

Arizona State Basin Outlook Report for January, 1990

SLUG LINE CURRENT AS OF 1/19/90 12:30:17

MOISTURE CONDITIONS IN ARIZONA HAVE IMPROVED SINCE JANUARY 1 BUT THE OUTLOOK FOR FUTURE WATER SUPPLIES HAS NOT CHANGED SIGNIFICANTLY. THE SNOWPACK ON JANUARY 19 RANGED FROM 30% TO 69% OF AVERAGE. TWO JANUARY STORM PERIODS PRODUCED MUCH NEEDED MOISTURE. STREAMFLOW DURING THE FIRST HALF OF JANUARY WAS BELOW AVERAGE. BELOW AVERAGE RUNOFF IS STILL FORECAST FOR THE JANUARY-MAY PERIOD. RESERVOIR STORAGE IS WELL BELOW AVERAGE FOR MID JANUARY IN CENTRAL ARIZONA RESERVOIRS.

SNOWPACK

The Arizona snowpack increased significantly during the first half of January but is still not up to the 25 year average for January 15. Snow surveys were made on January 16. The results, along with SNOTEL telemetry data, showed a 24% of average snowpack on the Salt River basin, a 33% of average pack on the San Francisco-Gila River basin, and 29% of average snow along the southern border of the Little Colorado River basin. The Verde basin was up to 66% of normal. Snowpacks were 30% of average at the Grand Canyon, 42% on the San Francisco Peaks, and 30% of average in the Chuska Mountains. SNOTEL reports showed that the storm of January 16-19 had increased the pack to 32% on the Salt, 69% on the Verde, and 40% on the Little Colorado River. The Gila received no major new snow and was at 30% of normal. The San Francisco Peaks received a foot or more of new snow as did the area around Williams.

PRECIPITATION

The prolonged dry period was broken when storms crossed Arizona on December 28-29 and January 2-3. The precipitation received during January 1-15 was in

the near normal range in many areas of the state. Early January precipitation was 90% of average on the Salt River basin, 91% on the Verde, and 80% across the San Francisco-Gila River basin. The Little Colorado basin moisture was 61% of average. Northwestern Arizona precipitation ran 83% of average for January 1-15. The Santa Cruz-San Pedro basin received 96% and Sulphur Springs Valley, 70% of normal moisture. The state received additional precipitation January 16-19. Locations reporting one inch or more of precipitation included Carefree, Cottonwood, Lake Havasu City, Prescott, and Williams. Many other sites reported a half inch or more. The storm had the heaviest impact on the western two thirds of the state.

RESERVOIRS

Storage volumes in reservoirs across the state showed little change since January 1. The Salt River Project system increased slightly to 50% of capacity or 1,002,200 acre feet. San Carlos reservoir increased by 3000 acre feet and is now at 59,900 acre feet, just 6% of capacity. Lake Pleasant has 49,900 acre feet at 32% of capacity. The Colorado River system (Lakes Havasu, Mohave, Mead, and Powell) currently holds 42,528,000 acre feet which is 79% full. Show Low Lake holds 1400 acre feet and Lyman Lake 11,200 acre feet.

STREAMFLOW

Preliminary streamflow data for January 1-15 shows well below average volumes throughout the state. The Salt and Verde Rivers ran 30% and 50% of average while Tonto Creek was only 8% of average. The Gila River at Head of Safford Valley ran 32% of average and at Calva, 11% of average. The Little Colorado at Lyman had 57% of average flow for January 1-15. Streamflow forecasts for January-May remain unchanged from those issued January 1 even though storms did cross the state during the first half of this month. The Salt is forecast to run 31% of average, Tonto Creek, 15% and the Verde, 43%. The San Francisco River at Clifton is expected to flow 20% of average. The January-May forecast for the Gila River is 28% of average at Gila, 20% near Virden, 18% at Head of Safford Valley, and 9% at Calva after diversions. Lyman reservoir inflow is forecast at 7% of normal after diversions. The Virgin River at Littlefield is

forecast at 60% for April-June. April-July inflow to Lake Powell forecast has been lowered to 57%.

SALT RIVER BASIN

January-May runoff from the Salt River is still forecast to be 31% of average. Tonto Creek is forecast to run 15% of average. January 1-15 precipitation was about 90% of normal over the basin. The storm of January 16-19 did not greatly affect most of the Salt River watershed. The largest amounts reported were in the Pinetop - McNary area and along the Mogollon Rim west of Heber. The snowpack on January 16 was 24% of average based on snow surveys, and was 32% of average based on SNOTEL. The four dams on the Salt River held 965,700 acre-feet on January 15, 56% of capacity. Salt River flow was 30% of average and Tonto Creek was 8% of average for the January 1-15 period.

STREAMFLOW FORECASTS

FORECAST POINT	FCST PERIOD	FUTURE							25YR
		DRIER		CHANCE OF EXCEEDING * %AVG			WETTER		
		90% (KAF)	70% (KAF)	50% (KAF)	50%	30% (KAF)	10% (KAF)	(KAF)	
Salt R nr Roosevelt	JAN-MAY	58	83	150	31	215	315	485	
SALT RIVER nr Roosevelt	JAN			20	36			55	
Tonto Ck nr Roosevelt	JAN-MAY	5.0	10.0	15.0	15	35	64	98	
TONTO CREEK nr Roosevelt	JAN			3.0	15			20	

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

The average is computed for the 1961-1985 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 flow - actual flow may be affected by upstream water management.

RESERVOIR STORAGE

(1000AF)

RESERVOIR	USABLE CAPACITY	** USABLE STORAGE **		
		THIS YEAR	LAST YEAR	AVE.
SALT RIVER RES SYSTEM	1710.0	965.7	1451.9	1180.0
LAKE PLEASANT	157.0	49.9	69.8	75.3

WATERSHED SNOWPACK ANALYSIS

WATERSHED	NO. COURSES AVE.D	THIS YEAR AS % OF	
		LAST YR.	AVERAGE
SALT RIVER	7	27	24

VERDE RIVER BASIN

The Verde River forecast for January - May remains unchanged at 43% of average. The storms of early and mid January did not produce large increases in the Verde River flow. Basin precipitation for January 1-15 was about 91% of average. The January 16-19 storm dropped significant additional precipitation above Pine, over the Prescott - Ashfork - Williams area, and in the headwaters of Sycamore and Oak Creeks. Snow surveys on January 16 showed a 66% of average snowpack. SNOTEL on January 19 showed an increase to 69% of average. The San Francisco Peaks snowpack was 42% of average on January 16 and an additional 12-18 inches of snow by January 19. The Verde River ran only 50% of average January 1-15. Horseshoe Reservoir was 36,500 acre-feet, 12% full.

STREAMFLOW FORECASTS

FORECAST POINT	FCST PERIOD	<---DRIER--- FUTURE --WETTER--->						25YR
		----- CHANCE OF EXCEEDING *-----						
		90% (KAF)	70% (KAF)	50% (KAF)	50% %AVG	30% (KAF)	10% (KAF)	
Verde R abv Horseshoe Dam	JAN-MAY	59	80	135	43	191	270	311
VERDE RIVER abv Horseshoe	JAN			20	43			46

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RESERVOIR STORAGE (1000AF)

RESERVOIR	USABLE CAPACITY	** USABLE STORAGE **		
		THIS YEAR	LAST YEAR	AVE.
VERDE RIVER RES SYSTEM	310.0	36.5	164.4	121.5

WATERSHED SNOWPACK ANALYSIS

WATERSHED	NO. COURSES AVE.D	THIS YEAR AS % OF	
		LAST YR.	AVERAGE
VERDE RIVER	6	48	66
SAN FRANCISCO PEAKS	4	41	42

SAN FRANCISCO - UPPER GILA RIVER BASIN

The Gila River is forecast to produce 18% of average

flow at Head of Safford Valley for the January - May period. The flow at Calva is expected to be 9% of average. Upstream forecasts call for 28% of normal flow on the Gila at Virden and 20% on the San Francisco River at Clifton. The January 1-15 precipitation over the basin was about 80% of average with no large amounts received from the January 16-19 storm. The snowpack is in the 30-33% of normal range. The Gila River flow at Head of Safford Valley for January 1-15 was 32% of average. The San Francisco at Clifton ran 28% of average. San Carlos Reservoir held 59,900 acre-feet at 6% of capacity on January 15.

STREAMFLOW FORECASTS

FORECAST POINT	FCST PERIOD	<---DRIER--- FUTURE --WETTER--->							
		----- CHANCE OF EXCEEDING *-----							
		90%	70%	50%	50%	30%	10%	25YR	
		(KAF)	(KAF)	(KAF)	%AVG	(KAF)	(KAF)	(KAF)	
Gila R at Gila	JAN-MAY	16.0	18.0	21	28	36	57	74	
Gila R nr Virden	JAN-MAY	15.0	18.0	20	20	45	81	100	
San Francisco R at Glenwood	JAN-MAY	4.0	6.0	10.0	22	24	44	45	
San Francisco R at Clifton	JAN-MAY	13.0	16.0	20	20	43	78	100	
Gila R nr Solomon	JAN-MAY	26	35	40	18	85	150	217	
GILA RIVER near Solomon	JAN			10.0	26			38	
Gila R at Calva	JAN-MAY	9.0	12.0	15.0	9	62	131	176	

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RESERVOIR STORAGE (1000AF)

RESERVOIR	USABLE CAPACITY	** USABLE STORAGE **		
		THIS YEAR	LAST YEAR	AVE.
SAN CARLOS	935.0	59.9	445.7	311.9
PAINTED ROCK DAM	2492.0	0.0	0.0	----

WATERSHED SNOWPACK ANALYSIS

WATERSHED	NO. COURSES AVE.D	THIS YEAR AS % OF	
		LAST YR.	AVERAGE
SAN FRANCISCO/GILA RIVER	6	52	26

LITTLE COLORADO RIVER BASIN

The January - June flow on the upper Little Colorado River at Greer is forecast to be 37% of average and the inflow to Lyman Lake 7% of average after diversions. January 1-15 precipitation over the basin was 61% of normal. The January 16 snowpack along the southern basin was 29% of average based on snow surveys. SNOTEL showed an increase to 40% of average on January 19 due to Storm increases at Buck Spring, Promontory and Baker Butte. The Chuska Mountain snowpack was up to 30% of average. Lyman Lake held 11,200 acre-feet and Show Low Lake held 1,400 acre-feet on January 15.

STREAMFLOW FORECASTS

FORECAST POINT	FCST	<---DRIER--- FUTURE --WETTER--->						25YR
		----- CHANCE OF EXCEEDING *-----						
		90%	70%	50%	50%	30%	10%	

	PERIOD	(KAF)	(KAF)	(KAF)	%AVG	(KAF)	(KAF)	(KAF)
Little Colorado R at Greer	JAN-JUN	2.7	3.0	3.3	38	5.1	7.7	8.8
Little Colorado R ab Lyman Res	JAN-JUN	0.9	0.9	1.0	7	5.1	11.1	14.2
RIO NUTRIA nr Ramah abv Upper Nut	JAN-MAY	0.1	0.2	0.3	6	2.4	5.5	5.2
ZUNI R abv Black Rock Res 2	JAN-MAY	0.1	0.2	0.4	4	4.1	9.6	9.3
LITTLE COLORADO RIVER at Woodruff	NOV-JUN	1.9	2.1	5.0	29	7.9	12.2	17.3
Lake Mary Inflow	JAN-MAY	0.1	1.0	2.0	32	4.1	7.2	6.2

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RESERVOIR STORAGE (1000AF)

RESERVOIR	USABLE CAPACITY	** USABLE STORAGE **		
		THIS YEAR	LAST YEAR	AVE.
LYMAN RESERVOIR	31.2	11.2	23.8	14.4
SHOW LOW LAKE	5.1	1.4	5.1	1.8

WATERSHED SNOWPACK ANALYSIS

WATERSHED	NO. COURSES AVE.D	THIS YEAR AS % OF	
		LAST YR.	AVERAGE
LITTLE COLORADO RIVER	5	34	29

CHUSKA MOUNTAINS

5

10

12

LOWER COLORADO RIVER BASIN

Inflow to Lake Powell on the Colorado River is forecast to be 57% of average over April - July. The Virgin River forecast is for 60% of normal flow. January 1-15 precipitation over northwestern Arizona was about 83% of average. The January 16-19 storm brought additional moisture, mostly as snow. Snow surveys at the Grand Canyon on January 16 showed a 30% of average snowpack. The combined storage of Lakes Havasu, Mohave, Mead and Powell was 42,528,000 acre-feet on January 15 at 79% of capacity.

STREAMFLOW FORECASTS

FORECAST POINT	FCST PERIOD	<---DRIER--- FUTURE --WETTER--->						
		----- CHANCE OF EXCEEDING *-----						
		90%	70%	50%	50%	30%	10%	25YR
		(KAF)	(KAF)	(KAF)	%AVG	(KAF)	(KAF)	(KAF)
VIRGIN RIVER near Littlefield	APR-JUN	16.0	27	40	60	53	72	67
COLORADO RIVER inf to Lake Powell	APR-JUL	2570	3200	4600	57	6000	8050	8086

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RESERVOIR STORAGE (1000AF)

RESERVOIR	USABLE CAPACITY	** USABLE STORAGE **		
		THIS YEAR	LAST YEAR	AVE.

LAKE HAVASU	619.0	542.7	572.8	549.4
LAKE MOHAVE	1810.0	1681.8	1721.0	1649.0
LAKE MEAD	26159.0	21609.0	22968.0	19348.0
LAKE POWELL	25002.0	18605.0	21681.0	----

WATERSHED SNOWPACK ANALYSIS

WATERSHED	NO. COURSES AVE.D	THIS YEAR AS % OF LAST YR. AVERAGE	
LOWER COLORADO RIVER	2	29	30

SAN PEDRO - SANTA CRUZ BASIN

January 1-15 precipitation was 96% of average over the basin. Tucson, Bisbee and Mt. Lemmon received above normal moisture while Nogales and Casa Grande were below normal. The January 16-19 storm brought significant rain from Mt. Lemmon northward, but south of there precipitation was generally a tenth of an inch or less.

STREAMFLOW FORECASTS

FORECAST POINT	FCST PERIOD	<---DRIER--- FUTURE --WETTER--->						25YR (KAF)
		CHANCE OF EXCEEDING *-----						
		90% (KAF)	70% (KAF)	50% (KAF)	50% %AVG	30% (KAF)	10% (KAF)	

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water management.

SULPHUR SPRINGS VALLEY

Precipitation over the Sulphur Springs Valley area was about 70% of average for the first half of January. The January 16-19 storm produced little precipitation in this area of Arizona.

STREAMFLOW FORECASTS

		<---DRIER--- FUTURE --WETTER--->						
		----- CHANCE OF EXCEEDING *-----						
FORECAST POINT	FCST	90%	70%	50%	50%	30%	10%	25YR
	PERIOD	(KAF)	(KAF)	(KAF)	%AVG	(KAF)	(KAF)	(KAF)

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