

Water-Data Report 2009

**02085500 FLAT RIVER AT BAHAMA, NC**

Neuse Basin  
Upper Neuse Subbasin

LOCATION.--Lat 36°10'58", long 78°52'44" referenced to North American Datum of 1983, Durham County, NC, Hydrologic Unit 03020201, on right bank 0.5 mi upstream from Lake Michie, 1.2 mi upstream from bridge on Secondary Road 1616, 1.2 mi north of Bahama, and 1.5 mi upstream from Dial Creek.

DRAINAGE AREA.--149 mi<sup>2</sup>.

**SURFACE-WATER RECORDS**

PERIOD OF RECORD.--July 1925 to current year.

REVISED RECORDS.--WSP 1333: 1926, 1928(M), 1938, 1946. WDR NC-81-1: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 346.85 ft above NGVD of 1929. Prior to October 22, 1925, nonrecording gage at present site at 346.27 ft. Satellite telemetry at streamgage.

REMARKS.--No estimated daily discharges. Records good. Prior to December 1962, some diurnal fluctuation and infrequent regulation at low flow caused by small mill 5 mi upstream. Maximum discharge for period of record from rating curve extended above 18,000 ft<sup>3</sup>/s, on basis of slope-conveyance measurement of peak flow; maximum gage height, 17.26 ft, from high-water mark inside gage shelter. No flow also occurred October 12-17, 2007.

## 02085500 FLAT RIVER AT BAHAMA, NC—Continued

**DISCHARGE, CUBIC FEET PER SECOND**  
**WATER YEAR OCTOBER 2008 TO SEPTEMBER 2009**  
**DAILY MEAN VALUES**

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	77	9.4	374	55	71	937	162	49	35	19	193	1.2
2	61	9.1	130	51	64	1,540	147	49	26	16	40	0.41
3	47	9.0	77	52	69	440	540	47	22	14	22	0.24
4	38	11	58	64	84	262	362	44	58	12	14	0.18
5	33	28	48	99	67	240	196	59	964	11	11	0.14
6	29	44	42	1,190	56	196	178	112	841	45	12	0.12
7	25	30	39	1,480	53	154	232	262	183	44	11	0.12
8	22	19	35	643	54	124	144	138	94	24	9.0	0.21
9	20	12	32	259	51	105	116	77	64	17	6.4	0.17
10	20	12	31	171	50	90	104	61	587	14	5.3	0.12
11	20	12	828	131	48	80	265	51	202	11	4.7	0.09
12	19	11	1,860	106	48	74	207	47	286	11	10	0.07
13	17	12	395	89	45	69	129	46	160	12	8.4	0.06
14	15	12	188	80	43	110	117	40	86	13	6.1	0.04
15	14	77	125	72	42	1,260	134	38	126	12	6.4	0.03
16	14	84	100	66	42	1,190	109	37	831	10	5.4	0.03
17	13	43	101	56	41	668	93	36	442	14	4.9	0.05
18	15	31	109	57	44	346	84	36	599	53	5.7	0.08
19	15	24	90	60	69	226	80	33	187	18	12	0.08
20	14	19	80	60	66	228	97	30	103	13	9.7	0.06
21	15	17	213	55	52	184	178	27	71	9.6	8.7	0.04
22	13	16	242	50	46	134	110	26	55	8.4	8.4	0.06
23	12	16	116	49	43	114	84	25	45	7.6	64	0.11
24	11	16	86	49	42	100	72	23	39	7.0	25	0.14
25	10	18	207	47	40	90	67	23	35	8.7	11	0.40
26	11	18	167	44	39	90	62	28	31	7.6	5.0	0.98
27	15	18	106	44	39	235	57	44	28	6.0	2.9	3.2
28	11	18	90	60	44	526	53	40	25	5.4	1.8	3.3
29	10	18	81	237	---	1,380	50	35	22	4.8	2.1	3.6
30	10	211	72	134	---	386	49	85	21	5.4	2.8	3.1
31	9.8	---	64	89	---	216	---	63	---	5.9	2.2	---
<b>Total</b>	655.8	874.5	6,186	5,699	1,452	11,794	4,278	1,711	6,268	459.4	530.9	18.43
<b>Mean</b>	21.2	29.1	200	184	51.9	380	143	55.2	209	14.8	17.1	0.61
<b>Max</b>	77	211	1,860	1,480	84	1,540	540	262	964	53	193	3.6
<b>Min</b>	9.8	9.0	31	44	39	69	49	23	21	4.8	1.8	0.03
<b>Cfsm</b>	0.14	0.20	1.34	1.23	0.35	2.55	0.96	0.37	1.40	0.10	0.11	0.00
<b>In.</b>	0.16	0.22	1.54	1.42	0.36	2.94	1.07	0.43	1.56	0.11	0.13	0.00

**STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1925 - 2009, BY WATER YEAR (WY)**

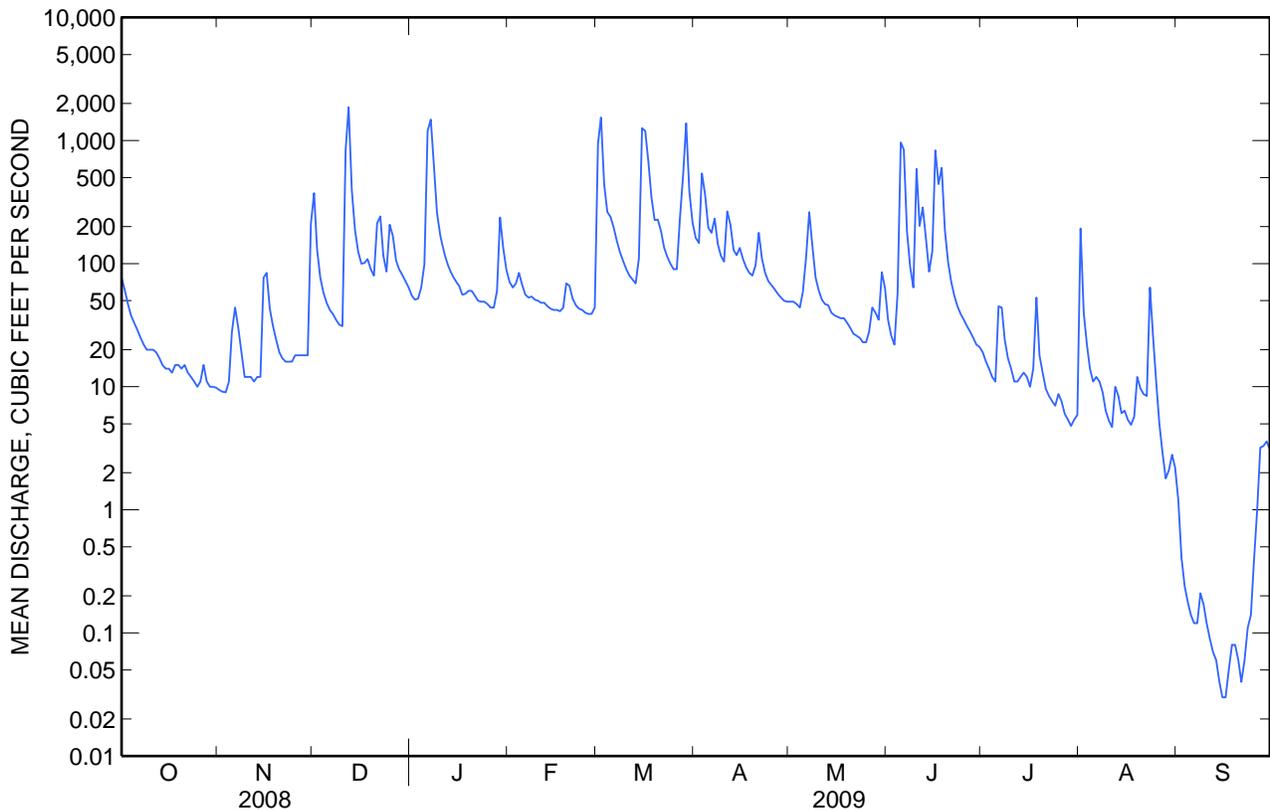
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
<b>Mean</b>	65.4	96.5	134	215	259	284	221	110	79.8	82.3	71.6	86.6
<b>Max</b>	561	489	421	761	758	948	656	573	551	798	431	984
<b>(WY)</b>	(1972)	(1986)	(1973)	(1936)	(1998)	(1998)	(2003)	(1978)	(1938)	(1975)	(1939)	(1996)
<b>Min</b>	1.11	0.71	1.81	4.29	39.4	28.5	31.1	19.3	3.85	1.68	0.72	0.22
<b>(WY)</b>	(2006)	(1934)	(1934)	(1934)	(2002)	(2006)	(1942)	(2002)	(2002)	(2002)	(2007)	(2007)

02085500 FLAT RIVER AT BAHAMA, NC—Continued

SUMMARY STATISTICS

	Calendar Year 2008		Water Year 2009		Water Years 1925 - 2009	
<b>Annual total</b>	37,573.56		39,927.03			
<b>Annual mean</b>	103		109		142	
<b>Highest annual mean</b>					347	2003
<b>Lowest annual mean</b>					25.2	2002
<b>Highest daily mean</b>	7,560	Sep 6	1,860	Dec 12	21,800	Sep 6, 1996
<b>Lowest daily mean</b>	0.28	Aug 25	0.03	Sep 15	0.00	Oct 12, 2007
<b>Annual seven-day minimum</b>	0.54	Aug 20	0.05	Sep 12	0.00	Oct 11, 2007
<b>Maximum peak flow</b>			3,910	Dec 11	<sup>a</sup> 33,800	Sep 6, 1996
<b>Maximum peak stage</b>			6.44	Dec 11	<sup>a</sup> 17.26	Sep 6, 1996
<b>Instantaneous low flow</b>			0.02	Sep 16	<sup>a</sup> 0.00	Oct 11, 2007
<b>Annual runoff (cfsm)</b>	0.689		0.734		0.950	
<b>Annual runoff (inches)</b>	9.38		9.97		12.91	
<b>10 percent exceeds</b>	145		227		275	
<b>50 percent exceeds</b>	27		44		48	
<b>90 percent exceeds</b>	2.3		4.8		6.4	

<sup>a</sup> See Remarks.



**02085500 FLAT RIVER AT BAHAMA, NC—Continued****WATER-QUALITY RECORDS**

PERIOD OF RECORD.--Water years 1988 to current year.

REMARKS.--Station operated to define water quality as part of a regional surface-water quality assessment and to define the impacts of various land-use development on surface-water quality in the Upper Neuse River basin. For the period February 1988 through June 1989 the inorganic-chemical data and trace-metal data were analyzed by the city of Durham's Brown Water Treatment Laboratory.

**WATER-QUALITY DATA  
WATER YEAR OCTOBER 2008 TO SEPTEMBER 2009**

Part 1 of 2

[Remark codes: &lt;, less than; E, estimated.]

Date	Time	Medium name	Baro- metric pres- sure, mm Hg (00025)	Instan- taneous dis- charge, ft <sup>3</sup> /s (00061)	Dis- solved oxygen, mg/L (00300)	Dis- solved oxygen, percent of sat- uration (00301)	pH, water, unfltrd field, std units (00400)	Specif- ic conduc- tance, wat unf μS/cm @ 25 degC (00095)	Temper- ature, deg C (00010)	Sulfate water, fltrd, mg/L (00945)
<b>Oct</b> 01...	1500	Surface water	746	83	8.3	92	7.2	64	19.3	--
<b>Dec</b> 29...	1330	Surface water	757	80	9.8	91	7.2	75	11.9	--
<b>Feb</b> 18...	1345	Surface water	748	44	12.0	99	7.8	80	6.4	--
<b>Apr</b> 10...	1145	Surface water	748	102	10.1	99	7.5	73	13.4	--
<b>May</b> 12...	1245	Surface water	759	47	8.7	92	6.9	87	17.9	3.73
	1300	Bottom material	--	--	--	--	--	--	--	--
	1430	Surface water	755	33	8.0	96	7.8	86	24.1	--
<b>Jul</b> 06...	1430	Surface water	749	40	7.7	93	6.8	90	23.9	--
<b>Sep</b> 23...	1200	Surface water	755	.10	8.0	94	6.9	89	22.6	--

## 02085500 FLAT RIVER AT BAHAMA, NC—Continued

**WATER-QUALITY DATA**  
**WATER YEAR OCTOBER 2008 TO SEPTEMBER 2009**

Part 2 of 2

[Remark codes: &lt;, less than; E, estimated.]

Date	Ammonia + org-N, water, unfltrd mg/L as N (00625)	Ammonia water, fltrd, mg/L as N (00608)	Nitrate + nitrite water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Ortho- phos- phate, water, fltrd, mg/L as P (00671)	Phos- phorus, water, unfltrd mg/L as P (00665)	Mercury bed sedimnt total digest µg/g (01385)	Mercury water, fltrd, µg/L (71890)	Mercury water, unfltrd recover- able, µg/L (71900)	Organic carbon, bed sedimnt percent (01395)	Organic carbon, water, fltrd, mg/L (00681)	Bed sedi- ment, wet sieved, percent <.062mm (69589)	Sus- pended sedi- ment concen- tration mg/L (80154)
<b>Oct</b> 01...	.51	<.020	.253	.003	.012	.051	--	--	--	--	--	--	11
<b>Dec</b> 29...	.36	<.020	.379	E.002	.013	.038	--	--	--	--	--	--	7
<b>Feb</b> 18...	.23	<.020	.215	E.001	E.007	.020	--	--	--	--	--	--	3
<b>Apr</b> 10...	.30	E.012	.284	E.002	.009	.032	--	--	--	--	--	--	6
<b>May</b> 12...	--	--	--	--	--	--	--	<.010	<.010	--	7.1	--	--
<b>12...</b>	--	--	--	--	--	--	.03	--	--	2.1	--	1	--
<b>29...</b>	.36	.020	.292	.003	.020	.041	--	--	--	--	--	--	4
<b>Jul</b> 06...	.41	.023	.129	.003	.014	.039	--	--	--	--	--	--	9
<b>Sep</b> 23...	.75	<.020	<.016	<.002	<.008	.021	--	--	--	--	--	--	4