

DES MOINES RIVER BASIN
05482500 NORTH RACCOON RIVER NEAR JEFFERSON, IOWA

LOCATION.--Lat 41°59'17", long 94°22'36" referenced to North American Datum of 1927, in SW 1/4 SW 1/4 NW 1/4 sec.20, T.83 N., R.30 W., Greene County, IA, Hydrologic Unit 07100006, on right bank 20 ft downstream from bridge on State Highway 4, 1.9 mi south of Jefferson, 0.1 mi downstream from Drainage Ditch 33 and 40, 4.7 mi upstream from Hardin Creek, 62.6 mi upstream from mouth, and 92.6 mi upstream from mouth of Raccoon River.

DRAINAGE AREA.--1,619 mi².

PERIOD OF RECORD.--Discharge records from March 1940 to current year. Prior to October 1955, published as "Raccoon River near Jefferson."

GAGE.--Water-stage recorder. Datum of gage is 967.09 ft above National Geodetic Vertical Datum of 1929. Prior to April 22, 1946, non-recording gage at site 4.0 mi upstream at different datum; April 22 to June 25, 1946, non-recording gage, June 26, 1946, to September 30, 1955, water-stage recorder, and October 1, 1955, to April 30, 1958, non-recording gage, all at same site and datum.

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=05482500

The USGS WaterWatch Toolkit is available at:

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

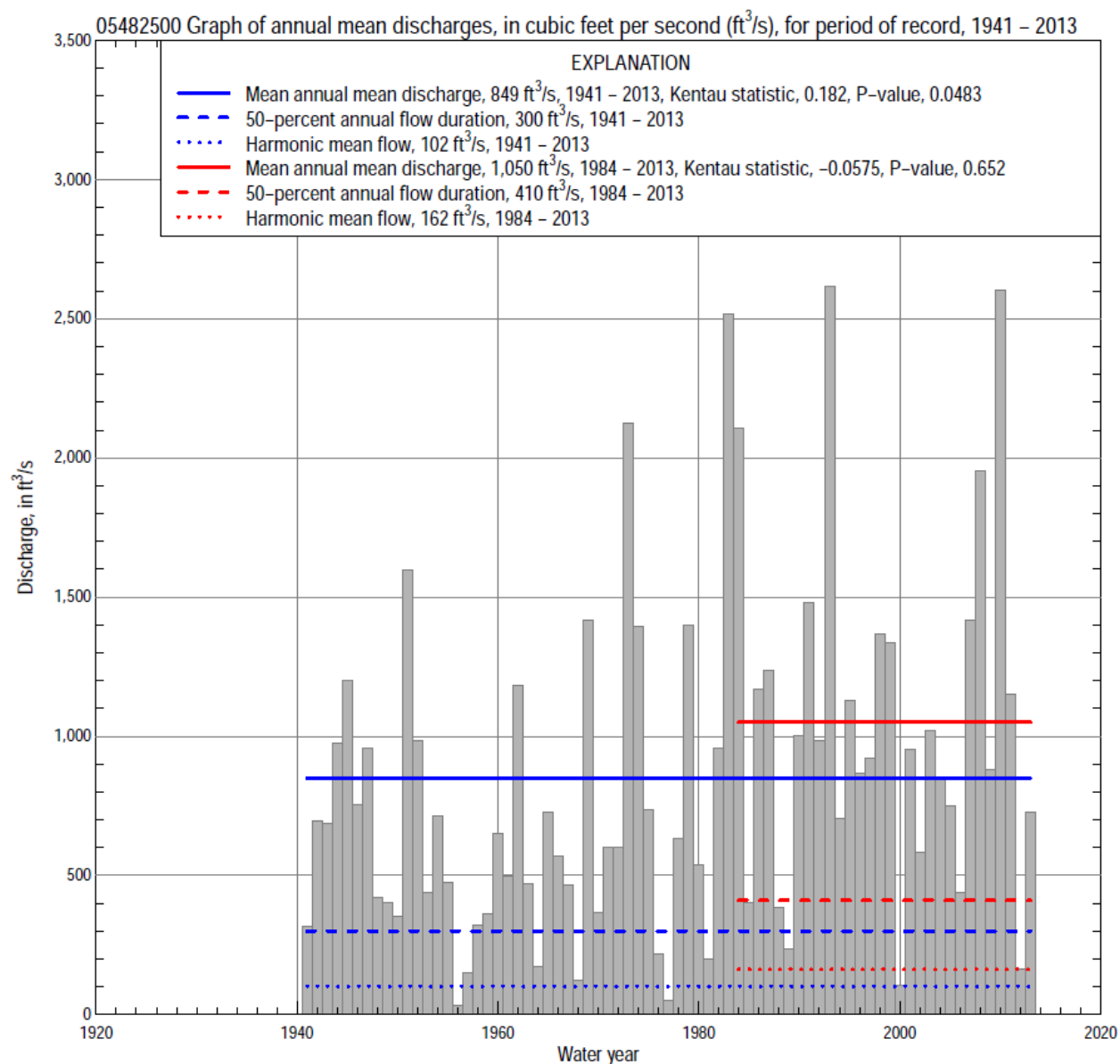
Tools for summarizing streamflow information include the duration hydrograph builder, the cumulative streamflow hydrograph builder, the streamgage statistics retrieval tool, the rating curve builder, the flood tracking chart builder, the National Weather Service Advanced Hydrologic Prediction Service (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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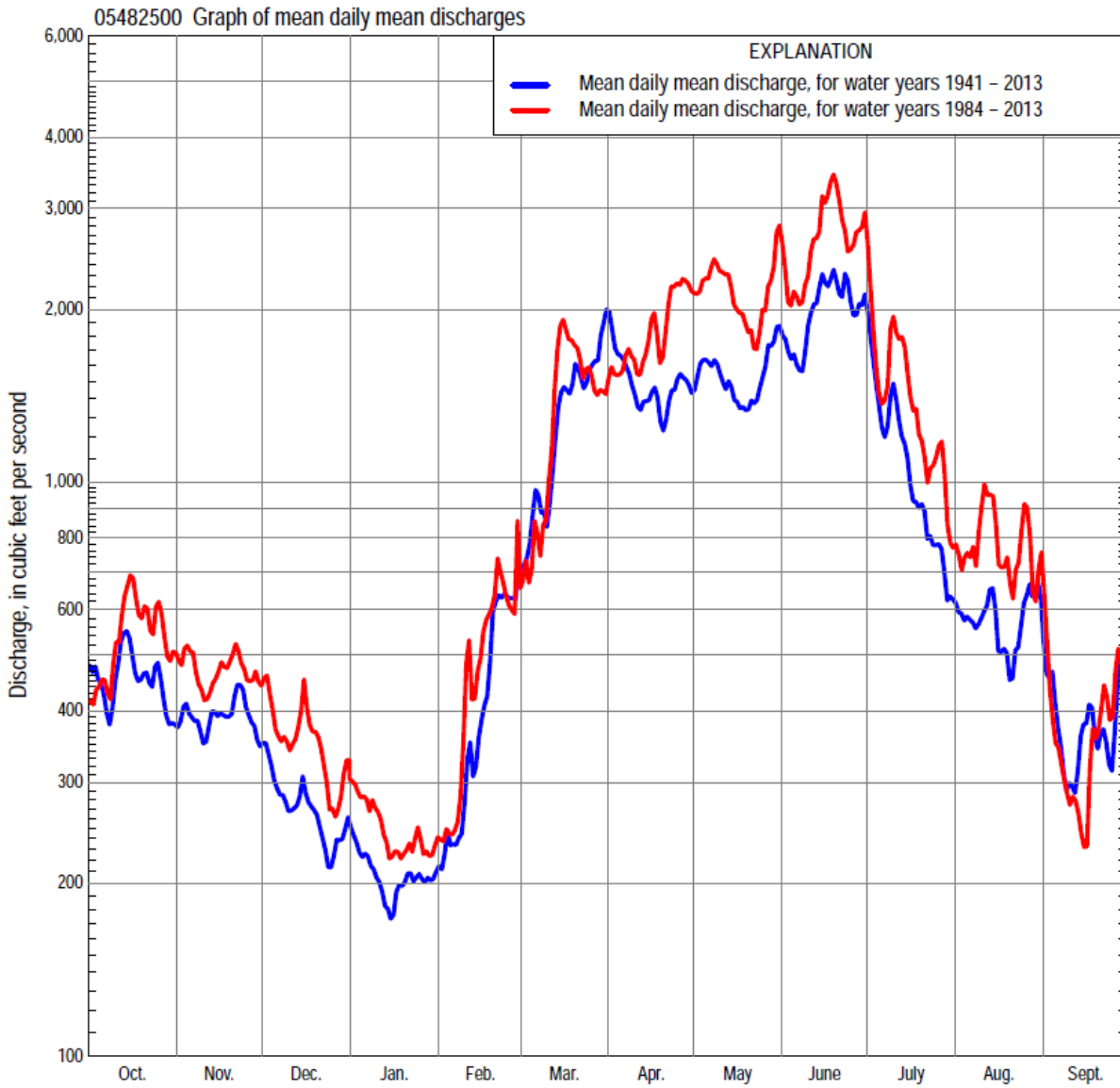
A description of the statistics presented for this streamgauge is available in the main body of the report at:

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

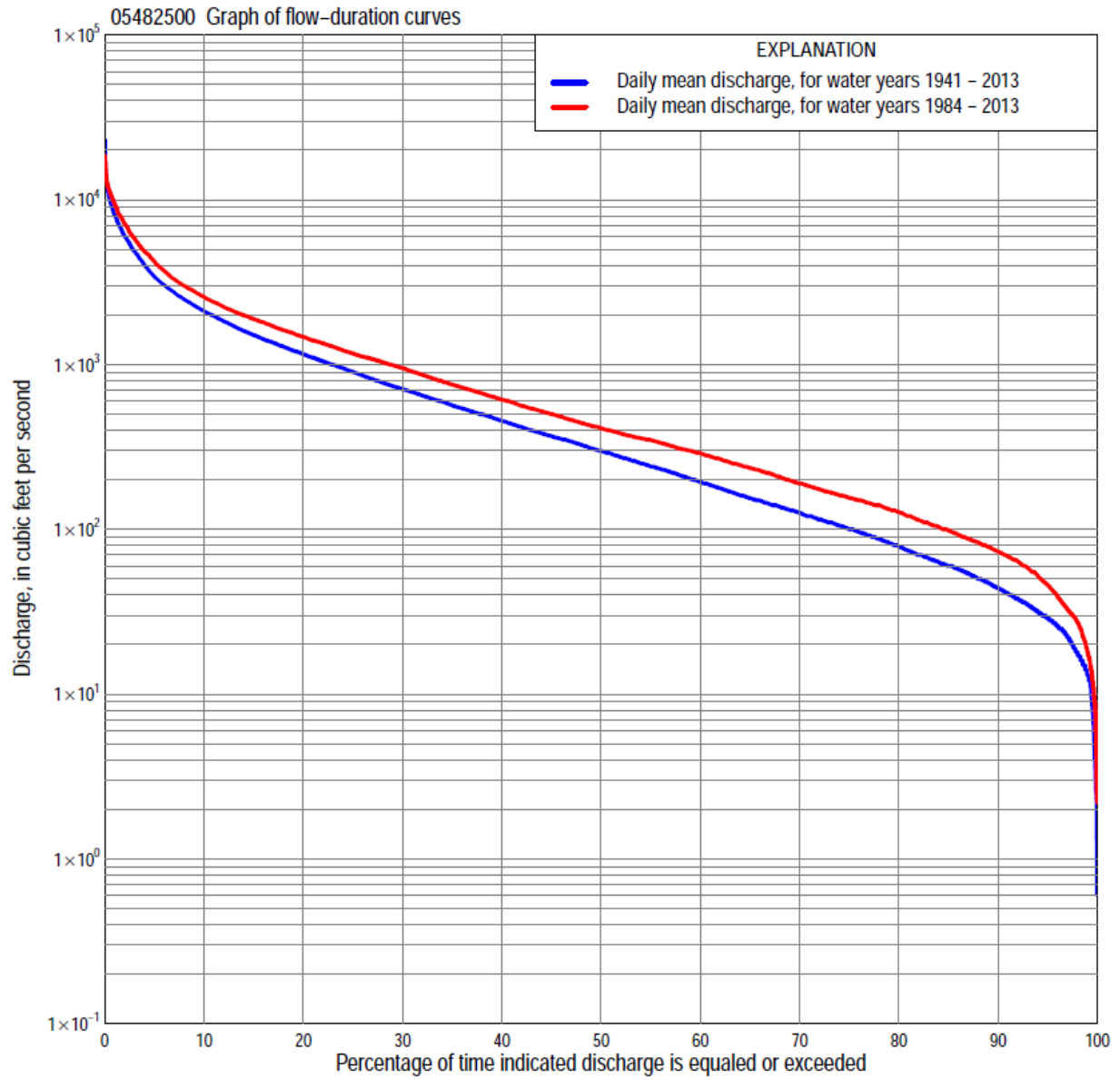
A link to other streamgages included in this report, a map showing the location of the streamgages, information on the programs used to compute the statistical analyses, and references are included in the main body of the report.



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Statistics Based on the Entire Streamflow Period of Record

05482500 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	5.8	18	8.0	4.3	7.7	38	40	33	32	18	12	12	13	0.219	0.006
98	17	23	14	11	12	48	54	38	64	25	21	16	18	0.213	0.008
95	25	31	21	15	18	68	69	72	129	69	33	27	29	0.213	0.008
90	36	44	28	21	30	91	121	158	225	108	45	38	44	0.214	0.007
85	47	54	36	28	37	116	210	268	328	139	59	46	60	0.213	0.008
80	54	64	48	34	46	171	294	358	413	173	73	55	78	0.189	0.018
75	62	82	62	43	59	235	375	442	501	204	88	62	100	0.189	0.018
70	70	100	80	54	75	288	449	545	588	245	106	70	126	0.187	0.020
65	80	121	98	67	95	355	520	645	692	299	122	83	155	0.187	0.020
60	102	136	110	77	110	416	615	743	831	370	145	94	194	0.177	0.027
55	126	152	130	94	126	500	738	842	1,000	460	170	107	242	0.166	0.038
50	153	170	145	110	158	600	846	965	1,190	552	203	127	300	0.160	0.046
45	172	209	180	132	220	700	970	1,100	1,340	670	241	144	370	0.156	0.051
40	196	268	212	164	252	866	1,120	1,270	1,550	775	284	171	460	0.150	0.061
35	230	325	265	200	290	1,010	1,340	1,430	1,780	916	341	202	570	0.160	0.046
30	277	380	320	235	350	1,200	1,570	1,650	2,060	1,110	415	241	713	0.176	0.028
25	431	468	370	274	409	1,400	1,820	1,950	2,400	1,310	492	296	907	0.187	0.019
20	600	588	440	328	539	1,710	2,230	2,280	2,870	1,540	609	370	1,160	0.194	0.015
15	818	774	537	390	712	2,190	2,770	2,810	3,550	1,870	802	525	1,520	0.189	0.018
10	1,170	1,100	662	500	1,000	3,000	3,650	3,610	4,840	2,460	1,180	906	2,120	0.174	0.030
5	2,080	1,420	900	710	1,600	5,340	5,690	5,360	7,380	4,060	2,270	1,580	3,430	0.186	0.020
2	3,150	1,920	1,190	1,000	3,000	8,340	7,870	7,170	10,500	6,660	4,770	3,140	6,040	0.128	0.111
1	4,290	2,450	1,500	1,200	4,190	11,100	9,030	8,700	11,800	9,720	6,750	4,110	8,120	0.101	0.207

DES MOINES RIVER BASIN
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05482500 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	7,970	6,920	9,170
0.200	5	12,800	11,100	14,700
0.100	10	16,000	13,800	18,700
0.040	25	20,100	16,700	24,200
0.020	50	23,100	18,600	28,700
0.010	100	26,100	20,300	33,600
0.005	200	29,200	21,900	38,900
0.002	500	33,000	23,500	46,300

and based on the expected moments algorithm/multiple
 Grubbs-Beck analysis computed using a historical period
 length of 74 years (1940–2013)

0.500	2	8,040	6,220	9,160
0.200	5	12,900	11,200	15,200
0.100	10	16,200	13,900	20,000
0.040	25	20,300	17,000	26,900
0.020	50	23,300	19,000	32,500
0.010	100	26,200	20,900	38,500
0.005	200	29,100	22,700	44,800
0.002	500	32,800	24,700	53,800
Kantau statistic		0.095		
P-value		0.234		
Begin year		1940		
End year		2013		
Number of peaks		74		

DES MOINES RIVER BASIN
05482500 NORTH RACCOON RIVER NEAR JEFFERSON, IOWA

05482500 Annual exceedance probability of high discharges, based on
 1941–2013 period of record (73 years)

[ND, not determined]

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	ND	314	230	171	137
0.950	1.05	ND	1,010	755	537	416
0.900	1.11	ND	1,710	1,300	910	696
0.800	1.25	ND	3,000	2,300	1,600	1,210
0.500	2	ND	6,890	5,430	3,800	2,810
0.200	5	ND	12,000	9,650	6,990	5,100
0.100	10	ND	14,600	11,900	8,810	6,390
0.040	25	ND	16,900	13,900	10,600	7,690
0.020	50	ND	18,200	15,000	11,700	8,440
0.010	100	ND	19,100	15,800	12,500	9,030
0.005	200	ND	19,700	16,400	13,200	9,490
0.002	500	ND	20,300	17,000	13,900	9,960
Kantau statistic		0.082	0.078	0.093	0.126	0.132
P-value		0.308	0.334	0.245	0.115	0.098

05482500 Annual nonexceedance probability of low discharges, based on April 1940
 to March 2013 period of record (73 years)

Annual nonexceedance probability	Recurrence 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	1.4	1.6	1.8	2.1	3.8	6.6	8.5	11	13
0.02	50	2.4	2.7	3.0	3.4	5.6	9.1	12	14	17
0.05	20	5.1	5.5	6.0	6.8	10	15	18	22	27
0.10	10	9.2	10	11	12	16	22	27	32	41
0.20	5	18	19	20	22	28	35	44	52	67
0.50	2	52	54	57	62	72	87	109	130	170
0.80	1.25	119	124	131	142	165	205	271	327	430
0.90	1.11	169	178	188	204	245	317	434	530	700
0.96	1.04	231	247	261	285	361	498	714	888	1,170
0.98	1.02	274	297	314	344	455	663	985	1,240	1,640
0.99	1.01	314	344	365	401	555	854	1,310	1,680	2,220
Kantau statistic		0.217	0.222	0.236	0.247	0.235	0.206	0.206	0.190	0.137
P-value		0.007	0.006	0.003	0.002	0.003	0.010	0.010	0.018	0.087

DES MOINES RIVER BASIN
05482500 NORTH RACCOON RIVER NEAR JEFFERSON, IOWA

05482500 Annual nonexceedance probability of seasonal low discharges, based on March 1940 to
September 2013 period of record (73–74 years)

Annual nonexceedance probability	Recurrence 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	3.4	3.8	4.2	5.0	14	17	19	28
0.02	50	5.0	5.6	6.1	7.2	22	26	29	42
0.05	20	8.8	9.8	11	13	41	48	54	77
0.10	10	14	16	17	20	69	79	91	126
0.20	5	25	28	30	35	123	139	164	222
0.50	2	67	75	82	98	322	365	437	593
0.80	1.25	168	189	208	255	708	814	985	1,380
0.90	1.11	263	297	329	410	1,000	1,170	1,420	2,040
0.96	1.04	414	468	526	667	1,390	1,650	1,990	2,990
0.98	1.02	547	622	704	906	1,670	2,010	2,430	3,750
0.99	1.01	697	795	907	1,190	1,950	2,370	2,870	4,550
Kantau statistic		0.180	0.190	0.197	0.168	0.216	0.228	0.236	0.246
P-value		0.025	0.018	0.014	0.036	0.007	0.004	0.003	0.002
		July-August-September				October-November-December			
0.01	100	3.6	7.2	9.4	14	1.7	2.2	3.9	6.6
0.02	50	5.5	9.6	12	17	3.0	3.8	6.0	9.4
0.05	20	10	15	18	24	6.5	7.9	11	16
0.10	10	16	22	25	33	12	15	19	25
0.20	5	29	34	39	50	25	29	35	44
0.50	2	78	83	90	114	77	90	101	121
0.80	1.25	184	196	216	284	183	224	258	318
0.90	1.11	274	308	347	474	261	334	402	519
0.96	1.04	404	496	579	839	359	481	621	864
0.98	1.02	510	675	812	1,230	427	592	808	1,190
0.99	1.01	621	889	1,100	1,760	490	700	1,010	1,590
Kantau statistic		0.125	0.136	0.145	0.120	0.175	0.190	0.188	0.201
P-value		0.117	0.087	0.069	0.131	0.029	0.018	0.019	0.012

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Statistics Based on the 1984–2013 Streamflow Period of Record

05482500 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	26	18	3.2	9.2	19	42	56	29	115	35	20	18	18	-0.143	0.276
98	30	27	8.2	11	30	65	65	41	138	58	22	24	27	-0.156	0.232
95	49	48	28	19	36	100	132	187	208	89	31	35	46	-0.138	0.292
90	62	77	46	40	50	150	225	438	362	132	61	51	73	-0.115	0.382
85	73	92	67	55	70	199	352	611	467	169	81	66	98	-0.129	0.326
80	82	112	86	70	94	252	441	742	613	222	106	82	127	-0.133	0.309
75	97	129	104	81	112	309	519	861	784	298	132	92	155	-0.159	0.225
70	118	141	120	101	132	363	660	967	974	369	167	103	190	-0.149	0.254
65	147	159	140	134	181	414	803	1,080	1,120	466	205	112	236	-0.136	0.301
60	162	170	158	155	218	498	901	1,200	1,260	558	241	128	290	-0.154	0.239
55	175	196	191	190	242	591	1,010	1,370	1,460	670	276	141	348	-0.122	0.354
50	195	268	275	220	260	664	1,170	1,520	1,630	757	312	151	410	-0.120	0.363
45	221	332	320	239	290	790	1,360	1,670	1,840	876	351	171	500	-0.108	0.412
40	240	370	357	260	309	965	1,520	1,890	2,030	1,050	409	190	612	-0.101	0.443
35	297	422	397	300	350	1,090	1,710	2,110	2,320	1,220	463	222	755	-0.083	0.532
30	443	534	445	330	391	1,280	1,930	2,370	2,660	1,450	523	268	951	-0.064	0.630
25	549	634	520	360	500	1,440	2,290	2,690	3,120	1,620	632	312	1,170	-0.057	0.669
20	708	772	604	397	590	1,770	2,790	3,110	3,820	1,870	793	377	1,470	-0.048	0.721
15	876	1,070	664	432	761	2,180	3,350	3,780	4,970	2,290	1,070	565	1,890	-0.067	0.617
10	1,280	1,260	768	500	1,050	2,840	4,460	4,750	6,650	2,910	1,820	1,030	2,570	-0.030	0.830
5	2,300	1,490	987	635	1,500	4,270	6,050	6,820	9,490	5,020	3,250	1,540	4,220	0.041	0.762
2	3,280	1,820	1,300	800	3,100	7,640	8,000	8,700	11,500	9,720	6,730	2,770	7,170	0.071	0.592
1	5,800	2,150	1,500	900	4,100	10,200	9,120	10,700	13,100	11,500	8,290	3,420	9,440	0.106	0.422

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05482500 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	562	467	375	291	195
0.950	1.05	1,520	1,280	1,000	746	549
0.900	1.11	2,410	2,050	1,590	1,170	887
0.800	1.25	3,940	3,400	2,640	1,910	1,490
0.500	2	8,390	7,490	5,930	4,280	3,360
0.200	5	14,300	13,300	11,000	8,040	6,070
0.100	10	17,600	16,700	14,200	10,500	7,670
0.040	25	20,800	20,000	17,700	13,400	9,340
0.020	50	22,600	21,900	20,000	15,300	10,400
0.010	100	24,000	23,500	22,000	17,000	11,200
0.005	200	25,100	24,700	23,700	18,600	11,900
0.002	500	26,300	26,100	25,600	20,400	12,600
Kantau statistic		0.120	0.117	0.094	0.080	0.071
P-value		0.363	0.372	0.475	0.544	0.592

05482500 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 (ft ³ /s) for indicated number of consecutive days								
		1	3	7	14	30	60	90	120	183
0.01	100	1.9	2.1	2.4	3.1	6.1	11	13	17	21
0.02	50	3.4	3.8	4.3	5.4	10	16	19	24	29
0.05	20	7.7	8.5	10	12	18	26	32	38	46
0.10	10	15	16	18	22	30	41	49	57	68
0.20	5	29	32	35	41	52	66	80	92	108
0.50	2	81	87	95	107	123	145	182	209	251
0.80	1.25	163	172	183	201	231	276	359	435	549
0.90	1.11	209	219	230	250	296	364	484	616	807
0.96	1.04	254	265	274	296	365	470	642	870	1,200
0.98	1.02	279	290	297	321	408	543	755	1,070	1,530
0.99	1.01	298	308	314	338	443	610	862	1,280	1,890
Kantau statistic		-0.198	-0.198	-0.177	-0.186	-0.202	-0.218	-0.154	-0.145	-0.163
P-value		0.129	0.129	0.175	0.154	0.121	0.094	0.239	0.269	0.212

DES MOINES RIVER BASIN
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05482500 Annual nonexceedance probability of seasonal low discharges, based on October 1983 to September 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	7	14	30	1	7	14	30
		January-February-March				April-May-June			
0.01	100	3.3	5.4	6.8	9.0	20	23	28	39
0.02	50	5.6	8.5	11	14	33	38	46	63
0.05	20	12	16	20	25	65	75	91	126
0.10	10	22	28	33	40	113	129	157	219
0.20	5	41	50	58	69	204	232	284	398
0.50	2	114	130	144	166	512	589	715	1,020
0.80	1.25	242	272	299	334	992	1,180	1,400	2,020
0.90	1.11	326	371	408	452	1,280	1,560	1,810	2,650
0.96	1.04	421	489	542	596	1,590	1,980	2,260	3,340
0.98	1.02	481	571	636	696	1,770	2,250	2,530	3,770
0.99	1.01	532	644	722	788	1,920	2,480	2,750	4,130
Kantau statistic		-0.143	-0.110	-0.136	-0.149	-0.078	-0.071	-0.034	-0.028
P-value		0.276	0.402	0.301	0.254	0.556	0.592	0.803	0.844
		July-August-September				October-November-December			
0.01	100	8.2	13	17	25	2.0	2.4	3.8	11
0.02	50	11	16	20	29	3.8	4.6	6.8	16
0.05	20	16	23	28	38	9.0	11	15	27
0.10	10	24	31	37	49	18	23	29	43
0.20	5	38	46	54	69	37	47	57	73
0.50	2	92	103	116	145	109	140	162	187
0.80	1.25	225	244	270	346	229	284	344	428
0.90	1.11	362	392	433	574	298	362	457	633
0.96	1.04	605	659	733	1,020	367	435	579	931
0.98	1.02	844	933	1,050	1,520	405	472	652	1,180
0.99	1.01	1,140	1,280	1,450	2,210	434	499	712	1,440
Kantau statistic		-0.223	-0.228	-0.223	-0.228	-0.191	-0.195	-0.191	-0.159
P-value		0.087	0.080	0.087	0.080	0.143	0.134	0.143	0.225