

## Groundwater Pumping

<b>REVISED</b> Nebraska Groundwater Pumping within RRCA Model Area*, 1995-2014												
Irrigated Land (Acres**), Groundwater Delivered Volume (Acre-Feet), and Groundwater Delivered Depth (Inches**)												
Year	Lower Republican NRD			Middle Republican NRD			Upper Republican NRD			Tri-Basin NRD		
	Acres	Volume (af)	Depth (inches)	Acres	Volume (af)	Depth (inches)	Acres	Volume (af)	Depth (inches)	Acres	Volume (af)	Depth (inches)
1995	203,983	249,632	14.7	202,362	284,374	16.9	374,614	442,066	14.2	430,103	474,599	13.2
1996	211,297	127,784	7.3	221,062	179,279	9.7	384,799	331,079	10.3	445,551	275,655	7.4
1997	232,677	241,194	12.4	225,927	292,620	15.5	377,170	492,253	15.7	448,273	442,583	11.8
1998	230,269	197,910	10.3	228,717	301,786	15.8	371,596	506,262	16.4	443,469	336,762	9.1
1999	227,927	156,928	8.3	225,629	140,107	7.5	369,037	382,926	12.5	452,326	286,746	7.6
2000	242,107	267,215	13.2	234,864	384,438	19.6	384,013	666,396	20.9	468,982	512,756	13.1
2001	244,238	240,413	11.8	252,340	311,892	14.8	443,499	488,370	13.3	504,160	400,006	9.5
2002	248,125	361,733	17.5	250,497	429,938	20.6	444,395	672,760	18.2	508,899	550,312	13
2003	271,259	297,876	13.2	249,254	354,363	17.1	451,349	564,144	15.1	512,339	508,536	11.9
2004	292,301	274,909	11.3	259,286	317,224	14.7	442,214	468,733	12.8	526,729	462,052	10.5
2005	280,511	243,378	10.4	240,972	248,037	12.4	474,419	429,518	10.9	531,545	419,990	9.5
2006	300,824	197,653	7.9	279,264	254,585	10.9	459,350	430,868	11.3	544,454	400,325	8.8
2007	294,939	161,183	6.6	272,855	196,337	8.6	427,766	395,361	11.1	533,468	318,210	7.2
2008	287,889	135,072	5.6	270,925	208,659	9.2	428,996	429,780	12	526,358	334,891	7.6
2009	284,869	153,072	6.4	269,470	197,534	8.8	438,380	336,108	9.2	527,574	302,008	6.9
2010	285,970	113,663	4.8	270,325	194,637	8.6	427,460	381,870	10.7	528,959	252,421	5.7
2011	292,499	138,879	5.7	273,114	209,182	9.2	428,468	357,341	10	531,016	285,098	6.4
2012	291,780	290,556	11.9	276,443	411,131	17.8	426,358	673,917	19	532,142	526,664	11.9
2013	284,252	215,111	9.1	278,358	251,294	10.8	426,346	494,808	13.9	542,563	563,112	12.5
2014	294,939	139,226	5.7	218,451	215,952	11.9	381,653	391,657	12.3	533,468	283,976	6.4

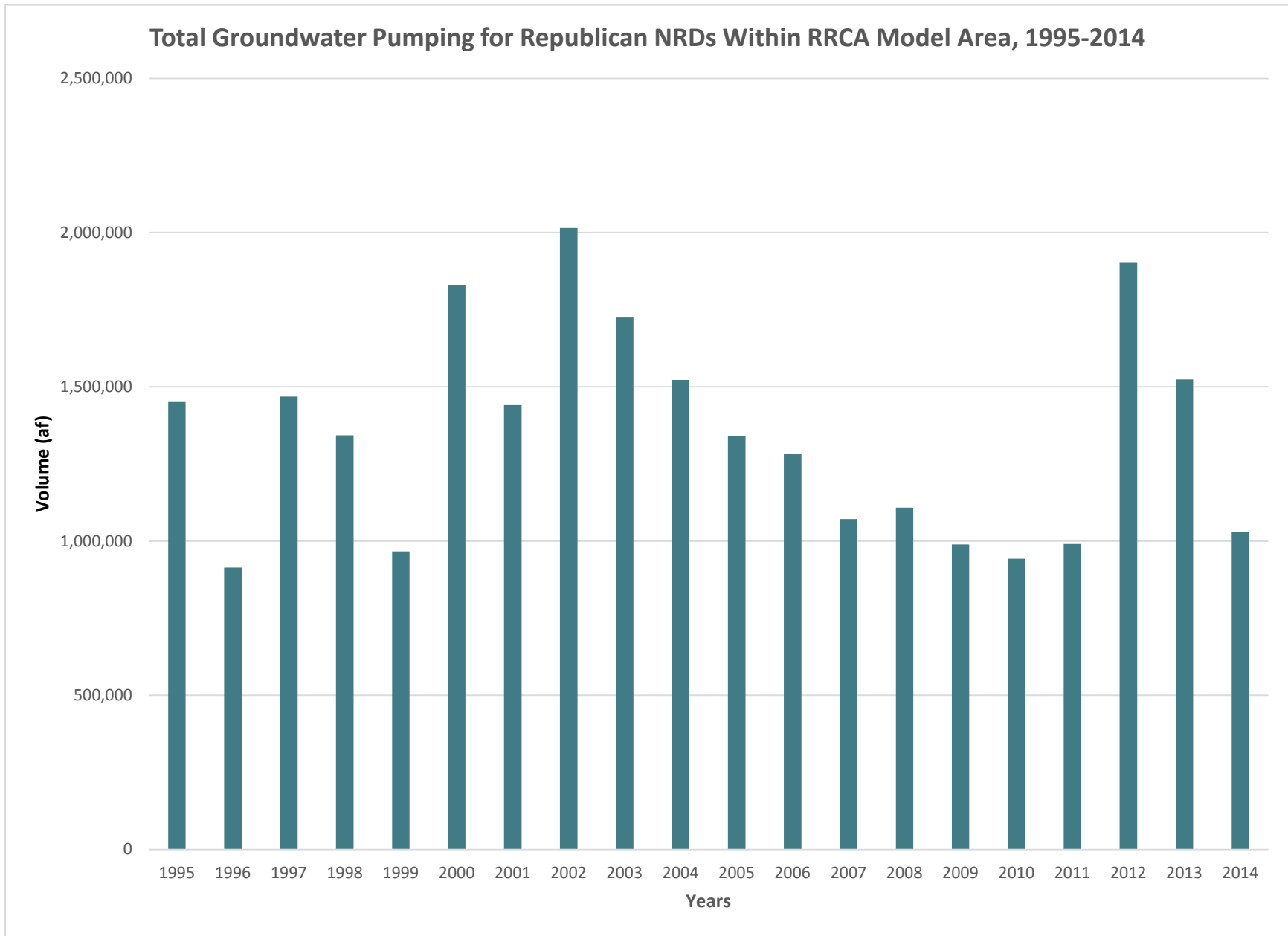
\*There is some additional groundwater pumping within the Nebraska portion of the model area that takes place outside these four NRDs.

\*\* **The groundwater pumping data handout distributed on November 1 was incorrect because it excluded commingled acres.** A green background in the table above denotes values that have been corrected since the version of this table that was distributed at November 1, 2016, stakeholder meeting.

- The values for irrigated acres are higher in this version. The difference is because this revised version includes both groundwater exclusive and commingled acres, whereas the commingled acres were inadvertently excluded from the November 1 version.
- As a result of the increase in irrigated acres, the values for depth of irrigation are lower in this revised version than in the November 1 version.

Acres and pumping data were obtained from NASS and power record estimates until 2006, when NRD certified acres and measured pumping volumes were substituted for these estimates for all wells within the basin (this change was made in the URNRD in 2000).

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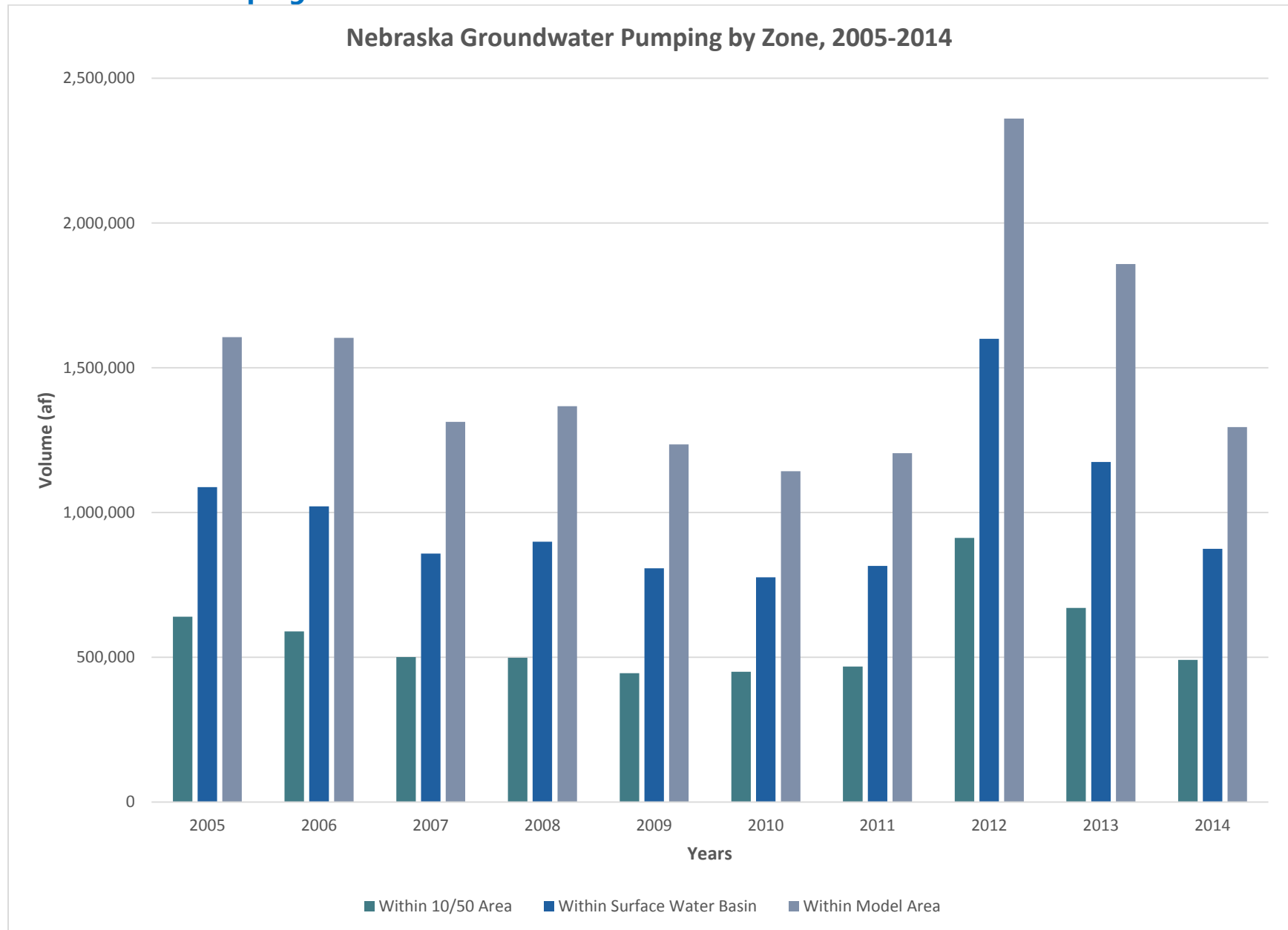
Nebraska Groundwater Pumping by NRD and by Zone, 2005-2014 (acre-feet)															
Year	Lower Republican NRD			Middle Republican NRD			Upper Republican NRD			Tri-Basin NRD			Nebraska Total*		
	Within 10/50 Area	Within Surface Water Basin	Within Model Area	Within 10/50 Area	Within Surface Water Basin	Within Model Area	Within 10/50 Area	Within Surface Water Basin	Within Model Area	Within 10/50 Area	Within Surface Water Basin	Within Model Area	Within 10/50 Area	Within Surface Water Basin	Within Model Area
2005	183,479	235,640	243,378	165,169	246,128	248,037	246,629	420,779	429,518	41,511	168,056	419,990	640,432	1,087,847	1,605,680
2006	144,052	190,675	197,653	160,720	251,602	254,585	243,467	421,443	430,868	37,448	135,518	400,325	589,351	1,021,491	1,603,265
2007	117,799	155,396	161,183	125,846	193,922	196,337	227,310	387,450	395,361	27,065	104,984	318,210	501,122	858,646	1,312,899
2008	95,836	129,979	135,072	131,698	206,115	208,659	235,447	420,427	429,780	32,571	122,187	334,891	498,902	899,543	1,367,083
2009	110,074	146,714	153,072	121,088	194,823	197,534	180,135	328,434	336,108	30,886	120,384	302,008	444,949	807,999	1,235,178
2010	82,970	109,663	113,663	123,049	192,767	194,637	213,283	373,665	381,870	27,745	85,054	252,421	450,203	776,319	1,142,744
2011	100,309	134,028	138,879	134,227	206,738	209,182	198,523	349,570	357,341	32,006	109,228	285,098	468,512	815,469	1,205,288
2012	209,935	280,357	290,556	260,171	406,075	411,131	376,732	659,141	673,917	60,278	221,291	526,664	912,524	1,600,361	2,360,818
2013	154,683	207,224	215,111	161,432	248,232	251,294	288,329	484,620	494,808	62,049	211,727	563,112	670,426	1,175,005	1,858,209
2014	106,694	134,482	139,226	129,990	214,040	215,952	222,688	383,375	391,657	28,460	105,590	283,976	491,204	874,406	1,295,536
AVG	130,583	172,416	178,779	151,339	236,044	238,735	243,254	422,891	432,123	38,002	138,402	368,670	566,762	991,709	1,498,670

\* There is some additional groundwater pumping that is included in the Nebraska Total but that takes place outside these four NRDs.

Data are shown for the time period in which water management actions have taken place to implement the Lower Republican, Middle Republican, and Upper Republican NRDs' integrated management plans, which were first adopted in 2005.

Water Short Years are highlighted in blue

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### RRCA GW Acre and Pumping Calculation Source List

**Pre-2001:** NASS acreage for each county was distributed using the DNR registered wells. Power records were used to calculate pumping.

**2001-2005:** Upper Republican NRD certified acres and well meters were used for acre and pumping calculation for that NRD. All other NRDS and “other” areas continued to use the pre-2001 methodology.

**2006-2013:** Upper, Middle, Lower, and Tri-basin NRDs now used the certified acres and well meter volumes for calculations within those areas. “Other” areas outside of those NRDs continue to use the old methodology. Power records were used to estimate pumping volumes for all areas outside of the in-basin portions of the four NRDs.

*Note: 2007 NASS acreage was used for all years (2007-2013) for the “other” areas*

*Note: No documentation yet on whether or not certified acres were adjusted similar to post-2014*

**2014-present:** Upper, Middle, Lower, and Tri-basin methodology largely stays the same. The acreage in the landuse spatial dataset is now adjusted to match the tabular certified acres. “Other” areas are now calculated using the COHYST derived land use acres.

Groundwater acres are used in the model only for the purpose of estimating recharge.