

Possible Recalculated Base Flow Values in Streams with High Irrigation Return Flows in Summer

The streams shown below had higher base flow recommendations for summer and fall than during the winter and spring because they received relatively high irrigation return flow in the summer. We used the naturalized flows from the water availability model to calculate the proportional increase or decrease in flow from one month to the next. The yellow highlighted values are the possible recalculated values.

Return flow estimates are average estimated return flows from 1940-1996 as determined by the U. S. Bureau of Reclamation. Seasons are: Winter – Dec thru Feb, Spring – Mar thru Jun, Summer – July and Aug, and Fall – Sep thru Nov. These return flow estimates were not used in the calculations below but they show the relative magnitude of return flows in different streams.

BBEST members were not asked to provide an opinion as to whether or not the highlighted values, if used instead of the BBEST determined values, would protect a sound environment.

However BBEST members were given the opportunity to provide comments.

BBEST comments summary:

1. The results shown below are based on a relatively simple computational approach. The BBEST would require more time to evaluate an acceptable approach to calculating adjustments to these values.
2. The data that would be used in these calculations is based on estimated return flows for 1940-1996 and do not include direct measurements of return flow at any time and do not include estimates of return flow for the period from 1997 through 2009.
3. The environment may have adapted to the existing flow regimes in which case, substantial changes to these flow regimes may not protect a sound environment.
4. The flows and the associated environmental flow recommendations at all of our sites are influenced by human activities to varying degrees. Changing base flows at these sites may imply that it is appropriate to change flows at other sites as a result of past or possible future human activities.

East Mustang Creek

	Winter	Spring	Summer	Fall
High base (cfs)	6	6	8 (2)	8 (3)
Medium base (cfs)	2	3	5 (1)	3 (1)
Low base (cfs)	1	1	2 (1)	1 (1)

West Mustang Creek

	Winter	Spring	Summer	Fall
High base (cfs)	20	20	32 (10)	26 (13)
Medium base (cfs)	9	11	18 (5)	14 (7)
Low base (cfs)	4	5	10 (3)	6 (3)
Return flow (acre-ft)	0.1	3,459	3,065	754

Sandy Creek

	Winter	Spring	Summer	Fall
High base (cfs)	30	30	39 (6)	39 (16)
Medium base (cfs)	14	14	21 (3)	21 (8)
Low base (cfs)	5	5	9 (1)	9 (3)
Return flow (acre-ft)	0.3	8,526	7,852	2,132

Navidad River at Strane Park

	Winter	Spring	Summer	Fall
High base (cfs)	71	71	84 (21)	71 (28)
Medium base (cfs)	35	35	47 (11)	35 (15)
Low base (cfs)	14	18	24 (5)	17 (7)
Return flow (acre-ft)	0.4	922	877	9

Tres Palacios Creek

	Winter	Spring	Summer	Fall
High base (cfs)	18	22	22 (3)	18 (11)
Medium base (cfs)	13	13	13 (2)	13 (7)
Low base (cfs)	9	9	7 (1)	7 (4)
Return flow (acre-ft)	0.05	3,093	2,248	1,051