

DES MOINES RIVER BASIN
05479000 EAST FORK DES MOINES RIVER AT DAKOTA CITY, IOWA

LOCATION.--Lat 42°43'25", long 94°11'35.7" referenced to North American Datum of 1927, in NE 1/4 NW 1/4 SE 1/4 sec.06, T.91 N., R.28 W., Humboldt County, IA, Hydrologic Unit 07100003, on right bank 50 ft upstream from old mill dam in city park, at eastern edge of Dakota City, 500 ft upstream from bridge on County Highway P56, 0.6 mi downstream from bridge on State Highway 3, 3.7 mi upstream from confluence with Des Moines River, and 322.6 mi upstream from mouth of Des Moines River.

DRAINAGE AREA.--1,308 mi².

PERIOD OF RECORD.--Discharge records from March 1940 to current year. Prior to October 1954, published as "near Hardy".

GAGE.--Water-stage recorder. Datum of gage is 1,038.71 ft above National Geodetic Vertical Datum of 1929. Prior to October 1, 1954, non-recording gage at site 8 mi upstream at datum 20.59 ft higher.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of September 1938 reached a stage of 17.4 ft, discharge about 22,000 ft³/s, at site and datum in use from 1940-1954.

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=05479000

The USGS WaterWatch Toolkit is available at:

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

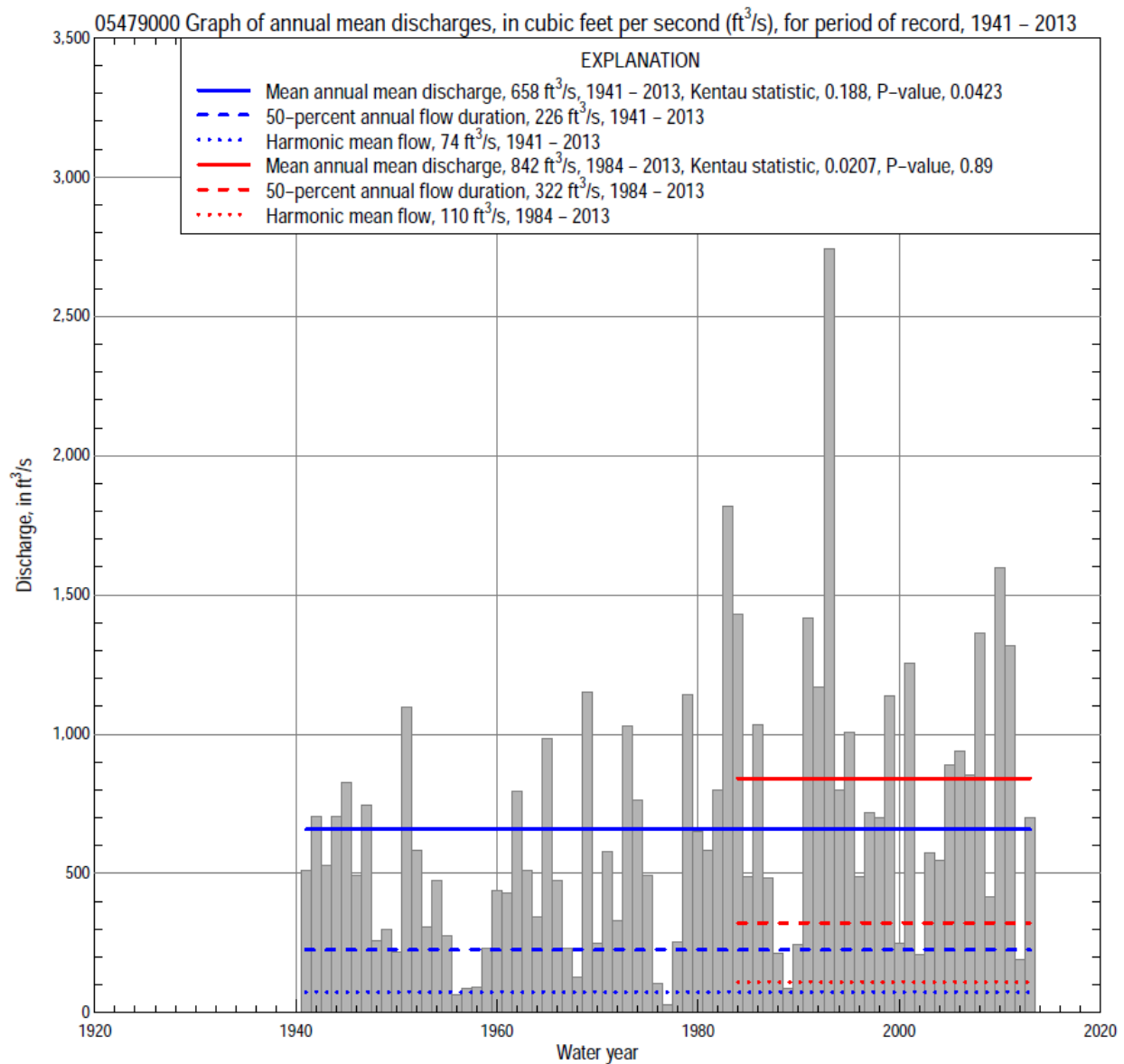
Tools for summarizing streamflow information include the duration hydrograph builder, the cumulative streamflow hydrograph builder, the streamgage statistics retrieval tool, the rating curve builder, the flood tracking chart builder, the National Weather Service Advanced Hydrologic Prediction Service (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.

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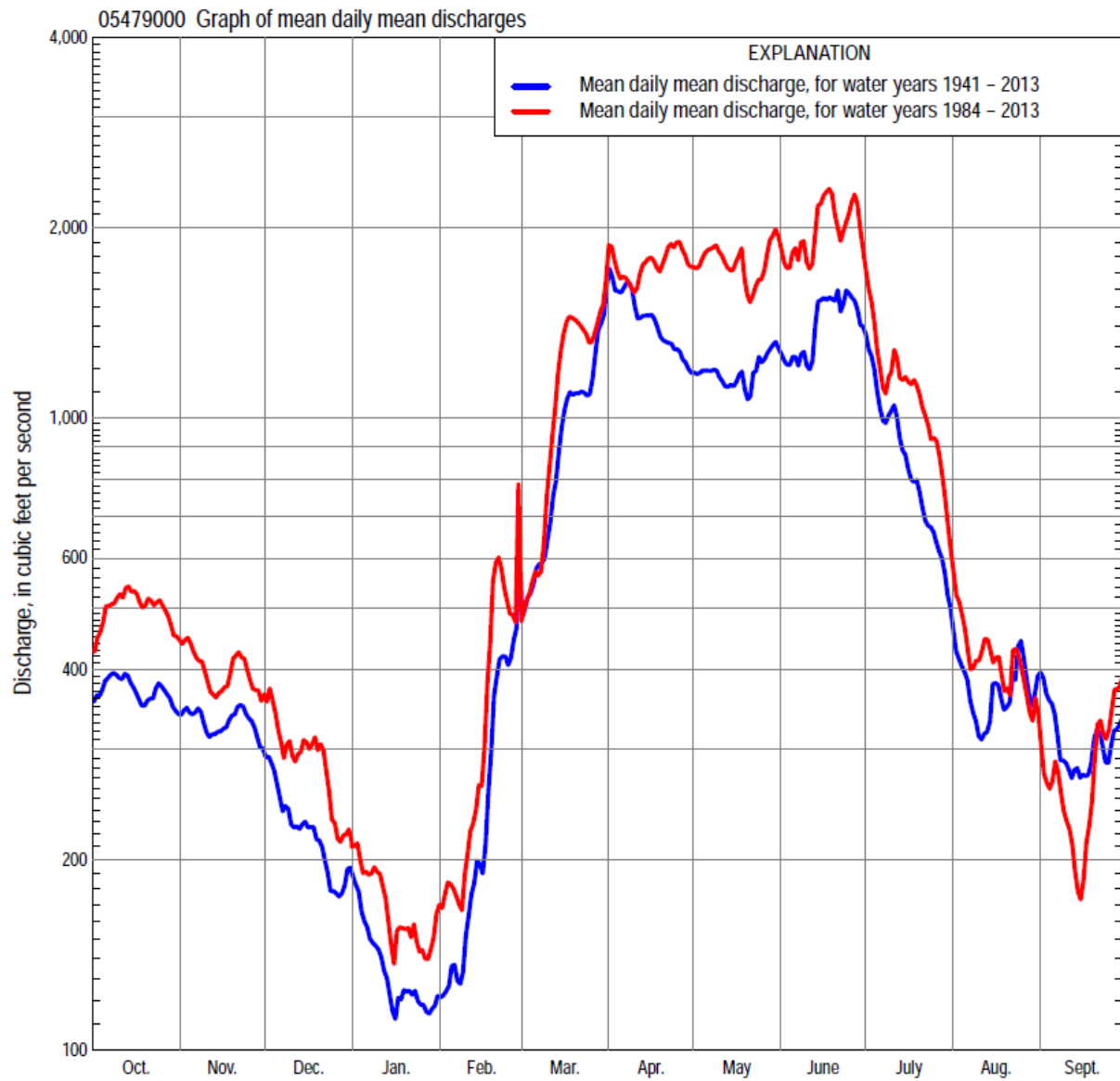
A description of the statistics presented for this streamgage is available in the main body of the report at:

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

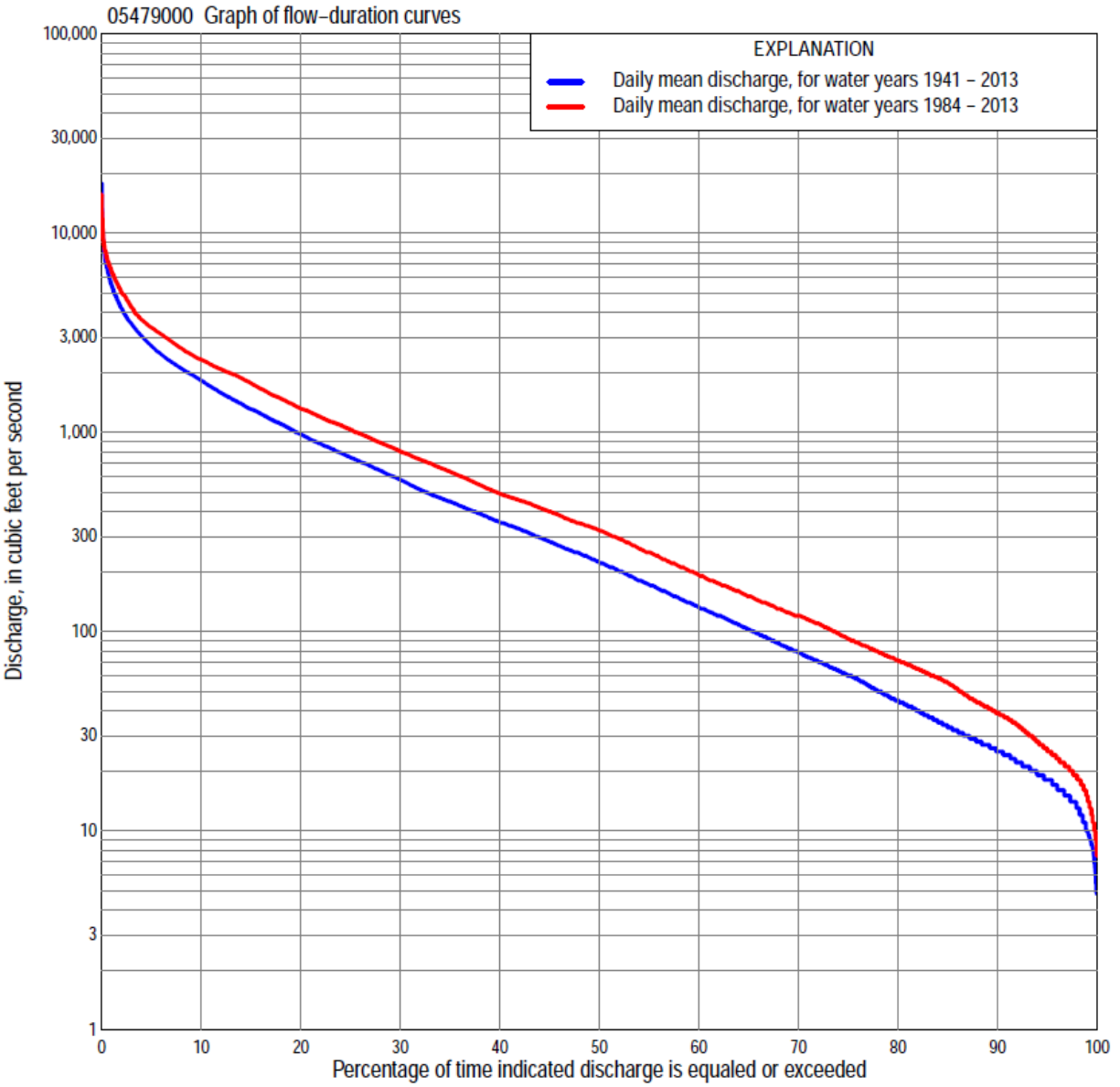
A link to other streamgages included in this report, a map showing the location of the streamgages, information on the programs used to compute the statistical analyses, and references are included in the main body of the report.



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Statistics Based on the Entire Streamflow Period of Record

05479000 Monthly and annual flow durations, based on 1941–2013 period of record (73 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	8.7	13	9.0	5.2	11	19	40	41	24	16	11	7.0	10	0.226	0.005
98	10	14	10	8.6	13	22	45	54	48	25	14	8.1	13	0.226	0.005
95	13	20	16	15	16	35	66	91	93	46	20	11	18	0.234	0.003
90	17	25	21	18	18	49	114	148	158	70	28	16	25	0.229	0.004
85	23	29	24	20	21	70	165	211	241	91	39	21	33	0.207	0.010
80	28	33	28	23	27	98	222	284	304	120	49	27	45	0.189	0.018
75	33	39	33	25	30	150	285	355	369	154	62	33	61	0.179	0.025
70	38	45	40	29	35	200	368	413	465	200	74	41	80	0.166	0.038
65	48	59	48	36	46	240	474	467	584	253	90	50	104	0.156	0.051
60	62	74	62	45	58	297	575	538	685	318	108	61	135	0.138	0.085
55	80	96	82	55	67	369	700	640	783	379	122	70	175	0.140	0.081
50	104	133	106	64	85	445	829	760	883	448	139	81	226	0.148	0.065
45	134	200	130	74	105	540	998	910	1,000	523	160	95	287	0.158	0.049
40	166	240	162	87	125	685	1,280	1,090	1,170	630	188	120	360	0.169	0.034
35	266	275	190	110	143	794	1,490	1,240	1,340	770	228	153	453	0.179	0.026
30	358	328	230	130	180	938	1,800	1,410	1,580	940	284	199	585	0.208	0.009
25	461	397	294	170	230	1,120	2,060	1,650	1,830	1,130	347	262	758	0.204	0.011
20	605	493	355	220	310	1,400	2,360	1,930	2,080	1,400	450	352	986	0.210	0.009
15	810	641	450	250	420	1,830	2,810	2,270	2,410	1,740	632	502	1,310	0.209	0.009
10	1,070	902	580	318	650	2,610	3,430	2,770	3,090	2,150	910	844	1,830	0.230	0.004
5	1,630	1,340	855	500	1,150	3,630	4,600	3,710	5,070	2,950	1,390	1,580	2,730	0.197	0.014
2	2,340	2,050	1,190	780	1,770	4,800	6,480	5,060	6,860	4,800	2,690	2,450	4,200	0.152	0.058
1	2,800	2,310	1,500	958	3,350	5,610	7,710	6,170	8,080	5,710	3,350	3,250	5,480	0.107	0.182

DES MOINES RIVER BASIN
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05479000 Annual exceedance probability of instantaneous
peak discharges, in cubic feet per second (ft³/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	4,290	3,550	5,180
0.200	5	8,170	6,780	9,840
0.100	10	11,100	9,070	13,600
0.040	25	15,100	11,800	19,200
0.020	50	18,000	13,600	24,000
0.010	100	21,100	15,200	29,300
0.005	200	24,200	16,600	35,200
0.002	500	28,200	18,200	43,500

and based on the expected moments algorithm/multiple
Grubbs-Beck analysis computed using a historical period
length of 76 years (1938–2013)

0.500	2	4,320	3,520	5,250
0.200	5	8,310	6,840	10,200
0.100	10	11,400	9,300	14,700
0.040	25	15,700	12,400	21,800
0.020	50	19,100	14,600	28,400
0.010	100	22,600	16,600	36,000
0.005	200	26,300	18,400	45,000
0.002	500	31,300	20,500	59,200
Kantau statistic		0.097		
P-value		0.225		
Begin year		1940		
End year		2013		
Number of peaks		74		

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05479000 Annual exceedance probability of high discharges, based on
1941–2013 period of record (73 years)

Annual exceedance probability	Recur- rence interval (years)	Maximum average discharge (ft ³ /s) for indicated number of consecutive days				
		1	3	7	15	30
0.990	1.01	417	376	286	192	141
0.950	1.05	905	835	686	504	383
0.900	1.11	1,320	1,230	1,040	793	610
0.800	1.25	2,030	1,900	1,650	1,300	1,010
0.500	2	4,210	3,940	3,480	2,810	2,200
0.200	5	7,780	7,210	6,260	5,000	3,890
0.100	10	10,300	9,430	8,020	6,300	4,850
0.040	25	13,400	12,200	10,000	7,690	5,850
0.020	50	15,700	14,100	11,300	8,540	6,450
0.010	100	17,900	15,900	12,500	9,250	6,930
0.005	200	20,000	17,600	13,600	9,840	7,330
0.002	500	22,600	19,700	14,800	10,500	7,740
Kantau statistic		0.079	0.089	0.110	0.154	0.158
P-value		0.327	0.269	0.170	0.054	0.048

05479000 Annual nonexceedance probability of low discharges, based on April 1940
to March 2013 period of record (73 years)

Annual nonexceed- ance probability	Recur- rence interval (years)	Minimum average discharge (ft ³ /s) for indicated number of consecutive days								
		1	3	7	14	30	60	90	120	183
0.01	100	3.7	4.0	4.3	4.7	5.4	6.1	6.4	6.5	6.6
0.02	50	4.8	5.2	5.5	6.0	6.9	7.8	8.3	8.4	8.5
0.05	20	6.9	7.4	7.9	8.6	10	11	13	13	15
0.10	10	10	10	11	12	13	16	18	20	23
0.20	5	14	15	16	17	19	24	28	33	41
0.50	2	29	30	32	34	39	53	68	86	119
0.80	1.25	57	59	63	68	80	117	167	226	332
0.90	1.11	80	83	88	96	116	178	270	377	561
0.96	1.04	116	119	126	139	172	278	452	653	972
0.98	1.02	146	149	159	176	221	372	634	935	1,380
0.99	1.01	179	181	194	217	277	484	862	1,290	1,880
Kantau statistic		0.235	0.245	0.268	0.285	0.254	0.199	0.189	0.191	0.164
P-value		0.003	0.002	0.001	0.000	0.001	0.013	0.018	0.017	0.041

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05479000 Annual nonexceedance probability of seasonal low discharges, based on March 1940 to September 2013 period of record (73–74 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	5.3	5.7	5.9	6.0	11	13	16	27
0.02	50	6.6	7.1	7.4	7.6	16	19	23	38
0.05	20	9.2	9.9	10	11	29	34	41	64
0.10	10	13	14	14	15	47	56	67	100
0.20	5	19	20	21	24	83	99	118	169
0.50	2	41	44	48	55	230	274	326	444
0.80	1.25	95	105	114	136	584	685	824	1,100
0.90	1.11	151	168	184	225	920	1,070	1,290	1,740
0.96	1.04	252	285	314	390	1,460	1,660	2,030	2,770
0.98	1.02	356	406	450	562	1,940	2,180	2,690	3,720
0.99	1.01	487	561	624	787	2,490	2,760	3,430	4,810
Kantau statistic		0.185	0.211	0.228	0.197	0.245	0.239	0.242	0.245
P-value		0.021	0.008	0.004	0.014	0.002	0.003	0.002	0.002
		July-August-September				October-November-December			
0.01	100	4.2	5.4	6.1	7.3	3.5	4.1	4.5	5.4
0.02	50	5.4	6.7	7.5	9.2	4.7	5.4	6.0	7.2
0.05	20	7.8	9.4	11	13	7.2	8.4	9.3	11
0.10	10	11	13	14	18	11	12	14	17
0.20	5	17	19	21	28	17	20	23	28
0.50	2	39	44	49	68	46	54	63	79
0.80	1.25	96	108	125	181	127	154	182	232
0.90	1.11	157	179	210	315	223	270	325	419
0.96	1.04	269	314	378	585	412	502	617	800
0.98	1.02	386	458	561	890	619	757	945	1,230
0.99	1.01	535	648	808	1,310	897	1,100	1,390	1,820
Kantau statistic		0.117	0.107	0.096	0.072	0.183	0.203	0.194	0.190
P-value		0.141	0.179	0.230	0.365	0.023	0.011	0.016	0.018

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Statistics Based on the 1984–2013 Streamflow Period of Record

05479000 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	11	23	10	16	15	20	40	55	53	30	14	9.3	15	-0.087	0.509
98	13	24	15	18	16	22	48	67	73	36	17	11	18	-0.083	0.532
95	22	28	22	19	20	60	73	173	154	54	22	15	25	-0.051	0.708
90	30	37	27	23	25	94	121	324	333	78	33	26	39	-0.062	0.643
85	37	41	33	28	34	136	219	434	405	105	68	35	55	-0.108	0.412
80	42	45	40	40	46	178	304	513	532	167	93	43	71	-0.087	0.509
75	50	63	60	48	59	207	406	638	645	252	109	53	92	-0.064	0.630
70	60	74	76	56	68	241	607	779	743	327	121	60	120	-0.062	0.643
65	74	89	95	64	84	290	779	939	836	392	133	66	150	-0.060	0.655
60	86	110	121	75	100	356	955	1,080	953	461	144	71	192	-0.046	0.735
55	113	198	163	89	120	437	1,190	1,210	1,080	533	160	78	250	-0.060	0.656
50	138	249	187	114	130	482	1,390	1,340	1,240	640	178	85	322	-0.034	0.803
45	166	322	214	125	141	618	1,660	1,530	1,510	799	202	103	400	-0.034	0.803
40	315	378	273	150	160	740	1,920	1,720	1,730	947	236	126	492	-0.025	0.858
35	432	430	309	170	180	883	2,100	1,920	1,980	1,070	285	154	635	-0.021	0.887
30	547	490	350	200	220	1,080	2,300	2,090	2,280	1,250	340	188	800	0.039	0.775
25	705	568	410	226	334	1,290	2,500	2,350	2,620	1,430	410	234	1,030	0.016	0.915
20	886	646	460	250	417	1,620	2,850	2,680	3,090	1,700	533	303	1,310	0.021	0.887
15	1,080	746	520	280	600	2,180	3,240	3,130	3,730	1,990	747	408	1,760	0.048	0.721
10	1,330	953	641	350	844	2,920	3,640	3,720	4,920	2,280	1,050	668	2,320	0.110	0.402
5	1,970	1,340	920	577	1,350	3,770	4,730	4,970	6,230	3,710	1,730	1,450	3,350	0.122	0.354
2	2,910	1,890	1,200	789	2,050	4,940	6,320	6,530	7,740	6,370	2,840	2,060	5,020	0.133	0.309
1	3,330	2,210	1,500	958	3,670	7,100	7,480	6,960	8,990	8,110	3,290	2,660	6,400	0.143	0.276

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05479000 Annual exceedance probability of high discharges, based on
1984–2013 period of record (30 years)

Annual exceedance probability	Recur- rence interval (years)	Maximum average discharge (ft ³ /s) for indicated number of consecutive days				
		1	3	7	15	30
0.990	1.01	821	716	537	357	282
0.950	1.05	1,380	1,250	1,030	777	615
0.900	1.11	1,810	1,670	1,430	1,130	892
0.800	1.25	2,490	2,330	2,060	1,690	1,350
0.500	2	4,500	4,270	3,890	3,310	2,640
0.200	5	7,870	7,460	6,740	5,610	4,490
0.100	10	10,400	9,810	8,700	7,020	5,640
0.040	25	14,000	13,000	11,100	8,600	6,930
0.020	50	16,800	15,400	12,900	9,630	7,770
0.010	100	19,700	18,000	14,600	10,500	8,520
0.005	200	22,800	20,500	16,300	11,400	9,190
0.002	500	27,100	24,100	18,400	12,300	9,960
Kantau statistic		0.143	0.138	0.145	0.168	0.103
P-value		0.276	0.292	0.269	0.199	0.432

05479000 Annual nonexceedance probability of low discharges, based on April 1983 to
March 2013 period of record (30 years)

Annual nonexceed- ance probability	Recur- rence interval (years)	Minimum average discharge (ft ³ /s) for indicated number of consecutive days								
		1	3	7	14	30	60	90	120	183
0.01	100	5.4	6.0	6.3	6.8	8.3	8.6	8.9	9.0	9.1
0.02	50	7.1	7.8	8.3	8.9	11	12	12	13	14
0.05	20	10	12	12	13	16	18	20	22	23
0.10	10	15	16	17	19	22	25	29	34	38
0.20	5	21	23	25	27	31	38	47	57	68
0.50	2	42	45	49	54	61	80	105	140	188
0.80	1.25	78	81	88	97	112	154	217	310	462
0.90	1.11	104	108	116	128	150	211	308	454	705
0.96	1.04	141	142	152	169	202	289	435	660	1,070
0.98	1.02	167	168	179	200	243	350	538	829	1,370
0.99	1.01	193	194	205	230	286	412	645	1,010	1,700
Kantau statistic		-0.108	-0.115	-0.085	-0.021	-0.048	-0.076	-0.025	-0.062	-0.053
P-value		0.411	0.382	0.521	0.887	0.721	0.568	0.858	0.643	0.695

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05479000 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	7.2	9.2	10	11	14	15	18	31
0.02	50	9.4	12	13	14	22	24	28	48
0.05	20	14	16	18	19	42	47	56	92
0.10	10	19	22	24	26	72	83	99	156
0.20	5	29	33	36	39	133	155	187	284
0.50	2	63	70	76	85	386	454	551	782
0.80	1.25	137	154	167	194	971	1,120	1,370	1,830
0.90	1.11	205	236	258	303	1,490	1,700	2,060	2,680
0.96	1.04	314	375	415	493	2,260	2,510	3,040	3,850
0.98	1.02	413	509	568	681	2,900	3,170	3,820	4,760
0.99	1.01	528	672	757	913	3,570	3,840	4,610	5,680
Kantau statistic		-0.154	-0.136	-0.099	-0.090	-0.005	0.016	0.025	0.030
P-value		0.238	0.301	0.454	0.498	0.986	0.915	0.858	0.830
		July-August-September				October-November-December			
0.01	100	10	11	12	14	4.8	5.5	6.0	8.1
0.02	50	12	13	14	16	6.7	7.7	8.4	11
0.05	20	14	16	17	21	11	13	14	18
0.10	10	17	20	22	27	16	20	21	28
0.20	5	23	26	29	38	27	32	36	46
0.50	2	47	53	60	80	66	81	93	120
0.80	1.25	114	131	150	196	155	193	237	307
0.90	1.11	197	226	262	335	238	297	382	499
0.96	1.04	378	432	510	622	373	463	629	831
0.98	1.02	597	681	813	956	495	610	864	1,150
0.99	1.01	924	1,050	1,270	1,430	635	778	1,150	1,550
Kantau statistic		-0.152	-0.172	-0.154	-0.163	-0.002	0.039	-0.011	-0.067
P-value		0.246	0.187	0.239	0.212	1.000	0.775	0.943	0.617