SKUNK RIVER BASIN

05470500 SQUAW CREEK AT AMES, IOWA

LOCATION.--Lat 42°01'23", long 93°37'49" referenced to North American Datum of 1927, in SE 1/4 SE 1/4 SW 1/4 sec.03, T.83 N., R.24 W., Story County, IA, Hydrologic Unit 07080105, on left bank 65 ft downstream from bridge on Lincoln Way in Ames, 0.2 mi downstream from College Creek, and 2.5 mi upstream from mouth.

DRAINAGE AREA.--204 mi².

PERIOD OF RECORD.--Discharge records from May 1919 to September 1927, May 1965 to current year. December 1925 to September 1927, monthly mean discharge for some periods published in WSP 1308.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 881.00 ft above National Geodetic Vertical Datum of 1929 (levels by Iowa State University). Prior to March 11, 1925, non-recording gage at site 0.6 mi upstream at different datum; March 11, 1925, to April 30, 1927, non-recording gage at site 65 ft upstream at datum about 4 ft higher.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 4, 1918, reached a stage of 14.50 ft, from high-water mark, at site and datum in use prior to March 11, 1925, discharge 6,900 ft³/s.

A summary of all available data for this streamgage is provided through the USGS National Water Information System web interface (NWISWeb). The following link provides access to current/historical observations, daily data, daily statistics, monthly statistics, annual statistics, peak streamflow, field measurements, field/lab water-quality samples, and the latest water-year summaries. Data can be filtered by parameter and/or dates, and can be output in various tabular and graphical formats.

http://waterdata.usgs.gov/nwis/inventory/?site_no=05470500

The USGS WaterWatch Toolkit is available at:

http://waterwatch.usgs.gov/?id=ww_toolkit

Tools for summarizing streamflow information include the duration hydrograph builder, the cumulative streamflow hydrograph builder, the streamgage statistics retrieval tool, the rating curve builder, the flood tracking chart builder, the National Weather Service Advanced Hydrologic Prediction Service (AHPS) river forecast hydrograph builder, and the raster-hydrograph builder. Entering the above number for this streamgage into these toolkit webpages will provide streamflow information specific to this streamgage.

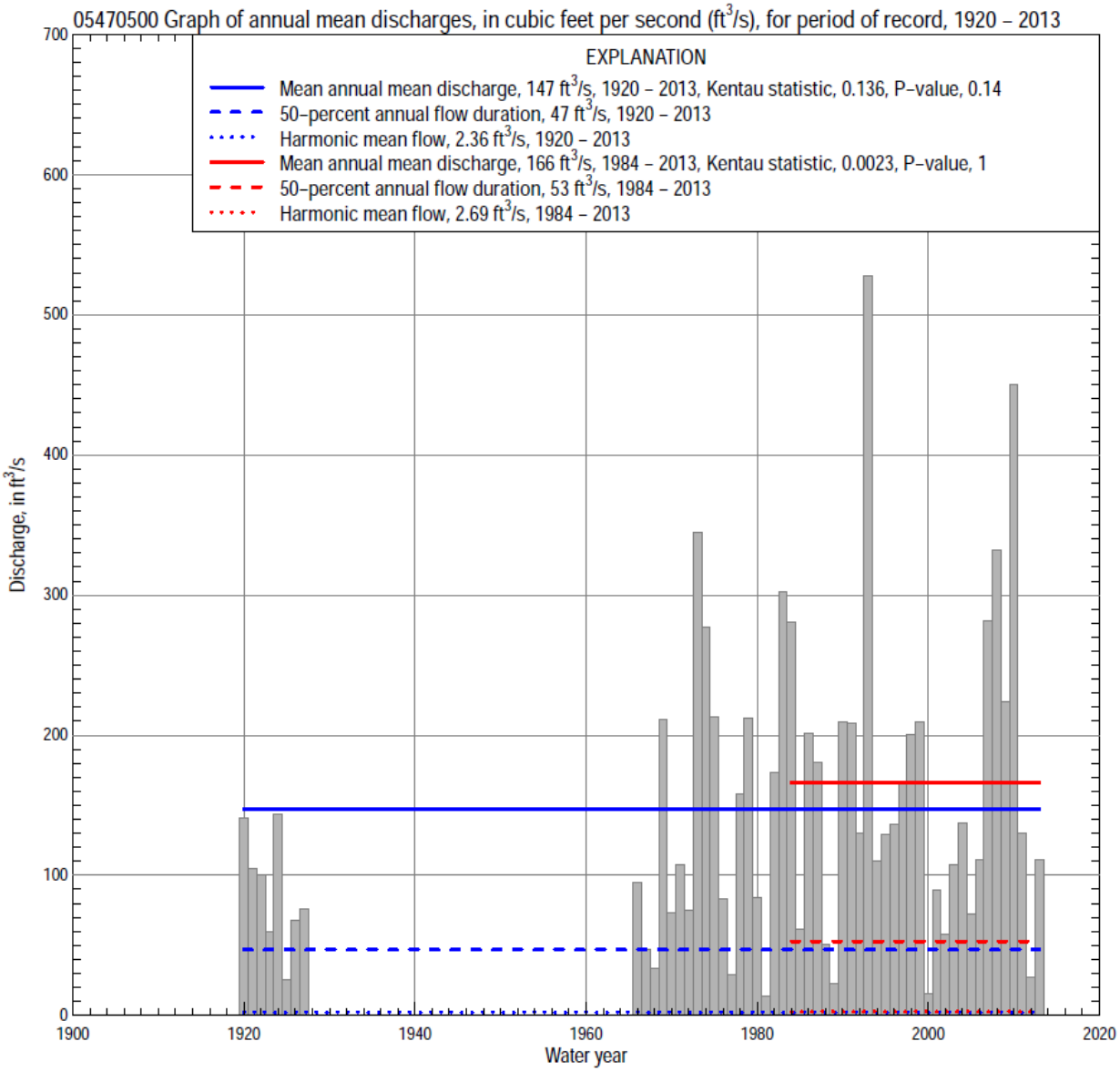
SKUNK RIVER BASIN

05470500 SQUAW CREEK AT AMES, IOWA

A description of the statistics presented for this streamgage is available in the main body of the report at:

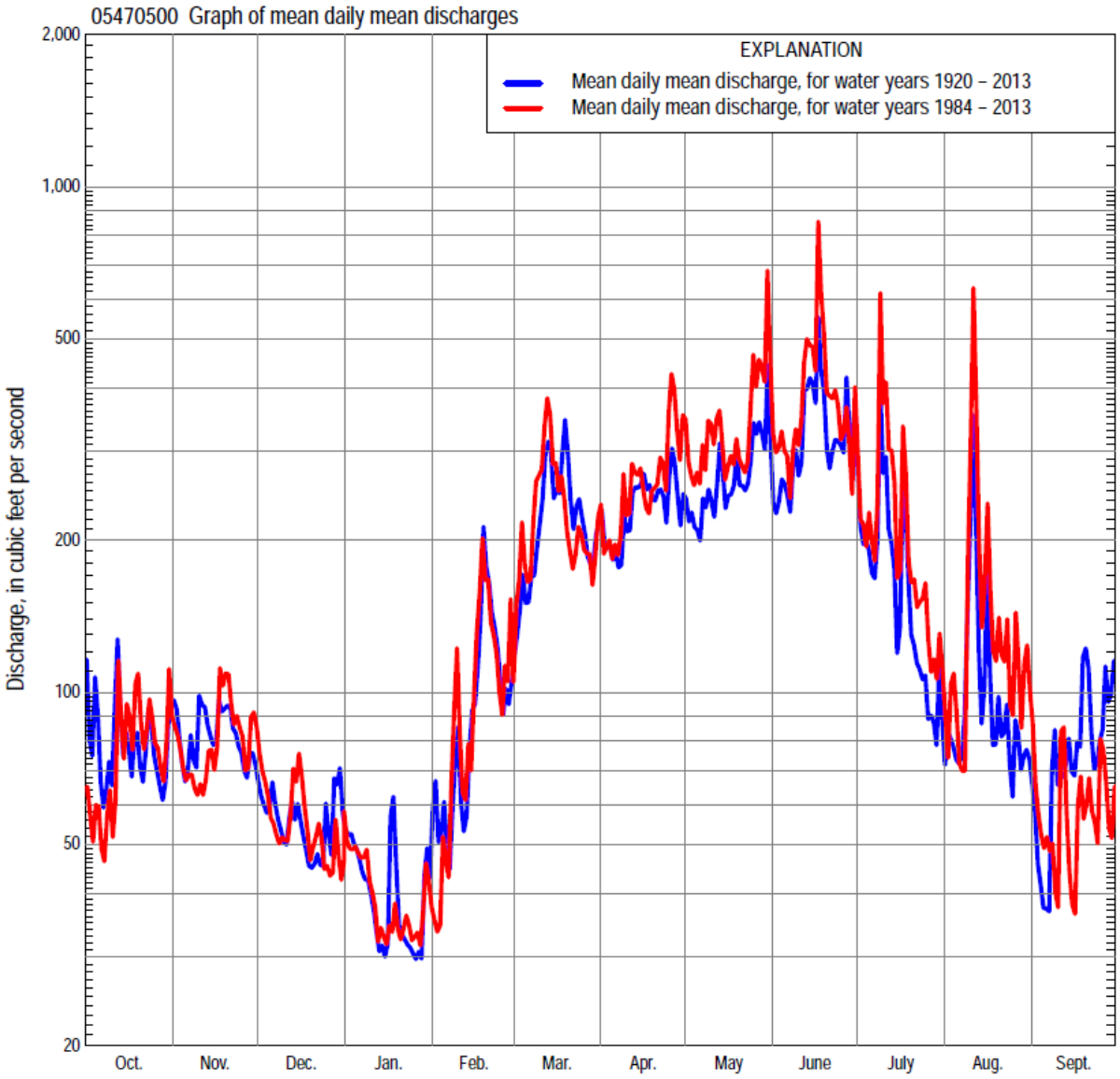
http://dx.doi.org/10.3133/ofr20151214

A link to other streamgages included in this report, a map showing the location of the streamgages, information on the programs used to compute the statistical analyses, and references are included in the main body of the report.

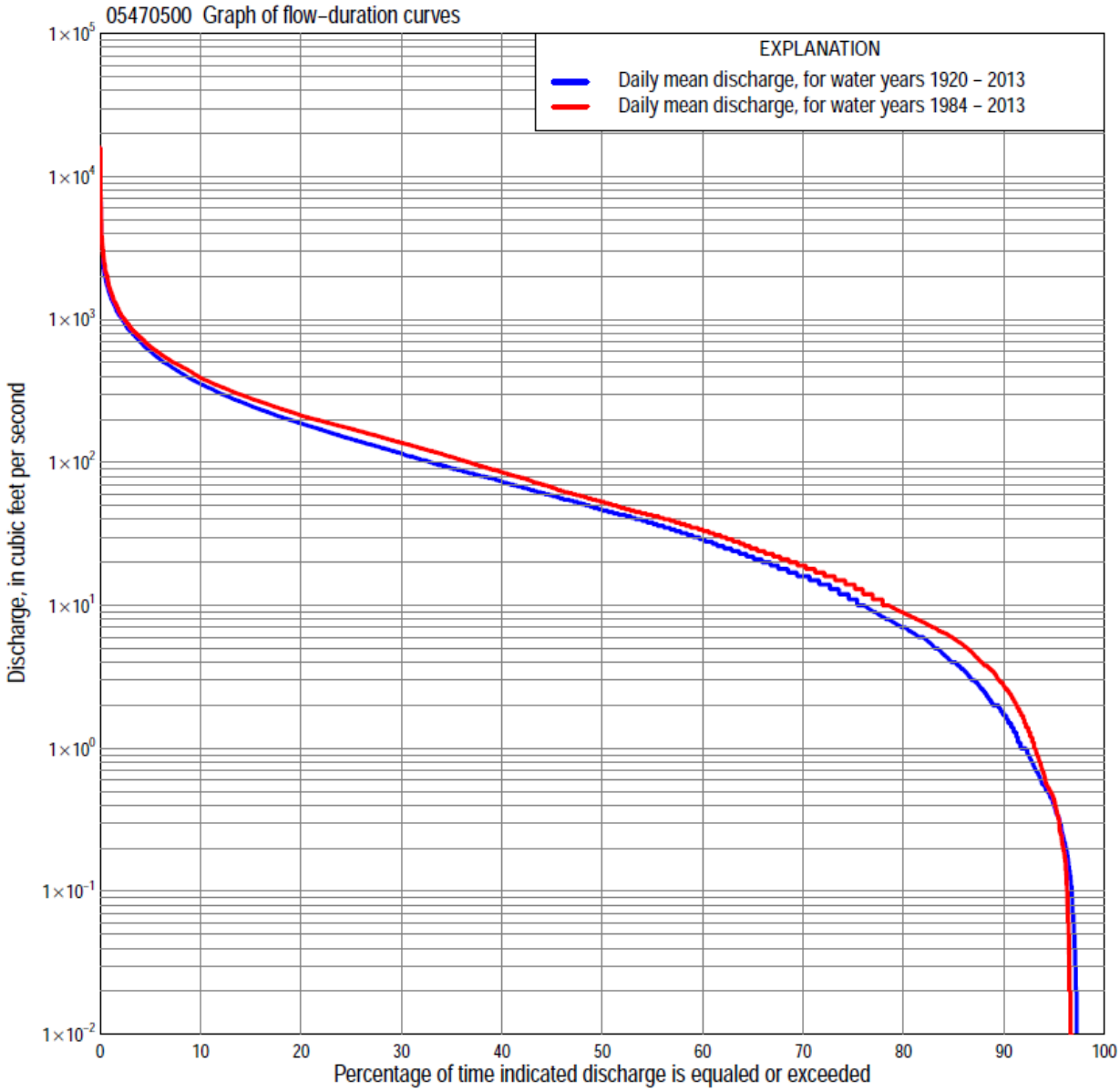


SKUNK RIVER BASIN

05470500 SQUAW CREEK AT AMES, IOWA



05470500 SQUAW CREEK AT AMES, IOWA



SKUNK RIVER BASIN

05470500 SQUAW CREEK AT AMES, IOWA

Statistics Based on the Entire Streamflow Period of Record

05470500 Monthly and annual flow durations, based on 1920–27, 1966–2013 period of record (56 years)

Percentage of days discharge equaled or exceeded	Discharge (cubic feet per second)													Annual flow durations	
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Annual	Kentau statistic	P-value
99	0.00	0.00	0.00	0.00	0.00	0.72	2.2	0.68	0.50	0.00	0.00	0.00	0.00	-0.010	0.917
98	0.00	0.00	0.00	0.00	0.00	1.4	3.4	1.1	1.0	0.21	0.00	0.00	0.00	-0.029	0.752
95	0.06	0.67	0.19	0.00	0.40	4.1	5.9	4.0	5.0	1.3	0.25	0.00	0.42	0.026	0.779
90	0.48	2.1	0.88	0.35	1.5	11	14	10	20	3.6	1.0	0.17	1.8	0.039	0.674
85	1.0	4.1	3.2	1.2	3.3	24	24	32	33	7.3	2.0	0.60	4.0	0.045	0.624
80	2.3	6.8	5.9	3.2	5.9	32	38	46	43	12	3.0	1.0	7.0	0.035	0.707
75	3.9	9.9	8.0	5.0	7.8	43	53	62	57	18	4.8	2.0	11	0.042	0.651
70	6.4	16	11	7.0	13	50	68	80	70	24	7.2	3.5	16	0.026	0.783
65	8.8	20	16	8.8	17	60	84	98	89	30	9.3	5.5	22	0.031	0.740
60	13	27	20	13	22	72	103	120	110	38	13	7.3	29	0.042	0.651
55	16	35	26	16	26	84	119	140	134	48	16	9.7	38	0.031	0.740
50	21	41	32	19	33	102	139	162	160	58	20	12	47	0.040	0.671
45	28	48	38	23	38	124	162	180	191	72	24	15	59	0.051	0.586
40	40	59	43	28	45	143	186	205	218	85	29	19	74	0.096	0.299
35	55	72	49	33	56	163	212	235	255	100	36	23	91	0.104	0.261
30	72	84	59	40	69	195	243	275	297	121	45	32	116	0.135	0.143
25	92	98	68	47	80	244	278	327	350	152	57	48	146	0.155	0.093
20	114	120	81	56	103	301	335	380	424	191	78	68	188	0.170	0.065
15	147	143	99	72	146	394	429	484	541	256	112	106	250	0.186	0.043
10	198	189	129	93	225	531	534	621	767	389	169	205	355	0.182	0.048
5	313	301	181	139	403	862	746	890	1,250	696	375	377	600	0.177	0.055
2	582	487	277	228	817	1,250	1,130	1,370	2,060	1,220	944	748	1,040	0.109	0.238
1	818	695	398	313	1,040	1,700	1,740	1,790	2,690	1,670	1,460	1,110	1,480	0.090	0.329

05470500 SQUAW CREEK AT AMES, IOWA

05470500 Annual exceedance probability of instantaneous peak discharges, in cubic feet per second (ft^3/s), based on the Weighted Independent Estimates method,

Annual exceed-ance probability	Recur-rence interval (years)	Discharge (ft^3/s)	95-percent lower confi-dence interval (ft^3/s)	95-percent upper confi-dence interval (ft^3/s)
0.500	2	2,580	2,210	3,020
0.200	5	4,880	4,110	5,780
0.100	10	6,800	5,580	8,290
0.040	25	9,660	7,550	12,400
0.020	50	12,100	9,030	16,100
0.010	100	14,700	10,500	20,500
0.005	200	17,600	12,000	25,800
0.002	500	21,600	13,900	33,800
and based on the expected moments algorithm/multiple Grubbs-Beck analysis computed using a historical period length of 96 years (1918–2013)				
0.500	2	2,590	2,110	3,120
0.200	5	4,900	4,030	5,980
0.100	10	6,850	5,570	8,730
0.040	25	9,810	7,740	13,700
0.020	50	12,400	9,450	18,800
0.010	100	15,300	11,200	25,400
0.005	200	18,500	13,000	33,900
0.002	500	23,400	15,500	48,900
Kentau statistic		0.039		
P-value		0.670		
Begin year		1920		
End year		2013		
Number of peaks		57		

05470500 SQUAW CREEK AT AMES, IOWA

05470500 Annual exceedance probability of high discharges, based on 1920–27, 1966–2013 period of record (56 years)

Annual exceedance probability	Recurrence interval (years)	Maximum average discharge (ft^3/s) for indicated number of consecutive days				
		1	3	7	15	30
0.990	1.01	336	231	139	92	64
0.950	1.05	568	407	258	173	122
0.900	1.11	752	546	354	239	168
0.800	1.25	1,060	774	512	347	244
0.500	2	2,040	1,480	996	677	471
0.200	5	3,960	2,750	1,840	1,250	852
0.100	10	5,600	3,760	2,480	1,680	1,130
0.040	25	8,140	5,210	3,370	2,260	1,500
0.020	50	10,400	6,400	4,080	2,720	1,790
0.010	100	12,900	7,690	4,810	3,190	2,070
0.005	200	15,700	9,060	5,560	3,680	2,360
0.002	500	20,100	11,000	6,610	4,350	2,750
Kentau statistic		0.350	0.367	0.378	0.394	0.405
P-value		0.000	0.000	0.000	0.000	0.000

05470500 Annual nonexceedance probability of low discharges, based on April 1920 to March 1927, April 1966 to March 2013 period of record (54 years)

Annual nonexceedance probability	Recurrence interval (years)	Minimum average discharge (cubic feet per second) for indicated number of consecutive days								
		1	3	7	14	30	60	90	120	183
0.01	100	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.10	0.22
0.02	50	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.22	0.45
0.05	20	0.00	0.00	0.00	0.00	0.00	0.07	0.26	0.67	1.2
0.10	10	0.00	0.00	0.00	0.00	0.11	0.41	0.85	1.6	2.8
0.20	5	0.00	0.06	0.27	0.28	0.81	1.8	2.9	4.3	6.9
0.50	2	1.6	1.8	2.4	4.3	7.2	12	16	20	30
0.80	1.25	7.6	8.2	8.9	13	19	30	46	60	92
0.90	1.11	13	14	16	18	24	40	63	93	149
0.96	1.04	19	24	26	28	32	46	78	134	230
0.98	1.02	23	31	34	36	40	49	86	163	292
0.99	1.01	27	38	44	46	48	50	91	188	353
Kentau statistic		-0.015	0.024	0.038	0.058	0.048	0.029	0.022	0.026	-0.012
P-value		0.875	0.805	0.687	0.541	0.617	0.765	0.823	0.788	0.905

05470500 SQUAW CREEK AT AMES, IOWA

05470500 Annual nonexceedance probability of seasonal low discharges, based on July 1919 to September 1927, July 1965 to September 2013 period of record (56–58 years)

Annual nonexceed-ance probability	Recur-rence interval (years)	Minimum average discharge (cubic feet per second) for indicated number of consecutive days							
		1	7	14	30	1	7	14	30
		January-February-March				April-May-June			
0.01	100	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.72
0.02	50	0.00	0.00	0.00	0.00	0.03	0.08	1.1	1.5
0.05	20	0.00	0.00	0.00	0.19	0.80	1.4	2.8	4.2
0.10	10	0.09	0.18	0.29	0.94	2.6	4.1	6.3	9.6
0.20	5	0.92	1.4	1.6	3.0	7.8	11	16	23
0.50	2	8.0	9.9	11	15	37	47	77	91
0.80	1.25	28	34	40	49	105	128	152	243
0.90	1.11	43	55	63	81	156	189	270	355
0.96	1.04	59	81	90	128	216	260	370	487
0.98	1.02	68	99	109	166	253	307	440	572
0.99	1.01	75	115	124	203	285	348	500	644
Kentau statistic		0.030	0.045	0.063	0.046	0.238	0.236	0.245	0.242
P-value		0.750	0.626	0.497	0.621	0.010	0.010	0.008	0.009
		July-August-September				October-November-December			
0.01	100	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00
0.02	50	0.00	0.00	0.00	0.06	0.00	0.00	0.00	0.01
0.05	20	0.00	0.00	0.00	0.18	0.00	0.00	0.04	0.06
0.10	10	0.00	0.00	0.03	0.47	0.00	0.06	0.33	0.42
0.20	5	0.00	0.20	0.43	1.4	0.52	1.1	1.5	2.6
0.50	2	1.8	2.6	5.1	7.9	6.2	9.0	11	25
0.80	1.25	11	14	23	32	27	34	43	66
0.90	1.11	23	29	44	59	48	57	72	79
0.96	1.04	48	57	80	102	79	91	109	110
0.98	1.02	77	85	111	138	102	116	135	136
0.99	1.01	114	117	147	177	125	141	158	159
Kentau statistic		-0.001	0.028	0.072	0.055	-0.112	-0.093	-0.095	-0.065
P-value		1.000	0.763	0.429	0.546	0.224	0.315	0.305	0.484

05470500 SQUAW CREEK AT AMES, IOWA

Statistics Based on the 1984–2013 Streamflow Period of Record

05470500 Monthly and annual flow durations, based on 1984–2013 period of record (30 years)

Percentage of days discharge equaled or exceeded	Discharge (cubic feet per second)													Annual flow durations	
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Annual	Kentau statistic	P-value
99	0.00	0.00	0.00	0.00	0.00	1.1	7.2	5.4	9.0	0.00	0.00	0.00	0.00	-0.005	0.985
98	0.00	0.00	0.00	0.00	0.47	4.0	9.2	7.2	13	0.14	0.00	0.00	0.00	0.009	0.955
95	0.00	0.43	0.18	0.00	1.5	11	11	22	21	2.2	0.00	0.00	0.43	0.039	0.772
90	0.32	2.8	0.93	1.0	2.9	22	24	48	35	6.0	0.53	0.00	2.7	0.021	0.886
85	0.81	5.9	4.1	3.0	4.6	29	35	71	45	13	1.9	0.36	5.9	0.002	1.000
80	2.6	7.6	6.3	4.3	6.4	39	48	90	60	19	4.0	0.99	8.9	0.011	0.943
75	3.8	10	9.0	6.6	9.2	47	62	112	80	26	7.3	2.1	14	-0.011	0.943
70	5.6	15	11	9.0	18	54	83	134	106	33	9.2	3.7	19	-0.053	0.694
65	6.7	18	14	14	25	63	110	156	125	41	13	5.5	25	-0.078	0.556
60	8.4	20	19	16	31	79	126	174	155	51	17	7.0	34	-0.085	0.520
55	11	24	26	20	36	93	148	191	182	63	20	8.5	42	-0.071	0.592
50	15	35	33	25	40	114	171	216	201	76	24	10	53	-0.041	0.762
45	19	42	38	31	46	133	187	235	231	91	28	12	67	-0.046	0.735
40	24	53	44	36	55	150	208	263	261	109	34	15	86	-0.007	0.972
35	34	69	54	43	64	165	235	300	298	130	42	17	109	-0.039	0.775
30	55	84	61	47	75	190	268	346	345	159	54	22	137	-0.039	0.775
25	89	104	77	53	91	241	308	385	415	189	68	30	172	-0.005	0.986
20	123	127	91	59	113	299	371	473	486	243	95	49	213	-0.007	0.972
15	164	153	110	71	150	374	457	566	601	331	138	86	280	0.034	0.803
10	205	191	138	87	221	528	573	745	873	496	236	177	389	0.037	0.789
5	316	296	186	120	403	843	786	1,070	1,440	779	544	304	645	0.067	0.617
2	589	500	271	169	628	1,250	1,340	1,620	2,220	1,230	1,400	508	1,110	0.025	0.858
1	784	670	370	285	857	1,700	1,920	1,960	3,230	2,160	2,120	724	1,620	0.048	0.721

05470500 SQUAW CREEK AT AMES, IOWA

05470500 Annual exceedance probability of high discharges, based on 1984–2013 period of record (30 years)

Annual exceedance probability	Recurrence interval (years)	Maximum average discharge (ft^3/s) for indicated number of consecutive days				
		1	3	7	15	30
0.990	1.01	242	195	124	89	65
0.950	1.05	455	357	237	170	124
0.900	1.11	639	494	331	237	173
0.800	1.25	963	729	495	352	255
0.500	2	2,120	1,530	1,040	730	517
0.200	5	4,700	3,200	2,150	1,460	994
0.100	10	7,140	4,700	3,100	2,080	1,370
0.040	25	11,200	7,060	4,540	2,990	1,910
0.020	50	14,900	9,180	5,790	3,750	2,340
0.010	100	19,400	11,600	7,180	4,600	2,800
0.005	200	24,600	14,400	8,730	5,520	3,280
0.002	500	32,900	18,700	11,000	6,850	3,960
Kentau statistic		-0.055	0.007	0.030	0.048	0.048
P-value		0.682	0.972	0.830	0.721	0.721

05470500 Annual nonexceedance probability of low discharges, based on April 1983 to March 2013, period of record (30 years)

Annual nonexceedance probability	Recurrence interval (years)	Minimum average discharge (cubic feet per second) for indicated number of consecutive days								
		1	3	7	14	30	60	90	120	183
0.01	100	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.07	0.34
0.02	50	0.00	0.00	0.00	0.00	0.00	0.01	0.11	0.17	0.66
0.05	20	0.00	0.00	0.00	0.00	0.00	0.10	0.41	0.61	1.7
0.10	10	0.00	0.00	0.00	0.00	0.09	0.49	1.2	1.7	3.6
0.20	5	0.00	0.08	0.47	0.58	0.94	2.2	3.6	4.9	8.2
0.50	2	2.3	2.7	2.9	3.0	9.5	14	17	23	32
0.80	1.25	8.2	9.0	9.4	14	21	31	46	63	91
0.90	1.11	12	15	16	18	23	36	63	89	142
0.96	1.04	15	23	26	28	30	39	79	114	212
0.98	1.02	16	28	35	37	38	40	87	128	265
0.99	1.01	17	33	45	47	49	51	92	138	315
Kentau statistic		-0.062	-0.044	-0.039	0.000	0.011	-0.025	-0.053	-0.067	-0.103
P-value		0.640	0.747	0.775	1.000	0.943	0.858	0.695	0.617	0.432

05470500 SQUAW CREEK AT AMES, IOWA

05470500 Annual nonexceedance probability of seasonal low discharges, based on October 1983 to September 2013 period of record (30 years)

Annual nonexceed-ance probability	Recur-rence interval (years)	Minimum average discharge (cubic feet per second) for indicated number of consecutive days							
		1	7	14	30	1	7	14	30
		January-February-March				April-May-June			
0.01	100	0.00	0.00	0.00	0.00	0.56	1.6	3.0	4.6
0.02	50	0.00	0.00	0.00	0.00	1.1	2.7	4.8	7.2
0.05	20	0.00	0.00	0.07	1.0	3.0	5.7	9.1	14
0.10	10	0.30	0.52	0.63	2.7	6.6	11	16	23
0.20	5	1.6	2.5	2.7	5.8	15	21	28	43
0.50	2	9.1	12	16	18	53	62	77	118
0.80	1.25	28	35	43	46	126	149	174	282
0.90	1.11	42	53	58	70	174	216	250	418
0.96	1.04	61	76	90	105	225	303	351	608
0.98	1.02	73	91	111	133	255	367	427	759
0.99	1.01	84	104	134	163	279	427	501	912
Kentau statistic		-0.140	-0.115	-0.113	-0.122	0.115	0.103	0.140	0.145
P-value		0.284	0.382	0.392	0.354	0.382	0.432	0.284	0.269
		July-August-September				October-November-December			
0.01	100	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00
0.02	50	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00
0.05	20	0.00	0.00	0.00	0.18	0.00	0.00	0.06	0.07
0.10	10	0.00	0.00	0.00	0.50	0.00	0.00	0.39	0.40
0.20	5	0.00	0.17	0.34	1.5	0.39	1.1	1.6	2.6
0.50	2	2.0	3.1	8.2	9.4	5.6	8.2	10	24
0.80	1.25	15	18	27	40	24	30	38	60
0.90	1.11	33	38	55	73	42	51	63	70
0.96	1.04	69	75	101	126	69	82	99	100
0.98	1.02	105	111	141	171	90	107	124	125
0.99	1.01	150	154	186	218	111	131	149	150
Kentau statistic		-0.087	-0.062	-0.009	0.011	-0.076	-0.087	-0.090	-0.076
P-value		0.505	0.642	0.957	0.943	0.567	0.509	0.498	0.568