

Water-Data Report 2011

01589197 GWYNNS FALLS NEAR DELIGHT, MD

 Upper Chesapeake Basin
 Gunpowder-Patapsco Subbasin

LOCATION.--Lat 39°26'34.6", long 76°47'00.3" referenced to North American Datum of 1983, Baltimore County, MD, Hydrologic Unit 02060003, on downstream side of bridge on Gwynnbrook Avenue, 1.2 mi east of Delight, and 1.6 mi north of Owings Mills.

DRAINAGE AREA.--4.23 mi².

SURFACE-WATER RECORDS

PERIOD OF RECORD.--October 1998 to current year.

REVISED RECORDS.--WRD-US-2011: 1999(P), 2007(P), 2009-10.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 533.50 ft above North American Vertical Datum of 1988, from digital elevation model.

REMARKS.--Records good except those above 160 ft³/s, which are fair, and those for estimated daily discharges (erroneous record, ice effect), which are poor. U.S. Geological Survey satellite collection platform at station. Several measurements of water temperature were made during the year.

REVISIONS.--The peak discharges and annual maximums (*) reported for water years 1999 and 2007 have been revised as shown in the following tables. They supersede figures published in reports for 1999 and 2007.

EXTREMES FOR 1999 WATER YEAR.--Peak discharges greater than base discharge of 350 ft³/s and (or) maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Jan 3	0715	371	4.21
Jul 22	0400	*966	*6.65
Sep 16	1300	651	5.57

EXTREMES FOR 2007 WATER YEAR.--Peak discharges greater than base discharge of 350 ft³/s and (or) maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Nov 16	1615	*962	*6.64
Jan 1	0645	425	4.54
Jun 13	1815	422	4.52

01589197 GWYNNS FALLS NEAR DELIGHT, MD—Continued

REVISIONS.—Revised figures of discharge for water years 2009-2010, superseding those published in the reports for 2009-2010 are given below.

EXTREMES FOR 2009 WATER YEAR.—Peak discharges greater than base discharge of 350 ft³/s and (or) maximum (*):

Date	Time	Discharge	Gage height
		(ft ³ /s)	(ft)
Jul 31	1515	385	4.30
Aug 28	0145	*946	*6.58

Minimum discharge, 1.2 ft³/s, Aug. 7-21, 26, 27.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2008 TO SEPTEMBER 2009
DAILY MEAN VALUES
[e, estimated]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	5.8	2.0	15	2.2	3.8	2.3	2.1	3.1	3.6	2.5	3.3	2.1
2	3.0	1.9	3.2	2.1	3.8	2.7	2.0	2.6	3.3	2.3	2.6	1.9
3	2.4	2.0	2.4	2.1	2.9	3.0	19	8.5	6.2	2.2	1.5	1.9
4	2.0	2.0	2.2	2.1	2.4	2.2	3.9	25	9.9	2.1	1.4	1.9
5	1.8	2.2	2.1	2.1	2.2	2.2	2.7	8.8	22	2.2	1.3	1.9
6	1.6	3.4	2.0	2.4	2.1	2.3	2.8	11	6.3	2.4	1.3	1.9
7	1.5	2.4	2.0	27	2.2	2.2	2.4	25	4.8	2.5	1.3	2.6
8	1.5	2.3	2.0	5.8	3.0	2.1	2.2	5.7	4.5	1.7	1.3	2.1
9	1.5	2.2	1.9	3.4	2.4	1.9	2.1	4.6	7.4	1.6	1.3	1.7
10	1.5	2.3	5.6	3.2	2.3	1.8	2.0	3.9	11	1.6	1.2	1.7
11	1.4	2.2	57	3.5	2.5	1.8	13	3.5	6.0	1.6	1.3	82
12	1.4	2.0	27	2.8	2.9	1.7	3.5	3.3	4.7	1.5	1.2	9.4
13	1.4	9.9	4.6	2.6	2.3	1.7	2.7	3.1	4.2	1.5	1.2	4.3
14	1.4	2.8	3.5	2.5	2.3	1.7	5.6	4.8	4.6	1.4	1.2	3.1
15	1.5	13	3.1	2.3	2.2	1.9	30	4.6	4.0	1.4	1.2	2.8
16	1.6	3.4	5.2	e2.0	2.1	1.9	7.0	3.6	3.9	1.4	1.2	3.7
17	1.6	2.4	14	e2.0	2.1	2.2	3.9	5.0	4.0	1.5	1.2	5.2
18	1.6	2.1	3.9	e2.2	2.8	1.8	3.2	3.1	18	1.5	5.4	2.8
19	1.6	1.9	16	e2.1	2.6	2.1	2.9	2.9	3.7	1.4	2.1	2.5
20	1.7	1.8	5.6	e2.0	2.1	1.8	19	2.9	10	1.4	1.7	2.5
21	1.8	1.7	3.9	2.2	2.0	1.7	10	2.8	3.3	3.7	16	2.5
22	1.8	1.7	3.2	2.1	2.1	1.7	5.0	2.7	3.3	2.5	25	2.5
23	2.0	1.6	2.7	2.1	2.0	1.7	3.7	2.7	3.2	3.8	3.0	3.4
24	2.1	1.7	2.7	2.0	1.9	1.6	3.2	2.6	3.2	9.1	1.5	4.3
25	22	3.4	3.0	1.9	1.8	1.6	3.0	2.6	2.6	2.6	1.3	3.0
26	4.4	1.9	2.6	1.9	1.7	4.2	2.8	7.2	2.4	14	1.3	6.3
27	2.4	1.7	3.1	2.0	1.9	2.6	2.7	3.2	2.3	3.5	4.1	19
28	5.7	1.7	2.7	4.2	2.3	9.0	2.5	3.8	2.3	1.9	154	3.6
29	2.4	1.7	2.4	3.7	---	5.7	2.7	6.3	2.2	1.7	5.3	2.8
30	2.2	6.7	2.3	3.1	---	2.7	2.6	4.1	3.6	1.8	3.1	2.6
31	2.1	---	2.2	2.4	---	2.2	---	3.7	---	34	2.3	---
Total	86.7	88.0	209.1	104.0	66.7	76.0	170.2	176.7	170.5	114.3	251.1	188.0
Mean	2.80	2.93	6.75	3.35	2.38	2.45	5.67	5.70	5.68	3.69	8.10	6.27
Max	22	13	57	27	3.8	9.0	30	25	22	34	154	82
Min	1.4	1.6	1.9	1.9	1.7	1.6	2.0	2.6	2.2	1.4	1.2	1.7
Cfsm	0.66	0.69	1.59	0.79	0.56	0.58	1.34	1.35	1.34	0.87	1.91	1.48
In.	0.76	0.77	1.84	0.91	0.59	0.67	1.50	1.55	1.50	1.01	2.21	1.65

01589197 GWYNNS FALLS NEAR DELIGHT, MD—Continued**STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1999 - 2009, BY WATER YEAR (WY)**

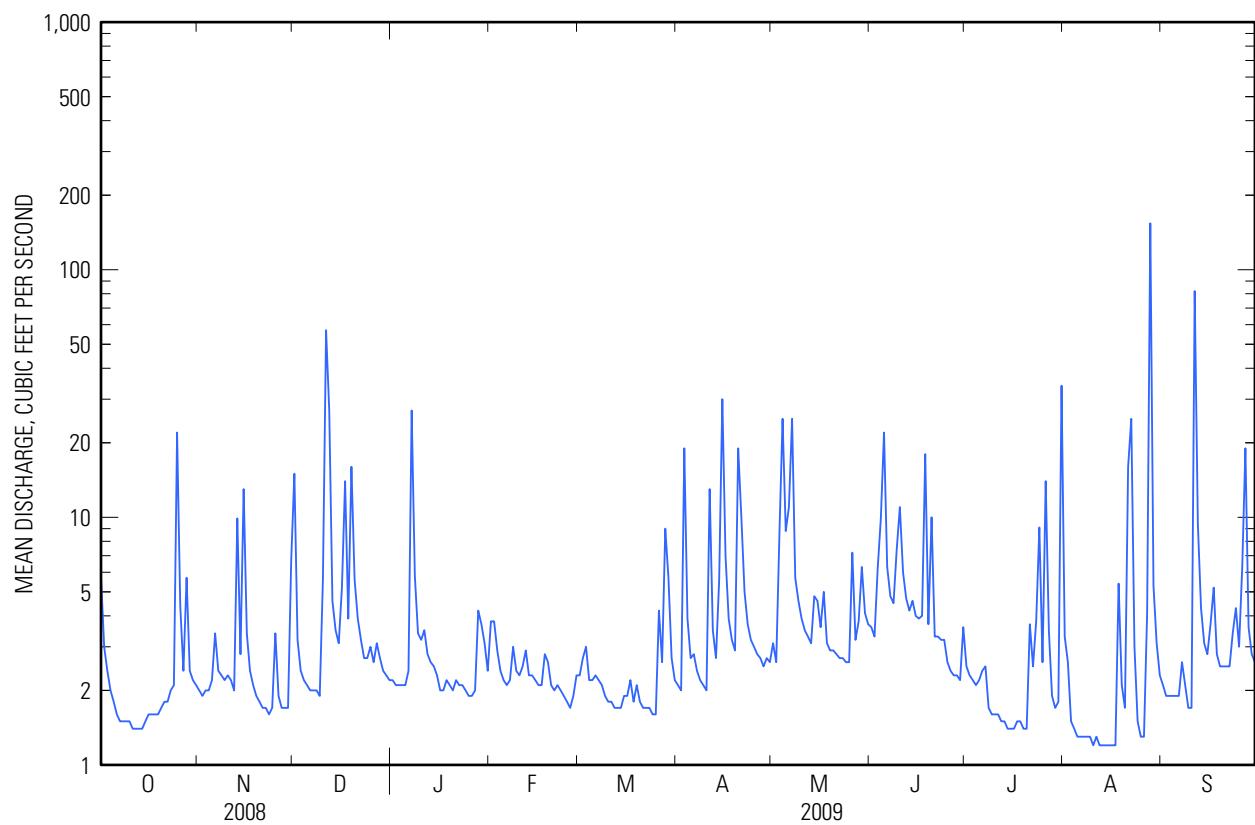
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	5.16	4.63	5.63	4.86	5.43	6.26	5.93	4.63	5.07	3.66	3.65	5.53
Max	17.9	11.4	13.2	7.92	11.2	10.3	9.11	9.49	12.4	7.09	8.10	11.8
(WY)	(2006)	(2007)	(2004)	(1999)	(2004)	(2005)	(2005)	(2003)	(2003)	(2005)	(2009)	(2003)
Min	1.35	2.08	2.01	2.21	1.51	2.45	3.04	2.57	1.82	1.02	1.43	1.16
(WY)	(2002)	(1999)	(2002)	(2008)	(2002)	(2009)	(2002)	(1999)	(2002)	(2002)	(2002)	(2005)

SUMMARY STATISTICS

	Calendar Year 2008		Water Year 2009		Water Years 1999 - 2009		
Annual total	1,659.0		1,701.3				
Annual mean	4.53		4.66		5.03		
Highest annual mean						7.58	2003
Lowest annual mean						2.20	2002
Highest daily mean	148	Sep 27	154	Aug 28	332	Oct 8, 2005	
Lowest daily mean	1.0	Aug 9 ^a	1.2	Aug 10 ^b	e0.25	Aug 20, 2002 ^c	
Annual seven-day minimum	1.0	Aug 16	1.2	Aug 10	0.27	Aug 16, 2002	
Maximum peak flow			946	Aug 28	d966	Jul 22, 1999	
Maximum peak stage			6.58	Aug 28	6.65	Jul 22, 1999	
Instantaneous low flow			1.2	Aug 7 ^f		Unknown	
Annual runoff (cfsm)	1.07		1.10			1.19	
Annual runoff (inches)	14.59		14.96			16.16	
10 percent exceeds	6.7		7.1			7.4	
50 percent exceeds	2.3		2.4			2.8	
90 percent exceeds	1.3		1.6			1.3	

^a Aug. 9, 18-22, 26, 27.^b Aug. 10, 12-17.^c Estimated.^c Aug. 20-22, 2002.^d From rating curve extended above 380 ft³/s.^f Aug. 7-21, 26, 27.

01589197 GWYNNS FALLS NEAR DELIGHT, MD—Continued



01589197 GWYNNS FALLS NEAR DELIGHT, MD—ContinuedEXTREMES FOR 2010 WATER YEAR--Peak discharges greater than base discharge of 350 ft³/s and (or) maximum (*):

		Discharge (ft ³ /s)	Gage height (ft)
Date	Time		
Oct 28	0215	386	4.39
Dec 9	0800	*486	*4.88

Minimum discharge, 1.5 ft³/s, Aug. 7, 9-12, Sept. 2-16.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2009 TO SEPTEMBER 2010
DAILY MEAN VALUES
[*e*, estimated]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	2.5	10	3.7	8.6	4.3	8.3	6.0	4.3	3.5	1.9	1.7	1.6
2	2.5	4.9	13	5.2	4.3	7.9	5.7	4.1	3.2	1.9	1.7	1.6
3	2.5	4.4	39	e4.6	5.0	9.5	5.4	5.6	3.2	2.1	1.7	1.6
4	2.5	3.9	5.4	4.4	4.4	9.0	5.3	4.1	3.1	2.1	6.5	1.5
5	2.5	3.7	7.4	4.2	4.6	8.2	5.2	3.9	3.1	2.0	3.2	1.5
6	2.5	3.5	6.9	4.2	e5.2	7.4	5.1	3.8	3.1	1.9	1.8	1.5
7	2.5	3.3	4.7	4.2	e4.8	7.8	5.0	3.7	3.0	2.0	1.7	1.5
8	2.5	3.3	4.7	4.4	e4.6	7.7	6.7	3.7	2.8	2.0	1.6	1.5
9	2.7	3.3	103	4.1	e4.4	7.3	8.9	3.5	4.5	1.9	1.6	1.5
10	e2.5	3.2	8.7	e4.1	e4.8	6.7	5.0	3.5	3.3	3.0	1.5	1.5
11	2.5	6.3	5.3	e4.0	e4.6	7.0	4.8	5.9	2.9	2.2	1.5	1.5
12	2.5	11	4.7	4.4	4.7	19	4.7	6.5	4.4	4.5	19	3.7
13	2.5	9.5	20	4.2	4.7	90	4.9	4.5	3.3	16	11	1.8
14	2.5	6.1	7.1	4.1	4.7	18	4.8	6.2	3.0	21	2.3	1.6
15	11	4.2	5.3	4.1	e4.5	9.8	4.7	4.4	3.1	2.9	5.9	1.5
16	8.9	3.7	4.7	4.3	4.6	7.5	4.9	3.8	4.1	2.3	5.8	2.0
17	38	3.4	4.5	26	4.5	6.6	4.9	4.3	2.9	2.2	2.8	2.8
18	48	3.2	4.4	9.4	5.1	6.2	4.4	5.0	2.7	2.1	3.8	1.8
19	e25	3.7	e4.8	5.5	6.2	5.8	e3.8	4.1	2.6	2.1	2.3	1.7
20	e10	16	e5.3	5.0	6.1	5.6	e4.6	3.8	2.5	2.9	2.0	1.7
21	e3.9	4.0	5.2	4.7	6.4	5.4	e6.5	3.6	2.4	2.2	1.9	1.7
22	3.8	3.6	5.1	4.5	9.1	11	4.3	3.9	2.4	2.2	3.4	1.6
23	3.8	4.2	4.9	4.3	16	6.1	4.0	9.9	2.4	1.8	2.0	1.6
24	33	26	4.7	6.7	13	5.4	3.9	4.3	2.3	1.7	2.0	1.6
25	7.8	7.4	15	38	9.2	5.2	28	4.0	2.2	1.8	1.9	1.6
26	4.6	4.7	110	7.9	7.1	9.1	19	3.8	2.1	1.8	1.8	1.6
27	21	4.2	12	5.5	6.4	5.5	7.8	4.0	2.1	1.7	1.8	12
28	73	3.8	7.1	5.1	6.6	9.8	5.2	18	2.7	1.7	1.8	2.4
29	6.8	3.6	5.7	4.5	---	11	4.7	4.3	2.1	18	1.7	1.9
30	5.1	4.6	5.2	4.3	---	13	4.4	3.8	2.0	2.7	1.8	62
31	4.7	---	6.1	4.3	---	8.3	---	3.6	---	1.8	1.9	---
Total	343.6	176.7	443.6	208.8	169.9	345.1	192.6	151.9	87.0	116.4	101.4	123.4
Mean	11.1	5.89	14.3	6.74	6.07	11.1	6.42	4.90	2.90	3.75	3.27	4.11
Max	73	26	110	38	16	90	28	18	4.5	21	19	62
Min	2.5	3.2	3.7	4.0	4.3	5.2	3.8	3.5	2.0	1.7	1.5	1.5
Cfsm	2.62	1.39	3.38	1.59	1.43	2.63	1.52	1.16	0.69	0.89	0.77	0.97
In.	3.02	1.55	3.90	1.84	1.49	3.03	1.69	1.34	0.77	1.02	0.89	1.09

01589197 GWYNNS FALLS NEAR DELIGHT, MD—Continued**STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1999 - 2010, BY WATER YEAR (WY)**

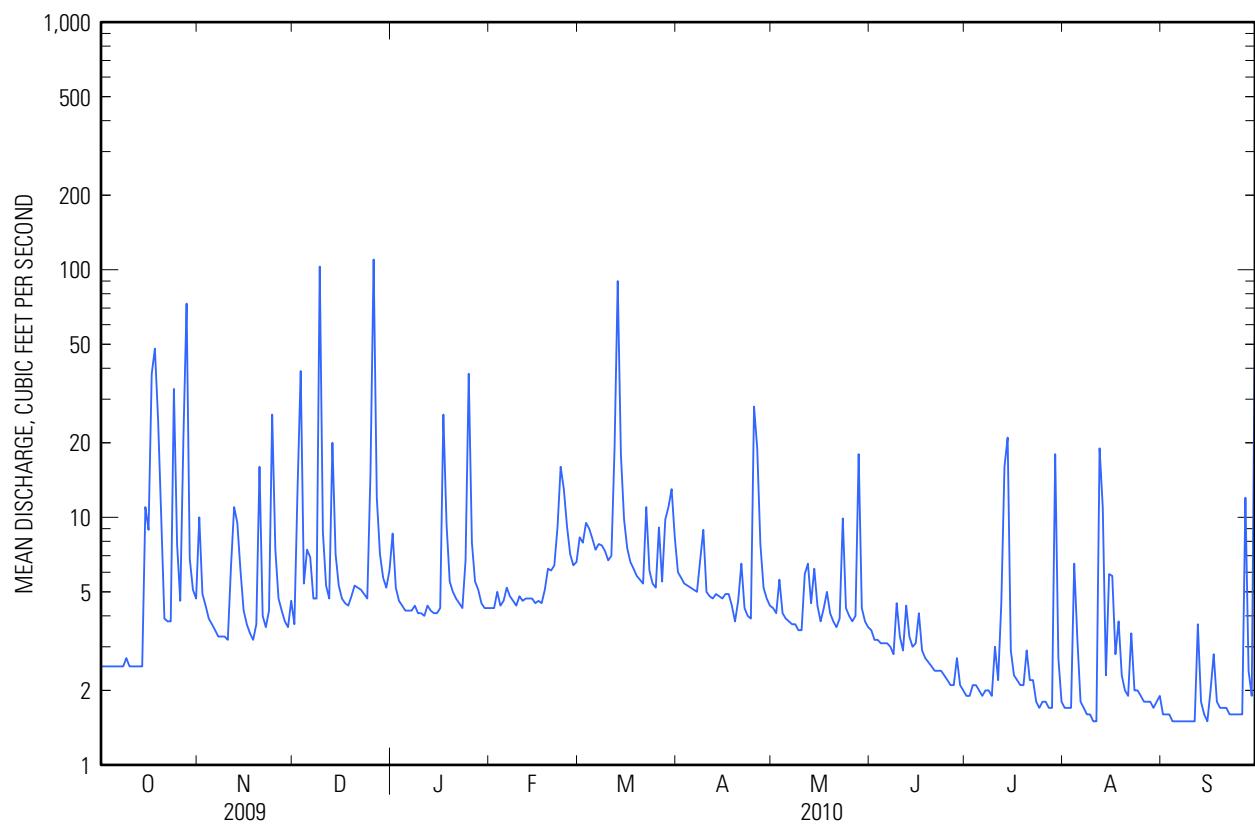
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	5.65	4.74	6.36	5.02	5.48	6.67	5.97	4.66	4.89	3.67	3.62	5.42
Max	17.9	11.4	14.3	7.92	11.2	11.1	9.11	9.49	12.4	7.09	8.10	11.8
(WY)	(2006)	(2007)	(2010)	(1999)	(2004)	(2010)	(2005)	(2003)	(2003)	(2005)	(2009)	(2003)
Min	1.35	2.08	2.01	2.21	1.51	2.45	3.04	2.57	1.82	1.02	1.43	1.16
(WY)	(2002)	(1999)	(2002)	(2008)	(2002)	(2009)	(2002)	(1999)	(2002)	(2002)	(2002)	(2005)

SUMMARY STATISTICS

	Calendar Year 2009		Water Year 2010		Water Years 1999 - 2010	
Annual total	2,281.4		2,460.4			
Annual mean		6.25		6.74		5.17
Highest annual mean					7.58	2003
Lowest annual mean					2.20	2002
Highest daily mean	154	Aug 28	110	Dec 26	332	Oct 8, 2005
Lowest daily mean	1.2	Aug 10 ^a	1.5	Aug 10 ^b	e0.25	Aug 20, 2002 ^c
Annual seven-day minimum	1.2	Aug 10	1.5	Sep 4	0.27	Aug 16, 2002
Maximum peak flow			486	Dec 9	d966	Jul 22, 1999
Maximum peak stage			4.88	Dec 9	6.65	Jul 22, 1999
Instantaneous low flow			1.5	Aug 7 ^f	Unknown	
Annual runoff (cfsm)	1.48		1.59		1.22	
Annual runoff (inches)	20.06		21.64		16.62	
10 percent exceeds	10		11		7.8	
50 percent exceeds	3.0		4.3		2.9	
90 percent exceeds	1.7		1.8		1.4	

^a Aug. 10, 12-17.^b Aug. 10, 11, Sept. 4-11, 15.^e Estimated.^c Aug. 20-22, 2002.^d From rating curve extended above 380 ft³/s.^f Aug. 7, 9-12, Sept. 2-16.

01589197 GWYNNS FALLS NEAR DELIGHT, MD—Continued



01589197 GWYNNS FALLS NEAR DELIGHT, MD—ContinuedEXTREMES FOR CURRENT YEAR.—Peak discharges greater than base discharge of 350 ft³/s and (or) maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Mar 10	1815	536	5.10
Sep 7	Unknown	*1,760	*8.67
Sep 8	0030	837	6.23

Minimum discharge, 1.1 ft³/s, Aug. 11-13, 24-27.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2010 TO SEPTEMBER 2011
DAILY MEAN VALUES
[e, estimated]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	23	2.2	34	2.1	2.1	3.8	3.8	3.2	2.1	1.4	1.5	2.0
2	3.0	2.1	4.3	2.4	27	3.1	3.4	3.4	1.9	1.4	1.4	2.1
3	2.4	2.1	2.8	2.1	e6.2	2.8	3.1	2.8	1.8	2.3	1.3	2.0
4	10	18	2.6	2.0	e3.4	2.7	3.0	9.1	1.8	1.4	1.8	2.0
5	3.0	3.9	2.5	2.0	6.4	2.7	11	3.8	2.1	1.4	1.3	17
6	2.5	2.7	2.3	2.0	6.0	43	3.9	6.1	2.1	1.3	8.3	41
7	2.2	2.5	2.4	2.0	4.4	14	3.3	4.3	1.9	3.0	19	361
8	2.1	2.4	2.1	2.1	4.0	4.4	e6.4	3.0	1.8	14	2.1	161
9	1.9	2.6	2.1	e2.1	e3.0	3.6	e4.8	2.8	1.8	2.3	1.7	21
10	1.8	2.4	2.1	e2.0	2.7	139	3.5	2.6	1.8	1.6	1.5	4.9
11	1.8	2.3	2.1	2.0	2.7	18	3.3	2.5	2.0	2.2	1.2	14
12	1.8	2.7	17	2.2	2.6	5.6	30	2.5	4.1	1.9	1.1	6.8
13	1.7	2.3	4.7	e2.1	2.6	4.0	e17	2.5	2.1	1.5	3.9	3.3
14	8.7	2.3	e2.8	e2.1	7.7	3.3	4.6	2.6	1.7	2.0	11	4.0
15	2.6	2.3	2.4	2.0	4.0	3.1	3.7	3.3	1.7	1.5	6.7	3.7
16	2.2	4.3	2.3	2.1	3.0	12	e26	2.9	1.8	1.5	1.9	2.8
17	2.0	8.8	2.3	2.0	4.1	3.5	e12	4.0	7.0	1.5	1.3	2.7
18	2.1	2.6	2.4	3.0	4.0	3.4	4.8	6.9	1.8	1.5	1.3	2.7
19	4.8	2.4	2.4	4.5	3.0	3.2	9.1	11	1.7	2.2	1.9	2.6
20	2.3	2.3	2.4	2.8	2.7	3.2	4.9	4.6	1.6	1.5	1.3	2.7
21	2.1	2.3	2.3	e2.4	2.7	5.4	3.4	3.2	1.9	1.3	2.9	2.6
22	2.0	2.3	2.3	e2.2	3.5	3.4	3.9	2.9	1.8	1.3	2.3	2.5
23	2.0	2.3	2.2	e2.1	e3.0	15	4.7	3.9	1.6	8.9	1.2	12
24	2.0	2.2	2.2	e2.0	2.9	9.0	5.1	3.1	1.5	1.4	1.1	3.3
25	2.0	2.8	2.1	e2.1	27	4.9	4.5	2.9	1.4	31	1.2	2.7
26	2.1	2.3	2.1	2.6	4.9	4.1	3.2	2.6	1.4	3.1	1.2	2.7
27	10	2.2	2.0	2.8	3.4	3.7	3.0	3.0	1.4	1.7	16	2.7
28	2.6	2.0	2.0	2.7	8.0	3.5	7.1	3.1	1.4	1.5	71	4.0
29	2.3	2.0	2.0	2.5	---	3.1	3.6	2.6	1.4	1.5	2.9	3.6
30	2.3	2.8	2.0	2.3	---	3.2	2.9	2.2	1.3	1.4	2.1	2.8
31	2.3	---	2.0	2.2	---	3.7	---	2.1	---	1.3	2.0	---
Total	113.6	96.4	121.2	71.5	157.0	337.4	203.0	115.5	59.7	101.8	175.4	698.2
Mean	3.66	3.21	3.91	2.31	5.61	10.9	6.77	3.73	1.99	3.28	5.66	23.3
Max	23	18	34	4.5	27	139	30	11	7.0	31	71	361
Min	1.7	2.0	2.0	2.0	2.1	2.7	2.9	2.1	1.3	1.3	1.1	2.0
Cfsm	0.87	0.76	0.92	0.55	1.33	2.57	1.60	0.88	0.47	0.78	1.34	5.50
In.	1.00	0.85	1.07	0.63	1.38	2.97	1.79	1.02	0.53	0.90	1.54	6.14

01589197 GWYNNS FALLS NEAR DELIGHT, MD—Continued**STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1999 - 2011, BY WATER YEAR (WY)**

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	5.50	4.62	6.17	4.81	5.49	6.99	6.03	4.58	4.66	3.64	3.78	6.79
Max	17.9	11.4	14.3	7.92	11.2	11.1	9.11	9.49	12.4	7.09	8.10	23.3
(WY)	(2006)	(2007)	(2010)	(1999)	(2004)	(2010)	(2005)	(2003)	(2003)	(2005)	(2009)	(2011)
Min	1.35	2.08	2.01	2.21	1.51	2.45	3.04	2.57	1.82	1.02	1.43	1.16
(WY)	(2002)	(1999)	(2002)	(2008)	(2002)	(2009)	(2002)	(1999)	(2002)	(2002)	(2002)	(2005)

SUMMARY STATISTICS

	Calendar Year 2010		Water Year 2011		Water Years 1999 - 2011		
Annual total	1,827.7		2,250.7		5.25		
Annual mean	5.01		6.17		7.58		
Highest annual mean					2003		
Lowest annual mean					2.20		
Highest daily mean	90	Mar 13	361	Sep 7	361	Sep 7	2011
Lowest daily mean	1.5	Aug 10 ^a	1.1	Aug 12 ^b	e0.25	Aug 20,	2002 ^c
Annual seven-day minimum	1.5	Sep 4	1.4	Jun 25	0.27	Aug 16,	2002
Maximum peak flow			d1,760	Sep 7	d1,760	Sep 7	2011
Maximum peak stage			8.67	Sep 7	8.67	Sep 7	2011
Instantaneous low flow			1.1	Aug 11 ^f	Unknown		
Annual runoff (cfsm)	1.18		1.46		1.24		
Annual runoff (inches)	16.07		19.79		16.87		
10 percent exceeds	8.8		8.9		7.9		
50 percent exceeds	3.3		2.6		2.9		
90 percent exceeds	1.8		1.5		1.4		

^a Aug. 10, 11, Sept. 4-11, 15.^b Aug. 12, 24.^e Estimated.^c Aug. 20-22, 2002.^d From rating curve extended above 380 ft³/s on basis of culvert measurement of peak flow at gage height 8.67 ft.^f Aug. 11-13, 24-27.

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