



Water-Data Report 2010

03497300 LITTLE RIVER ABOVE TOWNSEND, TN

Upper Tennessee Basin
Watts Bar Lake Subbasin

LOCATION.--Lat 35°39'52", long 83°42'41" referenced to North American Datum of 1927, Blount County, TN, Hydrologic Unit 06010201, in Great Smoky Mountains National Park, on left bank along Tennessee Highway 73, 0.3 mi upstream from Rush Branch, 0.4 mi southeast of Park entrance, 2.2 mi southeast of Townsend, and at mile 35.3.

DRAINAGE AREA.--106 mi².

SURFACE-WATER RECORDS

PERIOD OF RECORD.--October 1963 to current year.

GAGE.--Data collection platform and crest-stage gage. Datum of gage is 1,106.92 ft above NGVD of 1929.

REMARKS.--Records good, except for estimated daily values; rated fair.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 3,100 ft³/s and (or) maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Nov 11	0845	3,700	6.04
Dec 9	0645	*4,870	*6.85
Dec 25	1115	3,110	5.60
Jan 25	0000	3,950	6.22
May 3	0815	4,260	6.44

Minimum discharge, 35 ft³/s, Sept. 25.

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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	323	1,020	324	378	472	248	528	351	e195	59	225	52
2	274	756	423	326	552	248	482	308	167	55	156	49
3	240	573	569	289	571	234	442	1,790	163	53	122	47
4	212	461	473	276	517	218	388	1,020	144	52	101	52
5	282	386	420	263	1,520	206	349	675	143	50	90	45
6	225	335	359	245	1,760	198	323	508	152	47	113	42
7	253	300	325	236	1,080	194	292	406	187	44	87	39
8	214	271	317	224	786	194	506	346	134	42	74	54
9	200	248	2,370	223	659	204	577	293	141	41	67	63
10	267	439	1,110	209	559	234	459	263	255	46	63	44
11	230	2,680	722	240	485	346	404	244	219	43	74	121
12	224	1,570	557	189	434	590	362	225	174	108	88	228
13	218	974	595	175	388	859	327	207	161	139	75	90
14	269	708	536	171	351	659	298	192	147	114	78	67
15	382	553	477	168	341	740	275	233	136	70	99	58
16	547	459	409	167	301	667	257	287	125	58	153	52
17	654	395	366	295	279	569	243	267	110	60	188	54
18	591	428	492	399	262	509	226	233	100	75	182	50
19	480	362	550	310	250	477	212	210	111	157	200	46
20	405	328	494	326	240	448	215	192	102	126	143	44
21	353	305	419	585	239	442	247	181	87	83	132	41
22	316	288	387	737	317	663	201	174	80	70	146	39
23	293	269	378	607	338	489	189	160	76	61	112	38
24	373	251	403	1,080	329	423	197	148	76	54	95	37
25	300	236	1,740	2,330	315	401	475	149	72	51	85	36
26	270	223	1,260	1,140	295	475	333	147	71	50	78	65
27	304	210	834	764	281	426	491	131	66	152	72	298
28	481	199	639	591	267	501	592	221	82	91	77	388
29	371	192	510	492	---	720	493	e300	73	105	70	189
30	330	301	435	611	---	692	411	e200	65	279	62	216
31	476	---	410	527	---	613	---	e250	---	214	57	---
Total	10,357	15,720	19,303	14,573	14,188	13,887	10,794	10,311	3,814	2,649	3,364	2,644
Mean	334	524	623	470	507	448	360	333	127	85.5	109	88.1
Max	654	2,680	2,370	2,330	1,760	859	592	1,790	255	279	225	388
Min	200	192	317	167	239	194	189	131	65	41	57	36
Cfsm	3.15	4.94	5.87	4.43	4.78	4.23	3.39	3.14	1.20	0.81	1.02	0.83
In.	3.63	5.52	6.77	5.11	4.98	4.87	3.79	3.62	1.34	0.93	1.18	0.93

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1964 - 2010, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	123	218	340	412	435	488	383	291	215	191	162	126
Max	373	524	725	796	857	1,195	818	774	648	815	530	496
(WY)	(1973)	(2010)	(1992)	(1996)	(1990)	(1994)	(1998)	(1984)	(1989)	(1971)	(1966)	(2004)
Min	25.8	36.0	58.8	72.7	152	185	141	124	50.4	63.8	40.5	31.9
(WY)	(2008)	(1988)	(1966)	(1981)	(2007)	(1988)	(1995)	(1986)	(1988)	(1993)	(1987)	(1998)

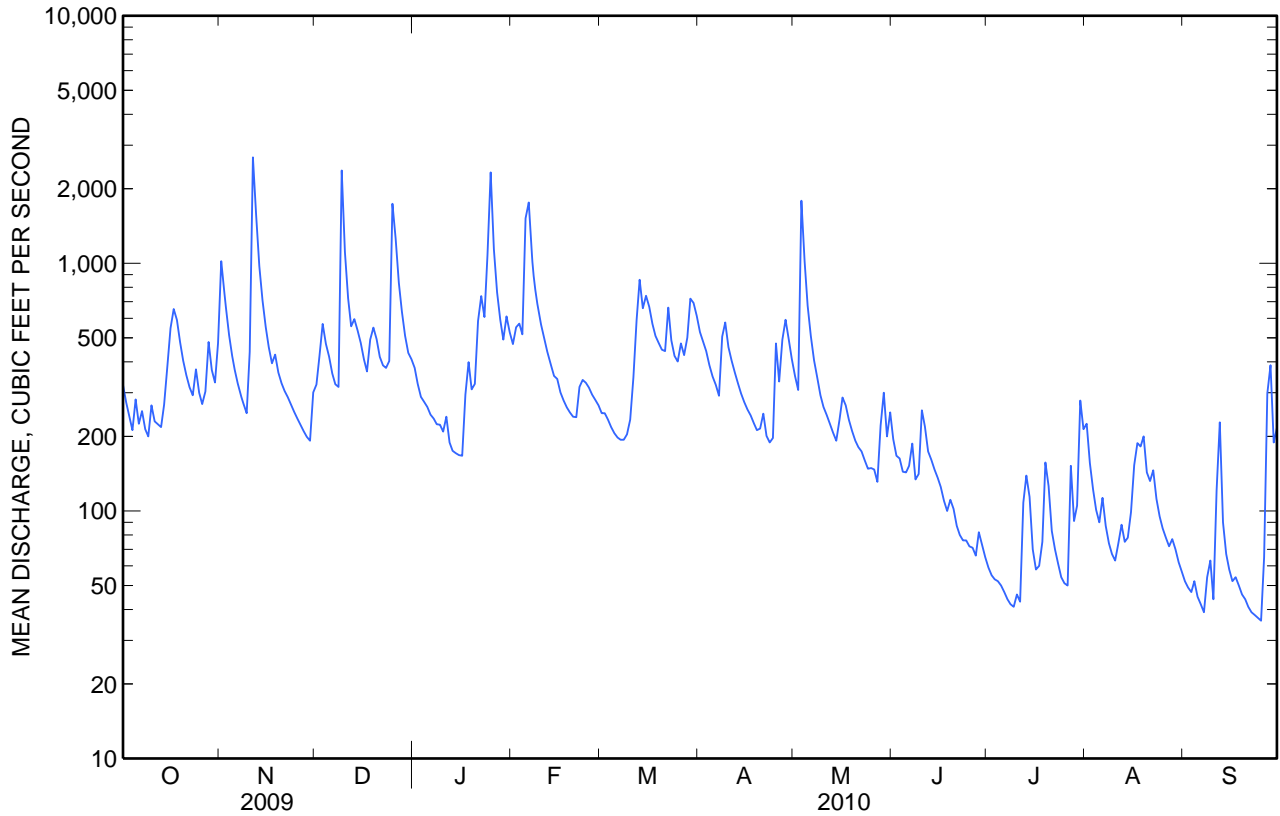
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SUMMARY STATISTICS

	Calendar Year 2009		Water Year 2010		Water Years 1964 - 2010	
Annual total	130,751		121,604			
Annual mean	358		333		281	
Highest annual mean					460	1994
Lowest annual mean					141	1988
Highest daily mean	3,950	Jan 7	2,680	Nov 11	9,000	Mar 28, 1994
Lowest daily mean	73	Jul 26	36	Sep 25	15	Oct 18, 2007
Annual seven-day minimum	81	Jul 22	40	Sep 19	16	Oct 13, 2007
Maximum peak flow			4,870	Dec 9	27,100	Mar 27, 1994
Maximum peak stage			6.85	Dec 9	^a 15.75	Mar 27, 1994
Instantaneous low flow			35	Sep 25	^b 15	Oct 16, 2007
Annual runoff (cfsm)	3.38		3.14		2.65	
Annual runoff (inches)	45.89		42.68		36.06	
10 percent exceeds	593		609		550	
50 percent exceeds	271		251		196	
90 percent exceeds	142		60		59	

^a From flood mark in gage house.

^b Also occurred on Oct. 17, 18, 19, 2007.



03497300 LITTLE RIVER ABOVE TOWNSEND, TN—Continued

WATER-QUALITY RECORDS

WATER-QUALITY DATA
WATER YEAR OCTOBER 2009 TO SEPTEMBER 2010

Part 1 of 3

[ANC, acid neutralizing capacity; CaCO₃, calcium carbonate; N, nitrogen; SiO₂, silicon dioxide; ft, feet; ft³/s, cubic feet per second; meq/L, milliequivalents per liter; mg/L, milligrams per liter; °C, degrees Celsius; μS/cm, microsiemens per centimeter; μg/L, micrograms per liter; <, less than]

Date	Sample start time	Discharge, instantaneous, ft ³ /s (00061)	pH, water, unfiltered, laboratory, standard units (00403)	Specific conductance, water, unfiltered, laboratory, μS/cm at 25 °C (90095)	Gage height, ft (00065)	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 adsorption ratio, water, number (00931)
02-17-2010	1131	287	6.6	15	2.23	4.28	1.16	.34	.38	.18
04-12-2010	1000	370	6.7	15	2.43	4.48	1.21	.35	.44	.17
06-30-2010	1001	68	7.1	21	1.46	9.63	2.84	.62	.54	.14
07-12-2010	2050	319	6.7	28	2.31	8.75	2.27	.75	.63	.16
07-19-2010	1435	237	6.7	27	2.09	8.97	2.30	.79	.53	.14
07-27-2010	1020	182	6.2	23	1.92	7.09	1.91	.57	.54	.13
07-30-2010	0225	162	6.5	29	1.85	10.4	2.80	.82	.61	.13
07-30-2010	0325	240	6.6	24	2.10	8.32	2.18	.70	.55	.15
07-30-2010	0530	521	6.7	32	2.74	13.0	3.25	1.18	.68	.11
07-30-2010	2030	214	6.4	22	2.02	7.19	1.88	.60	.48	.13
07-31-2010	1735	344	6.4	42	2.37	12.5	3.14	1.14	.51	.10
08-05-2010	1040	98	6.5	19	1.61	6.58	1.73	.55	.47	.15
09-26-2010	1515	83	6.7	27	1.54	9.93	2.62	.82	.65	.14
09-27-2010	0055	115	6.6	22	1.68	7.27	1.90	.61	.57	.16
09-27-2010	1335	170	6.6	23	1.88	8.16	2.21	.64	.57	.16
09-27-2010	1555	331	6.6	21	2.34	7.70	1.95	.69	.58	.14
09-27-2010	1735	548	6.5	19	2.79	6.77	1.70	.61	.57	.14
09-27-2010	1950	581	6.5	22	2.85	8.10	2.14	.67	.59	.13

03497300 LITTLE RIVER ABOVE TOWNSEND, TN—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2009 TO SEPTEMBER 2010

Part 2 of 3

[ANC, acid neutralizing capacity; CaCO₃, calcium carbonate; N, nitrogen; SiO₂, silicon dioxide; ft, feet; ft³/s, cubic feet per second; meq/L, milliequivalents per liter; mg/L, milligrams per liter; °C, degrees Celsius; μS/cm, microsiemens per centimeter; μg/L, micrograms per liter; <, less than]

Date	Sodium fraction of cations, water, percent in equivalents of major cations (00932)	Sodium, water, filtered, mg/L (00930)	ANC, water, unfiltered, Gran titration, meq/L (00409)	Chloride, water, filtered, mg/L (00940)	Silica, water, filtered, mg/L as SiO ₂ (00955)	Sulfate, water, filtered, mg/L (00945)	Ammonia, water, unfiltered, mg/L as N (00610)	Nitrate, water, filtered, mg/L as N (00618)	Aluminum, water, filtered, μg/L (01106)	Monomeric aluminum, water, unfiltered, μg/L (49287)
02-17-2010	28	.84	66	.4	2.81	1.6	< .028	.12	46	45
04-12-2010	27	.84	72	.4	2.69	1.7	< .028	.15	< 27	46
06-30-2010	18	1.02	151	.9	3.00	1.4	< .028	.12	414	< 40
07-12-2010	20	1.09	195	.5	3.20	1.4	--	.14	45	47
07-19-2010	18	.96	208	.4	2.87	1.3	--	.10	28	46
07-27-2010	19	.83	120	.4	2.41	1.5	.120	.21	29	51
07-30-2010	16	.94	193	.4	2.71	1.5	.124	.14	32	56
07-30-2010	19	.99	141	.4	2.88	1.7	--	.13	< 27	48
07-30-2010	12	.89	217	.4	2.70	1.6	--	.07	28	49
07-30-2010	18	.77	133	.3	2.47	1.6	.090	.14	44	49
07-31-2010	12	.83	345	.3	2.62	1.5	.049	.13	32	51
08-05-2010	21	.86	117	.4	2.60	1.6	< .028	.10	< 27	46
09-26-2010	18	1.05	214	.5	2.92	1.4	.062	.05	< 27	< 40
09-27-2010	22	1.01	153	.5	2.93	1.5	.077	.06	< 27	< 40
09-27-2010	20	1.03	165	.5	2.95	1.5	--	< .03	< 27	< 40
09-27-2010	19	.92	145	.5	2.85	1.5	.045	.06	< 27	< 40
09-27-2010	19	.82	117	.4	2.57	1.4	.036	.12	34	< 40
09-27-2010	17	.85	135	.5	2.62	1.6	.033	.20	32	< 40

03497300 LITTLE RIVER ABOVE TOWNSEND, TN—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2009 TO
SEPTEMBER 2010

Part 3 of 3

[ANC, acid neutralizing capacity; CaCO₃, calcium carbonate; N, nitrogen; SiO₂, silicon dioxide; ft, feet; ft³/s, cubic feet per second; meq/L, milliequivalents per liter; mg/L, milligrams per liter; °C, degrees Celsius; μS/cm, microsiemens per centimeter; μg/L, micrograms per liter; <, less than]

Date	Organic carbon, water, filtered, mg/L (00681)	Organic monomeric aluminum, water, unfiltered, μg/L (49288)
02-17-2010	< .5	< 40
04-12-2010	.9	< 40
06-30-2010	.9	< 40
07-12-2010	2.1	< 40
07-19-2010	2.2	< 40
07-27-2010	2.0	< 40
07-30-2010	1.8	< 40
07-30-2010	--	< 40
07-30-2010	2.3	< 40
07-30-2010	2.0	< 40
07-31-2010	2.0	< 40
08-05-2010	.8	< 40
09-26-2010	1.9	< 40
09-27-2010	1.7	< 40
09-27-2010	1.3	< 40
09-27-2010	1.9	< 40
09-27-2010	2.4	< 40
09-27-2010	2.4	< 40