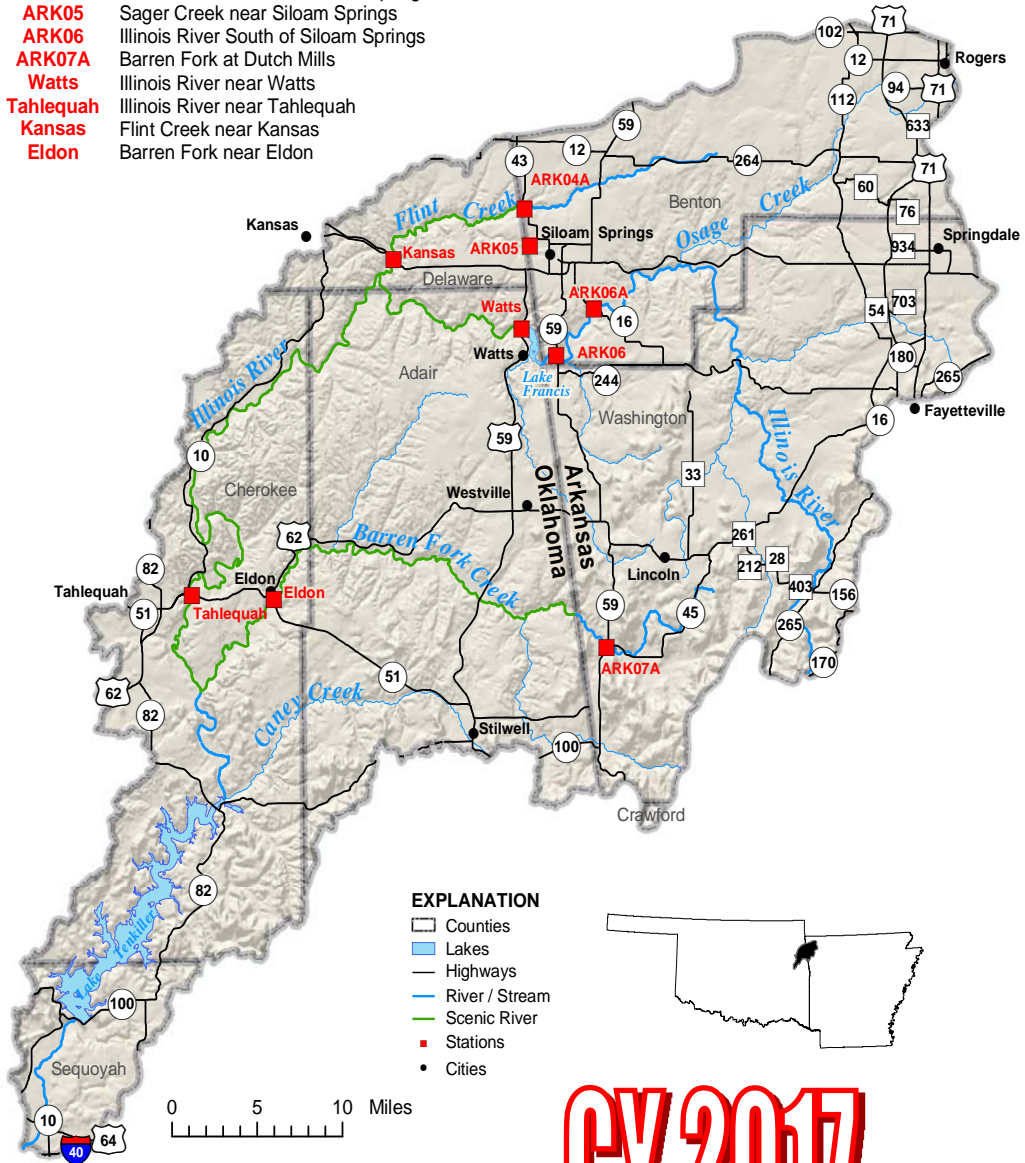


# Water Quality Monitoring Report

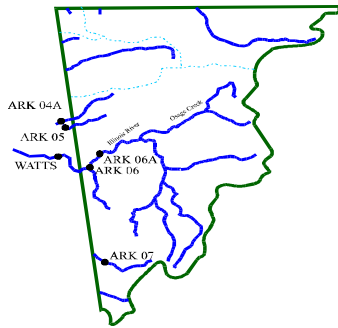
## Illinois River Basin

### Arkansas-Oklahoma Compact

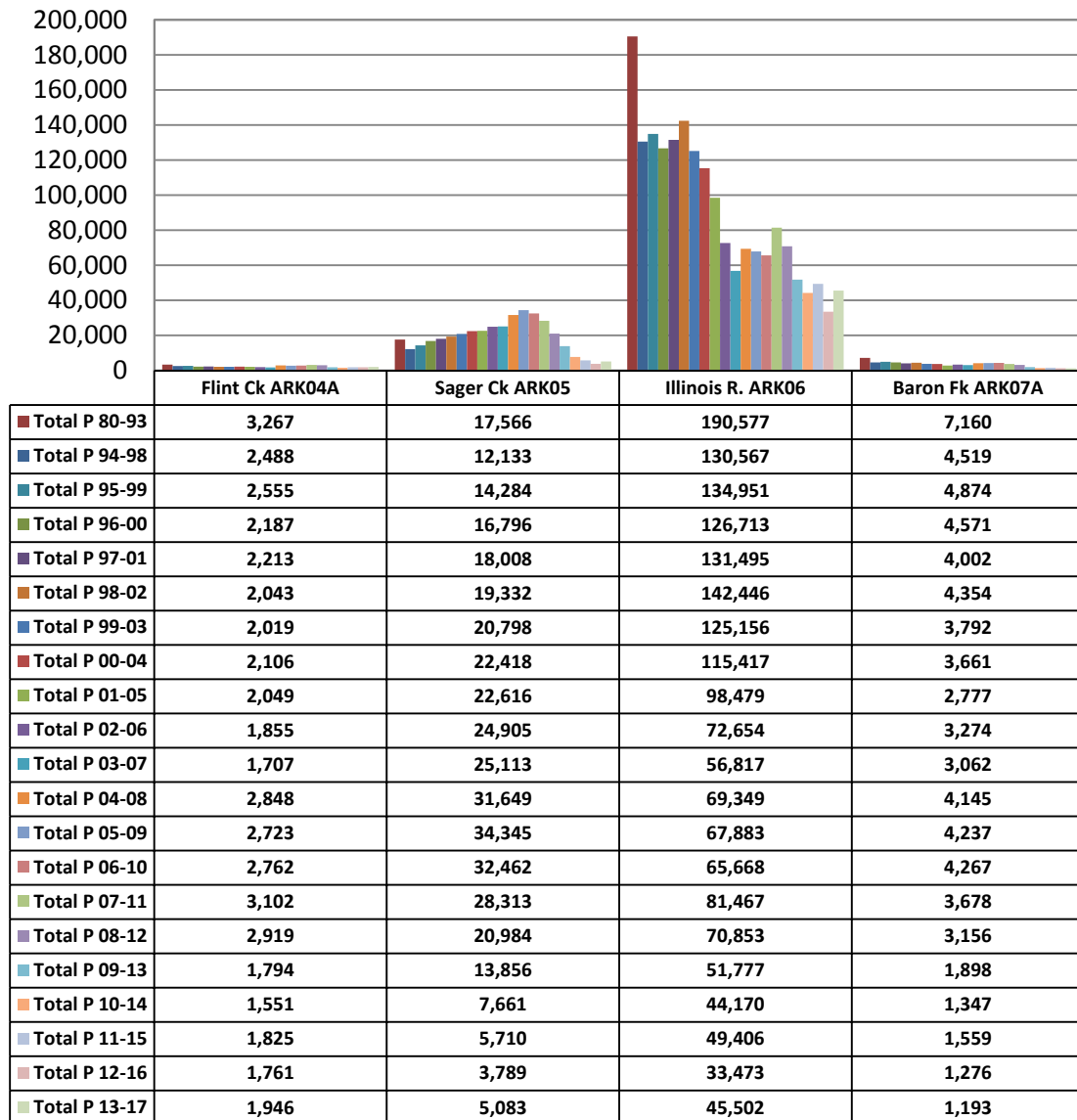
- ARK04A** Flint Creek near West Siloam Springs
- ARK05** Sager Creek near Siloam Springs
- ARK06** Illinois River South of Siloam Springs
- ARK07A** Barren Fork at Dutch Mills
- Watts** Illinois River near Watts
- Tahlequah** Illinois River near Tahlequah
- Kansas** Flint Creek near Kansas
- Eldon** Barren Fork near Eldon



# CY 2017



# Arkansas's Five Year Rolling Average Total Phosphorus Loading in Kilograms Per Year (excluding targeted high flows)



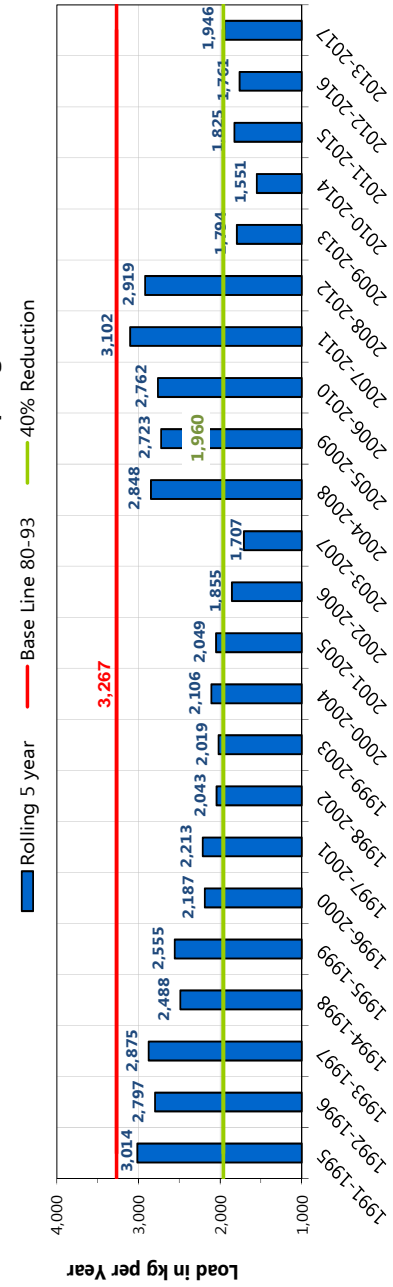
\*Values represent all available data routinely collected. Targeted high flows excluded beginning 2016.

## Flint Creek Northwest of Siloam Springs, Arkansas

ANNUAL PHOSPHORUS LOADING		
Flow (cfs)	Total P (mg/L)	Total P (kg/yr)
19.80	0.149	2,635
29.90	0.171	4,566
19.00	0.073	1,239
53.50	0.112	5,351
91.30	0.063	5,137
78.40	0.067	4,691
58.30	0.049	2,551
41.80	0.031	1,157
38.00	0.050	1,697
71.30	0.060	3,821
51.60	0.054	2,489
56.10	0.047	2,355
88.20	0.045	3,545
53.00	0.051	2,414
61.30	0.075	4,106
33.50	0.050	1,496
37.30	0.074	2,448
42.90	0.056	2,142
63.50	0.045	2,578
55.60	0.038	1,893
39.40	0.047	1,636
44.56	0.047	1,850
21.40	0.075	1,438
64.60	0.055	3,173
43.02	0.046	1,772
12.60	0.056	630
22.40	0.059	1,180
76.90	0.147	10,096
55.60	0.054	2,681
44.30	0.049	1,939
48.50	0.042	1,798
19.20	0.043	732
45.09	0.049	1,973
30.70	0.049	1,343
78.50	0.048	3,365
32.20	0.051	1,467
39.92	0.044	1,554
47.65	0.063	2,668

FIVE-YEAR ANNUAL VALUES					
Year	Pt (mg/l)	Flow (cfs)	Pt (kg/yr)	% Decrease	
91-95	0.054	62.0	3,014	7.7%	
92-96	0.054	58.42	2796.6	14.4%	
93-97	0.059	54.66	2875.3	12.0%	
94-98	0.061	45.60	2487.5	23.9%	
95-99	0.060	47.70	2554.8	21.8%	
96-00	0.053	46.56	2187.1	33.1%	
97-01	0.052	47.74	2212.7	32.3%	
98-02	0.046	49.19	2042.7	37.5%	
99-03	0.050	44.89	2019.1	38.2%	
00-04	0.052	45.11	2105.9	35.5%	
01-05	0.054	42.60	2049.2	37.3%	
02-06	0.056	37.24	1854.5	43.2%	
03-07	0.058	32.80	1707.1	47.7%	
04-08	0.073	43.90	2847.6	12.8%	
05-09	0.072	42.10	2723.3	16.6%	
06-10	0.073	42.36	2761.7	15.5%	
07-11	0.070	49.54	3101.5	5.1%	
08-12	0.067	48.90	2918.8	10.7%	
09-13	0.047	42.54	1794.5	45.1%	
10-14	0.046	37.56	1550.8	52.5%	
11-15	0.046	44.40	1825.3	44.1%	
12-16	0.048	41.14	1761.1	46.1%	
13-17	0.048	45.28	1946.0	40.4%	

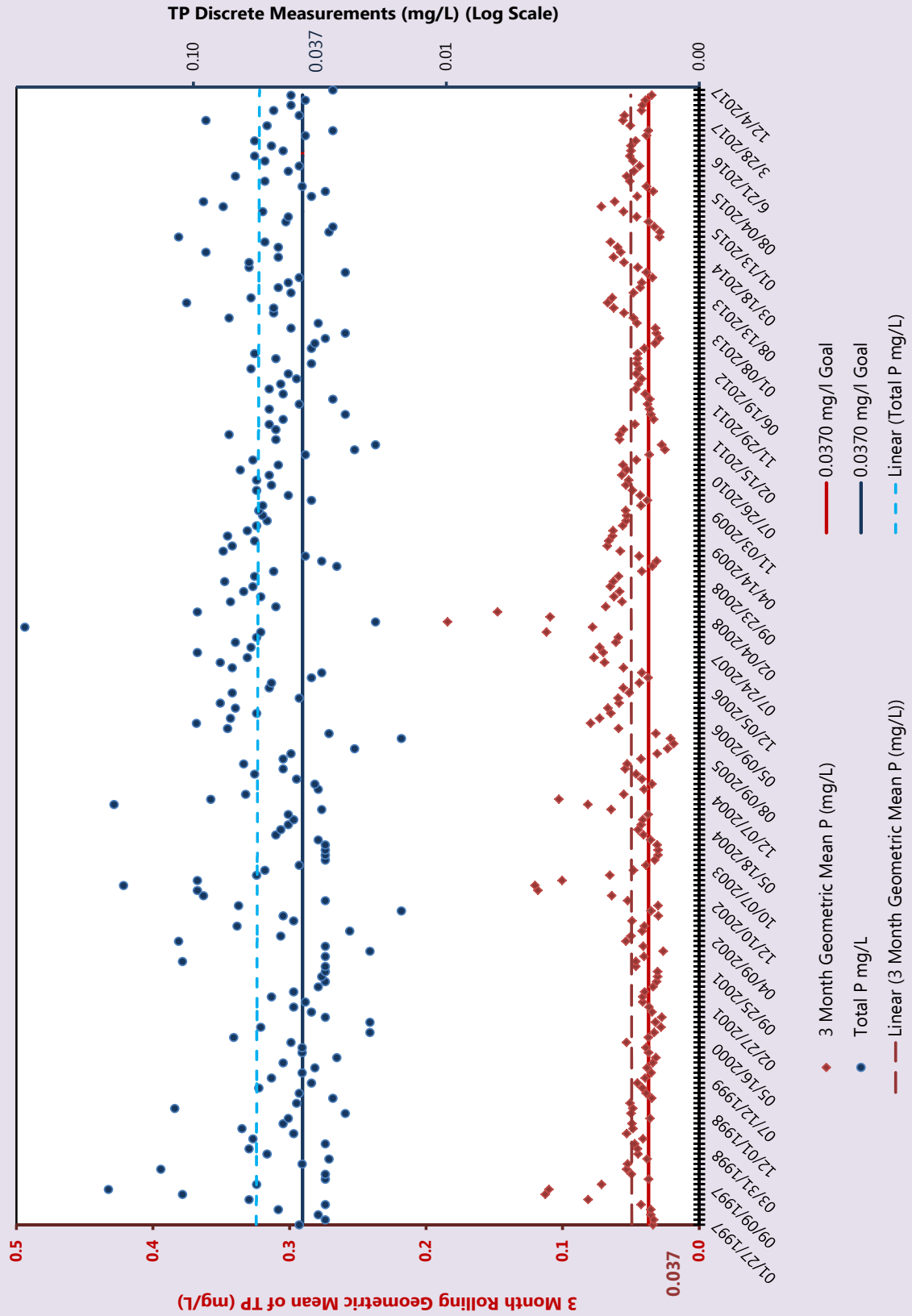
**Flint Creek Northwest of West Siloam Springs**



# Total Phosphorus (TP) and Scenic River Criterion Implementation (1997 - 2017)

Station ID: ARK0004A

Flint Creek Northwest of West Siloam Springs, Oklahoma



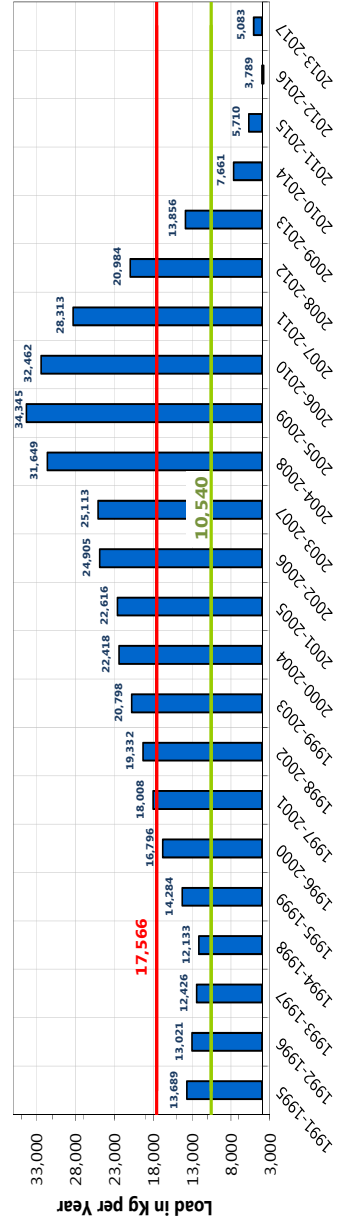
## Sager Creek near West Siloam Springs, Arkansas

ARK05 Year	Flow (cfs)	Total P (mg/L)	Total P (kg/yr)	Year	Pt (mg/l)	Flow (cfs)	Pt (kg/yr)	% Decrease
1991	6.50	2.125	12,336	91-95	0.851	18.02	13,689	22.1%
1982	9.00	2.025	16,277	92-96	0.852	17.12	13,021	25.9%
1983	6.30	1.964	11,050	93-97	0.801	17.38	12,426	29.3%
1984	15.40	0.95	13,066	94-98	0.845	16.08	12,133	30.9%
1985	24.80	1.736	38,450	95-99	0.896	17.84	14,284	18.7%
1986	21.10	0.834	15,716	96-00	0.921	20.42	16,796	4.4%
1987	16.70	0.948	14,136	97-01	0.898	22.46	18,008	-2.5%
1988	12.60	1.154	12,986	98-02	0.930	23.26	19,332	-10.1%
1989	11.70	1.227	12,821	99-03	1.059	21.98	20,798	-18.4%
1990	20.20	0.86	15,515	00-04	1.047	23.98	22,418	-27.6%
1991	15.50	0.914	12,653	01-05	1.175	21.55	22,616	-28.7%
1992	16.50	1.284	18,921	02-06	1.374	20.29	24,905	-41.8%
1993	24.60	0.637	13,995	03-07	1.397	20.13	25,113	-43.0%
1994	15.70	0.721	10,110	04-08	1.285	27.57	31,649	-80.2%
1995	17.80	0.697	11,080	05-09	1.359	28.29	34,345	-95.5%
1996	11.00	0.919	9,028	06-10	1.247	29.16	32,462	-84.8%
1997	17.80	1.0287	16,354	07-11	1.001	31.66	28,313	-61.2%
1998	18.10	0.8584	13,876	08-12	0.790	29.74	20,984	-19.5%
1999	24.50	0.9794	21,429	09-13	0.647	23.99	13,856	21.1%
2000	30.70	0.8195	22,469	10-14	0.429	20.01	7,661	56.4%
2001	21.20	0.8028	15,201	11-15	0.275	23.25	5,710	67.5%
2002	21.82	1.192	23,231	12-16	0.202	21.03	3,789	78.4%
2003	11.70	1.5025	15,700	13-17	0.246	23.096	5,083	71.1%
2004	34.50	0.916	28,224					
2005	18.55	1.4609	24,200					
2006	14.90	1.799	23,940					
2007	21.00	1.306	24,494					
2008	48.90	0.945	41,271					
2009	38.10	1.286	43,759					
2010	22.90	0.8965	18,335					
2011	27.40	0.5732	14,027					
2012	11.40	0.2495	2,540					
2013	20.16	0.228	4,105					
2014	18.20	0.1964	3,193					
2015	39.10	0.128	4,470					
2016	16.30	0.207	3,013					
2017	21.72	0.4732	9,179					
Avg.	20.12	0.9958	17,891					

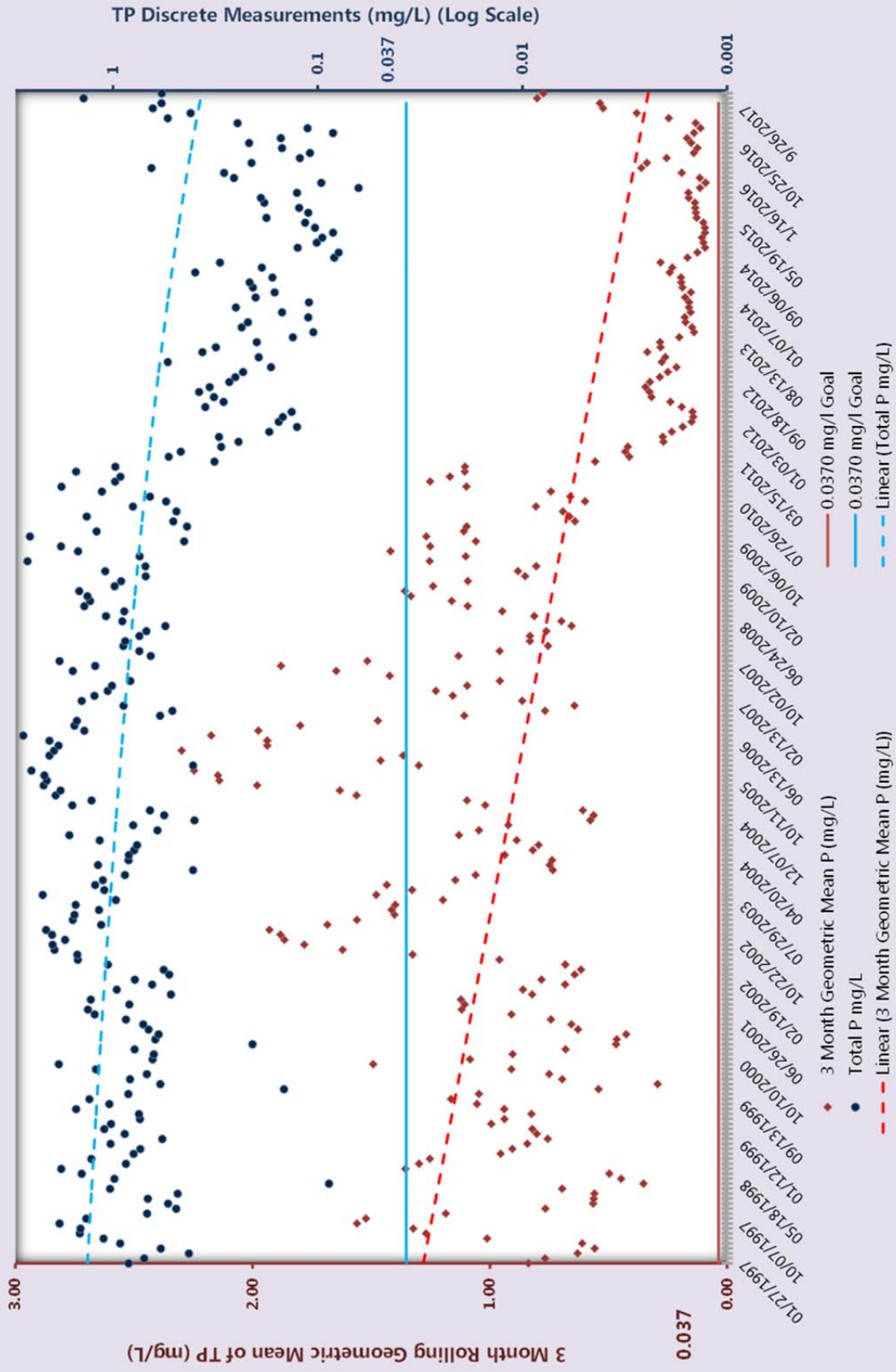
### ANNUAL PHOSPHORUS LOADING

**Sager Creek near West Siloam Springs**

■ Rolling 5 year    
 — Base Line 80-93    
 — 40% Reduction



**Total Phosphorus (TP) and Scenic River Criterion Implementation (1997-2017)**  
**Station ID: ARK0005**  
**Sager Creek Near West Siloam Springs, Arkansas**





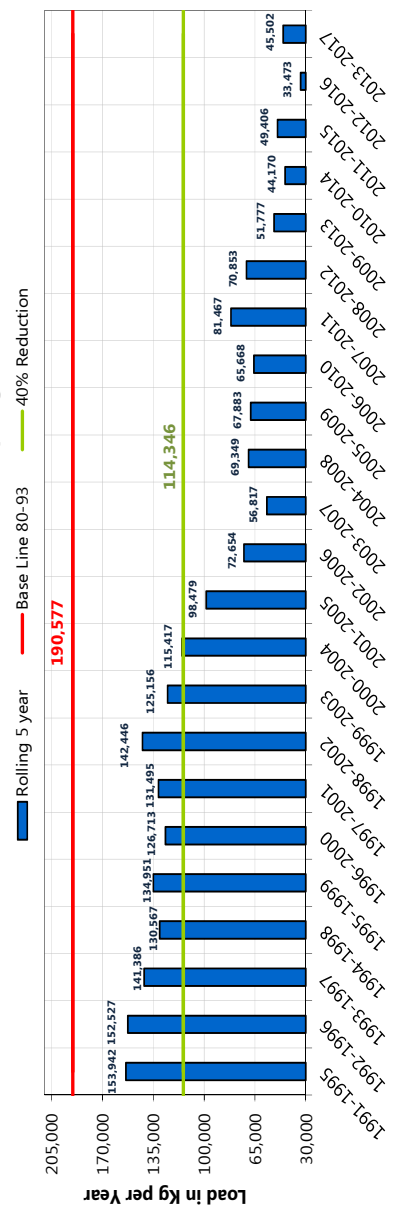
# Illinois River South of Siloam Springs, Arkansas

ARK06 Year	Flow (cfs)	Total P (mg/L)	Total P (kg/yr)	ANNUAL PHOSPHORUS LOADING			
1981	197.00	0.420	73,895				
1982	591.00	0.370	195,294				
1983	352.00	0.386	121,347				
1984	706.00	0.442	278,693				
1985	947.00	0.289	244,426				
1986	879.00	0.305	239,436				
1987	815.00	0.294	213,996				
1988	531.00	0.253	119,982				
1989	558.00	0.291	145,020				
1990	1127.00	0.204	205,331				
1991	724.00	0.220	142,253				
1992	760.00	0.222	150,684				
1993	1163.00	0.181	188,000				
1994	674.00	0.190	114,370				
1995	783.00	0.237	165,733				
1996	667.00	0.225	134,032				
1997	497.00	0.213	94,504				
1998	668.00	0.246	146,960				
1999	737.00	0.206	135,413				
2000	597.00	0.230	122,831				
2001	598.00	0.293	156,581				
2002	570.40	0.282	143,700				
2003	344.00	0.219	67,422				
2004	633.00	0.153	86,496				
2005	436.18	0.120	46,785				
2006	289.70	0.120	31,048				
2007	436.10	0.131	51,022				
2008	1051.00	0.158	148,306				
2009	906.70	0.080	64,782				
2010	658.70	0.061	35,885				
2011	1096.80	0.120	117,154				
2012	342.70	0.070	21,547				
2013	582.61	0.073	37,984				
2014	425.80	0.074	28,014				
2015	983.80	0.066	57,990				
2016	417.70	0.057	21,264				
2017	546.91	0.043	21,003				
Avg.	656.57	0.204	119,572				

Year	Pt (mg/l)	Flow (cfs)	Pt (kg/yr)	% Decrease
91-95	0.210	820.80	153,942	19.2%
92-96	0.211	809.40	152,527	20.0%
93-97	0.209	756.80	141,386	25.8%
94-98	0.222	657.80	130,567	31.5%
95-99	0.225	670.40	134,951	29.2%
96-00	0.224	633.20	126,713	33.5%
97-01	0.238	619.40	131,495	31.0%
98-02	0.252	634.08	142,446	25.3%
99-03	0.246	569.28	125,156	34.3%
00-04	0.236	548.48	115,417	39.4%
01-05	0.214	516.32	98,479	48.3%
02-06	0.179	454.66	72,654	61.9%
03-07	0.149	427.80	56,817	70.2%
04-08	0.136	569.20	69,349	63.6%
05-09	0.122	623.94	67,883	64.4%
06-10	0.110	668.44	65,668	65.5%
07-11	0.110	829.86	81,467	57.3%
08-12	0.098	811.18	70,853	62.8%
09-13	0.081	717.50	51,777	72.8%
10-14	0.080	621.32	44,170	76.8%
11-15	0.081	686.34	49,406	74.1%
12-16	0.068	550.52	33,473	82.4%
13-17	0.086	591.36	45,502	76.12%

**FIVE-YEAR ANNUAL VALUES**

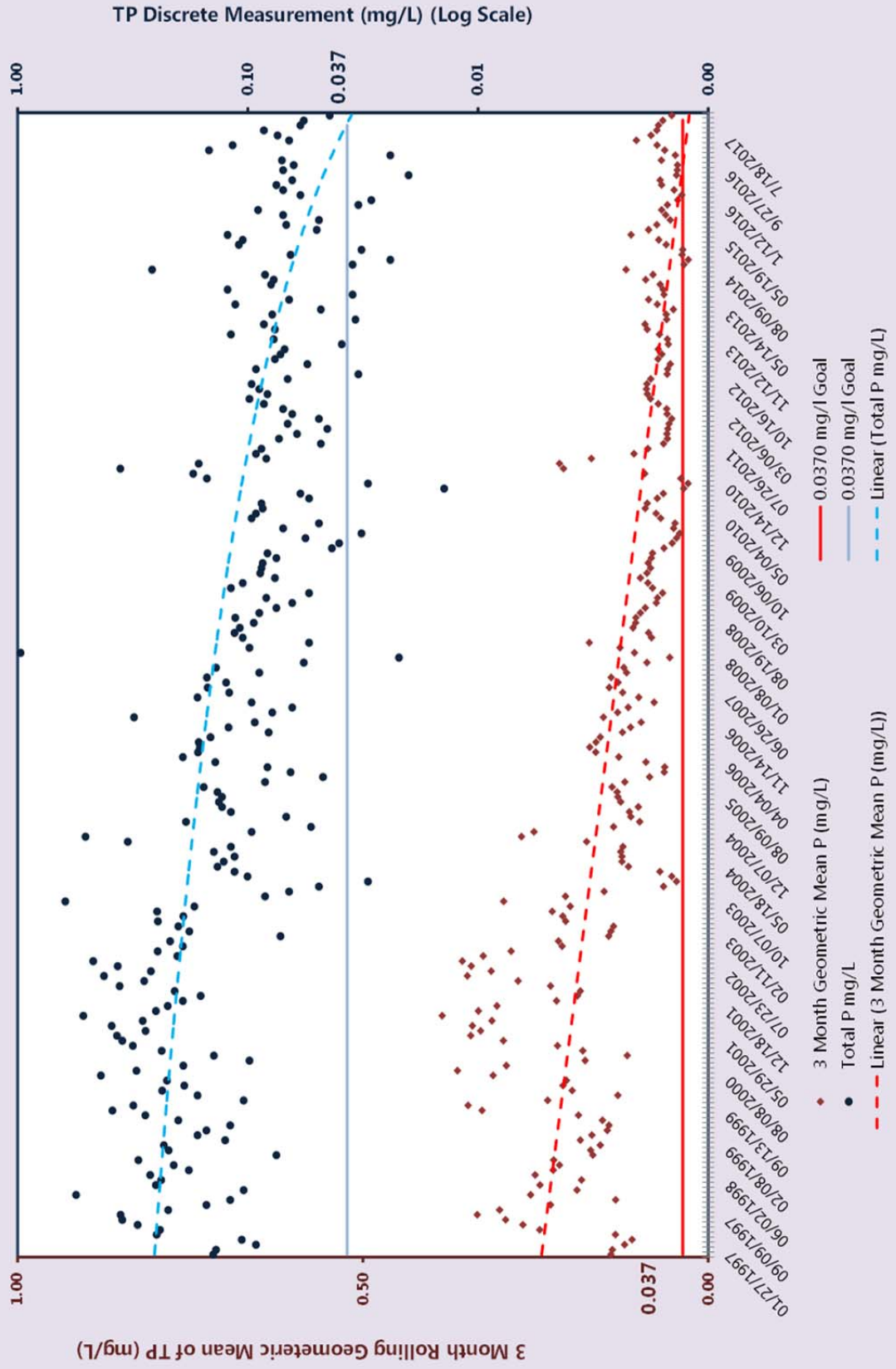
**Illinois River South of Siloam Springs**



# Total Phosphorus (TP) and Scenic River Criterion Implementation (1997 - 2017)

Station ID: ARK06

Illinois River South of Siloam Springs, Arkansas





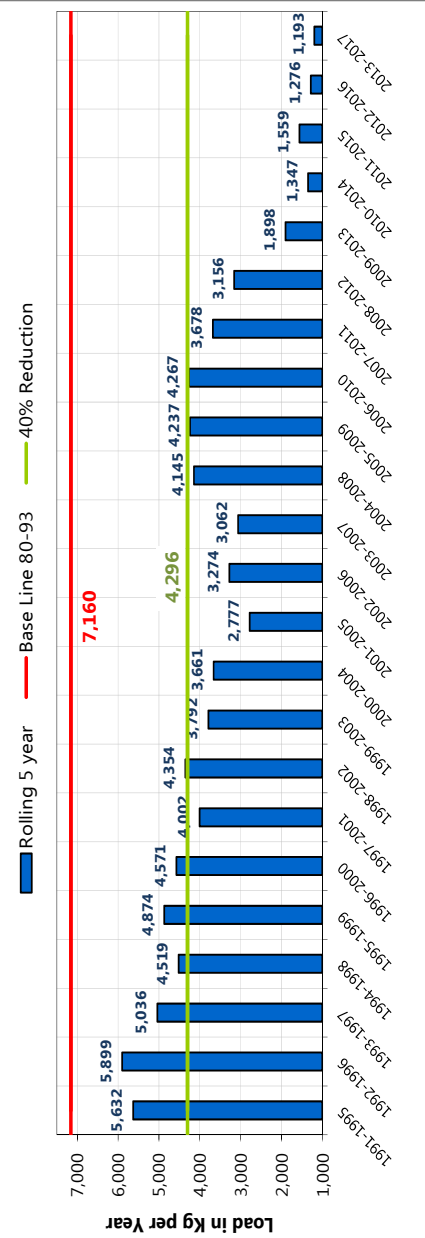
# Baron Fork at Dutch Mills, , Arkansas

ARK06 Year	Flow (cfs)	Total P (mg/L)	Total P (kg/yr)
1981	18.40	0.135	2,218
1982	37.40	0.484	16,167
1983	27.20	0.125	3,037
1984	51.80	0.183	8,466
1985	79.40	0.211	14,962
1986	64.00	0.147	8,402
1987	63.20	0.134	7,563
1988	31.80	0.097	2,755
1989	50.20	0.124	5,559
1990	102.00	0.109	9,929
1991	49.40	0.086	3,794
1992	47.90	0.127	5,433
1993	104.00	0.083	7,709
1994	37.00	0.081	2,677
1995	54.20	0.162	7,842
1996	64.40	0.084	4,831
1997	35.90	0.067	2,151
1998	61.10	0.107	5,822
1999	45.80	0.102	4,176
2000	52.60	0.133	6,230
2001	41.40	0.065	2,387
2002	37.99	0.104	3,536
2003	20.10	0.133	2,386
2004	44.50	0.087	3,458
2005	26.07	0.069	1,595
2006	62.00	0.088	4,873
2007	32.30	0.087	2,510
2008	86.00	0.132	10,138
2009	62.30	0.066	3,672
2010	37.10	0.054	1,789
2011	40.20	0.060	2,161
2012	19.70	0.048	845
2013	26.33	0.058	1,364
2014	17.80	0.049	778
2015	63.00	0.050	2,813
2016	15.50	0.050	692
2017	15.20	0.039	532
Avg.	46.63	0.109	4,523

Year	Pt (mg/l)	Flow (cfs)	Pt (kg/yr)	% Decrease
91-95	0.108	58.50	5,632	21.3%
92-96	0.107	61.50	5,899	17.6%
93-97	0.095	59.10	5,036	29.7%
94-98	0.100	50.52	4,519	36.9%
95-99	0.104	52.28	4,874	31.9%
96-00	0.099	51.96	4,571	36.2%
97-01	0.095	47.36	4,002	44.1%
98-02	0.102	47.78	4,354	39.2%
99-03	0.107	39.58	3,792	47.0%
00-04	0.104	39.32	3,661	48.9%
01-05	0.091	34.01	2,777	61.2%
02-06	0.096	38.13	3,274	54.3%
03-07	0.093	36.99	3,062	57.2%
04-08	0.093	50.17	4,145	42.1%
05-09	0.088	53.73	4,237	40.8%
06-10	0.085	55.94	4,267	40.4%
07-11	0.080	51.58	3,678	48.6%
08-12	0.072	49.06	3,156	55.9%
09-13	0.057	37.13	1,898	73.5%
10-14	0.053	28.23	1,347	81.2%
11-15	0.052	33.41	1,559	78.2%
12-16	0.050	28.47	1,276	82.2%
13-17	0.048	27.57	1,193	83.3%

**F I V E - Y E A R A N N U A L V A L U E S**

**Baron Fork at Dutch Mills**



**Total Phosphorus (TP) and Scenic River Criterion Implementation (1997 - 2017)**  
**Station ID: ARK07A**  
**Baron Fork at Dutch Mills, Arkansas**

