

Water-Data Report 2013

0208521324 LITTLE RIVER AT SECONDARY ROAD 1461 NEAR ORANGE FACTORY, NC

Neuse Basin
Upper Neuse Subbasin

LOCATION.--Lat 36°08'30", long 78°55'09" referenced to North American Datum of 1983, Durham County, NC, Hydrologic Unit 03020201, on right bank, 5 feet downstream from bridge on Secondary Road 1461, and 1.8 mi northwest of Orange Factory.

DRAINAGE AREA.--78.2 mi².

SURFACE-WATER RECORDS

PERIOD OF RECORD.--October 1987 to current year. Prior to October 1987, equivalent records published as "Little River near Orange Factory, NC" (02085220), September 1961 to September 1987.

GAGE.--Water-stage recorder. Datum of gage is 382.89 ft above North American Vertical Datum of 1988. Satellite telemetry at station.

REMARKS.--No estimated daily discharges. Records fair. Maximum discharge for period of record from extension of rating curve above 2,300 ft³/s, based on contracted-opening measurement of peak flow; maximum gage height, 13.26 ft, from high-water mark in gage shelter. No flow occurs periodically. Minimum discharge for current water year also occurred October 28, November 25.

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DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013
DAILY MEAN VALUES

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	5.2	7.6	3.5	26	71	82	78	25	9.5	442	29	23
2	6.0	7.4	3.6	39	37	54	56	21	8.9	173	123	29
3	8.7	6.4	3.6	56	31	42	35	19	15	228	56	22
4	6.7	8.3	3.9	35	27	33	31	17	47	196	97	16
5	4.9	6.7	3.8	27	24	30	336	16	27	101	42	13
6	3.7	4.8	3.7	23	22	61	130	313	21	54	27	12
7	24	4.7	4.3	20	22	66	67	362	1,230	34	25	10
8	21	4.6	4.9	17	498	39	46	90	682	692	20	9.5
9	21	4.2	8.0	16	206	29	37	48	139	257	16	9.6
10	17	4.0	8.9	14	93	27	33	33	114	90	122	8.8
11	11	4.0	6.0	14	61	25	29	25	147	906	270	8.2
12	9.2	3.7	5.3	15	58	106	163	23	67	374	53	7.7
13	7.3	4.0	5.2	16	69	162	144	19	42	145	68	7.5
14	5.8	3.9	4.8	20	94	67	57	17	35	120	51	6.9
15	5.1	3.6	4.7	106	53	42	40	15	33	74	28	6.4
16	6.1	3.9	4.5	102	50	34	33	14	22	47	21	8.3
17	4.7	4.4	6.1	554	113	30	30	13	18	34	19	6.2
18	4.4	4.2	7.6	910	64	27	27	19	19	28	25	6.1
19	8.8	3.9	9.2	306	48	30	32	99	38	25	57	6.2
20	6.4	3.9	8.0	165	59	31	87	133	23	21	90	6.4
21	6.0	4.2	21	101	44	27	46	112	16	21	78	6.9
22	5.2	4.0	22	63	35	24	28	47	13	20	294	12
23	4.3	3.8	14	42	87	22	23	44	14	18	65	12
24	3.9	3.6	12	34	151	44	21	55	17	16	34	9.6
25	3.6	3.3	9.6	29	81	214	18	30	12	199	23	8.1
26	3.6	3.4	246	28	186	98	16	21	12	61	19	7.6
27	3.4	3.7	226	28	328	51	15	18	14	29	17	6.7
28	3.3	3.8	68	25	144	35	15	15	38	68	16	6.3
29	4.4	3.5	50	25	---	29	27	13	198	35	15	6.3
30	11	3.5	42	25	---	26	42	12	97	24	14	5.9
31	9.5	---	31	98	---	35	---	10	---	18	13	---
Total	245.2	135.0	851.2	2,979	2,756	1,622	1,742	1,698	3,168.4	4,550	1,827	304.2
Mean	7.91	4.50	27.5	96.1	98.4	52.3	58.1	54.8	106	147	58.9	10.1
Max	24	8.3	246	910	498	214	336	362	1,230	906	294	29
Min	3.3	3.3	3.5	14	22	22	15	10	8.9	16	13	5.9
Cfsm	0.10	0.06	0.35	1.23	1.26	0.67	0.74	0.70	1.35	1.88	0.75	0.13
In.	0.12	0.06	0.40	1.42	1.31	0.77	0.83	0.81	1.51	2.16	0.87	0.14

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1987 - 2013, BY WATER YEAR (WY)

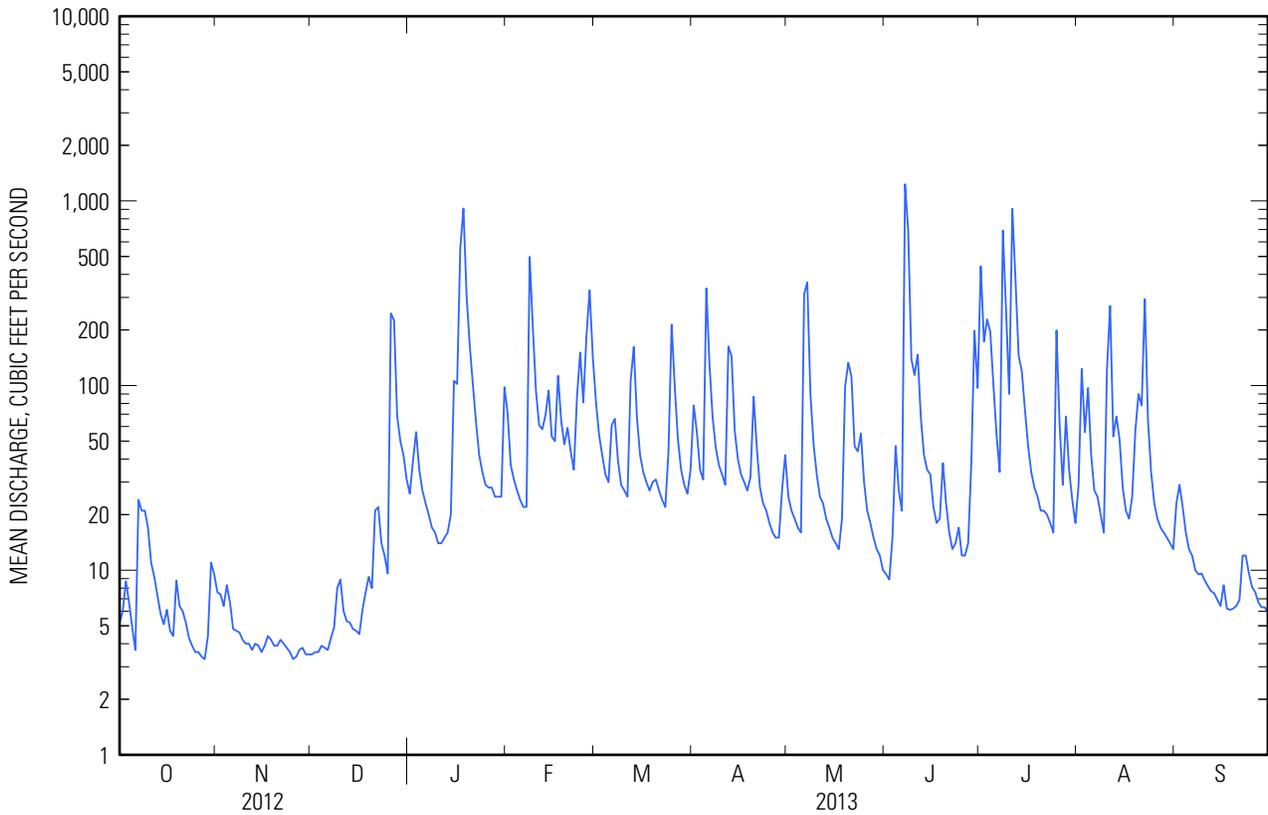
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	29.3	47.1	73.0	102	109	153	99.7	51.1	42.1	33.7	24.6	47.8
Max	222	209	294	257	379	456	346	203	194	147	125	329
(WY)	(2003)	(2010)	(2010)	(1998)	(1998)	(1993)	(2003)	(2003)	(1995)	(2013)	(2003)	(1996)
Min	0.14	0.07	5.06	7.50	19.1	12.7	17.1	7.48	2.08	0.31	0.19	0.01
(WY)	(1994)	(2008)	(2002)	(2008)	(2011)	(2006)	(1995)	(2002)	(2002)	(2002)	(2007)	(2007)

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SUMMARY STATISTICS

	Calendar Year 2012		Water Year 2013		Water Years 1987 - 2013	
Annual total	9,318.46		21,878.0			
Annual mean	25.5		59.9		67.5	
Highest annual mean					195	2003
Lowest annual mean					14.8	2002
Highest daily mean	815	Mar 25	1,230	Jun 7	6,500	Sep 6, 1996
Lowest daily mean	0.46	Jul 6	3.3	Oct 28	0.00	Aug 19, 1988
Annual seven-day minimum	0.51	Jul 3	3.5	Nov 25	0.00	Aug 19, 1988
Maximum peak flow			3,220	Jun 7	^a 11,600	Sep 6, 1996
Maximum peak stage			6.38	Jun 7	^a 13.26	Sep 6, 1996
Instantaneous low flow			^a 3.2	Oct 27	^a 0.00	Aug 19, 1998
Annual runoff (cfsm)	0.326		0.766		0.863	
Annual runoff (inches)	4.43		10.41		11.73	
10 percent exceeds	55		135		135	
50 percent exceeds	9.2		24		21	
90 percent exceeds	2.1		4.4		1.4	

^a See Remarks



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WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1988-99, 2001-04, 2008-10, 2013.

REMARKS.--Station operated to define water quality as part of a regional surface-water quality assessment. 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. Samples for October 1994 and April 1995 were collected by the North Carolina Department of Environment, Health, and Natural Resources. A GC/FID scan for trace organic compounds was performed on these samples by the U.S. Geological Survey National Water Quality Lab. Results may be obtained from the District office in Raleigh, NC.

WATER-QUALITY DATA
WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013

Part 1 of 6

[%, percent; ANC, acid neutralizing capacity; CaCO₃, calcium carbonate; N, nitrogen; NTRU, nephelometric turbidity ratio unit; P, phosphorus; SiO₂, silicon dioxide; ft³/s, cubic feet per second; mg/L, milligrams per liter; mm Hg, millimeters of mercury; nm, nanometers; °C, degrees Celsius; µS/cm, microsiemens per centimeter; µg/L, micrograms per liter; <, less than]

Date	Sample start time	Medium name	Sample type	Barometric pressure, mm Hg (00025)	Discharge, instantaneous, ft ³ /s (00061)	Dissolved oxygen, water, unfiltered, mg/L (00300)	Dissolved oxygen, water, unfiltered, % saturation (00301)	pH, water, unfiltered, field, standard units (00400)	Specific conductance, water, unfiltered, µS/cm at 25°C (00095)
06-07-2013	1715	Surface water	Regular	749	3,220	8.0	90	7.0	49

WATER-QUALITY DATA
WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013

Part 2 of 6

[%, percent; ANC, acid neutralizing capacity; CaCO₃, calcium carbonate; N, nitrogen; NTRU, nephelometric turbidity ratio unit; P, phosphorus; SiO₂, silicon dioxide; ft³/s, cubic feet per second; mg/L, milligrams per liter; mm Hg, millimeters of mercury; nm, nanometers; °C, degrees Celsius; µS/cm, microsiemens per centimeter; µg/L, micrograms per liter; <, less than]

Date	Sample start time	Temperature, water, °C (00010)	Turbidity, water, unfiltered, broad band light source (400-680 nm), detectors at multiple angles including 90 +/- 30 degrees, ratiometric correction, NTRU (63676)	Dissolved solids dried at 180°C, water, filtered, mg/L (70300)	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)
06-07-2013	1715	20.3	370	66	16.5	3.94	1.61	2.90	2.56

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WATER-QUALITY DATA
WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013

Part 3 of 6

[%, percent; ANC, acid neutralizing capacity; CaCO₃, calcium carbonate; N, nitrogen; NTRU, nephelometric turbidity ratio unit; P, phosphorus; SiO₂, silicon dioxide; ft³/s, cubic feet per second; mg/L, milligrams per liter; mm Hg, millimeters of mercury; nm, nanometers; °C, degrees Celsius; µS/cm, microsiemens per centimeter; µg/L, micrograms per liter; <, less than]

Date	Sample start time	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)	Chloride, water, filtered, mg/L (00940)	Fluoride, water, filtered, mg/L (00950)	Silica, water, filtered, mg/L as SiO ₂ (00955)	Sulfate, water, filtered, mg/L (00945)	Ammonia plus organic nitrogen, water, unfiltered, mg/L as N (00625)	Ammonia, water, filtered, mg/L as N (00608)
		06-07-2013	1715	12.3	15.1	2.42	0.05	6.99	2.33

WATER-QUALITY DATA
WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013

Part 4 of 6

[%, percent; ANC, acid neutralizing capacity; CaCO₃, calcium carbonate; N, nitrogen; NTRU, nephelometric turbidity ratio unit; P, phosphorus; SiO₂, silicon dioxide; ft³/s, cubic feet per second; mg/L, milligrams per liter; mm Hg, millimeters of mercury; nm, nanometers; °C, degrees Celsius; µS/cm, microsiemens per centimeter; µg/L, micrograms per liter; <, less than]

Date	Sample start time	Nitrate plus nitrite, water, filtered, mg/L as N (00631)	Orthophosphate, water, filtered, mg/L as P (00671)	Phosphorus, water, unfiltered, mg/L as P (00665)	Aluminum, water, unfiltered, recoverable, µg/L (01105)	Cadmium, water, unfiltered, µg/L (01027)	Chromium, water, unfiltered, recoverable, µg/L (01034)	Cobalt, water, unfiltered, recoverable, µg/L (01037)	Copper, water, unfiltered, recoverable, µg/L (01042)
		06-07-2013	1715	0.31	0.028	0.646	3,620	0.067	3.7

WATER-QUALITY DATA
WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013

Part 5 of 6

[%, percent; ANC, acid neutralizing capacity; CaCO₃, calcium carbonate; N, nitrogen; NTRU, nephelometric turbidity ratio unit; P, phosphorus; SiO₂, silicon dioxide; ft³/s, cubic feet per second; mg/L, milligrams per liter; mm Hg, millimeters of mercury; nm, nanometers; °C, degrees Celsius; µS/cm, microsiemens per centimeter; µg/L, micrograms per liter; <, less than]

Date	Sample start time	Iron, water, unfiltered, recoverable, µg/L (01045)	Lead, water, unfiltered, recoverable, µg/L (01051)	Manganese, water, unfiltered, recoverable, µg/L (01055)	Mercury, water, unfiltered, recoverable, µg/L (71900)	Molybdenum, water, unfiltered, recoverable, µg/L (01062)	Nickel, water, unfiltered, recoverable, µg/L (01067)	Silver, water, unfiltered, recoverable, µg/L (01077)	Zinc, water, unfiltered, recoverable, µg/L (01092)	Arsenic, water, unfiltered, µg/L (01002)
		06-07-2013	1715	7,980	8.16	962	0.040	< .05	2.3	0.032

0208521324 LITTLE RIVER AT SECONDARY ROAD 1461 NEAR ORANGE FACTORY, NC—Continued**WATER-QUALITY DATA****WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013**

Part 6 of 6

[%, percent; ANC, acid neutralizing capacity; CaCO₃, calcium carbonate; N, nitrogen; NTRU, nephelometric turbidity ratio unit; P, phosphorus; SiO₂, silicon dioxide; ft³/s, cubic feet per second; mg/L, milligrams per liter; mm Hg, millimeters of mercury; nm, nanometers; °C, degrees Celsius; µS/cm, microsiemens per centimeter; µg/L, micrograms per liter; <, less than]

Date	Sample start time	Selenium, water, unfiltered, µg/L (01147)	Organic carbon, water, unfiltered, mg/L (00680)	Suspended sediment concentration, mg/L (80154)
06-07-2013	1715	0.222	28.6	717