

Water-Data Report 2010

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 mi².

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 National Geodetic Vertical Datum 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 ft³/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. Minimum discharge for current water year also occurred September 25.

02085500 FLAT RIVER AT BAHAMA, NC—Continued

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2009 TO SEPTEMBER 2010
DAILY MEAN VALUES

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	2.6	74	78	178	146	99	158	30	65	10	12	3.5
2	2.4	173	220	147	153	94	125	30	60	9.5	11	3.3
3	2.2	54	2,340	116	642	99	108	28	161	9.0	12	2.7
4	1.7	31	401	102	769	102	97	27	85	8.3	12	2.2
5	1.4	19	376	96	1,210	94	86	26	58	7.5	15	1.8
6	1.9	13	442	90	4,420	86	80	26	46	7.0	63	1.6
7	2.0	8.1	221	85	716	82	75	23	39	6.4	37	1.5
8	2.0	5.7	160	84	411	79	68	20	35	5.9	21	1.3
9	1.9	5.2	2,240	80	303	78	68	19	31	6.0	13	0.92
10	1.7	9.8	729	73	362	77	68	17	30	5.5	10	0.51
11	1.4	1,470	285	69	269	79	62	15	29	5.4	8.8	1.4
12	1.5	2,350	185	71	208	96	57	15	27	5.1	7.7	1.1
13	1.7	2,060	457	70	190	323	55	17	32	7.3	6.7	0.68
14	1.7	472	781	67	185	342	51	18	47	23	5.9	0.50
15	2.1	220	309	66	165	300	49	17	43	21	5.4	0.45
16	1.7	132	206	66	204	172	50	18	47	13	4.8	0.45
17	1.1	95	154	744	175	131	48	97	223	11	4.4	0.38
18	1.3	77	130	543	143	113	45	589	61	22	4.5	0.30
19	1.6	201	474	238	126	102	42	148	38	615	7.0	0.28
20	1.9	220	487	170	115	93	41	91	31	75	8.3	0.28
21	1.7	131	358	149	108	88	41	62	26	37	9.0	0.30
22	1.6	89	287	565	111	85	52	301	23	27	7.8	0.30
23	2.2	1,110	254	327	160	80	53	1,930	20	20	8.3	0.28
24	3.7	850	229	212	142	75	43	286	18	15	7.3	0.27
25	5.6	289	1,270	2,560	210	72	46	158	16	12	6.0	0.28
26	6.4	179	2,390	625	160	75	49	102	15	11	5.7	0.61
27	7.6	161	501	303	124	78	45	73	14	13	6.9	2.7
28	14	138	299	213	110	72	38	60	14	16	6.6	5.1
29	43	98	212	173	---	1,130	34	430	13	23	5.6	5.0
30	22	85	165	175	---	464	32	178	11	17	4.8	695
31	11	---	162	173	---	224	---	87	---	13	4.0	---
Total	154.6	10,819.8	16,802	8,630	12,037	5,084	1,866	4,938	1,358	1,076.9	341.5	734.99
Mean	4.99	361	542	278	430	164	62.2	159	45.3	34.7	11.0	24.5
Max	43	2,350	2,390	2,560	4,420	1,130	158	1,930	223	615	63	695
Min	1.1	5.2	78	66	108	72	32	15	11	5.1	4.0	0.27
Cfsm	0.03	2.42	3.64	1.87	2.89	1.10	0.42	1.07	0.30	0.23	0.07	0.16
In.	0.04	2.70	4.19	2.15	3.01	1.27	0.47	1.23	0.34	0.27	0.09	0.18

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1925 - 2010, BY WATER YEAR (WY)

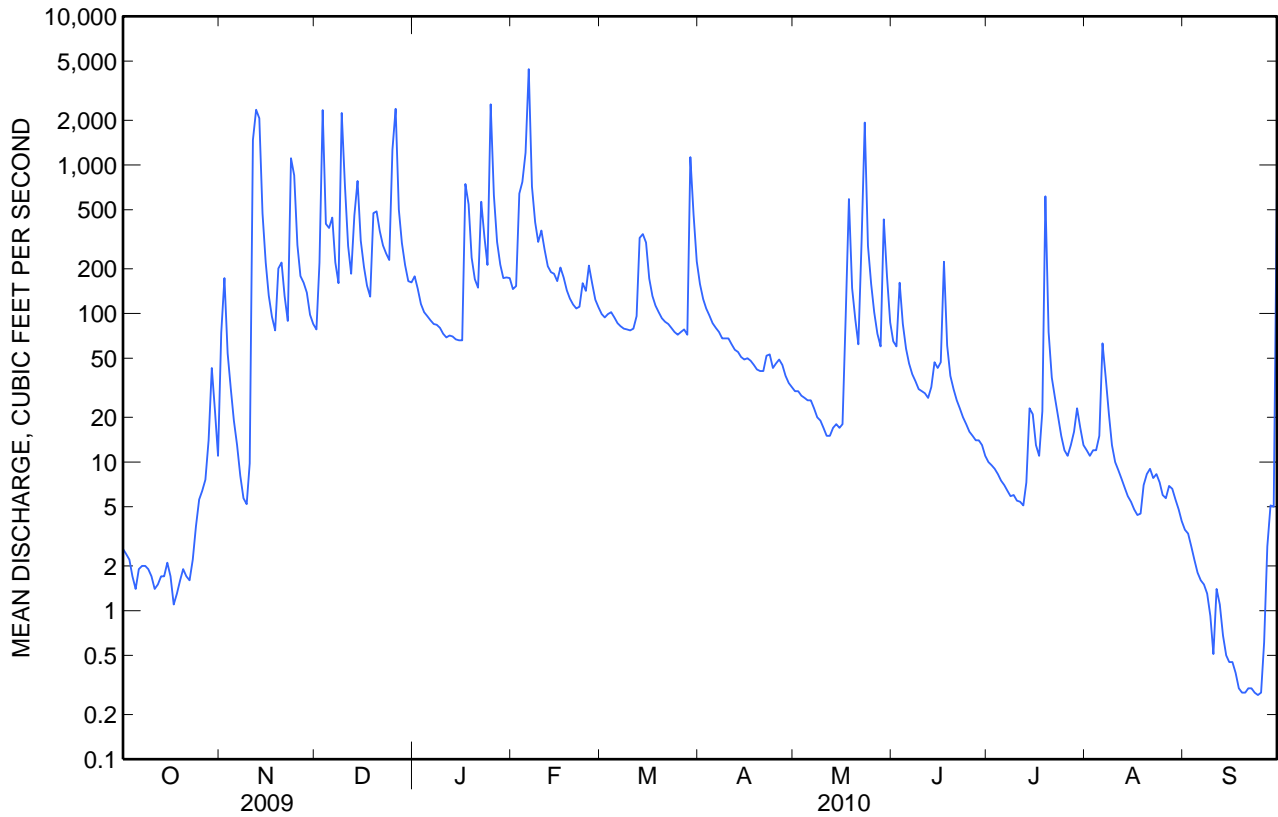
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	64.7	99.6	139	215	261	282	219	110	79.4	81.8	70.9	85.8
Max	561	489	542	761	758	948	656	573	551	798	431	984
(WY)	(1972)	(1986)	(2010)	(1936)	(1998)	(1998)	(2003)	(1978)	(1938)	(1975)	(1939)	(1996)
Min	1.11	0.71	1.81	4.29	39.4	28.5	31.1	19.3	3.85	1.68	0.72	0.22
(WY)	(2006)	(1934)	(1934)	(1934)	(2002)	(2006)	(1942)	(2002)	(2002)	(2002)	(2007)	(2007)

02085500 FLAT RIVER AT BAHAMA, NC—Continued

SUMMARY STATISTICS

	Calendar Year 2009		Water Year 2010		Water Years 1925 - 2010	
Annual total	59,987.13		63,842.79			
Annual mean	164		175		142	
Highest annual mean					347	2003
Lowest annual mean					25.2	2002
Highest daily mean	2,390	Dec 26	4,420	Feb 6	21,800	Sep 6, 1996
Lowest daily mean	0.03	Sep 15	0.27	Sep 24	0.00	Oct 12, 2007
Annual seven-day minimum	0.05	Sep 12	0.28	Sep 19	0.00	Oct 11, 2007
Maximum peak flow			7,380	Feb 6	^a 33,800	Sep 6, 1996
Maximum peak stage			8.46	Feb 6	^a 17.26	Sep 6, 1996
Instantaneous low flow			^a 0.25	Sep 24	^a 0.00	Oct 11, 2007
Annual runoff (cfsm)	1.10		1.17		0.952	
Annual runoff (inches)	14.98		15.94		12.94	
10 percent exceeds	392		386		277	
50 percent exceeds	50		54		48	
90 percent exceeds	1.7		1.9		6.3	

^a 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 2009 TO SEPTEMBER 2010

Part 1 of 5

[% , percent; ANC, acid neutralizing capacity; CaCO₃, calcium carbonate; N, nitrogen; P, phosphorus; SiO₂, silicon dioxide; ft³/s, cubic feet per second; mg/L, milligrams per liter; mm Hg, millimeters of mercury; °C, degrees Celsius; μS/cm, microsiemens per centimeter; μg/L, micrograms per liter; --, no data; <, less than; E, estimated]

Date	Sample start time	Medium name	Sample type	Barometric pressure, mm Hg (00025)	Color, water, filtered, platinum cobalt units (00080)	Discharge, instantaneous, ft ³ /s (00061)	Dissolved oxygen, water, unfiltered, mg/L (00300)	Dissolved oxygen, water, unfiltered, % saturation (00301)	pH, water, field, standard units (00400)	Specific conductance, water, unfiltered, μS/cm at 25 °C (00095)
11-11-2009	1015	Surface water	Regular	758	125	234	9.1	86	6.3	87
12-03-2009	1345	Surface water	Regular	748	--	1,540	9.8	93	5.9	46
02-18-2010	1415	Surface water	Regular	752	--	142	12.4	97	6.4	68
05-04-2010	1345	Surface water	Regular	751	--	27	--	--	6.5	88
06-24-2010	1015	Surface water	Regular	751	--	18	7.2	94	7.1	88
08-27-2010	1345	Surface water	Regular	752	--	7.4	8.1	103	6.9	90

WATER-QUALITY DATA

WATER YEAR OCTOBER 2009 TO SEPTEMBER 2010

Part 2 of 5

[% , percent; ANC, acid neutralizing capacity; CaCO₃, calcium carbonate; N, nitrogen; P, phosphorus; SiO₂, silicon dioxide; ft³/s, cubic feet per second; mg/L, milligrams per liter; mm Hg, millimeters of mercury; °C, degrees Celsius; μS/cm, microsiemens per centimeter; μg/L, micrograms per liter; --, no data; <, less than; E, estimated]

Date	Temperature, water, °C (00010)	Hardness, water, mg/L as CaCO ₃ (00900)	Calcium, water, filtered, mg/L (00915)	Magnesium, water, filtered, mg/L (00925)	Potassium, water, filtered, mg/L (00935)	Sodium, water, filtered, mg/L (00930)	Bi ANC, water, unfiltered, inflection-point, incremental titration method, field, mg/L as CaCO ₃ (00419)	Bi carbonate, water, unfiltered, inflection-point, incremental titration method, field, mg/L (00450)	Fluoride, water, filtered, mg/L (00950)
11-11-2009	12.6	25.3	5.93	2.56	4.76	4.31	21.2	25.9	E .05
12-03-2009	12.0	--	--	--	--	--	--	--	--
02-18-2010	4.5	--	--	--	--	--	--	--	--
05-04-2010	21.9	--	--	--	--	--	--	--	--
06-24-2010	27.7	--	--	--	--	--	--	--	--
08-27-2010	27.0	--	--	--	--	--	--	--	--

02085500 FLAT RIVER AT BAHAMA, NC—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2009 TO SEPTEMBER 2010

Part 3 of 5

[%, percent; ANC, acid neutralizing capacity; CaCO₃, calcium carbonate; N, nitrogen; P, phosphorus; SiO₂, silicon dioxide; ft³/s, cubic feet per second; mg/L, milligrams per liter; mm Hg, millimeters of mercury; °C, degrees Celsius; μS/cm, microsiemens per centimeter; μg/L, micrograms per liter; --, no data; <, less than; E, estimated]

Date	Silica, water, filtered, mg/L as SiO ₂ (00955)	Ammonia plus organic nitrogen, water, unfiltered, mg/L as N (00625)	Ammonia, water, filtered, mg/L as N (00608)	Nitrate plus nitrite, water, filtered, mg/L as N (00631)	Nitrite, water, filtered, mg/L as N (00613)	Orthophos phate, water, filtered, mg/L as P (00671)	Phosphorus, water, unfiltered, mg/L as P (00665)	Aluminum, water, unfiltered, recover able, μg/L (01105)	Cadmium, water, unfiltered, μg/L (01027)
		11-11-2009	8.06	1.2	.138	.256	.005	.176	.427
12-03-2009	--	1.0	< .020	.215	.003	.023	.163	--	--
02-18-2010	--	.13	< .020	.494	E .001	.011	.028	--	--
05-04-2010	--	.33	.028	.273	.004	.009	.019	--	--
06-24-2010	--	.40	.039	.314	.003	.024	.062	--	--
08-27-2010	--	.30	.021	.026	< .002	.010	.030	--	--

WATER-QUALITY DATA
WATER YEAR OCTOBER 2009 TO SEPTEMBER 2010

Part 4 of 5

[%, percent; ANC, acid neutralizing capacity; CaCO₃, calcium carbonate; N, nitrogen; P, phosphorus; SiO₂, silicon dioxide; ft³/s, cubic feet per second; mg/L, milligrams per liter; mm Hg, millimeters of mercury; °C, degrees Celsius; μS/cm, microsiemens per centimeter; μg/L, micrograms per liter; --, no data; <, less than; E, estimated]

Date	Chromium, water, unfiltered, recover able, μg/L (01034)	Cobalt, water, unfiltered, recoverabl e, microgram s per liter (01037)	Copper, water, unfiltered, recover able, μg/L (01042)	Iron, water, unfiltered, recover able, μg/L (01045)	Lead, water, unfiltered, recover able, μg/L (01051)	Manganes e, water, unfiltered, recover able, μg/L (01055)	Mercury, water, unfiltered, recover able, μg/L (71900)	Molybdenu m, water, unfiltered, recoverabl e, microgram s per liter (01062)	Nickel, water, unfiltered, recover able, μg/L (01067)	Silver, water, unfiltered, recover able, μg/L (01077)
	11-11-2009	1.0	2.0	3.2	2,440	4.26	661	.012	E .1	.85
12-03-2009	--	--	--	--	--	--	--	--	--	--
02-18-2010	--	--	--	--	--	--	--	--	--	--
05-04-2010	--	--	--	--	--	--	--	--	--	--
06-24-2010	--	--	--	--	--	--	--	--	--	--
08-27-2010	--	--	--	--	--	--	--	--	--	--

02085500 FLAT RIVER AT BAHAMA, NC—Continued**WATER-QUALITY DATA
WATER YEAR OCTOBER 2009 TO SEPTEMBER 2010**

Part 5 of 5

[%, percent; ANC, acid neutralizing capacity; CaCO₃, calcium carbonate; N, nitrogen; P, phosphorus; SiO₂, silicon dioxide; ft³/s, cubic feet per second; mg/L, milligrams per liter; mm Hg, millimeters of mercury; °C, degrees Celsius; μS/cm, microsiemens per centimeter; μg/L, micrograms per liter; --, no data; <, less than; E, estimated]

Date	Zinc, water, unfiltered, recover able, μg/L (01092)	Arsenic, water, unfiltered, μg/L (01002)	Selenium, water, unfiltered, μg/L (01147)	Organic carbon, water, unfiltered, mg/L (00680)	Suspended sediment concen tration, mg/L (80154)
11-11-2009	11.0	1.1	.16	13.7	120
12-03-2009	--	--	--	--	108
02-18-2010	--	--	--	--	8
05-04-2010	--	--	--	--	4
06-24-2010	--	--	--	--	11
08-27-2010	--	--	--	--	3