Water-Data Report 2008

06468170 JAMES RIVER NEAR GRACE CITY, ND

James Basin
James Headwaters Subbasin

LOCATION.--Lat 47°33′29″, long 98°51′45″ referenced to North American Datum of 1927, in NW ¼ NW ¼ NW ¼ sec.17, T.147 N., R.64 W., Foster County, ND, Hydrologic Unit 10160001, on left bank on upstream side of county highway bridge and 2.5 mi northwest of Grace City.

DRAINAGE AREA.--1,060 mi^2 of which 650 mi^2 probably is noncontributing.

SURFACE-WATER RECORDS

PERIOD OF RECORD.--DAILY DISCHARGE--June 1968 to current year.

PERIOD OF RECORD.--DAILY GAGE HEIGHT--October 2000 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,457.60 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair except for discharges below 1.0 ft^3/s and those for estimated daily discharges, which are poor.

06468170 JAMES RIVER NEAR GRACE CITY, ND—Continued

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2007 TO SEPTEMBER 2008
DAILY MEAN VALUES
[e, estimated]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	2.9	4.1	e1.7	e0.84	e0.11	e0.00	e3.8	11	2.1	e16	1.2	0.09
2	2.2	3.9	e1.7	e0.86	e0.10	e0.00	e4.3	7.8	2.2	e13	1.2	0.10
3	2.1	4.0	e1.7	e0.88	e0.10	e0.00	e4.9	7.1	2.3	12	1.2	0.08
4	1.6	4.3	e1.7	e0.90	e0.10	e0.00	e5.5	6.7	2.2	9.8	0.99	0.14
5	1.5	3.7	e1.6	e0.90	e0.09	e0.00	e7.0	7.4	2.4	8.9	0.81	0.34
6	1.4	4.4	e1.6	e0.84	e0.09	e0.00	e9.2	8.6	4.5	7.5	0.69	0.30
7	1.6	4.0	e1.6	e0.80	e0.08	e0.00	e12	9.6	5.2	7.7	0.64	0.24
8	1.4	3.8	e1.6	e0.70	e0.08	e0.00	e14	9.7	4.8	6.8	e0.60	0.19
9	1.1	3.6	e1.6	e0.66	e0.07	e0.01	e17	8.1	4.3	7.0	e0.58	0.19
10	1.1	3.7	e1.6	e0.63	e0.06	e0.02	e22	6.9	6.2	7.0	e0.56	0.17
11	1.2	3.5	e1.7	e0.62	e0.05	e0.03	24	6.2	15	5.7	e2.2	0.19
12	0.94	3.6	e1.6	e0.60	e0.04	e0.05	25	6.7	18	3.9	e1.5	0.17
13	0.80	3.5	e1.4	e0.58	e0.03	e0.07	25	5.2	17	2.9	e1.1	0.17
14	0.68	2.6	e1.3	e0.56	e0.02	e0.10	23	e4.8	24	2.3	e0.70	0.17
15	0.53	2.8	e1.1	e0.54	e0.02	e0.16	20	e4.3	31	2.0	0.58	0.15
16	0.42	e2.8	e1.3	e0.51	e0.01	e0.33	17	e3.7	37	1.7	0.43	0.14
17	0.48	e3.0	e1.5	e0.44	e0.01	e0.55	16	e3.2	35	2.1	0.28	0.12
18	0.74	3.2	e1.7	e0.36	e0.00	e0.70	16	e2.8	29	1.7	0.28	0.12
19	1.1	2.7	e1.9	e0.26	e0.00	e0.78	17	e2.5	25	2.1	0.27	0.10
20	1.6	2.5	e1.9	e0.19	e0.00	e0.87	18	e2.3	22	2.7	0.27	0.08
21	2.1	e2.2	e1.8	e0.18	e0.00	e0.95	14	e2.1	22	2.7	0.23	0.10
22	3.0	2.1	e1.5	e0.18	e0.00	e1.0	15	e1.9	24	2.0	0.20	2.9
23	3.5	2.0	e1.3	e0.17	e0.00	e1.1	14	e1.7	25	2.8	0.14	39
24	4.1	1.9	e1.5	e0.16	e0.00	e1.3	14	e1.5	e25	2.6	0.10	35
25	4.2	1.6	e1.6	e0.15	e0.00	e1.4	13	e1.4	22	1.9	0.08	15
26	3.8	1.7	e1.6	e0.15	e0.00	e1.6	12	e1.3	23	1.1	0.09	8.6
27	4.0	e1.8	e1.6	e0.14	e0.00	e1.9	13	e1.2	111	0.82	0.12	5.7
28	4.3	e1.8	e1.6	e0.13	e0.00	e2.2	12	e1.2	e53	1.1	0.12	4.2
29	4.2	e1.7	e1.4	e0.12	e0.00	e2.5	12	e1.2	e30	1.4	0.10	3.5
30	4.1	e1.7	e1.2	e0.11	---	e2.8	12	1.5	e20	1.2	0.08	3.0
31	3.9	---	e1.0	e0.11	---	e3.3	---	1.9	---	1.3	0.09	---
Total	66.59	88.2	47.9	14.27	1.06	23.72	431.7	141.5	644.2	141.72	17.43	120.25
Mean	2.15	2.94	1.55	0.46	0.04	0.77	14.4	4.56	21.5	4.57	0.56	4.01
Max	4.3	4.4	1.9	0.90	0.11	3.3	25	11	111	16	2.2	39
Min	0.42	1.6	1.0	0.11	0.00	0.00	3.8	1.2	2.1	0.82	0.08	0.08
Ac-ft	132	175	95	28	2.1	47	856	281	1,280	281	35	239

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1968 - 2008, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	6.29	8.85	2.31	0.64	2.74	127	262	79.1	40.2	59.9	29.0	10.1
Max	70.7	130	21.0	4.22	49.9	724	1,854	446	335	750	498	156
(WY)	(2001)	(2001)	(2001)	(1994)	(1981)	(1995)	(1997)	(1997)	(2000)	(2000)	(1993)	(2000)
Min	0.00	0.00	0.00	0.00	0.00	0.00	0.29	0.18	0.11	0.02	0.00	0.00
(WY)	(1977)	(1977)	(1977)	(1969)	(1969)	(1969)	(1977)	(1991)	(1973)	(1973)	(1988)	(1976)

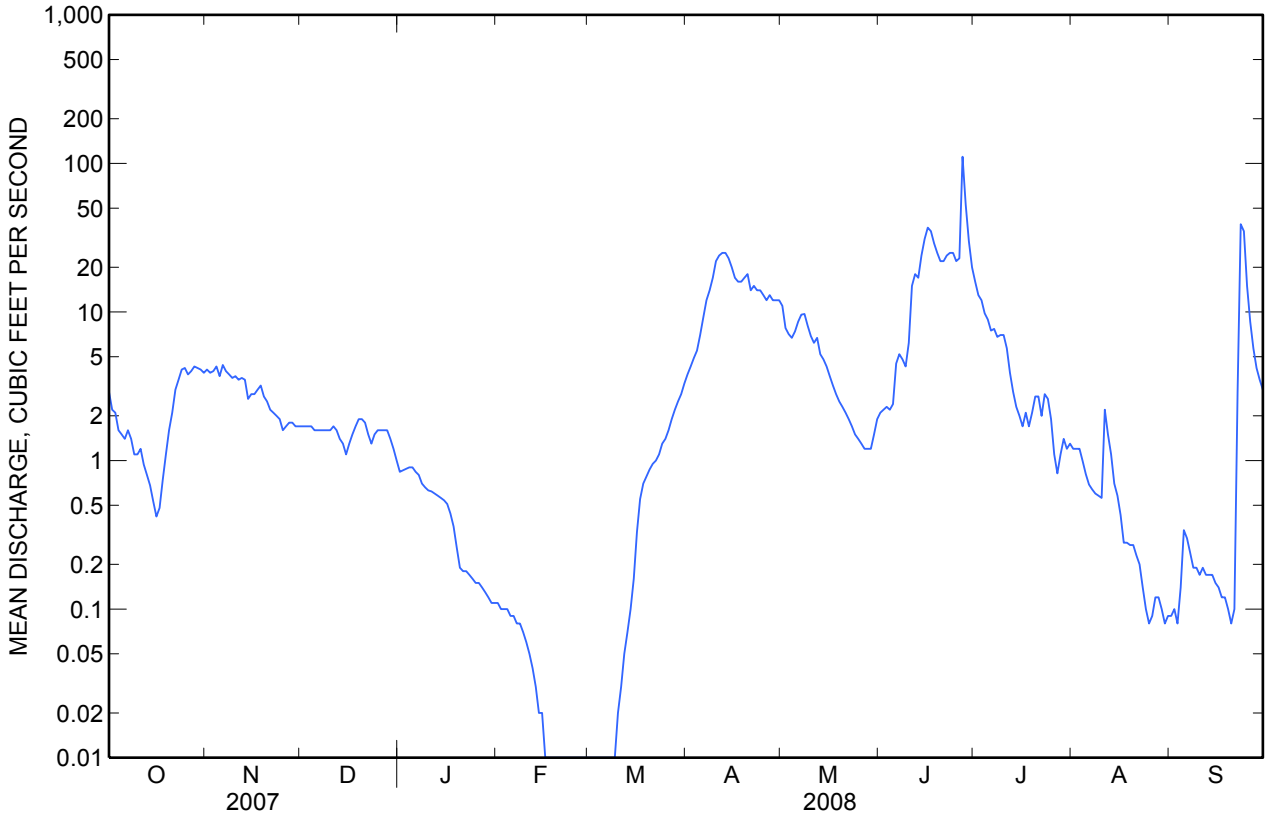
06468170 JAMES RIVER NEAR GRACE CITY, ND—Continued

SUMMARY STATISTICS

	Calendar Year 2007		Water Year 2008		Water Years 1968 - 2008	
Annual total	6,990.37		1,738.54			
Annual mean	19.2		4.75		52.7	
Highest annual mean					200	1997
Lowest annual mean					0.21	1977
Highest daily mean	360	Mar 24	111	Jun 27	3,600	Apr 3, 1997
Lowest daily mean	0.00	Jan 1	0.00	Feb 18	0.00	Jan 1, 1969
Annual seven-day minimum	0.00	Jan 1	0.00	Feb 18	0.00	Jan 1, 1969
Maximum peak flow			152	Jun 27	[a]4,000	Apr 3, 1997
Maximum peak stage			5.68	Jun 27	[b]16.18	Mar 21, 1996
Annual runoff (ac-ft)	13,870		3,450		38,150	
10 percent exceeds	36		15		90	
50 percent exceeds	4.7		1.6		1.6	
90 percent exceeds	0.00		0.08		0.00	

[a] Gage height, 14.17 ft, backwater from ice.

[b] Backwater from ice.

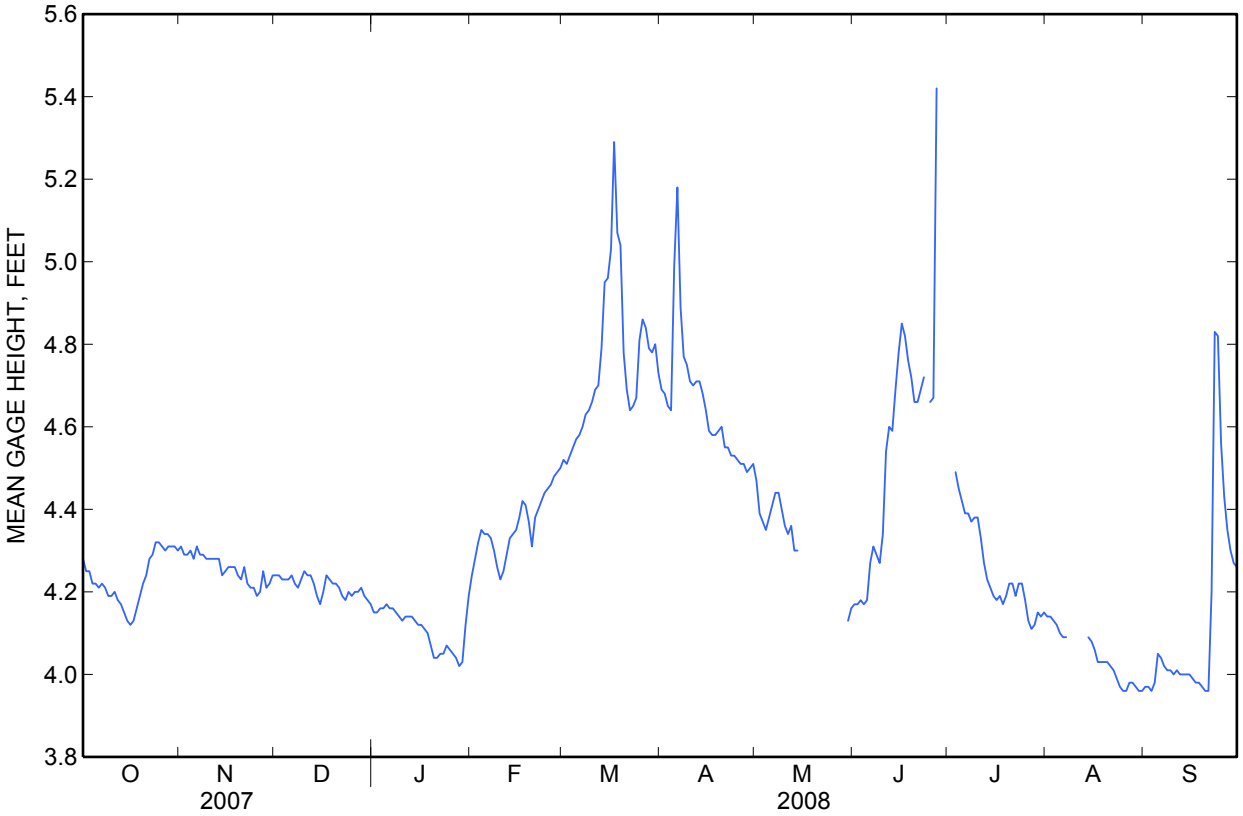


06468170 JAMES RIVER NEAR GRACE CITY, ND—Continued

GAGE HEIGHT, FEET
WATER YEAR OCTOBER 2007 TO SEPTEMBER 2008
DAILY MEAN VALUES

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	4.28	4.31	4.24	4.15	4.24	4.52	4.69	4.47	4.17	---	4.14	3.97
2	4.25	4.29	4.24	4.15	4.28	4.51	4.68	4.39	4.17	---	4.14	3.97
3	4.25	4.29	4.23	4.16	4.32	4.53	4.65	4.37	4.18	4.49	4.13	3.96
4	4.22	4.30	4.23	4.16	4.35	4.55	4.64	4.35	4.17	4.45	4.12	3.98
5	4.22	4.28	4.23	4.17	4.34	4.57	4.99	4.38	4.18	4.42	4.10	4.05
6	4.21	4.31	4.24	4.16	4.34	4.58	5.18	4.41	4.27	4.39	4.09	4.04
7	4.22	4.29	4.22	4.16	4.33	4.60	4.89	4.44	4.31	4.39	4.09	4.02
8	4.21	4.29	4.21	4.15	4.30	4.63	4.77	4.44	4.29	4.37	---	4.01
9	4.19	4.28	4.23	4.14	4.26	4.64	4.75	4.40	4.27	4.38	---	4.01
10	4.19	4.28	4.25	4.13	4.23	4.66	4.71	4.36	4.34	4.38	---	4.00
11	4.20	4.28	4.24	4.14	4.25	4.69	4.70	4.34	4.54	4.33	---	4.01
12	4.18	4.28	4.24	4.14	4.29	4.70	4.71	4.36	4.60	4.27	---	4.00
13	4.17	4.28	4.22	4.14	4.33	4.79	4.71	4.30	4.59	4.23	---	4.00
14	4.15	4.24	4.19	4.13	4.34	4.95	4.68	4.30	4.69	4.21	4.09	4.00
15	4.13	4.25	4.17	4.12	4.35	4.96	4.64	---	4.78	4.19	4.08	4.00
16	4.12	4.26	4.20	4.12	4.38	5.03	4.59	---	4.85	4.18	4.06	3.99
17	4.13	4.26	4.24	4.11	4.42	5.29	4.58	---	4.82	4.19	4.03	3.98
18	4.16	4.26	4.23	4.10	4.41	5.07	4.58	---	4.76	4.17	4.03	3.98
19	4.19	4.24	4.22	4.07	4.37	5.04	4.59	---	4.72	4.19	4.03	3.97
20	4.22	4.23	4.22	4.04	4.31	4.78	4.60	---	4.66	4.22	4.03	3.96
21	4.24	4.26	4.21	4.04	4.38	4.69	4.55	---	4.66	4.22	4.02	3.96
22	4.28	4.22	4.19	4.05	4.40	4.64	4.55	---	4.69	4.19	4.01	4.20
23	4.29	4.21	4.18	4.05	4.42	4.65	4.53	---	4.72	4.22	3.99	4.83
24	4.32	4.21	4.20	4.07	4.44	4.67	4.53	---	---	4.22	3.97	4.82
25	4.32	4.19	4.19	4.06	4.45	4.81	4.52	---	4.66	4.18	3.96	4.56
26	4.31	4.20	4.20	4.05	4.46	4.86	4.51	---	4.67	4.13	3.96	4.43
27	4.30	4.25	4.20	4.04	4.48	4.84	4.51	---	5.42	4.11	3.98	4.35
28	4.31	4.21	4.21	4.02	4.49	4.79	4.49	---	---	4.12	3.98	4.30
29	4.31	4.22	4.19	4.03	4.50	4.78	4.50	---	---	4.15	3.97	4.27
30	4.31	4.24	4.18	4.12	---	4.80	4.51	4.13	---	4.14	3.96	4.26
31	4.30	---	4.17	4.19	---	4.73	---	4.16	---	4.15	3.96	---
Mean	4.23	4.26	4.21	4.11	4.36	4.75	4.65	---	---	---	---	4.13
Max	4.32	4.31	4.25	4.19	4.50	5.29	5.18	---	---	---	---	4.83
Min	4.12	4.19	4.17	4.02	4.23	4.51	4.49	---	---	---	---	3.96

06468170 JAMES RIVER NEAR GRACE CITY, ND—Continued



WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water year 1972 to current year.

WATER-QUALITY DATA
WATER YEAR OCTOBER 2007 TO SEPTEMBER 2008

Part 1 of 3

[Remark codes: <, less than.]

Date	Time	Instantaneous discharge, ft3/s (00061)	pH, water, unfltrd field, std units (00400)	pH, water, unfltrd lab, std units (00403)	Specif. conductance, wat unf lab, µS/cm 25 degC (90095)	Specific conductance, wat unf µS/cm 25 degC (00095)	Temperature, air, deg C (00020)	Temperature, water, deg C (00010)	Hardness, water, mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)	Sodium adsorption ratio (00931)
May													
29...	1540	1.2	8.7	8.4	1,270	1,240	17.0	16.5	370	66.1	49.7	15.5	3.4
Jul													
02...	1505	13	9.2	9.1	928	930	18.0	22.2	340	52.4	50.1	13.6	1.8

WATER-QUALITY DATA
WATER YEAR OCTOBER 2007 TO SEPTEMBER 2008

Part 2 of 3

[Remark codes: <, less than.]

Date	Sodium fraction of cations percent (00932)	Sodium, water, fltrd, mg/L (00930)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (90410)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L as SiO2 (00955)	Sulfate water, fltrd, mg/L (00945)	Residue water, fltrd, sum of constituents mg/L (70301)	Residue water, dissolved, tons/d (70302)	Aluminum, water, fltrd, µg/L (01106)	Antimony, water, fltrd, µg/L (01095)	Arsenic water, fltrd, µg/L (01000)	Barium, water, fltrd, µg/L (01005)
May													
29...	47	151	387	45.1	.23	5.46	245	787	2.54	<50	<1.00	6.1	43
Jul													
02...	33	77.7	260	19.6	.19	6.03	237	575	21.2	<50	<1.00	5.3	24

WATER-QUALITY DATA
WATER YEAR OCTOBER 2007 TO SEPTEMBER 2008

Part 3 of 3

[Remark codes: <, less than.]

Date	Beryllium, water, fltrd, µg/L (01010)	Boron, water, fltrd, µg/L (01020)	Cadmium water, fltrd, µg/L (01025)	Chromium, water, fltrd, µg/L (01030)	Copper, water, fltrd, µg/L (01040)	Iron, water, fltrd, µg/L (01046)	Lead, water, fltrd, µg/L (01049)	Manganese, water, fltrd, µg/L (01056)	Nickel, water, fltrd, µg/L (01065)	Selenium, water, fltrd, µg/L (01145)	Silver, water, fltrd, µg/L (01075)	Thallium, water, fltrd, µg/L (01057)	Zinc, water, fltrd, µg/L (01090)
May													
29...	<1.00	249	<1.00	<1.0	2.5	<50	<1.00	452	3.8	1.6	<1.0	<1.00	<1.0
Jul													
02...	<1.00	134	<1.00	1.4	1.6	<50	<1.00	45.0	3.6	<1.0	<1.0	<1.00	<1.0