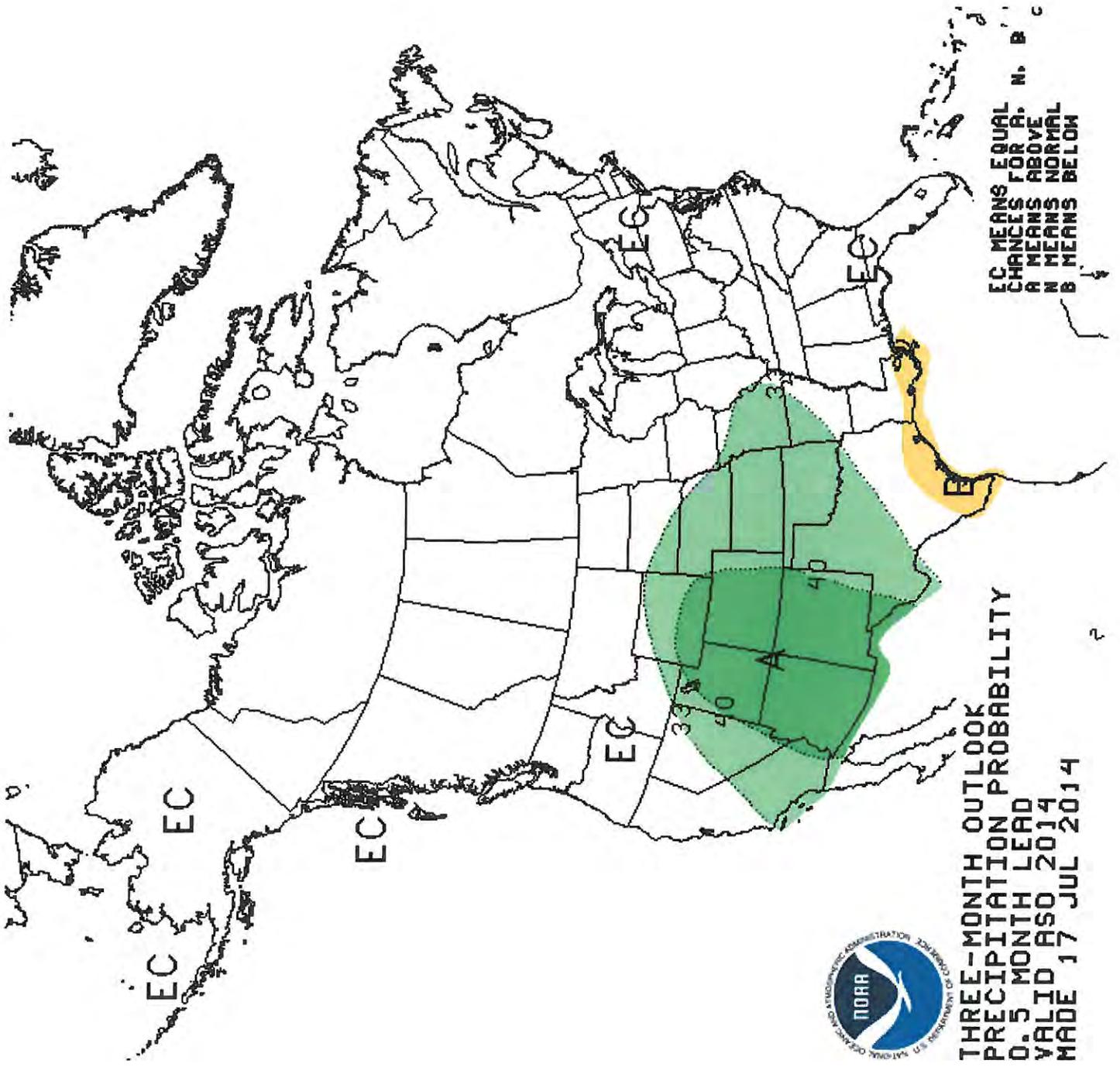
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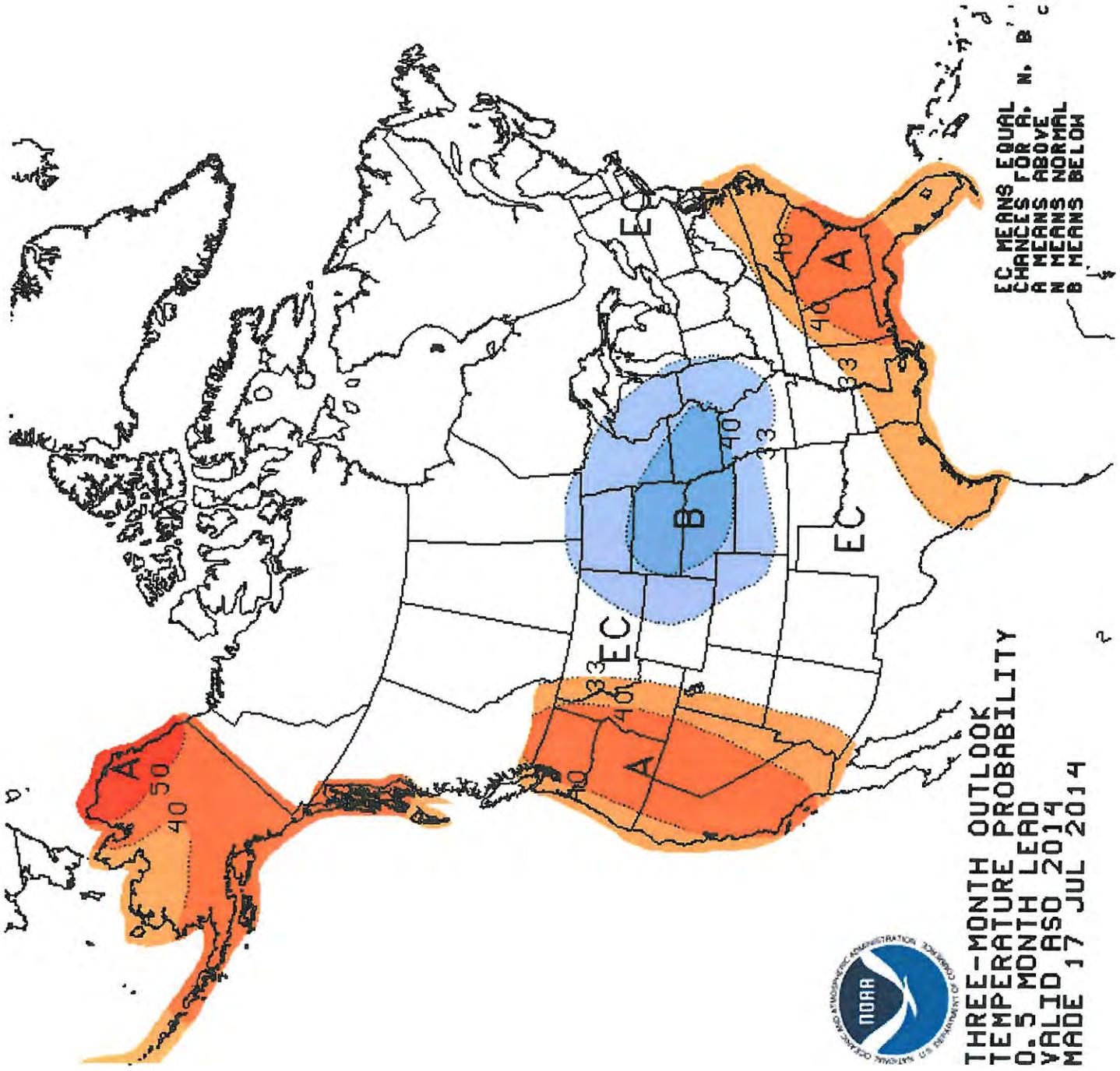
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**THREE-MONTH OUTLOOK  
 PRECIPITATION PROBABILITY  
 0.5 MONTH LEAD  
 VALID ASO 2014  
 MADE 17 JUL 2014**



EC MEANS EQUAL  
 CHANCES FOR A, N, B, C  
 A MEANS ABOVE  
 N MEANS NORMAL  
 B MEANS BELOW

THREE-MONTH OUTLOOK  
 TEMPERATURE PROBABILITY  
 0.5 MONTH LEAD  
 VALID ASO 2014  
 MADE 17 JUL 2014

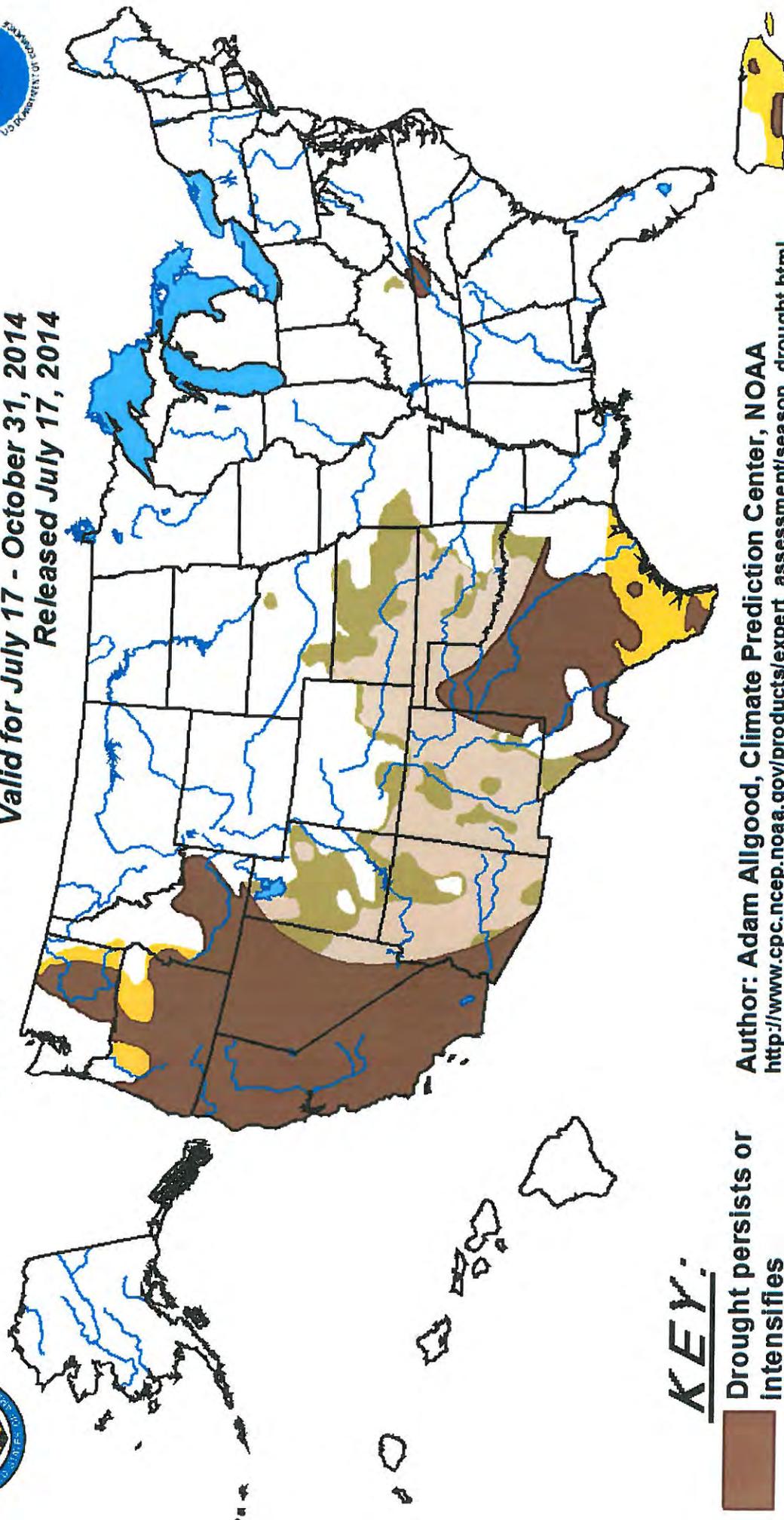




# U.S. Seasonal Drought Outlook

## Drought Tendency During the Valid Period

Valid for July 17 - October 31, 2014  
Released July 17, 2014



### KEY:

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

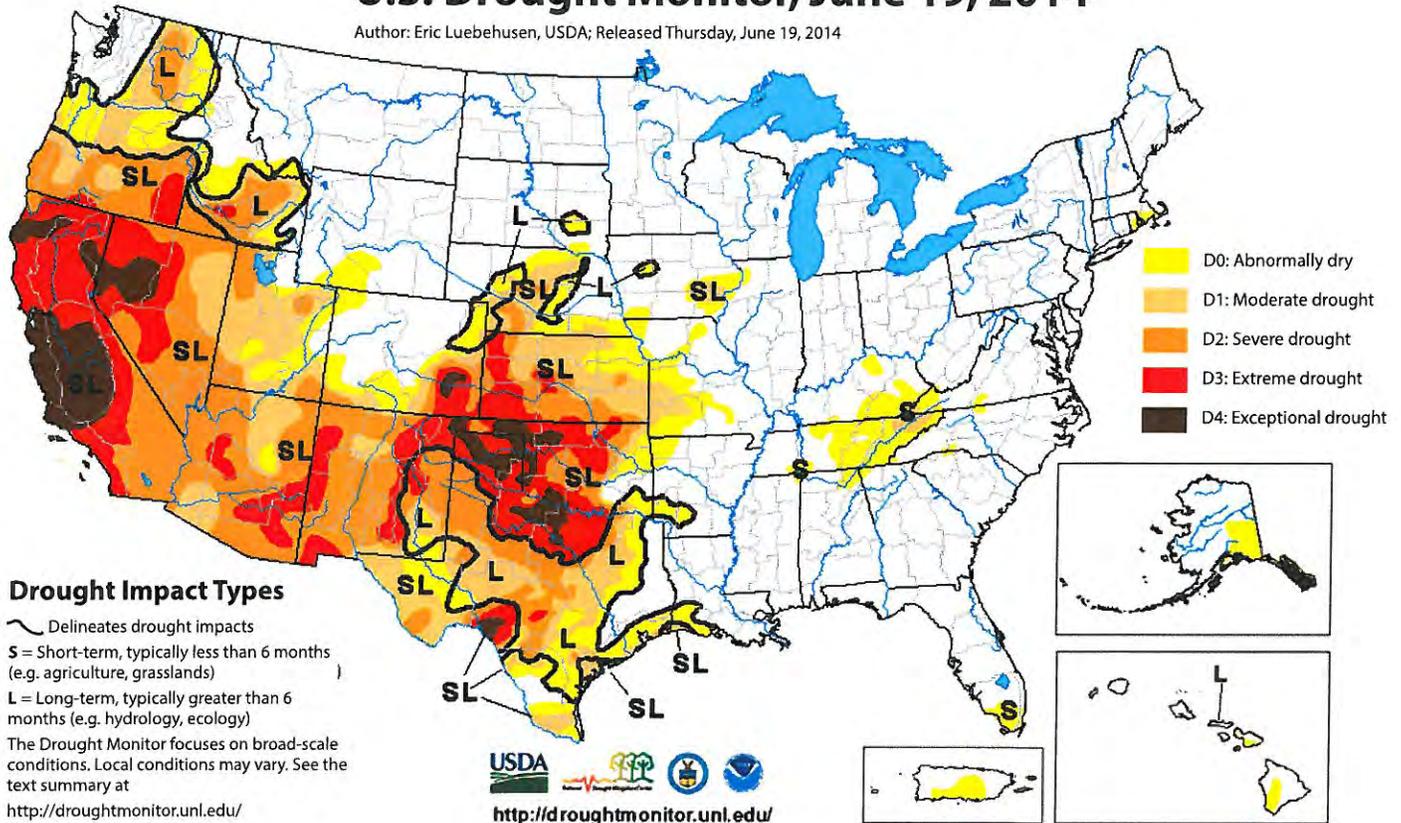
Author: Adam Allgood, Climate Prediction Center, NOAA  
[http://www.cpc.ncep.noaa.gov/products/expert\\_assessment/season\\_drought.html](http://www.cpc.ncep.noaa.gov/products/expert_assessment/season_drought.html)

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 tan area 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)

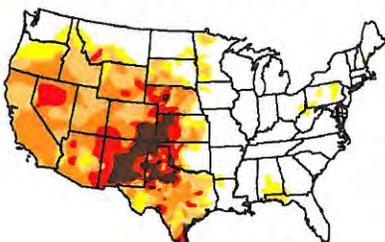
## U.S. Drought Monitor, June 19, 2014

Author: Eric Luebehusen, USDA; Released Thursday, June 19, 2014



**This week's summary:** Currently about 35% of the contiguous U.S. is in moderate (D1) to exceptional (D4) drought, in contrast to this time last year, when almost 45% of the contiguous U.S. was classified as D1-D4. Drought conditions prevail in the far West (California, Nevada, Oregon, Utah, New Mexico and Arizona) and the Plains states of Texas, Oklahoma and Kansas. D4, the most extreme category, covers a bit more than 3% of the contiguous U.S., compared to this time last year when about 4% of the country was experiencing exceptional drought (D4). Drought conditions east of the Mississippi are relatively minimal.

### Looking back: U.S. Drought Monitor, June 18, 2013

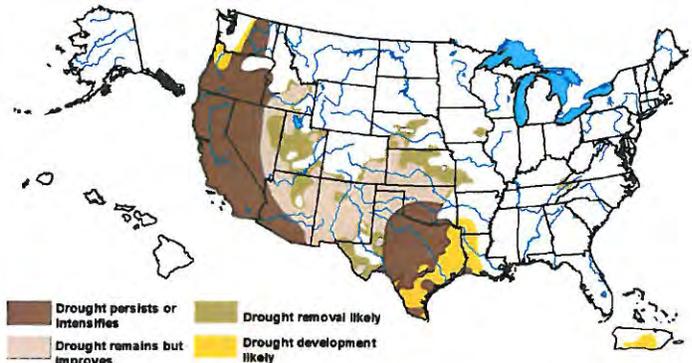


At this time last year, drought blanketed states west of the Mississippi River, across the Rockies to the coast, except for the northernmost states of Washington, Montana and North Dakota. The most intensely affected

areas were in the Great Plains, particularly Nebraska, Colorado, Kansas, Oklahoma and Texas, as well as northern Nevada and almost all of New Mexico. There were only small patches of drought east of the Mississippi. <http://droughtmonitor.unl.edu/MapsAndData/MapArchive.aspx>

### Drought outlook through September, 2014

Released June 19, 2014



Author: David Miskus, Climate Prediction Center, NOAA  
[http://www.cpc.ncep.noaa.gov/products/expert\\_assessment/sdo\\_summary.html](http://www.cpc.ncep.noaa.gov/products/expert_assessment/sdo_summary.html)

The outlook for the rest of summer and early fall shows the possibility of improvement in the interior West and Great Plains. Drought is likely to persist or intensify in already hard-hit areas of Oregon, California, western Nevada and southern Arizona, as well as central Texas and southern Oklahoma, spreading to more of Texas in the east and south, western Louisiana and northwest Oregon. States east of the Mississippi, in the northern Midwest and northern Rockies are likely to remain drought-free.

## Agriculture

- D1: Moderate drought
- D2 Severe drought
- D3: Extreme drought
- D4: Exceptional drought

Kansas, Texas, Oklahoma and California are all seeing significant portions of their agricultural crops and livestock affected by drought as of early June. The chart below compares proportions of hay and winter wheat crops, and cattle affected by varying degrees of drought.

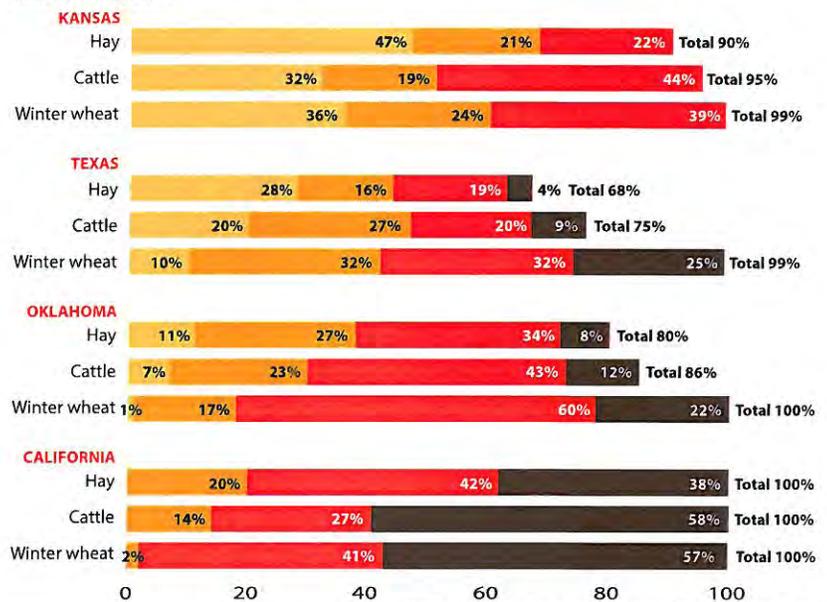
Other crops and locations are affected as well. In Kansas, 84% of the soybean crop and 88% of corn are

affected by drought. In Texas, drought is impacting 87% of the corn.

Drought in Idaho touches 59% of its hay and 71% of its cattle. In Oregon, 73% of the hay and 54% of the cattle are affected. 65% of Utah's hay is in drought. 97% of the cattle in New Mexico are in drought. And drought in Washington State touches 52% of the hay and 62% of the winter wheat.

### Drought-affected crops in selected states

As of June 10, 2014

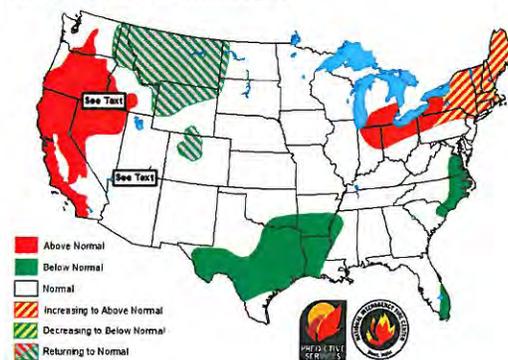


<http://usda.gov/oce/weather/Drought/AgInDrought.pdf>

## Wildfire

### Potential for significant wildfires

For August and September 2014



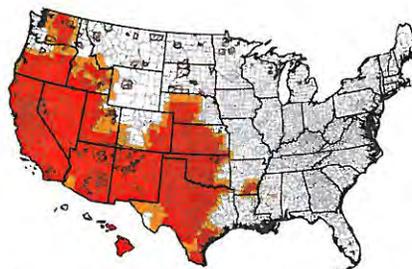
Chances for end-of-summer fire danger will be above normal in much of California, Nevada, Oregon, northern Indiana and Ohio, northwestern Pennsylvania, southern Michigan and far western New York State. Conditions will increase in risk throughout New England, which is likely to develop above-normal chances for wildfires. Chances for wildfire will decrease throughout Montana and neighboring states. Central Texas, Arkansas and Louisiana, as well as the midAtlantic coast and the tip of Florida, will have less-than-normal wildfire potential.

## Disaster Declarations

### Counties undergoing drought disasters, designated by the USDA in 2014

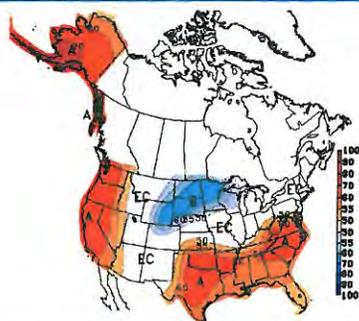
As of June 11

Any county declared a primary (red) or contiguous (orange) disaster county makes producers in that county eligible for certain emergency aid.



[http://www.usda.gov/wps/portal/usda/usdahome?navid=DISASTER\\_ASSISTANCE](http://www.usda.gov/wps/portal/usda/usdahome?navid=DISASTER_ASSISTANCE)

## Chances for normal temps, precipitation



### Temperature outlook

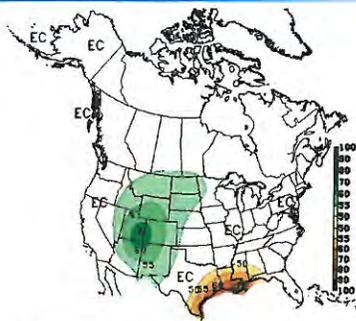
July/August/September 2014

**White** areas show equal chances for above-normal, normal or below-normal temps

**Orange** areas show higher chances for above-normal temperatures

**Blue** areas show higher chances for below-normal temperatures

[http://www.cpc.ncep.noaa.gov/products/predictions/long\\_range/seasonal.php?lead=1](http://www.cpc.ncep.noaa.gov/products/predictions/long_range/seasonal.php?lead=1)



### Precipitation outlook

July/August/September 2014

**White** areas show equal chances for above-normal, normal or below-normal precip

**Green** areas show higher chances for above-normal precipitation

**Brown** areas show higher chances for below-normal precipitation

## Outlook Partners

DOI/Bureau of Reclamation  
[www.usbr.gov](http://www.usbr.gov)  
 DOI/United States Geological Survey  
[waterwatch.usgs.gov](http://waterwatch.usgs.gov)  
 National Interagency Fire Center  
[www.nifc.gov](http://www.nifc.gov)  
 National Drought Mitigation Center  
[drought.unl.edu](http://drought.unl.edu)  
 NOAA/NWS Weather Prediction Center  
[www.hpc.ncep.noaa.gov](http://www.hpc.ncep.noaa.gov)  
 NOAA/NWS Climate Prediction Center  
[www.cpc.ncep.noaa.gov](http://www.cpc.ncep.noaa.gov)

NOAA/National Climatic Data Center  
<http://www.ncdc.noaa.gov>  
 NOAA/National Integrated Drought Information System  
[www.drought.gov](http://www.drought.gov)  
 USDA/Farm Service Agency  
[www.fsa.usda.gov](http://www.fsa.usda.gov)  
 USDA/Office of the Chief Economist  
[www.usda.gov/oce](http://www.usda.gov/oce)  
 USDA/NRCS National Water and Climate Center  
[www.wcc.nrcs.usda.gov](http://www.wcc.nrcs.usda.gov)  
 USDA/US Forest Service  
[www.fs.fed.us](http://www.fs.fed.us)

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 Roger Pulwarty ([roger.pulwarty@noaa.gov](mailto:roger.pulwarty@noaa.gov))



National Drought Outlook | June 2014  
[www.drought.gov/drought/content/resources/reports](http://www.drought.gov/drought/content/resources/reports)

**Report on Central Arizona Project Water Supply  
Regional Wastewater Reclamation Department  
August 2014**

**Background**

The Central Arizona Project is the largest single renewable water resource providing a Colorado River water supply to Maricopa, Pinal and Pima counties; the tri-county conservation district, known as the Central Arizona Water Conservation District (CAWCD), operates and manages the 336-mile canal, pipeline and pumping system transporting approximately 1.5 million acre feet (maf) a year from Lake Havasu to a point 15 miles south of Tucson. CAWCD contracts with the federal government for delivery of water and repayment of infrastructure costs.

Water supplied by CAP is derived from the Colorado River Basin (243,000 square miles in area) and its many tributaries originating in Wyoming, Utah, Colorado, and to a lesser extent, New Mexico, Arizona and Nevada. Lake Mead serves as the storage reservoir for lower Colorado River water users, complemented by Lake Powell, which is operated in tandem to maintain lake levels and flows. A very complex Law of the River dictates apportionment, seniority of rights and other administrative and operational requirements. Lower Basin States (Arizona, California, Nevada) and Upper Basin States (Colorado, New Mexico, Utah, Wyoming) each receive 7.5 million acre feet annually. From this allotment, Arizona is apportioned 2.8 million acre feet from the Colorado River (~40% of the state's water supply); 1.5 maf is diverted into the CAP canal. The attached document, *CAP Subcontract Status Report, October 1, 2013*, details CAP entitlements to municipal, industrial and agricultural users including those within Pima County.

**Declared Shortage**

CAP supply is dependent upon precipitation and climate conditions in the Colorado River Basin and legally established rights and demands of the basin states. Arizona, having junior rights, will have to accept a curtailed share should a shortage on the Colorado River be declared. Drought, across the Basin, and Lower Division demand, combined with a structural operating deficit, have taxed storage at Lake Mead- over 1 million acre-feet leaves the system without replenishment, dropping Mead's elevation 12' each year. A Colorado River shortage is defined by an elevation of Lake Mead below 1,075 feet (amsl).

Contributing to the Law of the River, a 2007 Shortage Sharing Agreement (Guidelines) anticipates reduced apportionment to the Lower Division due to a declining Lake Mead. Arizona, Nevada and Mexico share differing levels of curtailment while California does not experience any shortage, in recognition of its senior right.

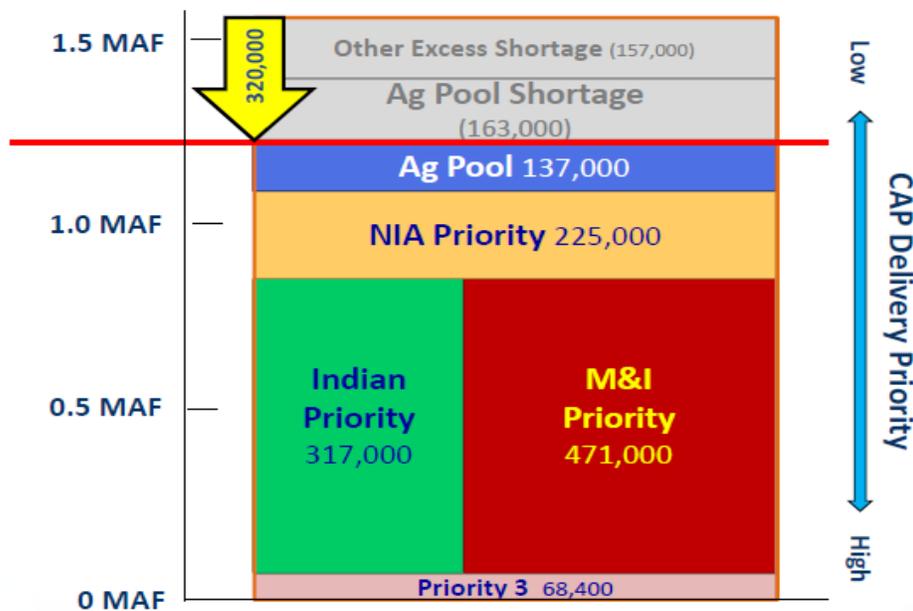
<b>Lake Mead Elevation</b>	<b>Arizona Reduction</b>	<b>Nevada Reduction</b>	<b>Mexico Reduction</b>
<b>1075'</b>	320,000 AF	13,000 AF	50,000 AF
<b>1050'</b>	400,000 AF	17,000 AF	70,000 AF
<b>1025'</b>	480,000 AF	20,000 AF	125,000 AF

Water rights are assigned a priority (or seniority) and classified into a tier of shortage declaration based upon Lake Mead’s elevation. A first-tier shortage declaration in 2016 or 2017 would result in the CAP supply being reduced by 320,000 acre-feet, which would eliminate deliveries to the Arizona Water Banking Authority and reduce deliveries to central Arizona agriculture. It would not affect deliveries to CAP cities. Municipal supplies hold a higher priority within the CAP and are not likely to be affected by shortage for another 10 to 15 years.

Second tier curtailment, triggered at 1050 feet, expands agricultural cuts. CAWCD stresses that the maximum reduction to CAP under the 2007 Guidelines is 480,000 acre-feet at Tier 3, leaving 1 million acre-feet or more to deliver each year- enough to satisfy all CAP municipal demands. Currently, all municipal and high priority Indian contracts total approximately 800,000 acre-feet.<sup>i</sup>

The US Secretary of Interior makes an annual water supply determination for the Lower Basin. The probability of a shortage declaration has been looming with changing odds. Winter precipitation and snowpack in the Basin was initially considered above average however above normal temperatures arrived earlier and decreased the volume of inflow to Lake Mead. Reclamation currently projects a 36% probability of shortage in 2016 and 58% chance for 2017.

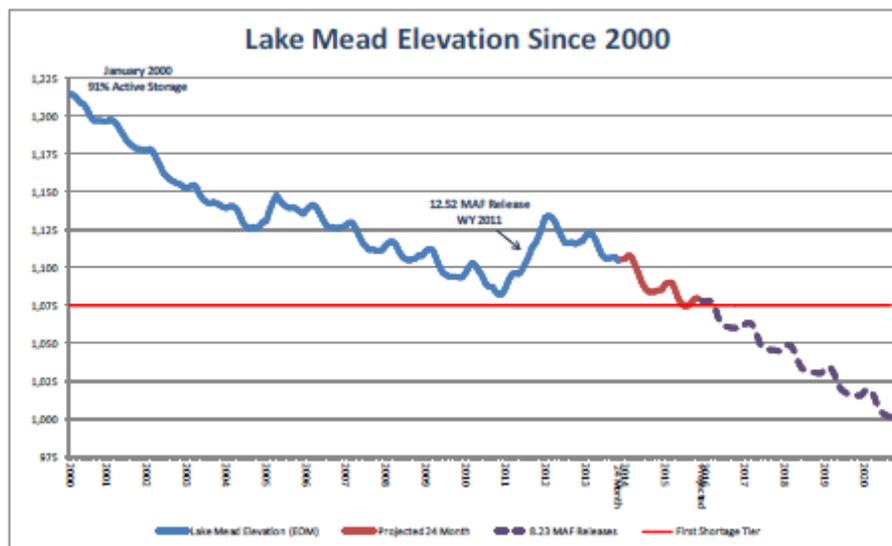
## 2017 Level 1 Shortage



CAP officials recently introduced the concept of a “structural deficit” that is inherent to Lake Mead operation. CAP posits that the delivery reductions in the Guidelines, described above, will be insufficient to prevent the continued decline of Lake Mead to critical elevations- below 1,000’ elevation within the next five to eight years, should no corrective action be taken. An Executive Summary from CAP defines

the problem as “the Lower Basin us(ing) 1.2 million acre feet more each year than it receives from Lake Powell and from side inflows”. It is argued that the current framework transfers burdens beyond junior priority to CAP such as system losses and federal treaty obligations that should be borne by all Basin States.

CAP identifies a number of components of the structural deficit. Inflow to Lake Mead is primarily controlled by release from Lake Powell- 8.23 million acre-feet annually though the most recent release was reduced to 7.48 million acre-feet. CAP contends the 8.23 million acre-foot release is a “minimum objective release” described in the 1970 Long Range Operating Criteria, not a volume sufficient to maintain elevation. Additionally, evaporative losses are not deducted proportionally from the Lower Basin states but primarily absorbed by CAP as is system loss from an inoperable Yuma Desalting Plant and other water ordered but not taken- essentially unaccounted water that reduces storage volume.



**Bureau Study and Next Steps**

The Bureau of Reclamation’s *Colorado River Basin Water Supply and Demand Study* recognizes multiple years in which use will be greater than supply, made possible by a lack of fully developed rights in the Upper Basin and the River system’s ability to store nearly four years of flow. As conditions change and storage is depleted, the *Study* forecasts a long term projected Basin imbalance of 3.2 million acre-feet annually by 2060 – which can be addressed by targeted investment in water conservation, reuse and augmentation projects though many are costly and require significant and immediate planning. Arizona’s Department of Water Resources (ADWR) similarly concludes augmentation will be required in its *Arizona’s Next Century: A Strategic Vision* report.

The options identified in the *Study* are being investigated by multi-stakeholder workgroups while both State-led and Reclamation-led teams pursue relevant categories of action. The three workgroups, M&I Conservation/Reuse Workgroup, Agricultural Conservation/Transfers Workgroup and Healthy Flows Workgroup are quantifying current baseline water conservation and expected additional water demand

reduction possible by 2060 in order to “advance the critical investigations developed in the Basin Study related to water conservation, reuse, and environmental and recreational flows.”

Reclamation, CAP and water providers from Colorado, Nevada and California are partnering in an \$11 million pilot fund for water conservation efforts. Agricultural, municipal and industrial water demand reduction projects will be funded and all conserved water will stay in the River system to boost reservoir level. Other efforts include a shared weather modification program and agricultural fallowing.

In 2013, concerned about the ongoing drought and the continuing decline of water levels in Lake Mead and Lake Powell, the Department of the Interior and the Basin States set out to develop a drought response and sustainability plan for the Colorado River basin. The Upper Basin has proposed to move water from reservoirs higher in the system down to Lake Powell to help protect the minimum power pool at Glen Canyon Dam. The Lower Basin has proposed to retain an additional 1.5 to 3 million acre-feet in Lake Mead over the next five years to reduce the risk of that reservoir dropping below the critical elevation of 1000 feet above sea level, at which point Southern Nevada may be unable to withdraw water.

CAP has emphasized that the plan must also begin to address the structural deficit that exists as a result of Lower Basin uses exceeding supplies by about 1.2 million acre-feet in most years. It is the structural deficit, as much as the ongoing drought, which is responsible for the significant decline in Lake Mead since 2000. That is driving the Lower Basin ever closer to shortage. Reclamation currently projects a 36% probability of shortage in 2016 and 58% chance for 2017.

### **Summary**

Summarizing the condition of the Colorado River water supply; the Basin is affected by drought which reduces snowpack vital for inflow into Lake Mead while demand (and system loss) currently exceeds supply in the Lower Basin leading to a projected Mead elevation below 1075 feet in May 2015. The probability of a Tier One shortage declaration is 35% in 2016 and 58% in 2017. Municipal supply is excluded from tiered reductions to CAP but this supply will face challenges should Lake Mead continue to decline despite reductions. At an elevation below 1,000 feet, less than 4.5 million acre-feet will remain in storage, only enough to satisfy California’s senior share.

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<sup>i</sup> Arizona Colorado River water has a unique priority system. Present Perfected Rights, as described in the Supreme Court Decree in Arizona v. California are the most senior or first priority rights. Federal Reservations and Perfected Rights established before September 30, 1968 are second priority. Third priority water rights are held by water users that executed contracts with the United States on or before September 30, 1968. Second and third priority rights are coequal. Fourth priority rights are held by water users with contracts, Secretarial Reservations or other rights established with the United States after September 30, 1968. The CAP water supply is primarily fourth priority. Fifth priority water users have contracts for any unused Arizona entitlement water, while sixth priority water users have contracts for any surplus apportionment of water.

# CAP SUBCONTRACTING STATUS REPORT

October 1, 2013

CAP Non-Indian

## Municipal and Industrial Subcontracts

<u>NAME</u>	<u>DATE</u> (date amended subcontracts executed by USBR)	<u>ENTITLEMENT</u> (acre-feet/year)
Arizona State Land Dept. Contract No. 07-XX-30-W0503	July 13, 2007	32,076 <sup>1/</sup>
Arizona Water Co. (Superstition System-formerly Apache Junction) Contract No. 07-XX-30-W0455	March 29, 2007	6,285 <sup>2/</sup>
Arizona Water Co. (Casa Grande) Contract No. 07-XX-30-W0456	March 29, 2007	8,884
Arizona Water Co. (Coolidge System) Contract No. 07-XX-30-W0457	March 29, 2007	2,000
Arizona Water Co. (White Tank System) Contract No. 07-XX-30-W0458	March 29, 2007	968
ASARCO Incorporated (Ray Mine) Contract No. 07-XX-30-W0508	August 7, 2007	21,000 <sup>3/</sup>
Avondale Contract No. 07-XX-30-W0511	Oct. 3, 2007	5,416 <sup>4/</sup>
AVRA Water Co-op, Inc. Contract No. 07-XX-30-W0459	March 29, 2007	808 <sup>5/</sup>
Buckeye Contract No. 07-XX-30-W0510	Aug. 17, 2007	25 <sup>6/</sup>
Carefree Water Co. Contract No. 07-XX-30-W0461	March 29, 2007	1,300 <sup>7/</sup>
Cave Creek, Town of Contract No. 08-XX-30-W0537	Dec. 29, 2008	2,606 <sup>8/</sup>
Central Arizona Water Conservation District (for Central Arizona Groundwater Replenishment District) Contract No. 14-06-W-245, Amendment No. 1, Supplement No. 1	Aug. 14, 2007	7,996 <sup>9/</sup>

<b><u>NAME</u></b>	<b><u>DATE</u> (date amended subcontracts executed by USBR)</b>	<b><u>ENTITLEMENT</u> (acre-feet/year)</b>
Chandler Contract No. 07-XX-30-W0482	May 25, 2007	8,654 <sup>10/</sup>
Chandler Heights Citrus I.D. Contract No. 07-XX-30-W0492	May 25, 2007	315
Chaparral City Water Co. Contract No. 07-XX-30-W0460	March 29, 2007	8,909 <sup>11/</sup>
Circle City Water Co. Contract No. 07-XX-30-W0463	March 29, 2007	3,932 <sup>12/</sup>
Community Water Company Of Green Valley Contract No. 07-XX-30-W0489	May 25, 2007	2,858 <sup>13/</sup>
El Mirage, City of Contract No. 07-XX-30-W0504	July 13, 2007	508 <sup>14/</sup>
Eloy Contract No. 07-XX-30-W0464	March 29, 2007	2,171
EPCOR, INC. (Agua Fria) (formerly Arizona-American Water Co.) Contract No. 07-XX-30-W0485	May 5, 2007	11,093 <sup>15/</sup>
EPCOR, INC. (Paradise Valley) (formerly Arizona-American Water Co.) Contract No. 07-XX-30-W0486	May 25, 2007	3,231 <sup>16/</sup>
EPCOR, INC. (Sun City) (formerly Arizona-American Water Co.) Contract No. 07-XX-30-W0488	May 25, 2007	4,189 <sup>17/</sup>
EPCOR, Inc. (Sun City West) (formerly Arizona-American Water Co.) Contract No. 07-XX-30-W0487	May 25, 2007	2,372 <sup>18/</sup>
Florence Contract No. 07-XX-30-W0481	May 25, 2007	2,048 <sup>19/</sup>
Flowing Wells Irrigation District Contract No. 07-XX-30-W0465	March 29, 2007	2,873 <sup>20/</sup>

<u>NAME</u>	<u>DATE</u> (date amended subcontracts executed by USBR)	<u>ENTITLEMENT</u> (acre-feet/year)
Freeport--McMoran (formerly Phelps Dodge Miami, Inc.) Contract No. 07-XX-30-W0514	Oct. 17, 2007	2,906 <sup>21/</sup>
Gilbert Contract No. 07-XX-30-W0497	May 25, 2007	7,235
Glendale, City of Contract No. 07-XX-30-W0493	May 25, 2007	17,236 <sup>22/</sup>
Goodyear Contract No. 07-XX-30-W0498	May 25, 2007	10,742 <sup>23/</sup>
Green Valley Domestic Water Improvement Dist. Contract No. 07-XX-30-W0466	March 29, 2007	1,900 <sup>24/</sup>
H2O Water Co. Contract No. 07-XX-30-W0467	March 29, 2007	147 <sup>25/</sup>
Marana, Town of Contract No. 07-XX-30-W0470	March 29, 2007	1,528 <sup>26/</sup>
Maricopa County Parks & Rec. Contract No. 07-XX-30-W0500	May 25, 2007	665
Mesa, City of Contract No. 07-XX-30-W0501	June 27, 2007	43,503 <sup>27/</sup>
Metropolitan Domestic Water Improvement District Contract No. 07-XX-30-W0468	March 29, 2007	13,460 <sup>28/</sup>
Oro Valley, Town of Contract No. 07-XX-30-W0495	May 25, 2007	10,305 <sup>29/</sup>
Peoria, City of Peoria Contract No. 07-XX-30-W0480	May 25, 2007	25,236 <sup>30/</sup>
Phoenix, City of Contract No. 07-XX-30-W0507	July 30, 2007	122,204 <sup>31/</sup>
Pine Water Company Contract No. 07-XX-30-W0469	March 29, 2007	161 <sup>32/</sup>

<u>NAME</u>	<u>DATE</u> (date amended subcontracts executed by USBR)	<u>ENTITLEMENT</u> (acre-feet/year)
Queen Creek, Town of (formerly Queen Creek Water Co.) Contract No. 09-XX-30-W0542	Nov. 2, 2009	348 <sup>33/</sup>
Rio Verde Utilities, Inc. Contract No. 07-XX-30-W0512	Oct. 3, 2007	812
San Tan Irrigation District Contract No. 07-XX-30-W0499	May 25, 2007	236
Scottsdale, City of Contract No. 07-XX-30-W0490	May 25, 2007	52,810 <sup>34/</sup>
Spanish Trail Water Co. Contract No. 07-XX-30-W0471	March 29, 2007	3,037 <sup>35/</sup>
Surprise, City of Contract No. 07-XX-30-W0505	July 13, 2007	10,249 <sup>36/</sup>
Tempe, City of Contract No. 07-XX-30-W0506	July 13, 2007	4,315
Tonto Hills Domestic Water Improvement District Contract No. 10-XX-30-W0552	June 22, 2010	71 <sup>37/</sup>
Tucson, City of Contract No. 07-XX-30-W0484	May 25, 2007	144,172 <sup>38/</sup>
Vail Water Company Contract No. 07-XX-30-W0472	March 29, 2007	1,857 <sup>39/</sup>
Valencia Water Company Contract No. 10-XX-30-W0550	March 29, 2007	43 <sup>40/</sup>
Water Utilities Community Facilities District Contract No. 07-XX-30-W0494	May 25, 2007	2,919 <sup>41/</sup>
Water Utility of Greater Tonopah Contract No. 07-XX-30-W0475	March 26, 2007	64 <sup>42/</sup>
<b>TOTAL:</b>		<b>620,678</b>

## NOTES:

- 1 This amount includes Amendment No. 1 to the Arizona State Land Department's (ASLD) CAP subcontract executed on March 12, 1997, decreasing its entitlement from 39,006 to 38,476 acre-feet per year in light of ASLD transferring 530 acre-feet of its CAP water entitlement to the City of Scottsdale. Amendment No. 2 to the ASLD's CAP subcontract executed on July 24, 1998, decreases its entitlement from 38,476 to 34,576 acre-feet per year in light of ASLD transferring an additional 3,900 acre-feet of its CAP water entitlement to the City of Scottsdale. Amendment No. 3 to the ASLD's CAP subcontract executed on May 4, 2000, decreases its entitlement from 34,576 to 33,076 acre-feet per year in light of ASLD's transferring 1,500 acre-feet of its CAP water entitlement to the City of Mesa. Amendment No. 4 to ASLD's CAP subcontract decreases its entitlement from 33,076 to 32,076 acre-feet per year in light of ASLD's transferring 1,000 acre-feet of its CAP water entitlement to the City of Peoria.
- 2 This amount includes Amendment No. 1 to Arizona Water Company's (Superstition System, formerly Apache Junction) CAP subcontract executed on September 12, 2011, increasing Arizona Water Company's entitlement from 6,000 to 6,285 acre-feet per year in light of the Town of Superior transferring 285 acre-feet per year of its CAP M&I entitlement to Arizona Water Company (Superstition System, formerly Apache Junction).
- 3 Includes allocation to Hayden Smelter. ASARCO elected to contract for 21,000 acre-feet of its original 22,610 acre-foot allocation of CAP water.
- 4 This amount includes Amendment No. 1 to Avondale's CAP subcontract executed on December 3, 1997, increasing Avondale's entitlement from 4,099 to 4,746 acre-feet per year in light of McMicken Irrigation District transferring 647 acre-feet of its CAP M&I water entitlement to Avondale. Amendment No. 2 to Avondale's CAP subcontract executed on January 5, 2005, increasing its entitlement from 4,746 to 5,416 acre-feet per year in light of Litchfield Park Service Co. transferring 670 acre-feet of its CAP M&I water entitlement to Avondale.
- 5 Pursuant to Sec. 104(b)(1) of the Arizona Water Settlements Act of 2004, Pub. L. 108-451, 808 acre-feet of previously uncontracted M&I water was reallocated to AVRA Cooperative.
- 6 Buckeye's long-term entitlement after 2034 is 25 acre-feet. Buckeye's current entitlement for the year 2013 is 321 acre-feet; this entitlement declines each year until the year 2034, when the entitlement is 25 acre-feet.
- 7 This amount includes Amendment No. 1 to Carefree Water Company's CAP subcontract executed on July 20, 2001, increasing its entitlement from 400 to 1,300 acre-feet per year in light of BHP Copper Inc's (formerly Cities Services Co. & Magma Copper Co.) transferring 900 acre-feet of its CAP M&I water entitlement to Carefree.
- 8 This amount includes Amendment No. 1 to Cave Creek Water Company's CAP subcontract executed on September 7, 2006, increasing its entitlement from 1,600 to 1,800 acre-feet per year in light of Berneil Water Company transferring 200 acre-feet of its CAP M&I water entitlement to Cave Creek Water Company. Pursuant to Sec. 104(b)(1) of the Arizona Water Settlements Act of 2004, Pub. L. 108-451, 806 acre-feet of previously uncontracted M&I water was reallocated to Cave Creek Water Company. The town of Cave Creek acquired the water utility assets of Cave Creek Water Company through a final Order of Condemnation on April 19, 2007. 2,606 acre-feet of Cave Creek Water Company's M&I entitlement was transferred to the town of Cave Creek effective December 22, 2008.
- 9 Amendment No. 1, Supplement No. 1 to Contract No. 14-06-W-245 was executed by the USBR on August 14, 2007. CAP M&I water was assigned to CAWCD for CAGR use by Litchfield Park Service Co. (4,760 acre-feet), New River Utility Co. (1,885 acre-feet), Sunrise Water Co. (944 acre-feet) and West End Water Co. (157 acre-feet). 250 acre-feet of CAP M&I water was assigned to CAWCD for CAGR's use by Valley Utilities Water Co., Inc. on December 22, 2010. Exhibit A was amended to reflect this additional entitlement.

- 10 Pursuant to Sec. 104(b)(1) of the Arizona Water Settlements Act of 2004, Pub. L. 108-451, 4,986 acre-feet of previously uncontracted M&I water was reallocated to Chandler's to increase Chandler's entitlement from 2,668 acre-feet to 8,654 acre-feet per year.
- 11 Pursuant to Sec. 104(b)(1) of the Arizona Water Settlements Act of 2004, Pub. L. 108-451, 1,931 acre-feet of previously uncontracted M&I water was reallocated to Chaparral Water Company to increase Chaparral Water Company's entitlement from 6,978 acre-feet to 8,909 acre-feet per year. Chaparral Water Company was acquired by EPCOR Water.
- 12 As part of a corporate restructuring, Brooke Water assigned its CAP water entitlement of 3,932 acre-feet to Circle City Water Company. The subcontract for Circle City was executed on December 17, 1999. Brooke Water originally acquired the entitlement from Consolidated Water Utilities (Maricopa) in 1996 through bankruptcy proceedings.
- 13 This amount includes Amendment No. 1 to Community Water Company of Green Valley's CAP subcontract executed on May 27, 1997, increasing its entitlement from 1,100 to 1,337 acre-feet per year in light of New Pueblo Water Company transferring its CAP water entitlement of 237 acre-feet to Community Water Company. Also, pursuant to Sec. 104(b)(1) of the Arizona Water Settlements Act of 2004, Pub. L. 108-451, 1,521 acre-feet of previously uncontracted M&I water was reallocated to Community Water Company of Green Valley bringing its total entitlement to 2,858 acre-feet per year.
- 14 Pursuant to Sec. 104(b)(1) of the Arizona Water Settlements Act of 2004, Pub. L. 108-451, 508 acre-feet of previously uncontracted M&I water was reallocated to the City of El Mirage.
- 15 Formerly Agua-Fria (Citizens Utilities Company). Sun City Water Company (Citizens Utilities Company) transferred 9,654 acre-feet of its entitlement to Agua Fria. Agua Fria then transferred the entitlement to Arizona-American Water Company. Arizona-American Water Company (Agua Fria) was acquired by EPCOR Water.
- 16 Arizona-American Water Company (Paradise Valley) formerly Paradise Valley Water Company. Arizona-American Water Company (Paradise Valley) was acquired by EPCOR Water.
- 17 Formerly Sun City Water Co. (Citizens Utilities Company) and Sun City Water Co. (Youngtown). Sun City Water Co. (Youngtown) acquired Youngtown's CAP allocation of 380 acre-feet. Sun City Water Company previously assigned 2,372 acre-feet of its CAP water entitlement to Sun City West Utilities Company and 9,654 acre-feet to Agua Fria. Sun City Water Co. then transferred the remainder of its entitlement and the Sun City (Youngtown) entitlement to Arizona-American Water Company (Sun City). Arizona-American Water Company (Sun City) was acquired by EPCOR Water.
- 18 Formerly Sun City West Utilities Company. Sun City Water Company assigned 2,372 acre-feet of its CAP water entitlement to Sun City West Utilities Company (SCWUC). SCWUC then transferred its entitlement to Arizona-American Water Co. (Sun City West). Arizona-American Water Company (Sun City West) was acquired by EPCOR Water.
- 19 This amount includes Amendment No. 1 to the Town of Florence's CAP subcontract executed on February 2, 1995, increasing its entitlement from 1,641 to 2,048 acre-feet per year in light of Florence's acquisition of Arizona Sierra Utility Company's CAP water entitlement of 407 acre-feet.
- 20 Flowing Wells Irrigation District transferred 1,481 of its CAP entitlement to the Town of Marana on December 28, 2009, thereby reducing its CAP entitlement from 4,354 acre-feet to 2,873 acre-feet. Flowing Wells Irrigation District is in the process of transferring 19 acre-feet of water to City of Tucson. Upon execution of the transfer documents Flowing Wells Irrigation District's entitlement will be 2,854 acre-feet of water.

- 21 Freeport-McMoRan, formerly known as Inspiration Consolidated Copper, Co., Cyprus Mining Corp. and Phelps Dodge Miami, Inc.
- 22 This amount includes Amendment No. 1 to the City of Glendale's CAP subcontract executed on October 12, 1993, increasing its entitlement from 14,083 to 14,183 acre-feet per year in light of Glendale's assumption of 100 acre-feet of New River Utility's CAP entitlement. Also, pursuant to Sec. 104(b)(1) of the Arizona Water Settlements Act of 2004, Pub. L. 108-451, 3,053 acre-feet of previously uncontracted M&I water was reallocated to the City of Glendale bringing its total entitlement to 17,236 acre-feet per year.
- 23 This amount includes Amendment No. 1 to the City of Goodyear's CAP subcontract executed on October 26, 1999, increasing its entitlement from 2,374 to 3,381 acre-feet per year in light of McMicken Irrigation District assigning 1,007 acre-feet of its CAP M&I entitlement to Goodyear; Amendment No. 2 to Goodyear's CAP subcontract executed on January 5, 2005, increasing its entitlement from 3,381 to 3,531 acre-feet per year in light of Litchfield Park Service Co. transferring 150 acre-feet of its CAP M&I water entitlement to Goodyear. Also, pursuant to Sec. 104(b)(1) of the Arizona Water Settlements Act of 2004, Pub. L. 108-451, 7,211 acre-feet of previously uncontracted M&I water was reallocated to Goodyear.
- 24 Green Valley Domestic Water Improvement District was formerly Green Valley Water Co.
- 25 Pursuant to Sec. 104(b)(1) of the Arizona Water Settlements Act of 2004, Pub. L. 108-451, 147 acre-feet of previously uncontracted M&I water was reallocated to H2O Water Company. H2O Water Company, Inc. is being acquired by the Town of Queen Creek. H2O Water Company is in the process of transferring its allotted 147 acre-feet of water to the Town of Queen Creek.
- 26 The Town of Marana acquired Cortaro-Marana Irrigation District's CAP allocation of 47 acre-feet per year and executed a subcontract for this entitlement on October 12, 1999. In addition, Flowing Wells Irrigation District and the Town of Marana have executed a Partial Assignment of Rights and Assumption of Obligations of CAP M&I Water Service Subcontract for 1,481 acre-feet on December 28, 2009, increasing the Town of Marana's entitlement to 1,528 acre-feet.
- 27 This amount includes Amendment No. 1 to the City of Mesa's CAP subcontract executed on October 9, 1986, increasing Mesa's entitlement from 20,129 to 29,527 acre-feet per year in light of Mesa's acquisition of the water utility systems of Desert Sage Water Company, Desert Sands Water Company, and Crescent Valley Utility Company; Amendment No. 2 to Mesa's CAP subcontract executed on August 22, 1991, increasing Mesa's entitlement from 29,527 to 33,459 acre-feet in light of Mesa's acquisition of Turner Ranches Water Co.; Amendment No. 3 to Mesa's CAP subcontract executed on November 17, 1993, increasing Mesa's entitlement from 33,459 to 34,292 acre-feet in light of Mesa's assumption of Williams Air Force Base's CAP allocation; Amendment No. 4 to Mesa's CAP subcontract executed on December 20, 1995, increasing Mesa's entitlement from 34,292 to 34,888 acre-feet in light of Mesa's acquisition of 596 acre-feet of Queen Creek Irrigation District's CAP M&I allocation. Amendment No. 5 to Mesa's CAP subcontract executed on May 4, 2000, increasing Mesa's entitlement from 34,888 to 36,388 acre-feet in light of Mesa's acquisition of 1,500 acre-feet of ASLD's CAP water allocation. Also, pursuant to Sec. 104(b)(1) of the Arizona Water Settlements Act of 2004, Pub. L. 108-451, 7,115 acre-feet of previously uncontracted M&I water was reallocated to the City of Mesa bringing its total entitlement to 43,503 per year.
- 28 In September 1998, Tucson transferred 8,858 acre-feet to First Trust of Arizona (now US Bank Arizona) for the benefit of Metropolitan Domestic Water Improvement District (MDWID). That entitlement was transferred from the Trust to MDWID on March 1, 2004. Also, pursuant to Sec. 104(b)(1) of the Arizona Water Settlements Act of 2004, Pub. L. 108-451, 4,602 acre-feet of previously uncontracted M&I water was reallocated to Metropolitan Water Improvement District. Bringing its total entitlement to 13,460 per acre-feet.

29 On April 21, 1997, the Town of Oro Valley (Oro Valley) executed a subcontract for 1,652 acre-feet of CAP M&I water entitlement formerly held by Foothills Water Co. and later Canada Hills. In September 1998, the City of Tucson transferred 642 acre-feet to First Trust of Arizona (now US Bank Arizona) for the benefit of Oro Valley. That entitlement was transferred from the Trust to Oro Valley on March 31, 2003. In October 2003, Tucson transferred 4,454 acre-feet of its CAP water entitlement to Wells Fargo Bank Arizona as Trustee for Oro Valley. That entitlement was transferred from the Trust to Oro Valley on June 29, 2004. Also, pursuant to Sec. 104(b)(1) of the Arizona Water Settlements Act of 2004, Pub. L. 108-451, 3,557 acre-feet of previously uncontracted M&I water was reallocated to the Town of Oro Valley bringing its total entitlement to 10,305 acre-feet per year.

30 This amount includes Amendment No. 1 to the City of Peoria's CAP subcontract executed on July 11, 1989, increasing Peoria's entitlement from 15,000 to 17,849 acre-feet per year in light of Peoria's condemnation of the water utility system of Clearwater Water Co.; Amendment No. 2 to Peoria's CAP subcontract executed on September 27, 1993, increasing Peoria's entitlement from 17,849 to 18,233 acre-feet per year which reflects Peoria's assumption of 374 acre-feet of New River Utility Co.'s CAP allocation; Amendment No. 3 to Peoria's CAP subcontract executed on April 10, 2000, increasing Peoria's entitlement from 18,223 to 18,709 acre-feet per year in light of Peoria's assumption of 486 acre-feet of McMicken Irrigation District's CAP M&I allocation;

Amendment No. 4 to Peoria's CAP subcontract executed on April 23, 2002, increasing Peoria's entitlement from 18,709 to 19,709 acre-feet per year in light of Peoria's assumption of 1,000 acre-feet of ASLD's CAP M&I allocation. Also, pursuant to Sec. 104(b)(1) of the Arizona Water Settlements Act of 2004, Pub. L. 108-451, 5,527 acre-feet of previously uncontracted M&I water was reallocated to the City of Peoria bringing its total entitlement to 25,236 per year.

31 This amount includes Amendment No. 1 to the City of Phoenix's CAP subcontract executed on February 19, 1998, increasing its entitlement from 113,882 to 113,914 acre-feet per year which reflects the transfer by Berneil Water Co. of 32 acre-feet of its CAP entitlement. Also, pursuant to Sec. 104(b)(1) of the Arizona Water Settlements Act of 2004, Pub. L. 108-451, 8,206 acre-feet of previously uncontracted M&I water was reallocated to the City of Phoenix bringing its total entitlement to 122,120 acre-feet per year and Amendment No. 2 to Phoenix's Amended CAP subcontract executed on March 8, 2012, increasing Phoenix's entitlement from 122,120 to 122,204 acre-feet per year which reflects Phoenix's assumption of 84 acre-feet of Alderwoods (Arizona), Inc.'s CAP M&I entitlement.

32 As part of a corporate restructuring, E&R Water Company, formerly Pine Improvement Association, assigned its CAP water entitlement of 161 acre-feet to Pine Water Company. The subcontract for Pine Water Company was executed on December 23, 1999. In 2009, Pine Water Company notified CAWCD that it desired to terminate its subcontract pursuant to Article 4.2(c) of the subcontract. Pine Water Co.'s subcontract was terminated effective June 30, 2010. ADWR plans to develop a public process to reallocate the 161 acre-feet entitlement.

33 By subcontract executed on December 20, 1995, Queen Creek Water Company acquired 348 acre-feet of Queen Creek Irrigation District's CAP M&I water entitlement. On or about March 31, 2008, the Town of Queen Creek acquired the water utility assets of Queen Creek Water Company pursuant to Arizona Corporation Commission Decision and Order No. 70204. On November 2, 2009 the Town of Queen Creek executed a CAP subcontract for 348 af of M&I water per yr. The Town of Queen Creek is acquiring H2O Water Company, Inc. H2O Water Company, Inc.'s allotted 147 acre-feet of water will be transferred to the Town of Queen Creek. Upon execution of the transfer documents the Town of Queen Creek's allotment will increase from 348 acre-feet of water to 495 acre-feet of water.

34 The City of Scottsdale's original CAP allocation and subcontract was for 19,702 acre-feet. Amendment No.1 to Scottsdale's CAP subcontract was executed on December 12, 1990, and increased Scottsdale's entitlement to 20,488 acre-feet per year in light of Scottsdale's acquisition of the water utility systems of Ironwood Water Company and North Valley Water Company. Amendment No. 2 to Scottsdale's CAP subcontract was executed on August 20, 1993, and increased Scottsdale's entitlement to 21,442 acre-feet per year in light of Scottsdale's acquisition of Carefree Ranch Water Co. Amendment No. 3 to Scottsdale's CAP subcontract was executed on January 21, 1994, and increased Scottsdale's entitlement to 26,437 acre-feet per year in light of Scottsdale's acquisition of the Town of Payson's CAP entitlement. Amendment No. 4 to Scottsdale's CAP subcontract was executed on December 8, 1994, and increased Scottsdale's entitlement to 26,576 acre-feet per year in light of Scottsdale's acquisition of Desert Ranch Water Co. Amendment No. 5 to Scottsdale's CAP subcontract was executed on September 27, 1996, and increased Scottsdale's entitlement to 34,203 acre-feet per year in light of Scottsdale's acquisition of the CAP entitlements of the City of Prescott (7,127 acre-feet) and the Yavapai-Prescott Indian Tribe (500 acre-feet). Scottsdale does not pay M&I capital charges to CAWCD for the 500 acre-feet assigned by the Yavapai-Prescott Indian Tribe, and that water is still considered Indian water for purposes of determining the allocation and repayment of CAP costs. The total allocation shown in this section of the report represents M&I water only and does not include the 500 acre-feet received from Yavapai-Prescott Indian Tribe. Amendment No. 6 to Scottsdale's CAP subcontract was executed on September 27, 1996, and increased Scottsdale's entitlement to 36,886 acre-feet per year in light of Scottsdale's acquisition of the CAP entitlement of Rio Rico Utilities, Inc. Amendment No. 7 to Scottsdale's CAP subcontract was executed on March 12, 1997, and increased Scottsdale's entitlement to 36,916 acre-feet per year in light of Scottsdale's acquisition of 530 acre-feet from Arizona State Land Department. Amendment No. 8 to Scottsdale's CAP subcontract was executed on March 12, 1997, and increased Scottsdale's entitlement to 41,197 acre-feet per year in light of Scottsdale's acquisition of the CAP entitlements of the City of Nogales (3,949 acre-feet) and Mayer Domestic Water Improvement District (332 acre-feet). Amendment No. 9 to Scottsdale's CAP subcontract was executed on April 29, 1998, and increased Scottsdale's entitlement to 41,397 acre-feet per year in light of Scottsdale's acquisition of 200 acre-feet from Berneil Water Co. Amendment No. 10 to Scottsdale's CAP subcontract was executed on July 24, 1998, and increased Scottsdale's entitlement to 45,297 acre-feet per year in light of Scottsdale's acquisition of an additional 3,900 acre-feet from Arizona State Land Department. Amendment No. 11 to Scottsdale's CAP subcontract was executed on August 24, 1998, and increased Scottsdale's entitlement to 48,529 acre-feet per year in light of

Scottsdale's acquisition of Camp Verde's CAP allocation of 1,443 acre-feet and Cottonwood's CAP allocation of 1,789 acre-feet. Amendment No. 12 to Scottsdale's CAP subcontract was executed on September 13, 2001, and increased Scottsdale's entitlement to 49,829 acre-feet per year in light of Scottsdale's acquisition of 1,300 acre-feet of BHP Copper Inc.'s (formerly Cities Services Co. & Magma Copper Co.) CAP water entitlement. Also, pursuant to Sec. 104(b)(1) of the Arizona Water Settlements Act of 2004, Pub. L. 108-451, 2,981 acre-feet of previously uncontracted M&I water was reallocated to the City of Scottsdale bringing its total entitlement to 52,810 acre-feet per year.

35 Formerly Ranchlands, Inc.

36 By subcontract executed on November 1, 1996, the City of Surprise acquired 7,373 acre-feet of CAP M&I water from McMicken Irrigation District. Also, pursuant to Sec. 104(b)(1) of the Arizona Water Settlements Act of 2004, Pub. L. 108-451, 2,876 acre-feet of previously uncontracted M&I water was reallocated to the City of Surprise bringing its total entitlement to 10,249 acre-feet per year.

37 By subcontract executed on July 20, 2001, Tonto Hills Utility Co. acquired 71 acre-feet of CAP M&I water from BHP Copper Inc. (formerly Cities Services Co. & Magma Copper Co.). Tonto Hills Utility Co. transferred its CAP M&I water to the Tonto Hills Domestic Improvement Water District (THDWID) on June 22, 2010. Tonto Hills Utility Co. and THDWID executed an Assignment of Rights and Assumption of Obligations effective May 1, 2010. THDWID's CAP M&I water service subcontract was fully executed on June 22, 2010.

- 38 The City of Tucson's original CAP allocation and subcontract was for 148,420 acre-feet. Amendment No. 1 to Tucson's subcontract executed on September 28, 1998, decreased Tucson's entitlement to 138,920 acre-feet per year after Tucson transferred 9,500 acre-feet to First Trust of Arizona (now US Bank Arizona) for the benefit of Metropolitan Domestic Water Improvement District (MDWID) and the Town of Oro Valley (Oro Valley). Amendment No. 2 to Tucson's subcontract, executed on October 28, 2003, decreased Tucson's entitlement from 138,920 to 134,466 acre-feet per year in light of Tucson's transfer of 4,454 acre-feet to Wells Fargo Bank Arizona, as Trustee for Oro Valley. Amendment No. 3 to Tucson's subcontract, executed on February 10, 2004, increased Tucson's entitlement from 134,466 to 135,966 acre-feet per year in light of Midvale Farms Water Co. transferring its CAP water entitlement of 1,500 acre-feet to Tucson. Also, pursuant to Sec. 104(b)(1) of the Arizona Water Settlements Act of 2004, Pub. L. 108-451, 8,206 acre-feet of previously uncontracted M&I water was reallocated to the City of Tucson bringing its total entitlement to 144,172 acre-feet per year. Flowing Wells Irrigation District is in the process of transferring 19 acre-feet of water to City of Tucson. Upon execution of the transfer documents City of Tucson's entitlement will be 144,191 acre-feet of water.
- 39 Vail Water Company formerly Del Lago Water Company. Also, pursuant to Sec. 104(b)(1) of the Arizona Water Settlements Act of 2004, Pub. L. 108-451, 1,071 acre-feet of previously uncontracted M&I water was reallocated to Vail Water Company bringing its total entitlement to 1,857 acre-feet per year.
- 40 Formerly West Phoenix Water Company. Water Utility of Greater Buckeye transferred its CAP allocation to Valencia Water Company. Water Utility of Greater Buckeye and Valencia executed an Assignment of Rights and Assumption of Obligations on April 30, 2009. Valencia's CAP M&I water service subcontract was fully executed on May 24, 2010.
- 41 In 1997, Water Utilities Community Facilities District (Apache Junction) acquired the Consolidated Water Utilities (Pinal County) entitlement through bankruptcy proceedings. This allocation was formerly held by Palm Springs Water Company.
- 42 Formerly Sunshine Water Company.

## **CAP Non-Indian Agricultural Subcontracts**

There are no CAP Non-Indian Agricultural Subcontracts.

### **COMMENTARY:**

In 1983-1984, CAWCD and the United States entered into non-Indian agricultural subcontracts with nine irrigation districts: Central Arizona Irrigation and Drainage District (CAIDD); Chandler Heights Citrus Irrigation District (CHCID); Harquahala Valley Irrigation District (HVID); Hohokam Irrigation and Drainage District (HIDD); Maricopa-Stanfield Irrigation & Drainage District (MSIDD); New Magma Irrigation and Drainage District (NMIDD); Queen Creek Irrigation District (QCID); San Tan Irrigation District (STID); and Tonopah Irrigation District (TID).

CAIDD, CHCID, QCID, STID, and TID have relinquished their full CAP subcontract entitlements in accordance with the Arizona Water Settlement Agreement. MSIDD similarly agreed to relinquish its CAP subcontract entitlement, but designated 9,026 acre-feet for the benefit of the Arizona State Land Department (ASLD) in accordance with the Arizona Water Settlement Agreement. The ASLD executed a CAP Non-Indian Agricultural Subcontract for 9,026 acre-feet of CAP NIA priority water on January 1, 2004. The ASLD's subcontract was terminated effective September 1, 2009, for failure to make payments required by the subcontract. The 9,026 acre-feet of NIA priority water has been added to the pool of uncontracted NIA priority water.

The NMIDD subcontract was terminated in bankruptcy proceedings in 1995.

The cities of Chandler, Mesa, Phoenix and Scottsdale acquired the HIDD subcontract entitlement in 1992 as a replacement for the water supply that would have been developed by Cliff Dam.

The United States acquired the HVID subcontract entitlement under the Fort McDowell Indian Community Water Rights Settlement Act of 1990 and conveyed a portion of that entitlement to the Fort McDowell Indian Community. The Secretary has retained the remainder of the HVID entitlement for future Indian settlements.

In 1991, CAWCD and the United States entered into a non-Indian agricultural subcontract with Roosevelt Water Conservation District (RWCD), which was never validated. In 1992, RWCD entered into an agreement with the United States and the Gila River Indian Community to relinquish its CAP subcontract entitlement for the benefit of the Community.

## **CAP Indian Contracts**

<u>NAME</u>	<u>INTENDED USE</u>	<u>ENTITLEMENT (acre-feet per year)</u>
Ak-Chin Indian Community	Irrigation	75,000 <sup>1/</sup>
Camp Verde (Yavapai-Apache)	Tribal Homeland	1,200
Fort McDowell Indian Community	Tribal Homeland	18,233 <sup>2/</sup>
Gila River Indian Community	Irrigation	311,800 <sup>3/</sup>
Pascua Yaqui Tribe	Tribal Homeland	500
Salt River Pima-Maricopa Indian Community	Irrigation	13,300
San Carlos-Apache Tribe	Irrig. & Tr. Homeland	61,645 <sup>4/</sup>
Tohono O'Odham Nation (formerly Papago Tribe)		
Chui Chu	Irrigation	8,000
San Xavier	Tribal Homeland	50,000 <sup>5/</sup>
Schuk Toak	Tribal Homeland	16,000 <sup>6/</sup>
Tonto-Apache Tribe	Tribal Homeland	128
<b>TOTAL:</b>		<b>555,806</b>

#### NOTES:

1 The Ak-Chin Indian Community was allocated 58,300 acre-feet in 1983. Under the Ak-Chin Indian Community Water Rights Settlement Act of 1984, Pub. L. 98-530, the United States acquired 50,000 acre-feet (before losses) of Colorado River water from the Yuma-Mesa Division of the Gila Project, which was added to the CAP supply. Under the 1984 settlement, the Ak-Chin Indian Community is entitled to delivery of 75,000 acre-feet in a normal Colorado River water year, 85,000 acre-feet in a surplus year, and not less than 72,000 acre-feet in a shortage year. That obligation is met using first the former Yuma-Mesa water (quantified at 47,500 acre-feet after system losses) and thereafter as much of the original Ak-Chin allocation as is needed (27,500 acre-feet in a normal year). Whatever portion of the original Ak-Chin CAP allocation is not needed to satisfy delivery obligations to the Ak-Chin Indian Community (30,800 acre-feet in a normal year) is available for delivery to the San Carlos Apache Tribe.

2 The Fort McDowell Indian Community was allocated 4,300 acre-feet in 1983. The Fort McDowell Indian Community Water Rights Settlement Act of 1990, Pub. L. 101-628, authorized the Secretary of the Interior to acquire the CAP non-Indian agricultural entitlement of the Harquahala Valley Irrigation District (originally 7.67% of the available agricultural supply) and convert it to 33,251 acre-feet of CAP Indian priority water. The Fort McDowell Indian Community received 13,933 acre-feet of the former HVID entitlement; the Gila River Indian Community received 18,100 acre-feet, and the remaining 1,218 acre-feet may only be used to settle water rights claims of other Indian tribes having claims to the water in the Salt and Verde River system. This remaining 1,218 acre-feet has been pledged to the White Mountain Apache Tribe pursuant to the White Mountain Apache Tribe Quantification Agreement.

- 3 The Gila River Indian Community was allocated 173,100 acre-feet of irrigation water in 1983. Under an August 7, 1992 agreement among RWCD, the United States, and the Gila River Indian Community, RWCD purportedly relinquished the remainder of its CAP entitlement for the use and benefit of GRIC. The relinquished entitlement was quantified as 18,600 acre-feet and reallocated to the Community under §204(b)(1)(A) of the Arizona Water Settlements Act, Pub. L. 108-451. The Act also reallocated to the Community 18,100 acre-feet of the former HVID entitlement and 102,000 acre-feet of non-Indian agricultural priority water relinquished pursuant to the Arizona Water Settlement Agreement. See Pub. L. 108-451, §§204(b)(1)(B) and 204(b)(1)(D).
- 4 The San Carlos Apache Tribe was allocated 12,700 acre-feet in 1983. Of that total, 2,700 acre-feet was designated as irrigation water and 10,000 acre-feet was designated as tribal homeland water. Under the San Carlos Apache Tribe Water Rights Settlement Act of 1992, Title 37 of Pub. L. 102-575, the Secretary reallocated to the San Carlos Apache Tribe 14,665 acre-feet of CAP M&I water originally allocated to the Phelps Dodge Corporation, 3,480 acre-feet of CAP M&I water originally allocated to the City of Globe, and the portion of the original Ak-Chin CAP allocation not needed to meet delivery obligations to the Ak-Chin Indian Community (see note 1 above). In a normal water supply year on the Colorado River—i.e., when no more than 27,500 acre-feet of the original Ak-Chin allocation is needed for delivery to the Ak-Chin Indian Community—the San Carlos Apache Tribe allocation is 61,645 acre-feet. The former Phelps Dodge water and the former Globe water retain their original M&I CAP priority.
- 5 San Xavier was originally allocated 27,000 acre-feet and received an additional 23,000 acre-feet of non-Indian agricultural priority water relinquished pursuant to the Arizona Water Settlement Agreement. See §306(a)(1) of the Southern Arizona Water Rights Settlement Amendments Act of 2004 (Title 3 of the Arizona Water Settlements Act, Pub. L. 108-451).
- 6 Schuk Toak was originally allocated 10,800 acre-feet and received an additional 5,200 acre-feet of non-Indian agricultural priority water relinquished pursuant to the Arizona Water Settlement Agreement. See §306(a)(2) of the Southern Arizona Water Rights Settlement Amendments Act of 2004 (Title 3 of the Arizona Water Settlements Act, Pub. L. 108-451).

## Other Currently Uncontracted Water

<u><b>NAME</b></u>	<u><b>ENTITLEMENT acre-feet per year</b></u>
Former Harquahala Valley Irrigation District	1,218 <sup>1/</sup>
<u>Non-Indian agricultural priority water</u>	<u>163,595 <sup>2/</sup></u>
<b>TOTAL:</b>	<b>164,813</b>

**NOTES:**

- 1 The Fort McDowell Indian Community Water Rights Settlement Act of 1990, Pub. L. 101-628, authorized the Secretary of the Interior to acquire the CAP non-Indian agricultural entitlement of the Harquahala Valley Irrigation District (originally 7.67% of the available agricultural supply) and convert it to 33,251 acre-feet of CAP Indian priority water. The Fort McDowell Indian Community received 13,933 acre-feet of the former HVID entitlement and the Gila River Indian Community received 18,100 acre-feet. The remaining 1,218 acre-feet has been set aside for the White Mountain Apache Tribe pursuant to the White Mountain Apache Tribe Quantification Agreement.
  
- 2 Water conditionally relinquished by non-Indian agricultural subcontractors pursuant to the Arizona Water Settlement Agreement. Of the total, 67,300 acre-feet is reserved for reallocation to Arizona Indian tribes to facilitate future Indian water rights settlements, Pub. L. 108-451, §104(a)(1)(A)(iii), and 96,295 acre-feet will be available for future reallocation to M&I water users pursuant to Pub. L. 108-451, §104(a)(2).

## Other Project Water Under Contract

<u>NAME</u>	<u>ENTITLEMENT acre-feet per year</u>
Former Hohokam Irrigation District	47,303 <sup>1/</sup>
Former Wellton-Mohawk Irrigation and Drainage District	20,900 <sup>2/</sup>
Former Roosevelt Water Conservation District	5,000 <sup>3/</sup>
Former Yavapai-Prescott Indian Tribe	500 <sup>4/</sup>
<b>TOTAL:</b>	<b>73,703</b>

### NOTES:

- 1 In 1992, four Valley cities acquired the non-Indian agricultural (NIA) entitlement of Hohokam Irrigation District—originally 6.36% of the available agricultural supply—as a replacement for the water supply those cities would have received from Cliff Dam, had it been constructed. As part of the Arizona Water Settlement Agreement, the former HID entitlement has been quantified at 47,303 acre-feet. The water will retain its NIA priority through 2043, after which it will convert to M&I priority. The four Valley cities and their respective entitlements are: Chandler, 2,952 acre-feet; Mesa, 4,924 acre-feet; Phoenix, 36,144 acre-feet; and Scottsdale, 3,283 acre-feet.
  
- 2 As part of the Salt River Pima-Maricopa Indian Community Water Rights Settlement, the United States acquired 22,000 acre-feet of Colorado River water from the Wellton-Mohawk Irrigation and Drainage District for delivery through the CAP. The former Wellton-Mohawk entitlement is a diversion right measured at the Colorado River and is assessed its share of CAP system losses to arrive at a delivery volume. For CAP contract accounting purposes, the entitlement is nominally quantified as 20,900 acre-feet deliverable at CAP turnouts. The former Wellton-Mohawk water is considered “project water” and was contracted to various Valley cities in exchange for water from the Salt River system delivered to SRPMIC. The Valley cities and their respective entitlements (based on a 22,000 acre-foot total diversion right) are: Chandler, 4,278 acre-feet; Gilbert, 6,762 acre-feet; Glendale, 3,000 acre-feet; Mesa, 2,760 acre-feet; Phoenix, 5,000 acre-feet; Scottsdale, 100 acre-feet; and Tempe, 100 acre-feet.
  
- 3 As part of the Salt River Pima-Maricopa Indian Community Water Rights Settlement, 5,000 acre-feet of non-Indian agricultural water originally allocated to Roosevelt Water Conservation District was made available to various Valley cities as follows: Chandler, 972 acre-feet; Gilbert, 1,537 acre-feet; Glendale, 682 acre-feet; Mesa, 627 acre-feet; Phoenix, 1,136 acre-feet; Scottsdale, 23 acre-feet; and Tempe, 23 acre-feet.
  
- 4 In accordance with the Yavapai-Prescott Indian Tribe Water Rights Settlement Act of 1994, Pub. L. 103-434, the Yavapai-Prescott Indian Tribe assigned its entitlement to the City of Scottsdale. The water retains its original Indian CAP priority.