

Stream Depletions from Groundwater Pumping

Modeled Depletions From Pumping (af)			
Year	Depletions from Pumping within RRCA Model Boundary (NE)	Depletions from Pumping within Republican River Surface Water Basin (NE)	Depletions from Pumping within 10/50 Area
2005	210,881	192,593	182,552
2006	198,411	180,108	169,830
2007	207,665	205,561	193,089
2008	212,314	209,884	195,783
2009	222,154	219,625	203,633
2010	203,807	201,116	183,045
2011	200,748	197,990	180,297
2012	157,256	154,904	141,006
2013	167,946	165,444	151,026
2014	185,397	182,617	166,911

Water-Short Years are highlighted in blue



af = acre-feet

Note: Typically, the rate of streamflow depletions due to groundwater pumping varies proportionally to the rate of groundwater pumping. However there can be times when groundwater pumping has fully depleted available streamflow. This is most likely to occur during extremely dry years, when the lack of precipitation results in much lower available streamflow to deplete. When this occurs, any additional increase in groundwater pumping will not produce the expected increase in streamflow depletion, but rather will be manifest as aquifer depletions instead. If the conditions change and the streamflow increases substantially during a wetter period, the streamflow depletions that would have been expected during the dry period will be shifted in time and will occur during those wetter conditions. This is a significant cause of the counterintuitive results often observed in streamflow depletion calculations for the Republican River.