



NORTH CAROLINA
DEPARTMENT OF CONSERVATION AND DEVELOPMENT
R. BRUCE ETHERIDGE, DIRECTOR

DIVISION OF WATER RESOURCES AND ENGINEERING
W. H. RILEY, PRINCIPAL ENGINEER

BULLETIN 52
VOLUME 1

CHEMICAL CHARACTER of SURFACE
WATERS of NORTH CAROLINA
1944-45

BY
WILLIAM L. LAMAR

PREPARED IN COOPERATION WITH THE GEOLOGICAL SURVEY
OF THE UNITED STATES DEPARTMENT OF THE INTERIOR

RALEIGH
1947

**CONSERVATION
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..... Pomona

..... Albemarle

LETTER OF TRANSMITTAL

Raleigh, North Carolina
September 7, 1946

*To His Excellency, HON. R. GREGG CHERRY,
Governor of North Carolina.*

SIR:

I have the honor to transmit to you Bulletin 52, Volume 1, Chemical Character of Surface Waters of North Carolina, 1944-45.

This bulletin does not supersede Economic Paper 61, published by this Department, or Chemical Character of Surface Waters of North Carolina, 1943-44, published by the U. S. Geological Survey. No water analyses made prior to October 1, 1944, will be found in this bulletin.

With industries expanding, new industries being formed and municipalities requiring additional water, the need for information in this bulletin has been felt for several years. A similar publication for the year 1943-44 published by the U. S. Geological Survey has had a wide circulation. It is planned to continue this work and publish additional information each year.

Respectfully submitted,

R. BRUCE ETHERIDGE,
Director.

lected and the results of these measurements are given on pages 17 to 20. The tables of analyses of miscellaneous streams on pages 12 to 16 include 85 analyses of spot samples collected at gaging stations and other points.

The mineral matter in water is dissolved from rocks and soils and it may be increased by sources of pollution. The mineral content of the waters reported did not exceed 110 parts per million except in several cases where the water was noticeably polluted. The hardness of the waters was less than 60 parts per million. The individual mineral constituents, with the exception of those in a few noticeably polluted waters, did not exceed, in parts per million, the following limits: Silica 20, iron 1.4, calcium 15, magnesium 6, sodium + potassium 25, bicarbonate 65, sulfate 25, chloride 25, fluoride 0.3, and nitrate 6. Color and suspended matter of the waters covered a considerable range. Color ranged from 1 to 220 and suspended matter from 0 to 949 parts per million.

A few of the analyses of samples collected at the sampling station on the Roanoke River near Scotland Neck show noticeable pollution from industrial wastes. For the Roanoke River near Scotland Neck the highest total dissolved solids during the periods of noticeable pollution was 173 parts per million. The composite sample collected at the above sampling station from June 1 to 10 had a nitrate of 26 parts per million. However, some of this nitrate may be from the reaction of organic and other nitrogen compounds in the sample bottle. The re-examination of several of these samples of water after standing in the sample bottles for varying lengths of time showed that the sulfate and nitrate content had increased considerably. A polluted sample of water from the North Buffalo Creek near Greensboro had a total dissolved solids of 466 parts per million.

Acknowledgements for cooperation and assistance are made to R. B. Etheridge, Paul Kelly, and W. H. Riley of the North Carolina Department of Conservation and Development, E. E. Randolph of the North Carolina State College, and E. D. Burchard of the U. S. Geological Survey. The analytical work was under the supervision of W. L. Lamar of the U. S. Geological Survey. The analyses were made by Evelyn Holloman and G. W. Whetstone of the U. S. Geological Survey at the North Carolina State College, Raleigh, North Carolina.

CHEMICAL ANALYSES
AND
WATER TEMPERATURES

CAPE FEAR RIVER AT LILLINGTON, N. C.

LOCATION.—At gaging station at bridge on U. S. Highway 15A just downstream from Norfolk Southern Railway bridge at Lillington, Harnett County, and 1 mile downstream from Neill Creek.

DRAINAGE AREA.—3,440 square miles.

RECORDS AVAILABLE.—Chemical analyses: November 1944 to October 1945—Water temperatures: Nov. 1944 to Oct. 1945.

EXTREMES, 1944-45.—Dissolved solids: Maximum, 92 parts per million June 1-10; minimum, 48 parts per million Feb. 20-28, Mar. 1-10.

Total hardness: Maximum, 28 parts per million June 1-10; minimum, 11 parts per million July 1-10.

Water temperatures: Maximum, 85°F. June 18, 20, July 29, August 3; minimum, 34°F. December 20.

Chemical analyses, in parts per million, year November 1944 to October 1945

Date	Mean discharge (second-feet)	Temperature (° F.)	Suspended matter	Oxygen consumed		Color	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Dissolved solids	Total hardness as CaCO ₃
				Unfiltered	Filtered														
Nov. 1-10, 1944	909	56	8	6.2	5.1	85	15	0.38	4.6	2.0	7.8	1.6	29	5.2	5.6	0.1	0.2	68	20
Nov. 11-20	899	54	2	3.6	3.4	30	13	.31	5.5	2.4	14		43	7.0	7.4	.1	.2	75	24
Nov. 21-30	4,300	48	22	4.5	3.4	24	12	.11	5.1	2.4	15		43	6.9	8.5	.2	.3	75	23
Dec. 1-10	4,770	39	32	7.0	5.5	33	11	.01	3.8	1.7	6.9		22	6.2	4.6	.1	.4	53	16
Dec. 11-20	3,469	36	18	5.2	4.1	20	12	.03	4.3	1.9	6.7		21	7.0	5.5	.1	.7	57	19
Dec. 21-31	1,660	39	10	4.2	3.3	17	14	.07	4.6	1.9	7.9	1.4	27	6.0	6.1	.1	.8	61	19
Jan. 1-10, 1945	5,547	40	45	6.4	5.2	27	12	.05	4.6	2.1	6.7	1.2	22	6.7	5.8	.1	.9	59	20
Jan. 11-20	3,292	44	22	5.2	3.9	17	12	.04	4.4	1.8	6.8		22	6.4	5.4	.1	.8	55	18
Jan. 21-31	2,022	41	14	3.9	2.9	9	13	.05	4.9	2.0	7.8		25	6.5	6.5	.1	.8	60	20
Feb. 1-10	1,531	37	10	2.8	2.5	9	14	.04	5.2	2.1	10		33	5.6	7.1	.1	.7	65	22
Feb. 11-19	11,480	45	91	6.6	4.8	26	11	.01	4.7	1.7	6.3		21	6.5	5.1	.1	1.4	56	19
Feb. 20-28	12,450	46	40	8.2	5.2	28	9.8	.03	4.1	1.5	3.7		14	7.0	3.5	.1	.5	48	16
Mar. 1-10	7,264	51	28	5.8	4.7	26	10	.03	3.8	1.7	4.8		18	5.7	3.9	.1	.5	48	16
Mar. 11-20	2,389	53	10	4.0	3.2	20	12	.11	4.4	1.9	7.2		25	5.9	5.2	.1	.4	56	19
March 21-31	2,062	62	6	3.6	3.4	28	12	.19	5.8	2.0	9.7		35	5.5	6.1	.1	.5	61	23
April 1-10	1,231	66	4	4.2	3.7	25	11	.19	6.0	2.3	9.8	1.5	39	6.2	6.6	.1	.4	65	24
April 11-20	1,825	68	21	4.3	3.5	18	9.7	.10	6.0	2.3	9.9		38	4.7	6.4	.1	.7	64	24
April 21-30	3,313	64	48	8.7	6.6	37	12	.04	4.7	1.9	8.1		28	4.8	5.6	.1	1.4	62	20
May 1-10	1,259	62	18	6.1	5.6	29	13	.05	5.6	2.3	8.2		32	5.3	5.8	.1	1.4	64	23
May 11-20	1,956	65	37	5.0	4.0	21	9.6	.05	5.7	2.3	12		41	5.3	6.4	.1	.7	66	24
May 21-31	1,405	71	39	5.6	3.4	27	13	.03	5.4	2.2	8.1		31	5.6	5.4	.2	1.0	67	22
June 1-10	613	74	13	8.1	7.1	20	13	.03	6.9	2.5	14		46	6.4	7.8	.2	1.7	92	28
June 11-20	390	81	8	4.6	3.8	22	8.0	.04	5.6	2.4	12		41	6.1	6.6	.2	.7	69	24
June 21-30	341	81	8	4.2	3.6	19	9.0	.05	6.4	2.5	16	2.0	52	6.6	9.6	.3	.8	86	26
July 1-10	577	80	16	4.9	4.2	27	10	.06	6.3	2.5	15	2.0	50	6.0	8.2	.3	1.1	83	11
July 11-20	5,427	80	142	12	11	28	8.0	.02	5.2	1.9	9.8	2.0	35	5.0	6.5	.2	.1	71	21
July 21-31	3,241	80	70	11	8.3	52	9.1	.05	3.8	1.4	4.7		19	4.8	3.2	.1	.3	52	15
Aug. 1-10	1,115	82	21	12	9.4	39	11	.04	4.9	1.6	6.4		25	4.6	4.9	.1	.5	61	19
Aug. 11-20	1,000	79	17	4.8	4.6	31	12	.06	5.6	2.3	13		39	5.8	8.9	.3	.8	73	23
Aug. 21-31	3,439	76	53	11	10	55	8.2	.04	3.6	1.5	4.8		18	4.2	4.0	.1	.7	53	15

CHEMICAL CHARACTER OF SURFACE WATERS OF NORTH CAROLINA

Sept 1-10	745	78																	
Sept. 11-20	58,820	77	44	7.5	7.7	43	9.8	.12	4.6	2.0	9.2		29	5.3	6.5	.3	.6	63	20
Sept. 21-30	14,020	78	45	7.9	6.3	33	9.7	.06	4.4	1.7	7.0		24	5.8	4.8	.1	.7	56	18
Oct. 1-10		68	29	6.8	4.6	20	11	.03	4.2	1.6	5.1		19	5.6	3.9	.1	1.1	49	17
Oct. 11-20		57	21	6.0	5.0	27	12	.09	4.3	1.7	6.5		24	4.8	4.6	.1	.7	54	18
Oct. 21-31		63	5	5.2	4.8	20	12	.04	4.8	1.9	8.7		28	6.0	5.9	.2	.8	60	20
Average		62	29	6.2	5.0	28	11	.07	5.0	2.0	9.0		30	5.8	6.0	.1	.7	63	21

Chemical analyses, in equivalents per million, year November 1944 to October 1945

Nov. 1-10, 1944	909	56							0.230	0.164	0.339	0.041	0.475	0.108	0.158	0.005	0.003		
Nov. 11-20	899	54							.275	.197	.596		.705	.146	.209	.005	.003		
Nov. 21-30	4,300	48							.255	.197	.652		.705	.144	.240	.010	.005		
Dec. 1-10	4,770	39							.190	.140	.301		.361	.129	.130	.005	.006		
Dec. 11-20	3,469	36							.215	.156	.290		.344	.146	.155	.005	.011		
Dec. 21-31	1,660	39							.230	.156	.344	.036	.443	.125	.172	.005	.013		
Jan. 1-10, 1945	5,547	40							.230	.173	.291	.031	.361	.139	.164	.005	.015		
Jan. 11-20	3,292	44							.220	.148	.296		.361	.133	.152	.005	.013		
Jan. 21-31	2,022	41							.245	.164	.337		.410	.135	.183	.005	.013		
Feb. 1-10	1,531	37							.260	.173	.441		.541	.117	.200	.005	.011		
Feb. 11-19	11,480	45							.235	.140	.276		.344	.135	.144	.005	.023		
Feb. 20-28	12,450	46							.205	.123	.159		.229	.146	.099	.005	.008		
March 1-10	7,264	51							.190	.140	.207		.295	.119	.110	.005	.008		
March 11-20	2,389	53							.220	.156	.315		.410	.123	.147	.005	.006		
March 21-31	2,062	62							.289	.164	.421		.574	.115	.172	.005	.008		
April 1-10	1,231	66							.299	.189	.426	.038	.639	.129	.186	.005	.006		
April 11-20	1,825	68							.299	.189	.429		.623	.098	.180	.005	.011		
April 21-30	3,313	64							.235	.156	.354		.459	.100	.158	.005	.023		
May 1-10	1,259	62							.280	.189	.358		.525	.110	.164	.005	.023		
May 11-20	1,956	65							.284	.189	.505		.672	.110	.180	.005	.011		
May 21-31	1,405	71							.269	.181	.354		.508	.117	.152	.011	.016		
June 1-10	613	74							.344	.205	.595		.754	.133	.220	.011	.027		
June 11-20	390	81							.279	.197	.531		.672	.127	.186	.011	.011		
June 21-30	341	81							.319	.206	.696	.051	.852	.137	.271	.016	.013		
July 1-10	577	80							.314	.206	.652	.051	.819	.125	.231	.016	.018		
July 11-20	5,427	80							.259	.156	.426	.051	.574	.104	.183	.011	.002		
July 21-31	3,241	80							.190	.115	.206		.311	.100	.090	.005	.005		
Aug. 1-10	1,115	82							.245	.132	.280		.410	.096	.138	.005	.008		
Aug. 11-20	1,000	79							.279	.189	.572		.639	.121	.251	.016	.013		
Aug. 21-31	3,439	76							.180	.123	.208		.295	.087	.113	.005	.011		
Sept. 1-10	745	78							.230	.164	.400		.475	.110	.183	.016	.010		
Sept. 11-20	58,820	77							.220	.140	.305		.393	.121	.135	.005	.011		
Sept. 21-30	14,020	78							.210	.132	.220		.311	.117	.111	.005	.018		
Oct. 1-10		68							.215	.140	.284		.393	.100	.130	.005	.011		
Oct. 11-20		57							.240	.156	.378		.450	.125	.166	.011	.013		
Oct. 21-31		63							.259	.173	.392		.524	.106	.181	.005	.008		
Average		62							.250	.164	.391		.492	.121	.169	.005	.011		

CHEMICAL ANALYSES

DAN RIVER AT LEAKSVILLE, N. C.

LOCATION.—At the water-supply intake of the Marshall Field and Company Karastan Rug Mill just downstream from bridge on State Highway 87 at Leaksville, Rockingham County, and 0.4 mile upstream from gaging station.

DRAINAGE AREA.—1,150 square miles.

RECORDS AVAILABLE.—Chemical analyses: November 1944 to October 1945—Water temperatures: Nov. 1944 to Oct. 1945.

EXTREMES, 1944-45.—Dissolved solids: Maximum, 47 parts per million Sept. 1-10; minimum, 35 parts per million Sept. 11-20. Total hardness: Maximum, 17 parts per million Nov. 1-10, 11-20, July 1-10, Aug. 21-31, Sept. 1-10; minimum, 12 parts per million Jan. 1-10, July 21-31, Sept. 11-20.

Water temperatures: Maximum, 87°F. July 1; minimum, 32°F. Dec. 4, 15, 16, 18, Feb. 1, 2, 3, 4.

Chemical analyses, in parts per million, year November 1944 to October 1945

Date	Mean discharge (second-feet)	Temperature (° F.)	Suspended matter	Oxygen consumed		Color	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Dissolved solids	Total hardness as CaCO ₃	
				Unfiltered	Filtered															
Nov. 1-10, 1944	695	50	18	2.5	1.8	7	15	0.06	3.8	1.8	4.1	1.5	28	2.2	1.8	0.1	0.1	45	17	
Nov. 11-20	670	48	11	2.1	1.7	11	15	.11	4.1	1.7	4.5	2.6	2.6	1.9	.1	.1	.4	44	17	
Nov. 21-30	1,193	41	91	3.3	1.8	3	13	.03	4.6	1.0	4.6	23	3.3	1.9	.1	.3	.4	40	16	
Dec. 1-10	1,157	36	36	2.6	1.7	7	13	.05	3.5	1.6	4.5	22	3.7	1.9	.1	.3	.4	41	15	
Dec. 11-20	1,485	34	64	3.2	1.7	2	13	.04	3.4	1.5	4.5	21	3.9	1.8	.1	.4	.4	40	15	
Dec. 21-31	881	37	17	1.7	1.3	1	14	.03	3.6	1.6	4.6	24	2.9	1.8	.1	.2	.4	41	16	
Jan. 1-10, 1945	2,591	38	192	5.4	2.6	9	11	.02	3.0	1.2	4.0	1.5	17	4.5	2.1	.1	.6	39	12	
Jan. 11-20	1,355	38	26	2.4	2.0	7	12	.02	3.2	1.4	3.2	1.2	19	3.2	2.0	.0	.3	39	14	
Jan. 21-31	1,005	39	12	1.6	1.2	3	14	.05	3.8	1.2	4.4	22	2.7	1.8	.1	.4	.4	41	14	
Feb. 1-10	871	34	14	1.4	1.2	2	15	.06	4.1	1.1	4.9	24	2.3	1.9	.1	.4	.4	41	15	
Feb. 11-19	2,340	45	176	6.3	2.4	7	12	.04	3.2	1.2	4.2	18	4.0	1.8	.1	.4	.4	39	13	
Feb. 20-28	2,370	45	94	3.4	1.4	5	11	.03	3.1	1.4	3.0	16	4.0	1.5	.1	.5	.4	37	14	
March 1-10	1,538	49	46	2.5	1.4	4	13	.03	3.4	1.5	3.3	19	3.4	1.6	.1	.4	.4	40	15	
March 11-20	1,095	54	56	2.4	1.2	5	14	.04	3.5	1.5	3.6	21	2.8	1.6	.1	.2	.4	40	15	
March 21-31	1,126	60	111	4.3	2.0	4	13	.01	3.5	1.7	3.9	23	2.6	1.6	.1	.2	.4	41	16	
April 1-10	948	60	27	2.4	1.6	10	15	.08	3.8	1.6	3.4	1.3	23	2.8	1.8	.1	.3	.4	41	16
April 11-20	1,226	64	167	6.3	2.2	9	12	.03	3.6	1.3	4.8	22	4.0	1.6	.1	.2	.4	41	14	
April 21-30	1,395	60	140	4.6	1.8	7	13	.03	3.6	1.5	3.4	21	2.6	1.5	.1	.5	.4	40	15	
May 1-10	960	57	29	2.2	1.6	16	14	.15	4.0	1.5	4.3	24	2.6	1.9	.1	.4	.4	45	16	
May 11-20	1,009	65	204	5.6	1.7	2	13	.01	3.8	1.4	4.6	24	2.5	1.6	.1	.5	.4	41	15	
May 21-31	1,295	68	350	8.0	2.1	14	12	.04	3.2	1.3	4.5	20	3.3	1.6	.1	.9	.4	41	13	
June 1-10	792	67	51	2.8	1.6	12	14	.04	3.6	1.6	4.9	25	2.5	1.8	.1	.5	.4	46	16	
June 11-20	748	75	68	3.1	1.8	8	14	.01	3.7	1.6	4.6	25	2.4	1.6	.1	.4	.4	44	16	
June 21-30	613	76	84	3.7	2.0	2	14	.02	3.7	1.6	5.0	25	2.6	2.0	.1	.6	.4	44	16	
July 1-10	589	80	264	6.3	1.9	15	14	.02	4.3	1.5	3.0	1.3	24	2.8	1.6	.1	.8	.4	44	17
July 11-20	726	74	322	4.5	2.3	9	14	.07	3.4	1.4	5.5	25	2.3	1.9	.2	.1	.4	43	14	
July 21-31	1,548	77	949	18	15	16	11	.04	2.9	1.1	4.0	17	3.1	1.5	.2	.6	.4	42	12	
Aug. 1-10	826	76	142	5.8	2.6	6	13	.03	3.4	1.3	4.1	21	2.8	1.5	.1	.4	.4	42	14	
Aug. 11-20	575	74	124	4.6	2.1	7	14	.01	3.8	1.6	4.1	24	2.6	1.6	.1	.3	.4	43	16	
Aug. 21-31	535	73	145	4.8	2.2	7	14	.03	3.9	1.7	4.2	25	2.7	1.5	.1	.2	.4	43	17	

CHEMICAL CHARACTER OF SURFACE WATERS OF NORTH CAROLINA

Sept. 1-10	528	74	57	3.4	3.0	9	15	.02	4.0	1.7	5.0	28	2.3	1.5	.1	.2	.4	47	17
Sept. 11-20	10,310	68	728	12	3.0	7	9.4	.02	2.9	1.2	3.3	15	4.1	1.2	.2	.7	.4	35	12
Sept. 21-30	1,315	71	109	4.6	1.8	5	13	.02	3.4	1.5	4.2	21	3.3	1.6	.2	.5	.4	41	15
Oct. 1-10	920	61	46	2.8	2.0	5	14	.01	3.6	1.5	4.4	23	2.8	1.6	.2	.2	.4	40	15
Oct. 11-20	733	53	22	2.2	1.8	4	15	.06	3.6	1.6	4.7	25	2.3	1.6	.2	.1	.4	41	16
Oct. 21-31	921	56	122	5.0	2.1	10	14	.02	3.6	1.5	5.0	25	2.6	1.6	.2	.1	.4	41	15
Average	1,347	58	142	4.4	2.3	7	13	.04	3.6	1.5	4.3	22	3.0	1.7	.1	.4	.4	41	15

Chemical analyses, in equivalents per million, year November 1944 to October 1945

Nov. 1-10, 1944	695	50						0.190	0.148	0.178	0.038	0.459	0.046	0.051	0.005	0.002			
Nov. 11-20	670	48						.205	.140	.196	.426	.054	.054	.005	.002				
Nov. 21-30	1,193	41						.230	.082	.198	.377	.089	.054	.005	.005				
Dec. 1-10	1,157	36						.175	.132	.195	.361	.077	.054	.005	.005				
Dec. 11-20	1,485	34						.170	.123	.194	.344	.081	.051	.005	.006				
Dec. 21-31	881	37						.180	.132	.200	.393	.060	.051	.005	.003				
Jan. 1-10, 1945	2,591	38						.150	.099	.174	.038	.279	.094	.059	.005	.010			
Jan. 11-20	1,355	38						.160	.115	.139	.031	.311	.067	.056	.000	.005			
Jan. 21-31	1,005	39						.190	.099	.190		.361	.056	.051	.005	.006			
Feb. 1-10	871	34						.205	.090	.211		.393	.048	.054	.005	.006			
Feb. 11-19	2,340	45						.160	.099	.181		.295	.083	.051	.005	.006			
Feb. 20-28	2,370	45						.155	.115	.130		.262	.083	.042	.005	.008			
March 1-10	1,538	49						.170	.123	.145		.311	.071	.045	.005	.006			
March 11-20	1,095	54						.175	.123	.157		.344	.058	.045	.005	.003			
March 21-31	1,126	60						.175	.140	.169		.377	.054	.045	.005	.003			
April 1-10	948	60						.190	.132	.148	.033	.377	.058	.051	.005	.005			
April 11-20	1,226	64						.180	.107	.210		.361	.083	.045	.005	.003			
April 21-30	1,395	60						.180	.123	.150		.344	.054	.042	.005	.008			
May 1-10	960	57						.200	.123	.189		.393	.054	.054	.005	.006			
May 11-20	1,009	65						.190	.115	.198		.393	.052	.045	.005	.008			
May 21-31	1,295	68						.160	.107	.195		.328	.069	.045	.005	.015			
June 1-10	792	67						.180	.132	.214		.410	.052	.051	.005	.008			
June 11-20	748	75						.185	.132	.199		.410	.050	.045	.005	.006			
June 21-30	613	76						.185	.132	.218		.410	.054	.056	.005	.010			
July 1-10	589	80						.215	.123	.130	.033	.393	.058	.045	.005	.013			
July 11-20	726	74						.170	.115	.240		.410	.048	.054	.011	.002			
July 21-31	1,548	77						.145	.090	.172		.279	.065	.042	.011	.002			
Aug. 1-10	826	76						.170	.107	.178		.344	.058	.042	.005	.006			
Aug. 11-20	575	74						.190	.132	.180		.393	.054	.045	.005	.005			
Aug. 21-31	535	73						.195	.140	.181		.410	.056	.042	.005	.003			
Sept. 1-10	528	74						.200	.140	.217		.459	.048	.042	.005	.003			
Sept. 11-20	10,310	68						.145	.099	.143		.246	.085	.034	.011	.011			
Sept. 21-30	1,316	71						.170	.123	.184		.344	.069	.045	.011	.008			
Oct. 1-10	920	61						.180	.123	.191		.377	.058	.045	.011	.008			
Oct. 11-20	733	53						.180	.132	.204		.410	.048	.045	.011	.002			
Oct. 21-31	921	56						.180	.123	.219		.410	.054	.045	.011	.002			
Average	1,347	58						.180	.123	.187		.361	.062	.048	.005	.006			

CHEMICAL ANALYSES

ROANOKE RIVER NEAR SCOTLAND NECK, N. C.

LOCATION.—At gaging station at bridge on U. S. Highway 258, 3 miles downstream from Bridgers Creek, and 5 1/4 miles north-east of Scotland Neck, Halifax County.

DRAINAGE AREA.—8,700 square miles.

RECORDS AVAILABLE.—Chemical analyses: October 1944 to September 1945—Water temperatures: Oct. 1944 to Sept. 1945.

EXTREMES, 1944-45.—Dissolved solids: Maximum, 173 parts per million April 1-10; minimum, 47 parts per million October 1-10.

Total hardness: Maximum, 57 parts per million April 1-10, minimum, 18 parts per million October 1-10.

Water temperatures: Maximum, 85°F. July 3, 4, 6, 7, 8; minimum, 35°F. January 31.

Chemical analyses, in parts per million, water year October 1944 to September 1945

Table with 19 columns: Date, Mean discharge (second-feet), Temperature (° F.), Suspended matter, Oxygen consumed (Unfiltered, Filtered), Color, Silica (SiO2), Iron (Fe), Calcium (Ca), Magnesium (Mg), Sodium (Na), Potassium (K), Bicarbonate (HCO3), Sulfate (SO4), Chloride (Cl), Fluoride (F), Nitrate (NO3), Dissolved solids, Total hardness as CaCO3. Rows include data for Oct 1-10 1944, Dec 1-10, Jan 1-10 1945, Feb 1-10, March 1-10, April 1-10, May 1-10, June 1-10, July 1-10, Aug 1-10, and an Average row.

Table with 19 columns: Same as above table. Rows include data for Aug 1-10, Aug 11-20, Aug 21-31, Sept 1-10, Sept 11-20, Sept 21-30, and an Average row.

Chemical analyses, in equivalents per million, water year October 1944 to September 1945

Table with 19 columns: Same as above table. Rows include data for Oct 1-10 1944, Dec 1-10, Jan 1-10 1945, Feb 1-10, March 1-10, April 1-10, May 1-10, June 1-10, July 1-10, Aug 1-10, Aug 11-20, Aug 21-31, Sept 1-10, Sept 11-20, Sept 21-30, and an Average row.

1 Includes sulfur compounds from industrial wastes.

2 Includes ammonium and sulfur compounds from industrial wastes.

MISCELLANEOUS STREAMS IN NORTH CAROLINA

Chemical analyses in parts per million

Source	Date	Mean Discharge (second-feet)	Suspended matter	Color	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium and potassium (Na+K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Dissolved solids	Total hardness as CaCO ₃
Aberdeen Creek at Aberdeen	May 25, 1945		4	16	1.8	0.02	0.7	0.3	2.1	4.0	1.1	2.1	0.0	0.2	13	3
Bear Creek at Robbins	Oct. 30, 1944	46	2	39	8.2	.04	2.2	.9	4.7	16	1.7	3.2	.0	.1	36	9
Beetree Creek near Swannanoa	April 14, 1945	9.1	1	4	7.9	.01	1.3	.6	2.1	7.0	3.1	.9	.0	.1	20	6
Big Laurel Creek near Stackhouse	May 9, 1945	235	30	8	9.3	.03	2.7	1.0	3.0	16	2.5	.6	.1	.6	28	11
Big Rockfish Creek near Hope Mills	Nov. 9, 1944	193	6	26	4.4	.04	.4	.4	3.4	6.0	1.3	2.5	.0	.3	19	3
Black Mountain Reservoir at Black Mountain	March 2, 1945		2	7	7.9	.02	1.8	.6	2.7	12	2.0	.6	.0	.1	23	7
Boylston Creek near Horseshoe	March 8, 1945	31	20	4	6.5	.03	2.4	1.0	2.0	13	1.9	.9	.1	.4	22	10
Broad River near Chimney Rock	Nov. 11, 1944	84	2	5	11	.01	2.2	.9	3.3	16	1.3	1.0	.1	.4	30	9
Broad River near Boiling Springs	Nov. 10, 1944	805	58	5	13	.07	2.2	1.1	4.5	19	1.7	1.5	.1	.2	35	10
Brown Creek near Polkton	Oct. 31, 1944	4.4	18	37	9.2	.02	3.7	2.1	4.5	17	0.3	4.9	.0	.3	53	18
Cane Creek at Fletcher	Aug. 9, 1945	34	35	9	13	.09	4.0	1.4	3.8	24	2.1	1.2	.1	.3	38	16
Cane River near Sioux	Sept. 27, 1945	162	6	4	10	.02	2.6	1.1	3.3	17	2.3	.9	.0	.8	29	11
Cape Fear River at Lillington ²	1944-45		29	28	11	.07	5.0	2.0	9.0	30	5.8	6.0	.1	.7	63	21
Cape Fear River at Lock 3, near Tarheel	Nov. 4, 1944	1,700	5	35	10	.32	2.8	1.4	5.1	14	4.7	4.9	.0	.8	46	13
Cataloochee Creek near Cataloochee	April 2, 1945	159	17	20	6.0	.01	1.2	.4	1.5	7.0	1.2	.5	.0	.2	19	5
Catawba River near Marion	Nov. 13, 1944	145	2	7	12	.03	2.4	1.0	3.7	17	1.9	1.2	.1	.2	31	10
Catawba River at Rhodhiss	Sept. 14, 1945		11	9.0	.01	3.3	1.2	4.4	20	2.6	2.6	.0	.1	.1	35	13
Catheys Creek near Brevard	March 8, 1945	33	1	5	5.7	.02	.6	.4	2.2	7.0	1.1	.5	.1	.1	14	3
Clear Creek near Hendersonville	Sept. 26, 1945	59	28	3	13	.02	2.0	.7	3.1	13	1.7	1.4	.0	.4	32	8
Contentnea Creek near Wilson	Nov. 17, 1944	35	9	57	12	.17	2.7	1.2	6.6	20	2.9	4.0	.0	.1	53	12
Contentnea Creek at Hookerton	Oct. 26, 1944	501	26	56	8.0	.08	2.4	1.0	5.6	12	5.7	4.5	.0	.2	48	10
Crab Creek near Penrose	March 9, 1945	26	7	10	8.4	.04	.8	.4	2.9	9.0	1.0	.9	.1	.1	20	4
Crystal Lake at Lakeview	April 5, 1945		7	28	1.6	.01	1.0	.1	6.1	11	2.1	3.4	.0	.2	23	3
Dan River near Wentworth	Oct. 23, 1944	1,340	129	7	12	.04	3.2	1.2	5.6	22	3.8	2.1	.0	.2	40	13
Dan River at Leaksville ³	1944-45	1,347	142	7	13	.04	3.6	1.5	4.3	22	3.0	1.7	.1	.4	41	15
Davidson River near Brevard	March 9, 1945	113	0	7	5.9	.02	.9	.4	2.0	7.0	1.4	.5	.1	.1	15	4
Deep River at Rameur	Nov. 2, 1944	106	10	44	16	.05	6.0	2.6	7.6	31	6.9	5.8	.0	1.8	74	26
Denson Creek near Troy	Jan. 3, 1945		100	14	.12	2.4	.9	3.5	11	4.1	2.8	.0	.2	.2	45	10
Drowning Creek near Hoffman	Oct. 30, 1944	204	4	34	5.0	.04	2.0	.3	2.5	7.0	1.2	2.8	.0	1.0	26	6
Elk Creek near Elk Park	Sept. 26, 1945	67	4	8	9.2	.04	2.7	.9	2.9	15	2.0	1.0	.1	1.0	28	10
First Broad River near Lawndale	Nov. 10, 1944	154	5	3	12	.01	2.4	1.2	5.1	30	3.4	3.6	.1	.3	46	11
French Broad River at Rosman	March 8, 1945	202	6	8	5.9	.04	.7	.3	2.3	7.0	1.1	.5	.1	.1	17	4
French Broad River at Calvert	March 8, 1945	302	7	9	6.8	.05	1.0	.3	2.6	8.0	1.2	.8	.1	.1	17	3
French Broad River at Blantyre	March 9, 1945	848	17	38	7.1	.06	2.6	.5	7.6	21	3.6	2.9	.0	.1	40	9
French Broad River at Bent Creek	Aug. 9, 1945	1,000	34	25	9.7	.01	3.4	.9	8.0	24	3.7	4.2	.0	.4	45	12

Chemical analyses in equivalents per million

Source	Date	Mean Discharge (second-feet)	Suspended matter	Color	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium and potassium (Na+K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Dissolved solids	Total hardness as CaCO ₃
Aberdeen Creek at Aberdeen	May 25, 1945					0.035	0.025	0.091	0.066	0.023	0.050	0.000	0.003			
Bear Creek at Robbins	Oct. 30, 1944	46				.110	.074	.205	.262	.035	.090	.000	.002			
Beetree Creek near Swannanoa	April 14, 1945	9.1				.065	.049	.093	.115	.065	.025	.000	.002			
Big Laurel Creek near Stackhouse	May 9, 1945	235				.135	.082	.129	.262	.052	.017	.005	.010			
Big Rockfish Creek near Hope Mills	Nov. 9, 1944	193				.020	.033	.148	.098	.027	.071	.000	.005			
Black Mountain Reservoir at Black Mountain	March 2, 1945					.090	.049	.119	.197	.042	.017	.000	.002			
Boylston Creek near Horseshoe	March 8, 1945	31				.120	.082	.087	.213	.040	.025	.005	.006			
Broad River near Chimney Rock	Nov. 11, 1944	84				.110	.074	.144	.262	.027	.028	.005	.006			
Broad River near Boiling Springs	Nov. 10, 1944	805				.110	.090	.196	.311	.035	.042	.005	.003			
Brown Creek near Polkton	Oct. 31, 1944	4.4				.185	.173	.195	.279	.131	.138	.000	.005			
Cane Creek at Fletcher	Aug. 9, 1945	34				.200	.115	.166	.393	.044	.034	.005	.005			
Cane River near Sioux	Sept. 27, 1945	162				.130	.090	.145	.279	.048	.025	.000	.013			
Cape Fear River at Lillington ²	1944-45					.250	.164	.391	.492	.121	.169	.005	.011			
Cape Fear River at Lock 3, near Tarheel	Nov. 4, 1944	1,700				.140	.115	.223	.229	.098	.138	.000	.013			
Cataloochee Creek near Cataloochee	April 2, 1945	159				.060	.033	.064	.115	.025	.014	.000	.003			
Catawba River near Marion	Nov. 13, 1944	145				.120	.082	.159	.279	.040	.034	.005	.003			
Catawba River at Rhodhiss	Sept. 14, 1945					.165	.099	.193	.328	.054	.073	.000	.002			
Catheys Creek near Brevard	March 8, 1945	33				.030	.033	.096	.115	.023	.014	.005	.002			
Clear Creek near Hendersonville	Sept. 26, 1945	59				.100	.058	.135	.213	.035	.039	.000	.006			
Contentnea Creek near Wilson	Nov. 17, 1944	35				.135	.090	.286	.328	.060	.130	.000	.002			
Contentnea Creek at Hookerton	Oct. 26, 1944	501				.120	.082	.244	.197	.119	.127	.000	.003			
Crab Creek near Penrose	March 9, 1945	26				.040	.033	.128	.148	.021	.025	.005	.002			
Crystal Lake at Lakeview	April 5, 1945					.050	.008	.265	.180	.044	.096	.000	.003			
Dan River near Wentworth	Oct. 23, 1944	1,340				.160	.099	.243	.361	.079	.050	.000	.003			
Dan River at Leaksville ³	1944-45	1,347				.180	.123	.187	.361	.062	.048	.005	.006			
Davidson River near Brevard	March 9, 1945	113				.045	.033	.087	.115	.029	.014	.005	.002			
Deep River at Rameur	Nov. 2, 1944	106				.299	.214	.332	.508	.144	.164	.000	.029			
Denson Creek near Troy	Jan. 3, 1945					.120	.074	.153	.180	.085	.079	.000	.003			
Drowning Creek near Hoffman	Oct. 30, 1944	204				.100	.025	.110	.115	.025	.079	.000	.016			
Elk Creek near Elk Park	Sept. 26, 1945	67				.135	.074	.128	.246	.042	.028	.005	.016			
First Broad River near Lawndale	Nov. 10, 1944	154				.120	.099	.457	.402	.071	.102	.005	.005			
French Broad River at Rosman	March 8, 1945	202				.035	.025	.099	.115	.023	.014	.005	.002			
French Broad River at Calvert	March 8, 1945	302				.050	.025	.111	.131	.025	.023	.005	.002			
French Broad River at Blantyre	March 9, 1945	848				.130	.041	.332	.344	.075	.082	.000	.002			
French Broad River at Bent Creek	Aug. 9, 1945	1,000				.170	.074	.350	.303	.077	.118	.000	.006			

¹ Measured discharge.

² Average of analyses of composites of daily samples (see pp. 4-5).

³ Average of analyses of composites of daily samples (see pp. 6-7).

⁴ Large proportion of organic matter; sum of material constituents 33 parts.

⁵ Includes equivalent of 1.2 parts of potassium (K).

MISCELLANEOUS STREAMS IN NORTH CAROLINA—Continued

Chemical analyses in parts per million

Source	Date	Mean Discharge (second-foot)	Suspended matter	Color	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium and potassium (Na+K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Dissolved solids	Total hardness as CaCO ₃
French Broad River at Asheville	Aug. 9, 1945	1,190	46	28	9.3	0.06	4.4	1.3	19	34	17	7.9	0.0	1.8	81	16
French Broad River at Marshall	May 7, 1945	2,230	28	10	11	.07	4.6	1.8	8.6	12	23	2.0	.1	.9	60	19
French Broad River at Hot Springs	May 8, 1945	2,400	28	19	9.3	0.6	2.6	1.4	9.1	13	16	2.8	.0	1.1	50	12
Green River near Mill Spring	Nov. 11, 1944	297	69	6	10	.01	1.9	1.0	3.6	16	1.3	1.2	.1	.3	28	9
Haw River near Pittsboro	Oct. 19, 1944	286	6	17	16	.02	5.8	2.4	21	54	9.5	11	.3	.3	95	24
Hominy Creek at Candler	Aug. 9, 1945	38	45	6	13	.03	3.8	1.4	4.9	24	3.2	1.5	.1	.0	40	15
Ivy River near Marshall	May 9, 1945	141	17	6	13	.07	3.6	1.7	3.4	22	3.0	1.0	.1	.7	39	16
Jonathan Creek near Cove Creek	April 2, 1945	236	95	20	7.4	.07	1.6	.5	1.5	8.0	1.5	.4	.0	.9	24	6
Linville River at Branch	Nov. 13, 1944	48	2	7	7.0	.01	1.8	.7	2.6	12	1.1	1.2	.1	.2	21	7
Little River (French Broad River Basin) near Penrose	March 9, 1945	130	3	9	6.4	.04	.7	.3	2.3	7.0	1.1	.6	.1	.1	16	3
Little River (Pee Dee River Basin) near Troy	Jan. 3, 1945			75	14	.19	3.7	1.2	3.7	16	4.9	2.8	.0	.2	58	14
Little Rockfish Creek near Hope Mills	Nov. 9, 1944	1148	13	28	4.6	.19	.6	.5	3.8	7.0	1.7	2.9	.0	.3	22	4
Lovel Creek at Mount Airy	July 4, 1945		10	3	11	.02	3.2	.9	3.3	19	1.3	1.1	.1	.3	31	5
Lower Little River at Linden	Nov. 10, 1944	346	2	34	5.5	.01	1.0	.6	4.1	7.0	2.1	2.9	.0	.2	28	12
Lumber River at Boardman	Nov. 3, 1944	827	2	83	7.4	.06	.9	.7	5.0	11	2.3	3.2		.2	38	5
Mackeys Creek (at highway bridge) at Mackeys	Dec. 12, 1944		10	220	10	.64	14	4.4	9.5	41	14	18		.2	168	53
Mackeys Creek (at railway bridge) at Mackeys	Dec. 12, 1944		6	220		1.4	14	4.3	12	39	12	24		.1		53
Mills River near Mills Rivers	March 8, 1945	145	3	8	5.2	.03	.8	.4	2.1	7.0	1.4	.5	.1	.1	14	4
Mud Creek at Naples	Aug. 9, 1945	120	54	6	12	.02	2.6	.0	4.5	17	2.2	1.8	.1	1.2	36	10
Neuse River near Northside	Oct. 23, 1944	731	43	34	8.6	.05	4.2	1.5	4.5	19	5.1	3.5	.0	.8	49	17
Nolichucky River at Poplar	Sept. 27, 1945	764	56	6	9.3	.02	2.8	1.1	2.3	15	2.4	1.0	.0	.4	29	12
North Buffalo Creek near Greensboro ⁷	Oct. 23, 1944	32	53	33	14	.02	14	2.0	165	307	46	73	.0	.2	466	43
North Fork New River at Crumpler	May 12, 1945	495	6	7	9.2	.03	2.8	1.0	3.0	17	1.9	.5	.1	.8	29	11
North Fork Swannanoa near Black Mt. Mountain	April 14, 1945	31	1	2	7.0	.01	1.4	.5	1.7	8.0	1.6	.6	.0	.2	18	6
North Toe River at Altapass	May 14, 1945	238	21	12	7.9	.07	2.2	1.0	2.3	14	1.5	.6	.0	.8	24	10
Oconalufy River at Cherokee	Aug. 17, 1945	218	186	27	4.5	.01	1.2	.5	1.6	6.0	2.4	.4	.0	.7	20	5
Oconalufy River at Birdtown	Aug. 7, 1945	987	106	17	4.5	.02	1.6	.5	1.2	6.0	2.3	.4	.0	.9	20	6
Pee Dee River near Rockingham	Oct. 30, 1944	4,950	64	18	8.9	.06	3.8	1.4	5.0	19	4.0	3.0	.1	2.4	44	15
Pigeon River at Canton	April 14, 1945	250	7	6	2	.02	1.3	.6	2.2	9.0	1.6	.8	.0	.3	19	6
Pigeon River near Hepco	April 2, 1945	1,540	325	42	7.7	.02	10	1.0	11	38	7.6	9.0	.1	.4	76	29
Rays Mill Creek at Aberdeen	May 22, 1945	14.46	6	12	4.0	.04	1.6	.5	2.2	6.0	1.4	3.0	.0	.4	20	6
Reedy Fork near Gibsonville	Oct. 23, 1944	262	31	22	11	.10	3.6	1.6	4.6	22	3.8	2.2	.1	.2	46	16
Reems Creek near Weaverville	May 7, 1945	131.4	16	10	12	.08	2.4	1.0	3.3	15	2.8	1.2	.0	.4	34	10
Richland Creek at Waynesville	Apr. 2, 1945	232	478	12	7.7	.03	2.6	.8	2.9	13	2.5	.9	.1	1.7	27	10
Roanoke River near Scotland Neck ¹⁰	1944-45	10,640	104	20	13	.18	6.9	2.5	9.7	41	7.3	5.9	.1	2.2	76	28

Chemical analyses in equivalents per million

Source	Date	Mean Discharge (second-foot)	Suspended matter	Color	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium and potassium (Na+K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Dissolved solids	Total hardness as CaCO ₃
French Broad River at Asheville	Aug. 9, 1945	1,190					0.220	0.107	0.836	0.557	0.354	0.223	0.000	0.029		
French Broad River at Marshall	May 7, 1945	2,230					.230	.148	.374	.197	.479	.056	.005	.015		
French Broad River at Hot Springs	May 8, 1945	2,400					.130	.115	.398	.213	.333	.079	.000	.018		
Green River near Mill Spring	Nov. 11, 1944	297					.095	.082	.156	.262	.027	.034	.005	.005		
Haw River near Pittsboro	Oct. 19, 1944	286					.289	.197	.928	.885	.198	.310	.016	.005		
Hominy Creek at Candler	Aug. 9, 1945	38					.190	.115	.212	.393	.067	.042	.005	.010		
Ivy River near Marshall	May 9, 1945	141					.180	.140	.147	.361	.062	.028	.005	.011		
Jonathan Creek near Cove Creek	April 2, 1945	236					.080	.041	.067	.131	.031	.011	.000	.015		
Linville River at Branch	Nov. 13, 1944	48					.090	.058	.114	.197	.023	.034	.005	.003		
Little River (French Broad River Basin) near Penrose	March 9, 1945	130					.035	.025	.102	.115	.023	.017	.005	.002		
Little River (Pee Dee River Basin) near Troy	Jan. 3, 1945						.185	.099	.162	.262	.102	.079	.000	.003		
Little Rockfish Creek near Hope Mills	Nov. 9, 1944	1148					.030	.041	.166	.115	.035	.082	.000	.005		
Lovel Creek at Mount Airy	July 4, 1945						.160	.074	.145	.311	.027	.031	.005	.005		
Lower Little River at Linden	Nov. 10, 1944	346					.050	.049	.177	.115	.044	.082	.000	.035		
Lumber River at Boardman	Nov. 3, 1944	827					.045	.058	.218	.180	.048	.090		.003		
Mackeys Creek (at highway bridge) at Mackeys	Dec. 12, 1944						.699	.362	.413	.672	.291	.508		.003		
Mackeys Creek (at railway bridge) at Mackeys	Dec. 12, 1944															
Mills River near Mills Rivers	March 8, 1945	145					.699	.354	.515	.639	.250	.677		.002		
Mud Creek at Naples	Aug. 9, 1945	120					.040	.033	.092	.115	.029	.014	.005	.002		
Neuse River near Northside	Oct. 23, 1944	731					.130	.074	.196	.279	.046	.051	.005	.019		
Nolichucky River at Poplar	Sept. 27, 1945	764					.210	.123	.196	.311	.106	.099	.000	.013		
North Buffalo Creek near Greensboro ⁷	Oct. 23, 1944	32					.140	.090	.100	.246	.050	.028	.000	.006		
North Fork New River at Crumpler	May 12, 1945	495					.099	.164	7.187	5.031	.958	2.059	.000	.003		
North Fork Swannanoa near Black Mt. Mountain	April 14, 1945	31					.140	.082	.129	.279	.040	.014	.005	.013		
North Toe River at Altapass	May 14, 1945	238					.070	.041	.073	.131	.033	.017	.000	.003		
Oconalufy River at Cherokee	Aug. 17, 1945	218					.110	.082	.098	.229	.031	.017	.000	.013		
Oconalufy River at Birdtown	Aug. 7, 1945	987					.060	.041	.069	.098	.050	.011	.000	.011		
Pee Dee River near Rockingham	Oct. 30, 1944	4,950					.080	.041	.051	.098	.048	.011	.000	.015		
Pigeon River at Canton	April 14, 1945	250					.190	.115	.218	.311	.083	.085	.005	.039		
Pigeon River near Hepco	April 2, 1945	1,540					.065	.049	.095	.148	.033	.023	.000	.005		
Rays Mill Creek at Aberdeen	May 22, 1945	14.46					.499	.082	.465	.623	.158	.254	.005	.006		
Reedy Fork near Gibsonville	Oct. 23, 1944	262					.080	.041	.097	.098	.029	.085	.000	.008		
Reems Creek near Weaverville	May 7, 1945	131.4					.180	.132	.198	.361	.079	.062	.005	.003		
Richland Creek at Waynesville	Apr. 2, 1945	232					.120	.082	.142	.246	.058	.034	.000	.006		
Roanoke River near Scotland Neck ¹⁰	1944-45	10,640					.130	.066	.126	.213	.052	.125	.005	.027		

¹ Measured discharge.

⁶ Large proportion of organic matter; sum of mineral constituents 97 parts.

⁷ Water polluted with industrial wastes and sewage.

⁸ Includes equivalent of 10 parts of potassium (K).

⁹ Includes equivalent of 58 parts of carbonate (CO₃).

¹⁰ Average of analyses of composites of daily samples (see pp. 8-9).

MISCELLANEOUS STREAMS IN NORTH CAROLINA—Continued
Chemical analyses in parts per million

Source	Date	Mean Discharge (second-foot)	Suspended matter	Color	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium and potassium (Na+K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Dissolved solids	Total hardness as CaCO ₃
Rockfish Creek at Lakefield	May 22, 1945	1101	4	26	4.1	0.04	1.6	0.3	1.8	6.0	1.0	2.1	0.0	0.4	19	5
Rocky River near Norwood	Oct. 31, 1944	231	7	30	16	.29	7.8	3.9	22	61	10	16	.0	.2	110	36
Sandymush Creek near Alexander	May 7, 1945	50	17	8	16	.08	4.4	2.0	4.8	30	2.8	1.0	.1	.5	47	19
Scott Creek above Sylva	Aug. 6, 1945	116	887	2	9.6	.01	2.3	1.0	2.8	12	2.4	1.5	.1	1.6	28	10
Second Broad River at Cliffside	Nov. 11, 1944	202	8	6	15	.10	2.9	1.4	12	32	3.1	6.2	.1	.4	57	13
South Fork Catawba River at Lowell	Nov. 10, 1944	452	9	12	15	.14	3.6	1.9	6.2	26	2.5	3.9	.1	.8	48	17
South Fork Mills River at The Pink Beds	March 9, 1945	29	1	7	5.5	.03	.6	.3	2.0	6.0	1.2	.5	.1	.1	14	3
South Fork New River near Jefferson	May 3, 1945	482	14	11	8.0	.08	2.2	.8	2.2	13	1.4	.9	.0	.2	24	9
South Toe River at Newdale	May 14, 1945	184	7	13	5.3	.05	1.4	.6	1.9	9.0	1.7	.5	.0	.3	18	6
Spring Creek at Hot Springs	May 8, 1945	178.6	18	4	11	.03	2.8	.9	3.3	17	2.5	.5	.1	.5	31	11
Swannanoa River at Biltmore	April 14, 1945	130	8	6	8.5	.04	2.3	1.0	3.8	13	3.2	2.0	.0	1.6	32	10
Tar River at Tarboro ¹	1944-45	3,403	31	39	13	.13	4.2	1.6	5.6	22	4.1	4.0	.0	1.6	54	17
Tuckasegee River at Tuckasegee	Aug. 6, 1945	373	207	10	5.4	.02	1.2	.4	2.3	7.0	2.1	.6	.0	1.0	24	5
Tuckasegee River at Dillsboro	Aug. 6, 1945	728	525	7	7.0	.03	2.1	.7	2.4	10	2.8	.8	.0	1.5	27	8
Tuckasegee at Bryson City	Aug. 7, 1945	1,970	260	13	7.4	.04	2.0	.7	3.8	12	4.1	.8	.0	1.1	30	8
Uwharrie River near Eldorado	Oct. 31, 1944	91	6	41	16	.28	5.8	3.1	5.1	36	4.1	3.2	.0	.2	61	27
Waccamaw River at Freeland	Nov. 2, 1944	146	3	170	6.8	.05	2.8	1.0	6.2	14	1.6	8.0	.0	.1	180	11
Watauga River near Sugar Grove	Sept. 26, 1945	124	47	5	12	.03	4.8	1.8	3.8	25	3.3	1.5	.1	1.8	42	19
Yadkin River at Patterson	Nov. 13, 1944	18	155	3	10	.01	2.3	1.1	3.7	18	1.5	1.2	.1	.2	30	10

Chemical analyses in equivalents per million

Source	Date	Mean Discharge (second-foot)	Suspended matter	Color	Silica (SiO ₂)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium and potassium (Na+K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Dissolved solids	Total hardness as CaCO ₃
Rockfish Creek at Lakefield	May 22, 1945	1101	4	26	4.1	0.04	1.6	0.3	1.8	6.0	1.0	2.1	0.0	0.4	19	5
Rocky River near Norwood	Oct. 31, 1944	231	7	30	16	.29	7.8	3.9	22	61	10	16	.0	.2	110	36
Sandymush Creek near Alexander	May 7, 1945	50	17	8	16	.08	4.4	2.0	4.8	30	2.8	1.0	.1	.5	47	19
Scott Creek above Sylva	Aug. 6, 1945	116	887	2	9.6	.01	2.3	1.0	2.8	12	2.4	1.5	.1	1.6	28	10
Second Broad River at Cliffside	Nov. 11, 1944	202	8	6	15	.10	2.9	1.4	12	32	3.1	6.2	.1	.4	57	13
South Fork Catawba River at Lowell	Nov. 10, 1944	452	9	12	15	.14	3.6	1.9	6.2	26	2.5	3.9	.1	.8	48	17
South Fork Mills River at The Pink Beds	March 9, 1945	29	1	7	5.5	.03	.6	.3	2.0	6.0	1.2	.5	.1	.1	14	3
South Fork New River near Jefferson	May 3, 1945	482	14	11	8.0	.08	2.2	.8	2.2	13	1.4	.9	.0	.2	24	9
South Toe River at Newdale	May 14, 1945	184	7	13	5.3	.05	1.4	.6	1.9	9.0	1.7	.5	.0	.3	18	6
Spring Creek at Hot Springs	May 8, 1945	178.6	18	4	11	.03	2.8	.9	3.3	17	2.5	.5	.1	.5	31	11
Swannanoa River at Biltmore	April 14, 1945	130	8	6	8.5	.04	2.3	1.0	3.8	13	3.2	2.0	.0	1.6	32	10
Tar River at Tarboro ¹	1944-45	3,403	31	39	13	.13	4.2	1.6	5.6	22	4.1	4.0	.0	1.6	54	17
Tuckasegee River at Tuckasegee	Aug. 6, 1945	373	207	10	5.4	.02	1.2	.4	2.3	7.0	2.1	.6	.0	1.0	24	5
Tuckasegee River at Dillsboro	Aug. 6, 1945	728	525	7	7.0	.03	2.1	.7	2.4	10	2.8	.8	.0	1.5	27	8
Tuckasegee at Bryson City	Aug. 7, 1945	1,970	260	13	7.4	.04	2.0	.7	3.8	12	4.1	.8	.0	1.1	30	8
Uwharrie River near Eldorado	Oct. 31, 1944	91	6	41	16	.28	5.8	3.1	5.1	36	4.1	3.2	.0	.2	61	27
Waccamaw River at Freeland	Nov. 2, 1944	146	3	170	6.8	.05	2.8	1.0	6.2	14	1.6	8.0	.0	.1	180	11
Watauga River near Sugar Grove	Sept. 26, 1945	124	47	5	12	.03	4.8	1.8	3.8	25	3.3	1.5	.1	1.8	42	19
Yadkin River at Patterson	Nov. 13, 1944	18	155	3	10	.01	2.3	1.1	3.7	18	1.5	1.2	.1	.2	30	10

¹ Measured discharge.
² Large proportion of organic matter; sum of mineral constituents 33 parts.
³ Average of analyses of composites of daily samples (see pp. 10-11).

TEMPERATURE (°F.) OF WATER OF CAPE FEAR RIVER AT LILLINGTON, N. C. 1944-45

Day	November	December	January	February	March	April	May	June	July	August	September	October
1	53	45		37	48	65	61	76	84	82	81	74
2	54	43		37	49	68	62	78		84	76	70
3	57	41	42	37	50	69	61	74	77	85	76	68
4	57	40	40	37	51	69	63	75	78	84	74	70
5	56	37	39	37	49	70	61	76	80	84	76	71
6												
7	57	36	38	39	52	64	61	74	78	82	76	69
8												
9	58	37	39	36	55	61	63	70	77	80	77	68
10	57	38	41	39	51	65	64	68	83	81	82	68
11	53	37	41	39	50	65	62	70	82	80	81	63
12												
13	55	38	40	41	51	68	63	78	84	78	81	60
14	55	37	38	41	51	68	63	78	83	80	80	59
15	54	38	39	43	52	66	60	78	84	80	80	57
16	52	35	40	45	51	67	62	75	82	81	82	57
17	53	36	41	46	52	69	63	79	83	80	81	50
18												
19	56	35	41	48	55	71	65	82	84	83	76	49
20	49	34	40	46	57	68	66	84	75	82	74	51
21												
22	50	36	42	46	53	69	68	85	74	77	74	56
23	49	38	41	43	56	63	69	82	76	77	75	62
24	47	37	41	45	60	65	70	83	77	75	81	68
25	47	37	40	47	60	67	68	83	72	74	81	64
26	46	38	40	48	59	67	69	82	79	78	79	66
27												
28	46	38	40	48	60	66	70	77	80	77	79	64
29	46	38	40	48	60	66	70	77	80	77	79	62
30												
31	46	38	40	48	60	66	70	77	80	77	79	62
Average	53	38	40	42	55	66	66	79	80	79	78	63

TEMPERATURE (°F.) OF WATER OF DAN RIVER AT LEAKSVILLE, N. C., 1944-1945

Day	November	December	January	February	March	April	May	June	July	August	September	October
1	51	39	42	32	46	65	57	72	87	75	75	66
2	53	35	41	32	46	65	58	74	82	76	77	66
3	54	34	36	32	49	63	53	74	80	77	75	63
4	55	32	35	32	51	64	52	72	78	78	73	60
5	54	33	36	33	50	66	53	66	80	77	73	58
6	49	34	36	35	48	60	53	64	78	78	72	59
7	46	36	37	33	53	52	55	62	78	77	74	60
8	45	39	39	35	52	54	61	63	76	75	74	61
9	46	40	42	36	48	56	62	62	79	74	75	60
10	50	38	39	37	47	57	65	63	79	73	76	56
11	50	37	35	44	47	60	60	70	79	73	75	54
12	47	37	34	43	47	62	59	73	76	74	72	53
13	46	36	36	45	47	64	63	74	72	75	70	55
14	46	37	39	44	49	66	63	76	75	75	70	54
15	49	32	41	48	51	68	67	77	74	78	70	54
16	51	32	41	46	54	68	69	78	73	78	67	51
17	51	33	39	47	59	66	71	78	72	73	64	51
18	49	32	36	43	62	64	69	78	73	73	63	52
19	46	34	37	41	60	61	65	76	75	73	64	54
20	45	33	39	40	63	57	62	74	75	73	66	55
21	45	34	40	40	64	56	64	74	77	73	68	56
22	44	35	42	41	59	59	68	75	79	74	70	58
23	43	34	42	44	54	61	68	77	77	75	70	60
24	41	36	41	45	54	57	67	75	77	74	71	60
25	39	40	39	44	57	60	66	78	77	73	71	59
26	40	44	38	46	60	65	68	74	78	72	72	58
27	42	40	37	51	61	64	65	75	79	70	73	54
28	42	36	38	51	60	61	65	77	76	69	73	52
29	39	36	40	-----	62	57	69	79	75	71	73	52
30	39	35	38	-----	65	55	72	81	75	73	72	53
31	-----	36	35	-----	66	-----	71	-----	74	75	-----	54
Average	47	36	38	41	55	61	63	73	77	74	71	57

TEMPERATURE (°F.) OF WATER OF ROANOKE RIVER NEAR SCOTLAND NECK, N. C., 1944-1945

Day	October	November	December	January	February	March	April	May	June	July	August	September
1	68	-----	-----	39	37	40	55	63	75	84	79	80
2	66	63	-----	38	38	40	53	62	75	84	79	80
3	67	62	-----	39	38	41	55	60	75	85	80	81
4	66	58	-----	39	37	42	55	60	77	85	80	81
5	67	50	39	38	38	46	58	60	77	84	80	80
6	68	52	39	39	37	45	58	60	-----	85	80	82
7	69	54	40	38	37	46	58	62	-----	85	78	82
8	68	55	40	39	37	46	59	62	-----	85	79	82
9	69	54	41	40	38	45	60	63	-----	84	79	82
10	69	55	41	40	38	46	60	66	-----	83	80	82
11	65	53	41	39	37	40	60	60	80	78	80	80
12	64	-----	40	40	38	40	60	62	80	79	80	79
13	65	50	39	39	38	42	61	64	81	78	80	79
14	65	50	38	39	37	45	62	64	81	79	79	78
15	63	52	39	38	38	45	62	65	81	79	79	78
16	62	52	37	38	37	45	64	65	81	80	78	78
17	61	50	38	39	37	46	64	65	82	79	79	75
18	60	50	38	38	37	46	64	66	82	80	80	72
19	61	50	39	38	37	46	65	68	82	80	79	70
20	63	48	39	37	38	46	65	68	82	80	75	70
21	-----	45	36	38	39	-----	62	69	82	80	78	75
22	-----	44	38	38	40	-----	62	68	82	79	79	74
23	-----	-----	38	37	40	-----	61	69	81	79	79	74
24	-----	-----	39	38	40	-----	64	70	82	80	78	74
25	-----	-----	38	37	41	-----	64	70	82	80	78	74
26	-----	-----	38	38	40	-----	65	71	83	82	78	73
27	-----	-----	39	37	40	-----	65	73	83	81	77	73
28	-----	-----	38	37	40	-----	65	75	83	81	77	73
29	-----	-----	39	36	-----	-----	65	75	83	81	78	70
30	-----	-----	38	36	-----	-----	65	75	83	82	77	70
31	-----	-----	38	35	-----	-----	-----	75	83	82	78	-----
Average	65	53	39	38	38	44	61	66	81	81	79	77

TEMPERATURE (°F.) OF WATER OF TAR RIVER AT TARBORO, N. C., 1944-1945

Day	October	November	December	January	February	March	April	May	June	July	August	September
1	67	52		43	35							
2	65	54	44	39	34	49	66	60	69	82	76	75
3	65	56	41	38	34	47	67	59	70	84	76	75
4	66	57	39	39	34	49	67	57	71	80	77	74
5	66	56	37	39	35	50	68	58	71	78	75	74
6						49	69	59	70	79	75	74
7	66	53	37	38	36	49	63	58	66	80	75	74
8	66	50	37	40	35	52	59	59	66	80	75	74
9	68	49	40	41	37	52	60	62	66	81	75	75
10	66	49	40	41	38	51	60	61	67	79	75	75
11	66	54	39	40	38	47	61	64	68	80	74	74
12	64	53	40	39	42	48	62	62	73		73	74
13	63	52	40	38	44	48	63	61	75	76	74	75
14	64	50	38	39	46	49	65	62	75	75	74	74
15	63	49	37	40	47	48	67	65	78	77	75	74
16	61	51	36	40	47	50	69	68	79	77	76	75
17	62	53	35	41	47	53						
18	52	51	35	41	48	59	68	70	80	75	77	74
19	55	50	35	40	47	62	69	72	81	74	72	72
20	53	48	36	40	45	63	68	72	80	73	73	72
21	61	49	34	39	42	65	63	69	80	72	72	71
22							65	63	77	78	73	72
23	60	47	36	39	41	66	63	67	79	73	72	72
24	59		37	40	42	63	63	68	80	78	73	72
25	57		36	40	45	58	62	70	79	74	75	73
26	55		39	40	42	50	62	70	79	74	75	70
27	54		38	39	46	59	64	69	79	75	74	73
28										76	75	
29	55		45	39	42	60	65	70	75	77	75	73
30	55		41	34	48	62	61	67	77	76	73	73
31	52		41	39	50	61	62	67	77	76	72	73
32	51		40	40		65	63	65	78	76	72	73
33	50		40	38		63	63	65	80	77	74	74
34	51		39	38		67	60	66	80	78	74	73
Average	60	52	38	39	42	50	64	65	75	77	74	73