



United States
Department of
Agriculture

Natural
Resources
Conservation
Service

Arizona

Basin Outlook Report

January 15, 2012



Issued by

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Basin Outlook Reports And Federal – State – Private Cooperative Snow Surveys

How forecasts are made

Most of the annual streamflow in Arizona originates as snowfall that has accumulated in the mountains during the winter and early spring. As the snowpack accumulates, hydrologists estimate the runoff that will occur when it melts. Measurements of snow water equivalent at selected manual snow courses and automated Snow Telemetry (SNOTEL) sites, along with precipitation and streamflow values, are used in statistical and simulation models to prepare runoff forecasts. These forecasts are coordinated between hydrologists in the Natural Resources Conservation Service (NRCS) the National Weather Service, and the Salt River Project.

Forecasts of any kind are not perfect. Streamflow forecast uncertainty arises from three primary sources: (1) uncertainty of future weather conditions, (2) uncertainty in the forecasting procedure, and (3) errors in the data. The forecast, therefore, must be interpreted not as a single value but rather as a range of values with specific probabilities of occurrence. The middle of the range is expressed by the 50% exceedance probability forecast, for which there is a 50% chance that the actual flow will be above, and a 50% chance that the actual flow will be below, this value. To describe the expected range around this 50% value, four other forecasts are provided, two smaller values (90% and 70% exceedance probability) and two larger values (30%, and 10% exceedance probability). For example, there is a 90% chance that the actual flow will be more than the 90% exceedance probability forecast.

The wider the spread among these values, the more uncertain the forecast. As the season progresses, forecasts become more accurate, primarily because a greater portion of the future weather conditions become known. This is reflected by a narrowing of the range around the 50% exceedance probability forecast. Users should take this uncertainty into consideration when making operational decisions by selecting forecasts corresponding to the level of risk they are willing to assume about the amount of water to be expected. If users anticipate receiving a lesser supply of water, or are concerned about having an adequate water supply, they may want to base their decisions on the 90% or 70% exceedance probability forecasts. On the other hand, if users anticipate receiving too much water, or are concerned about the threat of flooding, they may want to base their decisions on the 30% or 10% exceedance probability forecasts. Regardless of the forecast value users choose, they should be prepared to deal with either more or less water.



For more water supply and resource management information, contact:

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ARIZONA Basin Outlook Report as of January 15, 2012

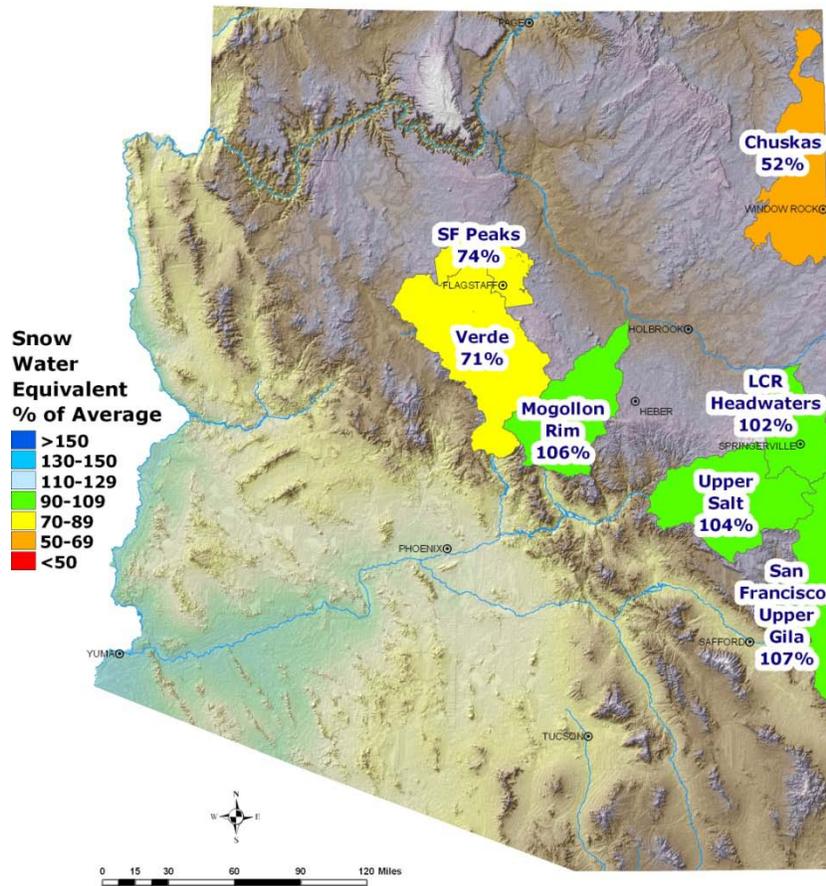
SUMMARY

As of January 15, snowpack levels are declining, ranging from below normal in the Verde River Basin to slightly above normal in the San Francisco-Upper Gila River Basin. Snowpack is now well below normal in the Chuska Mountains. The Salt and Verde River reservoir system stands at 66 percent of capacity, while San Carlos Reservoir is at 2 percent of capacity. The mid-month forecast calls for well below normal runoff in all basins for the spring runoff period.

SNOWPACK

Snow water equivalent levels in the basins are now at or below normal, ranging from a low of 71 percent of average in the Verde River Basin to a high of 107 percent of average in the San Francisco-Upper Gila River Basin. The Chuska Mountains are now at only 52 percent of average. The statewide snowpack is also below normal at 80 percent of average.

**Arizona
Snow Water Equivalent
as of January 15, 2012**

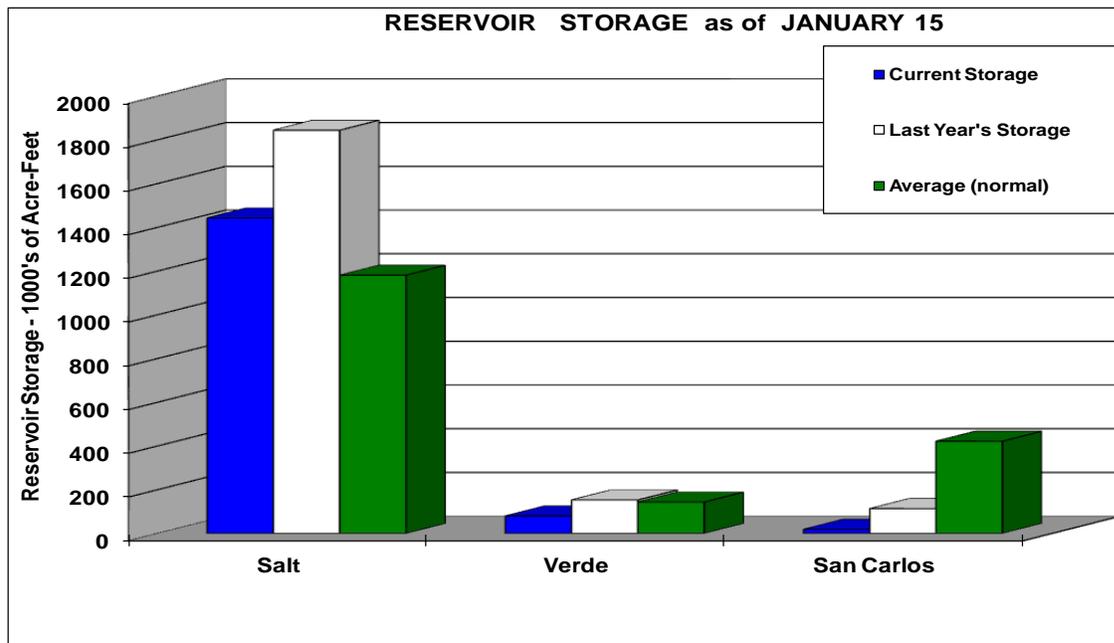


PRECIPITATION

Mountain data from NRCS SNOTEL sites and Cooperator precipitation gages show that precipitation for the first half of January was below normal in the basins. Cumulative precipitation since October 1, however, remains above normal in all basins. Please refer to the precipitation bar graphs found in this report for more information on precipitation levels in the basins.

RESERVOIR STORAGE

As of January 15, the Salt and Verde River reservoir system stands at 66 percent of capacity. San Carlos Reservoir, however, is currently well below normal at only 2 percent of capacity.



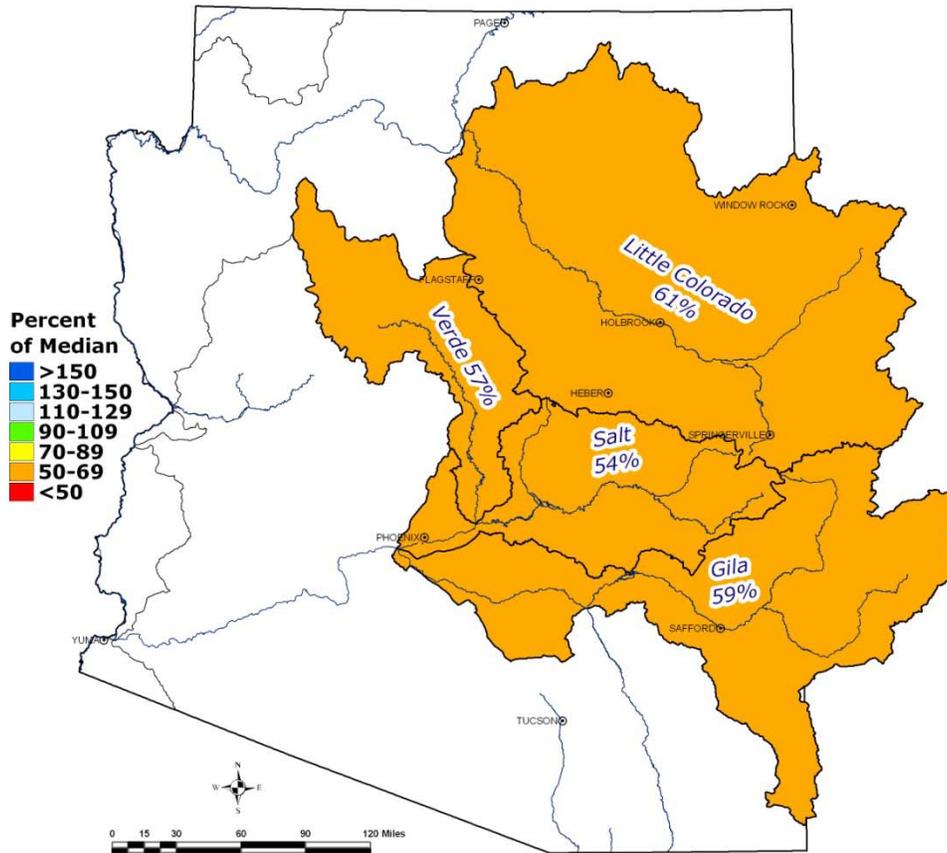
Key storage volumes displayed in thousands of acre-feet (x1000):

<u>Reservoir</u>	<u>Current Storage</u>	<u>Last Year Storage</u>	<u>30-Year Average</u>	<u>Storage Capacity</u>
Salt River System	1442.7	1844.1	1181.2	2025.8
Verde River System	79.9	153.2	143.5	287.4
San Carlos Reservoir	18.6	113.4	421.8	875.0
Lyman Lake	9.5	18.0	14.3	30.0
Lake Havasu	548.8	583.7	557.4	619.0
Lake Mohave	1599.1	1722.6	1657.0	1810.0
Lake Mead	15025.0	10465.0	21868.0	26159.0
Lake Powell	15788.0	14146.0	18748.0	24322.0

STREAMFLOW

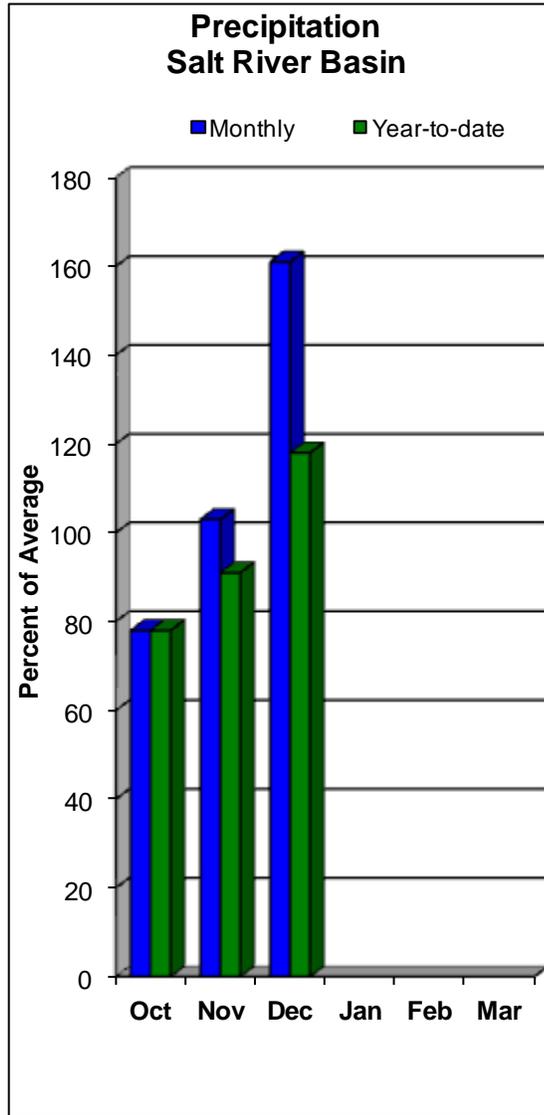
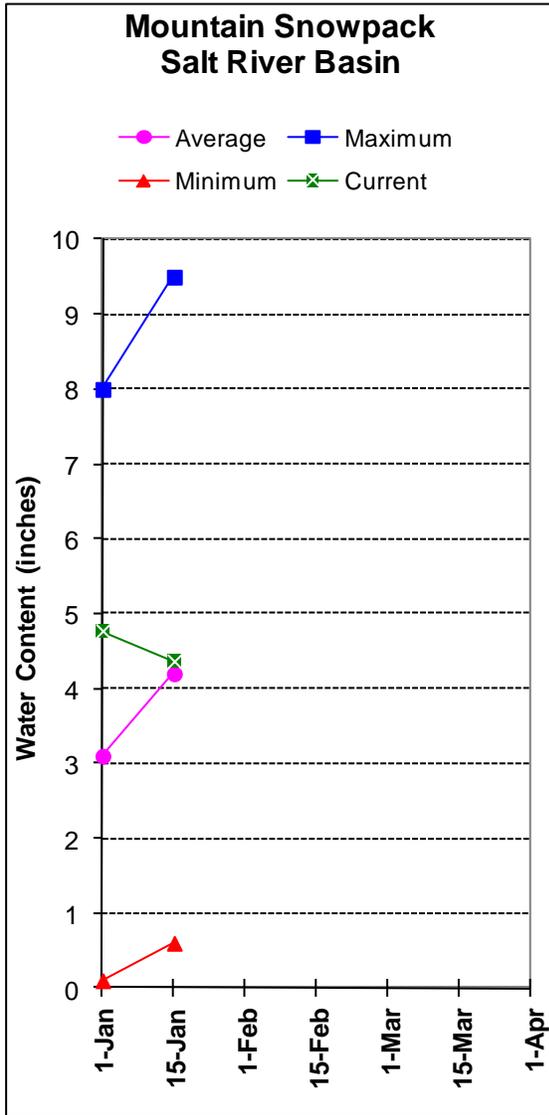
As of January 15, the forecast calls for well below normal streamflow for the spring runoff period, ranging from 54 percent of median in the Salt River near Roosevelt to 61 percent of median in the Little Colorado River above Lyman Lake. The mid-month streamflow forecast reflects greater confidence in a weak to moderate La Niña event continuing into the spring. Please refer to the basin forecast tables found in this report for more information regarding water supply forecasts.

Arizona Spring Streamflow Forecasts as of January 15, 2012



SALT RIVER BASIN as of January 15, 2012

Well below normal streamflow levels are forecast for the basin. In the Salt River, near Roosevelt, the forecast calls for 54% of median streamflow through May, while at Tonto Creek, the forecast calls for 44% of median streamflow through May. Snow survey measurements show the Salt snowpack to be at 104% of average.



SALT RIVER BASIN as of January 15, 2012

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=====
                        SALT RIVER BASIN
                        Streamflow Forecasts - January 15, 2012
=====
Forecast Pt | <=== Drier === Future Conditions === Wetter ===> |
Forecast    | ===== Chance of Exceeding * ===== |
Period      | (1000AF) (1000AF) | (1000AF) (% MED.) | (1000AF) (1000AF) | (1000AF)
=====
Salt R nr Roosevelt (3)
J15-MAY     | 104      156      200      54      250      345      370
JANUARY     |          18.0     74          25
=====
Tonto Ck ab Gun Ck nr Roosevelt (3)
J15-MAY     | 1.4      10.1     24      44      47      101      55
JANUARY     |          3.00    51          5.90
=====

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* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that
  the actual volume will exceed the volumes in the table.
The average and median are computed for the 1971-2000 base period.
(1) - The values listed under the 10% and 90% Chance of Exceeding are
      actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream
      water management.
(3) - Median value used in place of average.
=====

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=====
                        SALT RIVER BASIN
                        Reservoir Storage (1000AF) Mid-January
=====
Reservoir    | Usable Capacity | ***** Usable Storage *****
              |                 | This Year  Last Year  Average
=====
SALT RIVER RES SYSTEM | 2025.8 | 1442.7  1844.1  1181.2
=====

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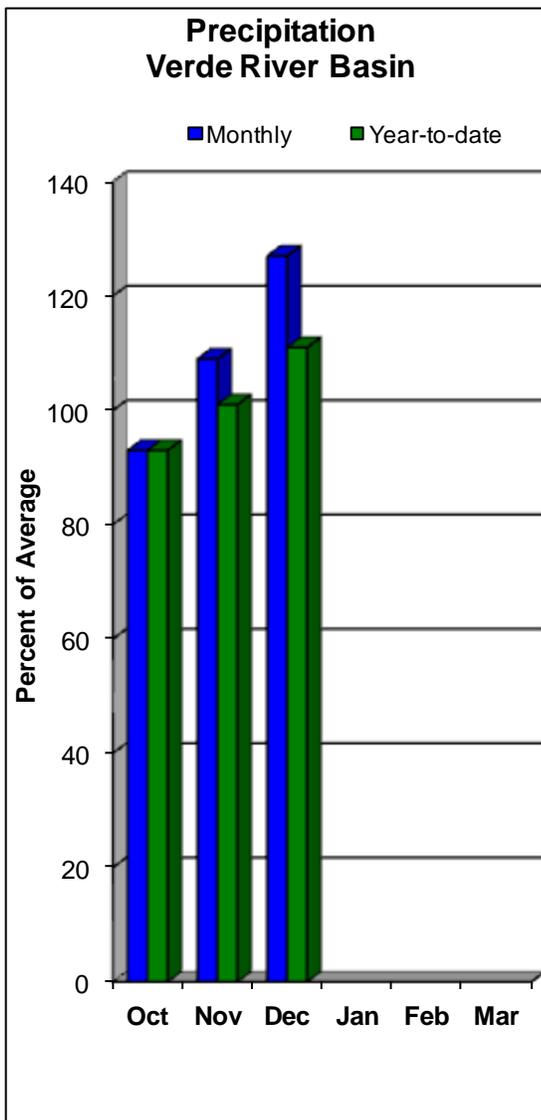
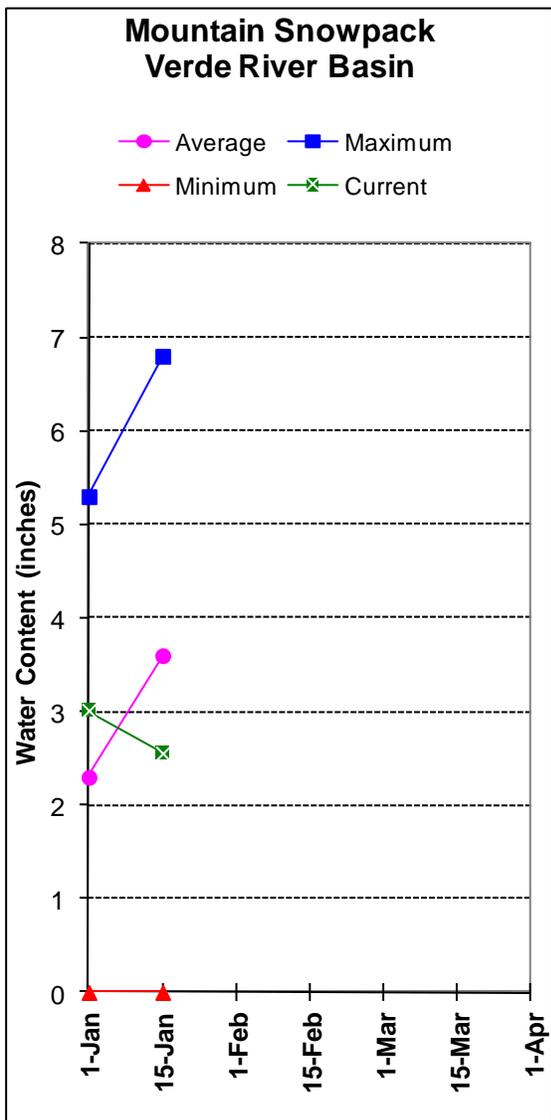
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=====
                        SALT RIVER BASIN
                        Watershed Snowpack Analysis - January 15, 2012
=====
Watershed    | Number of Data Sites | This Year as Percent of Last Year | Average
=====
SALT RIVER BASIN | 10 | 127 | 104
=====

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VERDE RIVER BASIN as of January 15, 2012

Well below normal streamflow levels are forecast for the basin. In the Verde River, at Horseshoe Dam, the forecast calls for 57% of median streamflow through May. Snow survey measurements show the Verde snowpack to be at 71% of average.



VERDE RIVER BASIN as of January 15, 2012

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=====
                        VERDE RIVER BASIN
                        Streamflow Forecasts - January 15, 2012
=====
Forecast Pt | <=== Drier === Future Conditions === Wetter ===> |
Forecast    | ===== Chance of Exceeding * ===== |
Period      | 90%    70%    | 50%    | 30%    10%    | 30 Yr Med
              |(1000AF) (1000AF)|(1000AF) (% MED.)|(1000AF) (1000AF)| (1000AF)
=====
Verde R bl Tangle Ck ab Horseshoe Dam (3
J15-MAY      29      73      120      57      184      315      210
JANUARY      17.0     71
=====

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(2) - The value is natural volume - actual volume may be affected by upstream
      water management.
(3) - Median value used in place of average.
=====

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=====
                        VERDE RIVER BASIN
                        Reservoir Storage (1000AF) Mid-January
=====
Reservoir    Usable Capacity    ***** Usable Storage *****
              |                    | This Year  Last Year  Average
=====
VERDE RIVER RES SYSTEM    287.4    79.9    153.2    143.5
=====

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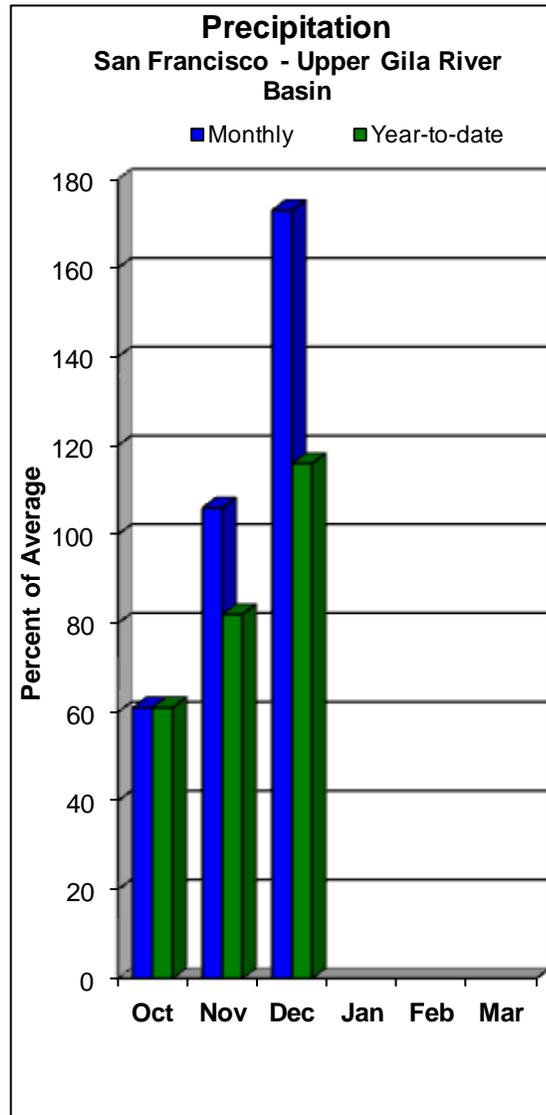
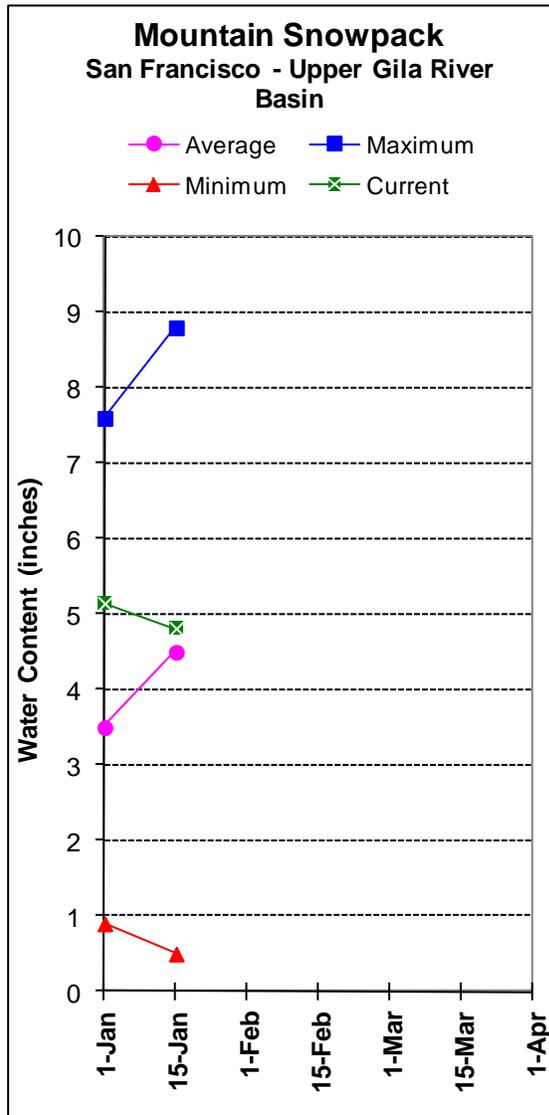
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=====
                        VERDE RIVER BASIN
                        Watershed Snowpack Analysis - January 15, 2012
=====
Watershed    Number of Data Sites    This Year as Percent of
              |                    | Last Year  Average
=====
VERDE RIVER BASIN    11    58    71
SAN FRANCISCO PEAKS    3    57    74
=====

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SAN FRANCISCO-UPPER GILA RIVER BASIN as of January 15, 2012

Well below normal streamflow levels are forecast for the basin. In the San Francisco River, at Clifton, the forecast calls for 59% of median streamflow levels through May. In the Gila River, near Solomon, the forecast calls for 60% of median streamflow levels through May. At San Carlos Reservoir, inflow to the lake is forecast at 56% of median through May. Snow survey measurements show the snowpack for this basin to be at 107% of average.



SAN FRANCISCO - UPPER GILA RIVER BASIN as of January 15, 2012

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=====
                        SAN FRANCISCO - UPPER GILA RIVER BASIN
                        Streamflow Forecasts - January 15, 2012
=====
Forecast Pt | <=== Drier === Future Conditions === Wetter ===> |
Forecast | ===== Chance of Exceeding * ===== |
Period | (1000AF) (1000AF) | (1000AF) (% MED.) | (1000AF) (1000AF) | (1000AF)
=====
Gila R at Gila (3)
  J15-MAY      22      33      43      78      54      74      55

Gila R bl Blue Ck nr Virden (3)
  J15-MAY      21      30      53      66      76     111      80

San Francisco R at Glenwood (3)
  J15-MAY      6.4     11.4     16.0     62      22      32      26

San Francisco R at Clifton (3)
  J15-MAY     16.0      20      39      59      64     100      66

Gila R nr Solomon (3)
  J15-MAY      38      50      94      60     154     240     158
  JANUARY                    12.6     64                        19.7

San Carlos Reservoir Inflow (2,3)
  J15-MAY      20      30      50      56      95     161      90
=====

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The average and median are computed for the 1971-2000 base period.
(1) - The values listed under the 10% and 90% Chance of Exceeding are
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(2) - The value is natural volume - actual volume may be affected by upstream
      water management.
(3) - Median value used in place of average.
=====

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=====
                        SAN FRANCISCO - UPPER GILA RIVER BASIN
                        Reservoir Storage (1000AF) Mid-January
=====
Reservoir | Usable Capacity | ***** Usable Storage ***** |
          |                 | This Year   Last Year   Average |
=====
SAN CARLOS | 875.0           | 18.6        113.4    421.8 |
=====

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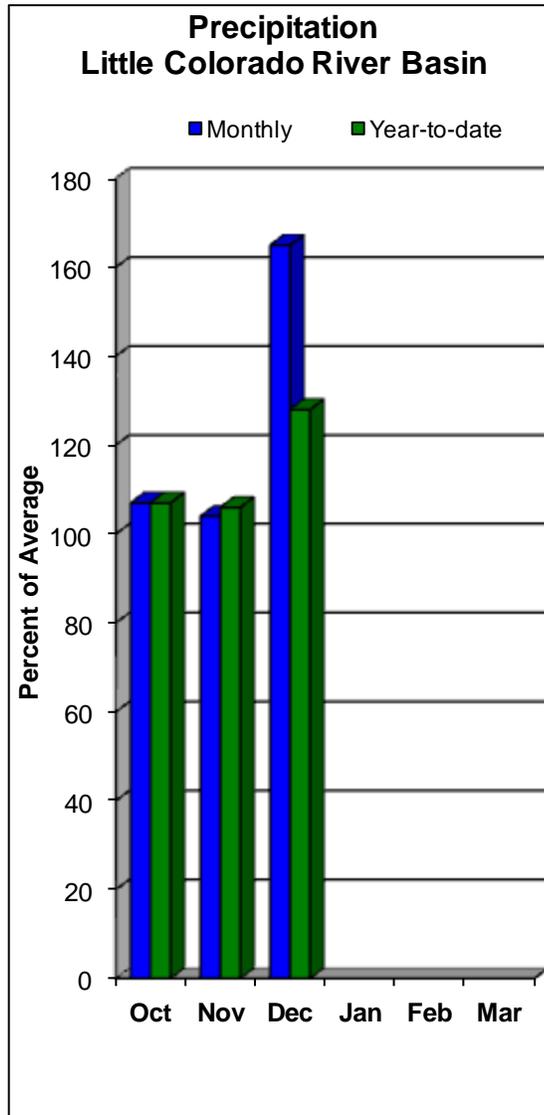
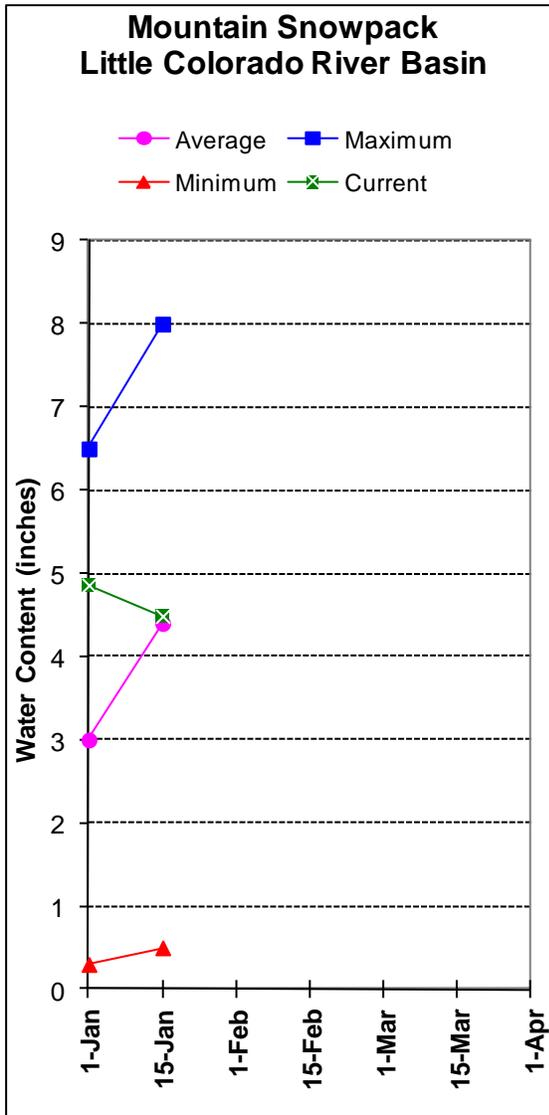
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=====
                        SAN FRANCISCO - UPPER GILA RIVER BASIN
                        Watershed Snowpack Analysis - January 15, 2012
=====
Watershed | Number of Data Sites | This Year as Percent of Last Year | Average |
=====
SAN FRANCISCO - UPPER GILA R | 9 | 157 | 107 |
=====

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LITTLE COLORADO RIVER BASIN as of January 15, 2012

Well below normal streamflow levels are forecast for the basin. In the Little Colorado River, above Lyman Lake, the forecast calls for 61% of median streamflow through June. At Blue Ridge (C.C. Cragin) Reservoir, inflow to the lake is forecast at 70% of median through May. Snowpacks along the southern headwaters of the Little Colorado River, and along the central Mogollon Rim, were measured at 102% and 106% of average, respectively.



LITTLE COLORADO RIVER BASIN as of January 15, 2012

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=====
                                LITTLE COLORADO RIVER BASIN
                                Streamflow Forecasts - January 15, 2012
=====
Forecast Pt | <=== Drier === Future Conditions === Wetter ===> |
Forecast     | ===== Chance of Exceeding * ===== |
Period       | 90%    70%    | 50%    | 30%    10%    | 30 Yr Med
              |(1000AF) (1000AF)|(1000AF) (% MED.)|(1000AF) (1000AF)| (1000AF)
=====
Little Colorado R ab Lyman Lake (3)
  JAN-JUN    0.98    2.70    4.50    61     7.00    12.29    7.40

Blue Ridge Reservoir Inflow (3)
  JAN-MAY    3.4     7.9     12.0    70     17.0    26     17.1

Lake Mary Reservoir Inflow (3)
  JAN-MAY    1.14    2.30    3.50    70     5.00    7.90    5.00
=====

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 The average and median are computed for the 1971-2000 base period.
 (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
 (2) - The value is natural volume - actual volume may be affected by upstream water management.
 (3) - Median value used in place of average.

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=====
                                LITTLE COLORADO RIVER BASIN
                                Reservoir Storage (1000AF) Mid-January
=====
Reservoir    Usable          ***** Usable Storage *****
              Capacity    This Year    Last Year    Average
=====
LYMAN RESERVOIR    30.0          9.5         18.0         14.3
=====

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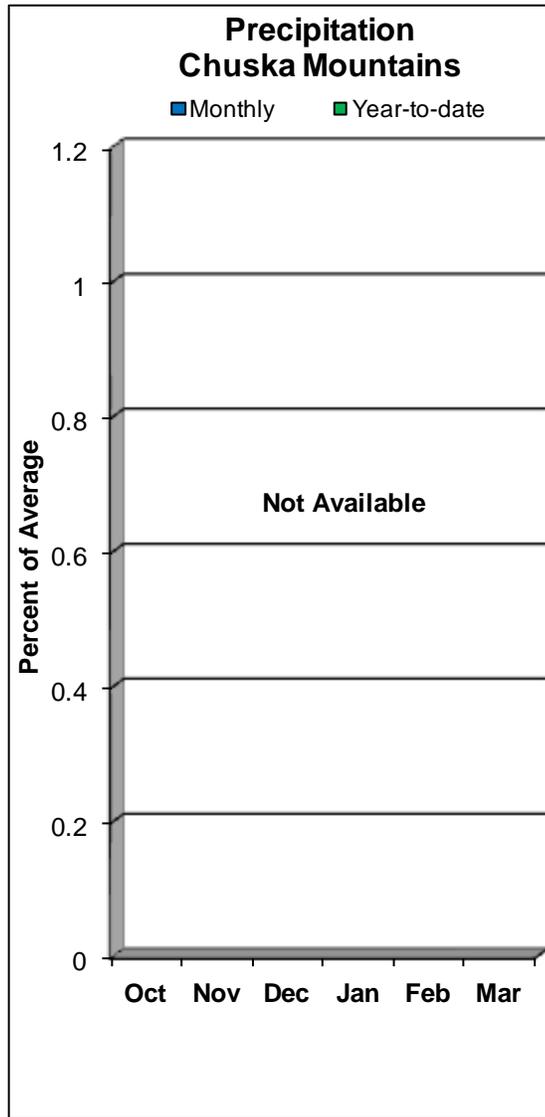
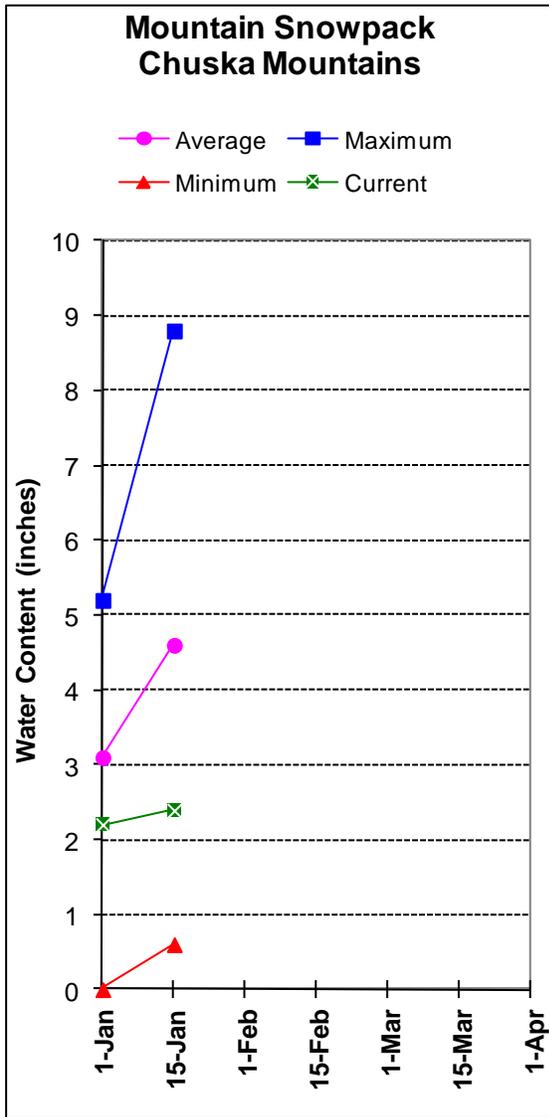
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=====
                                LITTLE COLORADO RIVER BASIN
                                Watershed Snowpack Analysis - January 15, 2012
=====
Watershed    Number of          This Year as Percent of
              Data Sites        Last Year          Average
=====
LITTLE COLORADO - SOUTHERN H    10                117                102
CENTRAL MOGOLLON RIM            4                 109                106
=====

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CHUSKA MOUNTAINS as of January 15, 2012

Snow survey measurements conducted by staff of the Navajo Water Management Branch show the Chuska snowpack to be at 52% of average. Well below normal runoff is forecast for Captain Tom Wash, Wheatfields Creek, Bowl Canyon Creek, and Kinlichee Creek.



CHUSKA MOUNTAINS as of January 15, 2012

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=====
                        CHUSKA MOUNTAINS
                    Streamflow Forecasts - January 15, 2012
=====
Forecast Pt | <=== Drier === Future Conditions === Wetter ===> |
Forecast    | ===== Chance of Exceeding * ===== |
Period      | (1000AF) (1000AF) | (1000AF) (% AVG.) | (1000AF) (1000AF) | (1000AF)
=====
Captain Tom Wash nr Two Gray Hills
MAR-MAY     0.13    0.87    2.00    71    3.80    8.20    2.83

Wheatfields Ck nr Wheatfields
MAR-MAY     0.69    1.36    2.00    69    2.80    4.40    2.90

Bowl Canyon Ck ab Asaayi Lake
MAR-MAY     0.27    0.51    0.75    75    1.05    1.62    1.00

Kinlichee Ck
MAR-MAY     0.14    0.52    1.00    59    1.71    3.30    1.70
=====

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* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1971-2000 base period.

- (1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
- (2) - The value is natural volume - actual volume may be affected by upstream water management.
- (3) - Median value used in place of average.

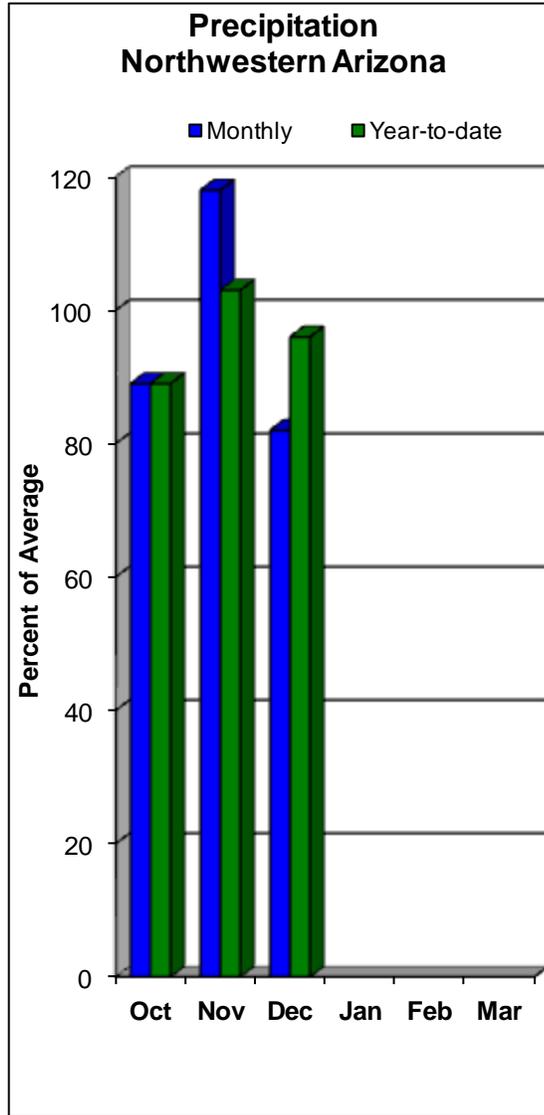
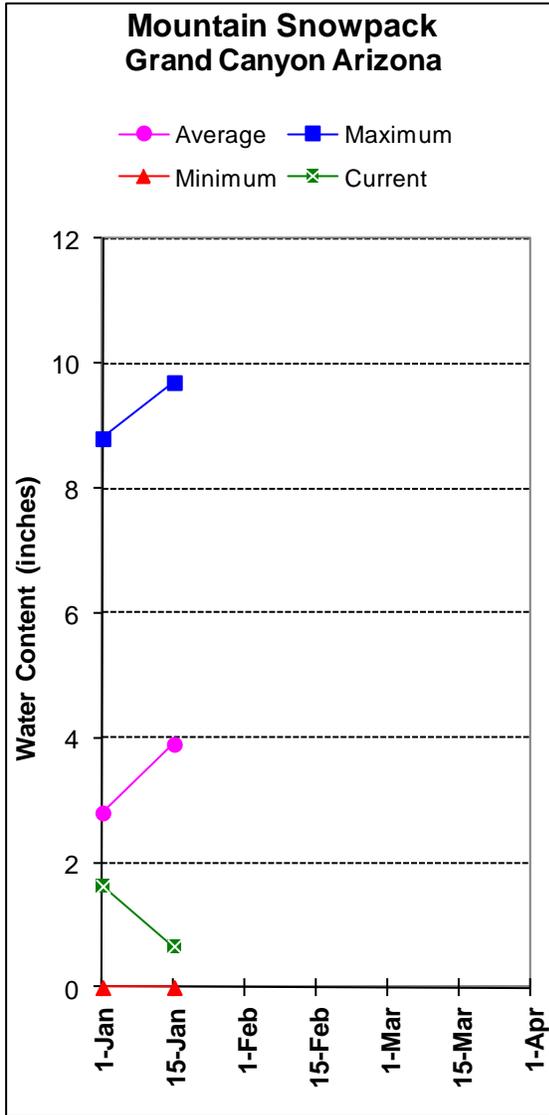
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=====
                        CHUSKA MOUNTAINS
                    Watershed Snowpack Analysis - January 15, 2012
=====
Watershed           Number of          This Year as Percent of
                   Data Sites         Last Year         Average
=====
CHUSKA MOUNTAINS           7                44                52
DEFIANCE PLATEAU           2                95                55
=====

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NORTHWESTERN ARIZONA as of January 15, 2012

On the Colorado River, well below normal inflow to Lake Powell is forecast at 64% of the 30-year average for the forecast period April-July. At the Grand Canyon, measurements conducted by park rangers show the snowpack to be at only 17% of average.



NORTHWESTERN ARIZONA as of January 15, 2012

NORTHWESTERN ARIZONA
Streamflow Forecasts - January 15, 2012

Forecast Pt Forecast Period	<=== Drier === Future Conditions === Wetter ===>					30 Yr Avg (1000AF)	
	Chance of Exceeding * 90% 70% 50% 30% 10%						
	(1000AF)	(1000AF)	(1000AF) (% AVG.)	(1000AF)	(1000AF)	(1000AF)	
Lake Powell Inflow (2)							
APR-JUL	1640	3670	5050	64	6430	8460	7930

* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1971-2000 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.

(2) - The value is natural volume - actual volume may be affected by upstream water management.

(3) - Median value used in place of average.

NORTHWESTERN ARIZONA
Reservoir Storage (1000AF) Mid-January

Reservoir	Usable Capacity	***** This Year	***** Usable Storage Last Year	***** Average
LAKE HAVASU	619.0	548.8	583.7	557.4
LAKE MOHAVE	1810.0	1599.1	1722.6	1657.0
LAKE MEAD	26159.0	15025.0	10465.0	21868.0
LAKE POWELL	24322.0	15788.0	14146.0	18748.0

NORTHWESTERN ARIZONA
Watershed Snowpack Analysis - January 15, 2012

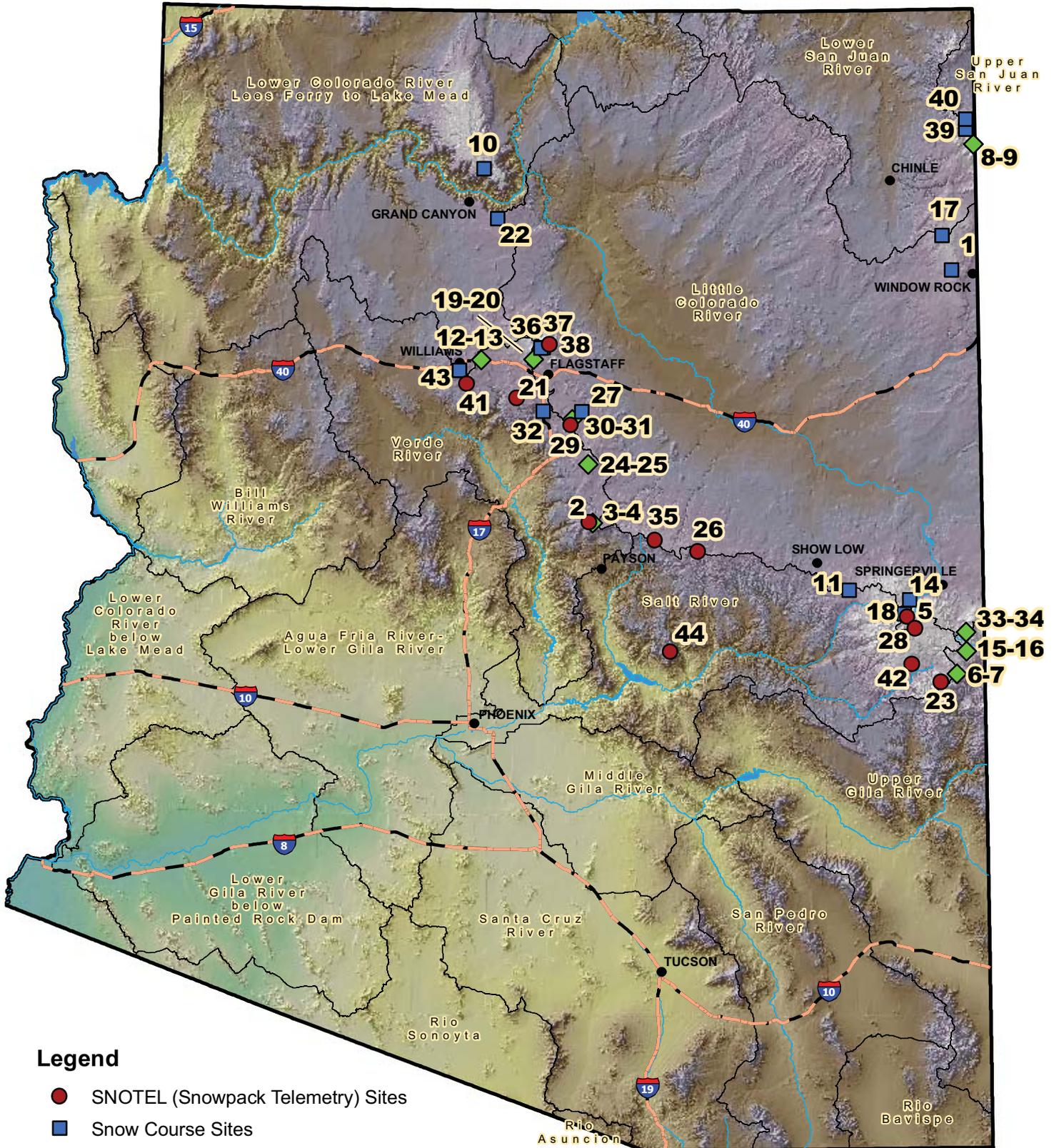
Watershed	Number of Data Sites	This Year as Percent of Last Year	Average
GRAND CANYON	2	15	17

S N O W S U R V E Y D A T A

JANUARY 15, 2012

MAP NUM	SNOW COURSE	ELEV	DATE	SNOW DEPTH	SNOW WATER	LAST YEAR	AVG 71-00
1	ARBABS FOREST (AK)	7680	1/10	5	0.9	1.0	1.7
2	BAKER BUTTE SNOTEL	7300	1/16	13	3.5	2.7	3.5
3	BAKER BUTTE #2	7700	1/12	22	7.2	6.6	6.5
4	BAKER BUTTE SMT SNOTEL	7700	1/16	26	8.0	7.4	
5	BALDY SNOTEL	9125	1/16	18	5.1	3.3	4.5
6	BEAVER HEAD	8000	1/13	9	2.1	1.8	2.1
7	BEAVER HEAD SNOTEL	7990	1/16	10	3.6	1.6	2.5
8	BEAVER SPRING	9220	1/12	10	2.6	7.2	5.9
9	BEAVER SPRING SNOTEL	9220	1/16	6	3.5	6.1	
10	BRIGHT ANGEL	8400	1/13	5	1.2	7.5	5.7
11	BUCK SPRING	7400	1/13	8	2.4	2.1	4.1
12	CHALENDER	7100	1/12	1	0.5	2.6	2.1
13	CHALENDER SNOTEL	7100	1/16	3	1.2	3.0	
14	CHEESE SPRINGS	8700	1/12	16	3.5	2.0	3.3
15	CORONADO TRAIL SNOTEL	8400	1/16	2	2.0	2.3	2.8
16	CORONADO TRAIL	8350	1/13	7	2.2	2.0	2.1
17	FLUTED ROCK	7800	1/10	5	1.2	1.2	2.1
18	FORT APACHE	9160	1/12	23	5.8	4.1	4.8
19	FORT VALLEY	7350	1/13	2	0.6	2.1	1.8
20	FORT VALLEY SNOTEL	7350	1/16	0	0.1	2.1	
21	FRY SNOTEL	7200	1/16	13	3.3	5.6	4.0
22	GRAND CANYON	7500	1/11	0	0.1	1.2	2.1
23	HANNAGAN MDWS SNOTEL	9020	1/16	24	7.2	5.7	7.0
24	HAPPY JACK	7630	1/10	5	1.8	6.0	3.0
25	HAPPY JACK SNOTEL	7630	1/16	12	3.2	7.2	2.9
26	HEBER SNOTEL	7640	1/16	14	4.2	3.6	3.9
27	LAKE MARY	6930	1/12	9	1.9	2.1	2.0
28	MAVERICK FORK SNOTEL	9200	1/16	21	5.3	5.6	5.7
29	MORMON MTN SNOTEL	7500	1/16	6	2.2	4.0	3.8
30	MORMON MTN SMT #2	8470	1/12	16	4.0	8.4	7.3
31	MORMON MTN SMT SNOTEL	8500	1/16	181	3.5	6.7	
32	NEWMAN PARK	6750	1/12	4	1.2	1.6	2.1
33	NUTRIOSO	8500	1/13	0	0.0	1.4	1.4
34	NUTRIOSO SNOTEL	8500	1/16		0.4	1.2	
35	PROMONTORY SNOTEL	7930	1/16	23	7.4	7.5	7.1
36	SNOW BOWL #1 ALT.	9920	1/13	19	5.6	9.6	7.4
37	SNOW BOWL #2	11200	1/13	25	6.6	11.6	10.4
38	SNOWSLIDE CYN SNOTEL	9730	1/16	29	6.9	12.3	8.0
39	TSAILE CANYON #1	8920	1/11	6	1.4	4.6	4.2
40	TSAILE CANYON #3	8920	1/12	12	2.7	7.3	5.6
41	WHITE HORSE SNOTEL	7180	1/16	1	1.1	3.6	3.2
42	WILDCAT SNOTEL	7850	1/16	7	3.1	2.0	2.8
43	WILLIAMS SKI RUN	7720	1/12	13	3.2	7.1	4.8
44	WORKMAN CREEK SNOTEL	6900	1/16	19	7.0	4.6	4.3

Arizona Snow Survey Data Sites



Legend

- SNOTEL (Snowpack Telemetry) Sites
- Snow Course Sites
- ◆ SNOTEL and Snow Course Sites
- Basin Boundaries

February 2010
 Data Sources: NRCS / ALRIS
 Projection: UTM Zone 12 Datum: NAD83
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