11-1961

Odor Report (1961)

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ANDROSCOGGIN RIVER

ODOR REPORT

LEWISTON-AUBURN AREA

1961

Lewiston, Maine
November, 1961

ANDROSCOGGIN RIVER STUDIES

NINETEENTH

ANNUAL REPORT

1961

by

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INDEX

REPORT SUMMARIES

Summary A.

1. Odor Conditions. River odor intensities during 1961 were either non-existent or so low that they were not objectionable. The concentration of hydrogen sulphide in the water at the Dams was not detectable by analytical methods. Occasionally a slight trace could be detected in the air over the tail-race at Gulf Island. For the second time for at least twenty-one years there was no "general" odor coverage.

2. Odor Observation. Recommendation is made that stations number seven and eight in Auburn be abandoned; river odor has not been recorded here since 1947.

3. Thermal Conditions. Air temperatures during July were lower than the long range average. June and August were somewhat above average. September was one of the hottest on record and Water Temperatures were three degrees higher than the long range average.

4. Precipitation and River Flows. The August precipitation was very small. During June, July and September the rainfall was about average. River flows may be considered as about average; the September 'low' balanced the July 'high'.

5. Surface Conditions. Foam, film and scum covered smaller areas south of Lewiston Falls, than in previous years.

6. Pollution Factors. The season's average pollution factor was 0.12; an all-time low. The minimum Decree factor is 1.75.

7. Control Period. Control was begun on June 19 and terminated October 1, 1961.

Summary B.

1. Biochemical Oxygen Demands south of Rumford were lower than in previous years.

2. The Dissolved Oxygen Content of the river water was lower than the previous two years at most of the sampling stations. At North Turner Bridge, the average D.O. was just sufficient to meet the five day B.O.D.

3. The estimated reaeration in the Pool was much lower than last year.

4. Hydrogen sulphide was not found in any concentration that could be determined analytically.

5. Methylene Blue Stabilities from North Turner Bridge to Lewiston were the highest on record.

6. No sodium nitrate was required or used.

7. The lagoon at Berlin was employed only on a few occasions. The lagoon at Jay was used continuously from June 19 to September 30.

Summary C.

SPECIAL STUDIES

1. Benthal Activity in the Pool

   a. The daily B.O.D.'s indicate that dissolved oxygen previously used for biochemical oxidation of sulphite waste liquor carbohydrates is now being used to oxidize benthal compounds.

   b. Ignoring all reaeration, the apparent Benthal contribution to the Pool which was 7.1 T/D in 1960 was 14.7 T/D in 1961.

   c. Include probable reaeration the Benthal may have contributed nearly thirty tons of B.O.D. per day.

   d. B.O.D. "pick-up" was very considerable in the area between the Turner Bridges.

2. Suspended Solids Entering and Leaving the Pool

   a. Only a relatively small amount of the suspended solids discharged to the upstream section of the river arrives in the Pool during the summer months.

   b. The ratio of volatile to non-volatile (40%;60%) remained substantially the same during passage through the Pool.

   c. About two-thirds of the suspended load temporarily was deposited in the area between the Turner Bridges.

   d. River flow and water temperatures are important factors in the rate of deposition of suspended solids.

3. Benthal "Spot" Survey

   a. Benthal depth measured at 91 locations and compared to the depths reported at the same locations in 1948 indicated a probable decrease in average depth.

   b. The indicated decrease was twenty-six percent or about two percent per year. There is some evidence of compacting and this introduces a degree of uncertainty.

   c. There is no change in the location of the areas of maximum depths of the Benthal.

FINAL REPORT on the ANDROSCOGGIN RIVER ODOR in the LEWISTON-AUBURN AREA 1961

Introduction. Determination of the intensity and type of the Androscoggin River odor in the Lewiston-Auburn area was initiated on June nine and completed on September twenty-eight. At frequent intervals the daily odor reports were mailed to all parties concerned. They are numbered one to one hundred and twelve.

Water temperatures were lower than the nineteen year average during May, June and July, and slightly higher during August. September temperatures were the highest in recent years; about three degrees above the nineteen year average. River flows during most of the summer approximated the long range averages, the September 'low' balanced the July 'high'.

Pollution factors were the lowest ever recorded. Except for a few days when a slight musty odor was present, river odors were absent.

The arrangement of this report, odor terms and calculations are essentially the same as those employed in all previous reports.

Daily Report Data. The daily reports contain a record of

a. Air temperatures
b. General weather conditions
c. Direction of the wind
d. Water passing over the Lewiston Falls
e. Surface appearance of the water
f. Types of odor originating in the river water
g. Atmospheric intensities of the river odor
h. Conditions at Gulf Island and Deer Rips Dams (occasionally)

This report contains certain tabulations and summaries of the daily data and comparisons with other years. The 1955 report contains considerable long range data.

Odor Observation Stations. The locations of the odor observation stations were the same as those chosen in 1943 and used in each successive year. It is very questionable that any useful purpose will be served by maintaining observations at some of these locations. Stations seven and eight should be abandoned; the last time odor was recorded at these locations was in 1947.

Air Temperatures. Air temperatures recorded in the daily reports usually was that prevailing at station six at the time observations were made. Due to difference in location there may be a difference of one or two degrees, plus or minus, from the temperature recorded at the Union Water Power Company's weather station.

The mean hourly temperatures for June, August and September were above the seventy-seven year average but those for July were much below the average. September average was 6.72 degrees above the long range average.

The Mean Hourly Air Temperatures (F) for June through September and the seventy-seven year averages are listed in Table #1.

TABLE #1

Mean Hourly Air Temperatures (F.)

Year	June	July	August	September
1961	64.08	67.27	68.06	66.03
1960	64.61	68.15	67.97	59.66
1959	59.56	70.83	69.11	61.64
77 year average	63.15	68.90	66.76	59.31
Deviation from average	+0.93	-1.63	+1.30	+6.72

Precipitation. Precipitation in the Lewiston-Auburn area during June through August was less than the eighty-seven year average. Hurricane Esther's peripheral effects contributed to the slightly higher September rainfall. The 1961 summer data are recorded in Table #2.

TABLE #2

Precipitation (Inches) Lewiston

Year	June	July	August	September
1961	3.15	3.46	1.61	3.92
1960	2.21	3.10	1.59	4.41
1959	5.27	1.27	2.72	2.27
87 year average	3.42	3.51	3.04	3.55
Deviation From average	-0.27	-0.05	-1.43	+0.37

Direction of the Wind. During the time of the odor observations the direction of the air flow, days per season, were:

North	14	South-West	5
North-N.West	21	South-East	5
North-West	23	South-S.East	2
North-N.East	1	West	1
North-East	1	East	1
South	27	Variable	4
South-S.West	5		

Southerly winds were somewhat more frequent than during the 1960 season.

Water Flowing Over the Lewiston Falls. The intensity of river odor is always increased when river water is permitted to flow over the Falls or through the Canal by-pass gates. On such occasions, during this summer, a very slight musty odor was observed at North Bridge, when the wind was in the right direction. The odor was never objectionable.

"Depth" Color of River Water. The color of the river water, while somewhat less than in 1960, did not change as much as was expected from the marked decrease in discharge of sulphite waste liquor. This may be due to the increase in black liquor effluent.

River Surface Conditions. Foam, film and scum usually were less frequent, and foam was somewhat less persistent than in previous years.

Considerable floating sludge was visible in the Androscoggin Pool north of Mile three during June, July and

the first half of August but only very small amounts were observed during the remainder of the season. On August four, an enormous amount of sludge was observed passing Turner Center Bridge into the southern section of the Pool.

Film coverage of the water in the Pool was comparitivly small; the frequency of rough water increased considerably.

Blue-Green Algae and Vorticella. Only insignificant amounts of Blue-Green algae were observed this year. For the fourth successive season, Vorticella-Zoogleal masses were not reported as present in the area just below Gulf Island Dam.

Odor Intensities. River odor intensities averages were the lowest recorded since systematic observations were begun in 1943. For all practical purposes river odor in downtown Lewiston and Auburn was either non-existent or insignificant.

Hydrogen sulphide was not present in the river water in sufficient concentrations to detect by analytical methods. However, at times during June, July and part of August, a slight trace of the gas could be detected, olefactorily, in the area just above the tailrace at Gulf Island Dam.

The average monthly intensity numbers for 1961 are recorded in Tables #3 and #3A, the weekly numbers in Table #3

TABLE #3

Odor Intensity Frequencies 1961, 1960, 1944

Days Per Month

	#1			#2			#3			#4			#5		
	61	60	44	61	60	44	61	60	44	61	60	44	61	60	44
Station #1															
June	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
July	0	0	3	0	0	2	0	0	1	0	0	0	0	0	0
Aug.	0	0	2	0	0	1	0	0	5	0	0	0	0	0	0
Sept.	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
Station #2															
June	8	3	8	0	0	11	0	0	3	0	0	0	0	0	0
July	3	5	12	0	0	10	0	0	7	0	0	5	0	0	0
Aug.	7	10	0	0	0	11	0	0	17	0	0	9	0	0	0
Sept.	2	8	5	0	0	18	0	0	5	0	0	0	0	0	0
Station #3															
June	4	9	2	0	4	14	0	0	7	0	0	0	0	0	0
July	8	17	5	0	1	10	0	0	12	0	0	7	0	0	1
Aug.	4	12	0	0	0	8	0	0	21	0	0	11	0	0	0
Sept.	1	4	3	0	4	18	0	0	12	0	0	0	0	0	0
Station #4															
June	0	1	4	0	0	13	0	0	5	0	0	5	0	0	0
July	3	8	11	0	0	9	0	0	8	0	0	19	0	0	0
Aug.	3	12	0	0	0	1	0	0	19	0	0	4	0	0	0
Sept.	3	4	5	0	0	12	0	0	14	0	0	0	0	0	0
Station #5															
June	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
July	0	0	4	0	0	3	0	0	1	0	0	0	0	0	0
Aug.	0	0	1	0	0	10	0	0	3	0	0	0	0	0	0
Sept.	0	0	1	0	0	2	0	0	0	0	0	0	0	0	0
Station #6															
June	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
July	0	0	0	0	0	4	0	0	2	0	0	2	0	0	2
Aug.	0	0	0	0	0	5	0	0	12	0	0	10	0	0	0
Sept.	0	0	0	0	0	4	0	0	8	0	0	0	0	0	0
Station #7															
June	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
July	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
Aug.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sept.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Station #8															
June	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
July	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
Aug.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sept.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

The numbers are so low as to be insignificant as to odor, but very significant when compared to say, those of 1944.

The average weekly intensity numbers for classifying the odor experience of the past nineteen years indicate, in order of decreasing odor intensity, the years as, 1944, 1943, 1947, 1946, 1945, 1948, 1952, 1949, 1951, 1956, 1957, 1950, 1953, 1955, 1954, 1958, 1959, 1960 and 1961.

When the maximum weekly average intensity number is the basis for comparison then the order is, 1944, 1947, 1945, 1943, 1946, 1948, 1957, 1952, 1951, 1950, 1953, 1955, 1956, 1949, 1954, 1958, 1959, 1960 and 1961.

TABLE #3A

Comparison of Odor Intensity Numbers

	1961	1960	1959	1958	1944
Total Intensity Numbers	46	105	202	232	813
Number of Weeks	16	16	16	15	16
Average Weekly Intensity Number	3	7	13	16	51
Maximum Weekly Intensity Number	5*	10*	22	22	79
Maximum Odor Downtown During Week Ending	*	*	6/18	7/10	8/3

*Insignificant

General Odor Coverage. General odor coverage is recorded when the river odor is observed at station six, (about four miles from Gulf Island Dam). There was no general odor coverage in 1960 and 1961.

TABLE #4

General Odor Coverage

1961

Date	Highest Intensity	Type	Time Period

NONE

TABLE #5

General Odor Coverage

Station #6

Days Per Month

	1961	1960	1959	1958	1944
June	0	0	1	0	0
July	0	0	0	3	5
Aug.	0	0	0	0	15
Sept.	0	0	0	0	8
Total Days	0	0	1	3	28

Odor Types.

Pig Pen. For the fourth consecutive year this odor has not been reported in Lewiston and Auburn. This year it was not observed at Gulf Island Dam. Pig pen odor was present north of mile three whenever there was considerable floating sludge.

Hydrogen Sulphide. Only minute amounts of hydrogen sulphide were occasionally present in the air over the tailrace at Gulf Island Dam.

Paint discoloration was not observed by nor reported to the Administrator.

TABLE #6

Frequency of Recorded Odor Types

Days per Month

Type of Odor.	June 1961	June 1960	June 1959	June 1944	July 1961	July 1960	July 1959	July 1944
Pig-pen	0	0	0	17	0	0	0	26
Hydrogen Sulphide	0	0	0	2	0	0	0	14
Mouldy	0	0	5	4	0	0	0	0
Musty	12	12	17	11	14	23	29	2
Sulphite	0	0	0	0	0	0	0	0
Fishy	0	0	0	0	0	0	0	0
Sour	0	0	0	0	0	0	0	1
Earthy	0	0	1	0	0	0	3	0

Type of Odor.	August 1961	August 1960	August 1959	August 1944	September 1961	September 1960	September 1959	September 1944
Pig-pen	0	0	0	30	0	0	0	22
Hydrogen Sulphide	0	0	0	30	0	0	0	15
Mouldy	0	0	2	9	0	0	0	10
Musty	14	26	20	3	5	13	19	4
Sulphite	0	0	0	3	0	0	0	0
Fishy	0	0	0	0	0	0	0	7
Sour	0	0	0	0	0	0	0	0
Earthy	1	0	5	0	1	3	4	0

TOTALS

Type of Odor.	1961	1960	1959	1944
Pig-pen	0	0	0	95
Hydrogen Sulphide	0	0	0	61
Mouldy	0	0	7	23
Musty	45	74	85	20
Sulphite	0	0	0	3
Fishy	0	0	0	7
Sour	0	0	0	1
Earthy	2	8	13	0

Musty. During 1961 this was the only pollution odor recorded south of Deer Rips Dam.

Earthy. This odor is present at South Bridge only when a very small flow is maintained, usually late Saturday or on a Sunday when large areas of river bed are exposed.

Pollution Load Factors. On June 12, 1961 Oxford Paper Company abandoned the manufacture of sulphite pulp; this eliminated a sulphite load of about 130 tons per day. For this reason weekly quotas for sulphite waste liquor discharge were not assigned. The sulphite waste liquor discharged to the river by Brown Company was quite small. The quota for International Paper is fixed by the Decree at 100 equivalent tons per week.

These conditions together with a good average river flow produced a very low pollution factor (0.12) for the entire season. As discussed elsewhere in this report, these very low pollution factors did not result in higher dissolved oxygen especially in the Pool.

Table P.L.F. #1 contains the data for the 1961 pollution factors at Berlin, Rumford and Lewiston.

Brown Company factors are based on the flows at Berlin and again at Rumford. The factors at Lewiston include the sulphite waste liquor discharged by Brown Company and International Paper Company and are based on river flows at Gulf Island Dam.

P.L.F. #1

Weekly Pollution Factors

1961

Week Ending	Brown Co.	Oxford Paper Company	Brown and Oxford	Brown Co. Oxford Paper I.P. Co.
	Berlin Flow	Rumford Flow		G.I.D. Flow
June 11*	0.03	0.20	0.22	0.31
18*	0.04	0.02	0.05	0.28
25	0.05	0.	0.03	0.31
July 2	0.05	0.	0.05	0.07
9	0.	0.	0.01	0.08
16	0.04	0.	0.02	0.08
23	0.11	0.	0.06	0.06
30	0.15	0.	0.10	0.07
Aug. 6	0.09	0.	0.09	0.10
13	0.07	0.	0.09	0.16
20	0.07	0.	0.05	0.14
27	0.07	0.	0.07	0.14
Sept. 3	0.04	0.	0.06	0.12
10	0.06	0.	0.03	0.13
17	0.09	0.	0.08	0.10
24	0.08	0.	0.09	0.12
Oct. 1	--	--	--	0.14

*No Control

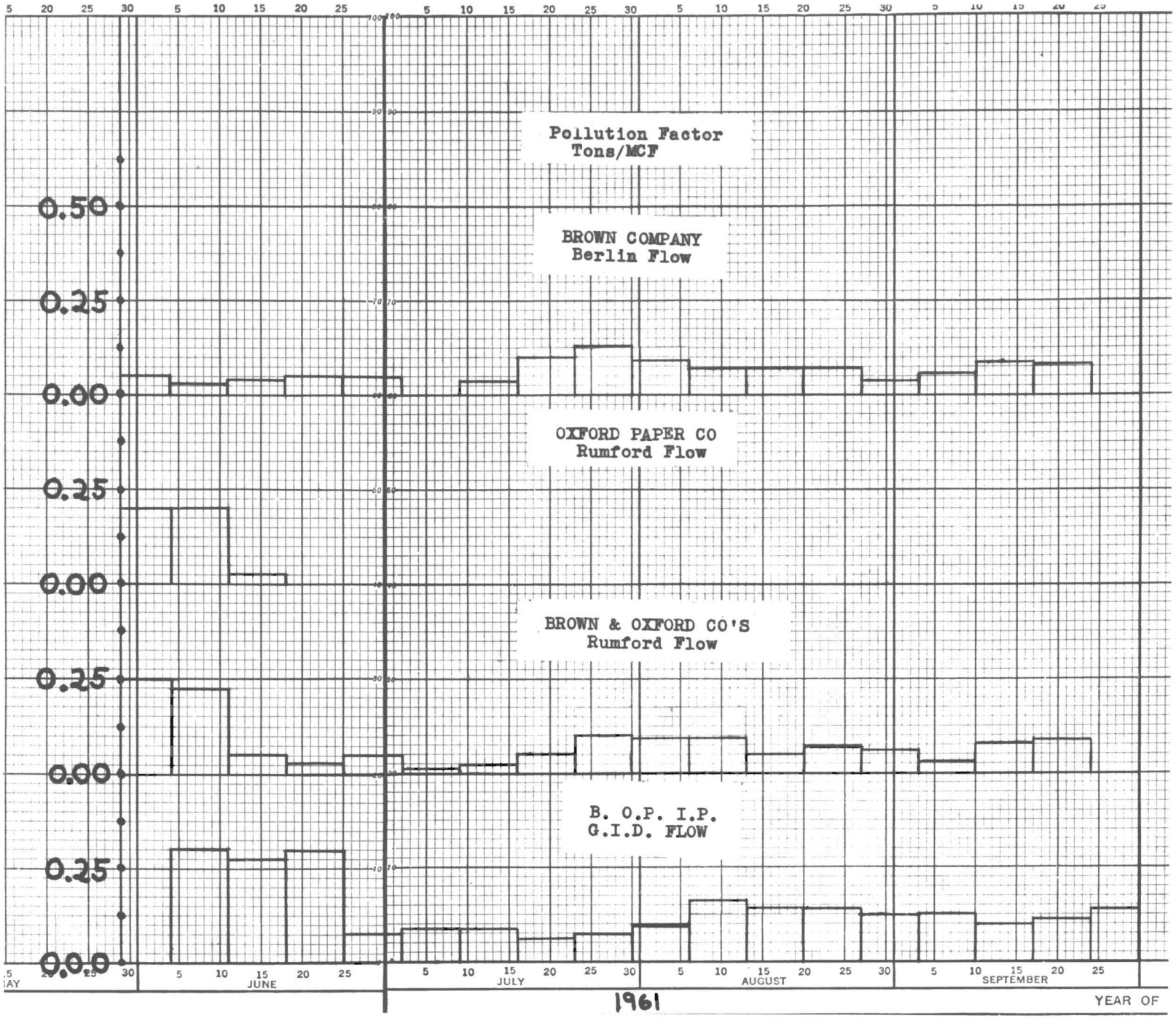
P.L.F. #1A

Pollution Load Factor

(Season Average at Gulf Island Dam)

Year	Period	P.L.F.
1961	June 19 to Oct. 1	00.12
1960	June 15 to Sept. 25	0.49
1959	May 31 to Sept. 27	0.60
1958	June 16 to Sept. 28	0.81
1957	June 10 to Oct. 20	1.33
1956	June 18 to Sept. 30	1.13
1955	June 13 to Oct. 20	1.38
1954	June 14 to Sept. 19	1.00
1953	June 29 to Oct. 11	1.60
1952	June 15 to Sept. 30	1.85
1951	June 18 to Sept. 18	1.75
1950	June 16 to Sept. 17	1.90
1949	June 16 to Sept. 29	1.88*
1948	June 17 to Sept. 30	2.03
1947	June 19 to Oct. 2	2.07
1946	June 13 to Sept. 26	2.38
1945	June 14 to Sept. 27	2.09
1944	June 15 to Sept. 28	2.60
1943	July 1 to Sept. 16	1.90

*Does not include International Paper Company's pollution load.


Pollution Factor
Tons/MCF
BROWN COMPANY
Berlin Flow
0.50
0.25
0.00
OXFORD PAPER CO
Rumford Flow
0.25
0.00
BROWN & OXFORD CO'S
Rumford Flow
0.25
0.00
B. O.P. I.P.
G.I.D. FLOW
0.25
0.00
JUNE
JULY
AUGUST
SEPTEMBER
1961
YEAR OF

P.L.F. #2

Sulphite Pulp Equivalent

of

Sulphite Waste Liquor

Discharged to the Androscoggin River

1961

Week Ending 7:00 a.m.	Brown Co. Tons	Oxford Paper Company Tons	International Paper Company Tons
June 12**		590*	
19**	39.8	59*	475 (approx)
26	72.5	0	99.3
July 3	53.1	0	99.3
10	0	0	99.8
17	50.3	0	99.2
24	123.0	0	99.3
31	165.7	0	99.9
Aug. 7	114.4	0	99.6
14	89.8	0	99.9
21	82.7	0	97.5
28	86.5	0	99.4
Sept. 4	48.3	0	99.5
11	75.9	0	79.9
18	104.8	0	99.6
25	98.9	0	99.4
Oct. 2	92.4	0	99.8

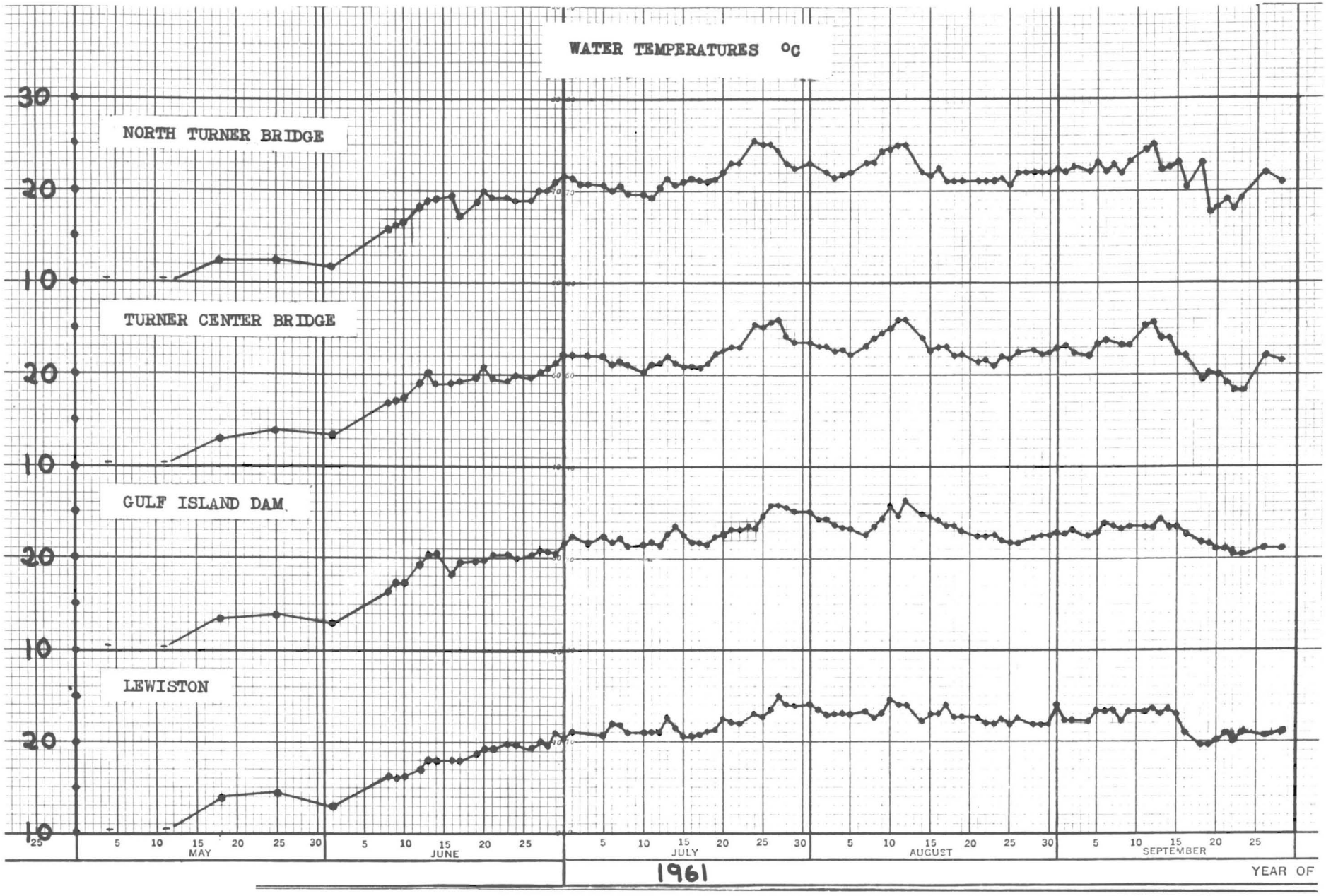
* Quota Period began June 19, 1961, 7:00 a.m.
** Oxford Paper Company did not discharge sulphite waste liquor to the river after June 13, 1961.

In table P.L.F. 1A the season averages are recorded for the pollution factors for the years 1943 to 1961 inclusive.

Production Data. The finished sulphite pulp equivalent of the waste liquor discharged to the river, each week is recorded in Table P.L.F. #2. These figures are those in the certified reports to the Administrator. The pre control tonnage discharged by International Paper Company for the week ending June 19 is an estimate.

Water Temperatures. River water temperatures at Gulf Island Dam were somewhat lower than the nineteen year average during May, June and July. During August they were 0.3 degrees higher than the average. As might be expected from the unusual high air temperatures for September, the water for this month averaged three degrees higher than the long range average. (cf. Tables, T#1 and T#2.)

River Flows. At Gulf Island Dam the river flow was close to the nineteen year average during May, June, and August. The high flow of July was balanced by the low flow during September, hence the 1961 summer flows were very close to the nineteen year average. (cf. Table A.D.F. #1)


WATER TEMPERATURES °C
NORTH TURNER BRIDGE
TURNER CENTER BRIDGE
GULF ISLAND DAM
LEWISTON
30
20
10
20
10
20
10
20
10
25
5
10
15
20
25
30
MAY
5
10
15
20
25
JUNE
5
10
15
20
25
30
JULY
5
10
15
20
25
30
AUGUST
5
10
15
20
25
SEPTEMBER
1961
YEAR OF

14A

TABLE T#1

Water Temperatures (°C)

Gulf Island Dam
(Monthly Averages)

Year	May*	June	July	August	September
1961**	10.9	19.2	23.0	23.5	22.4
1960**	13.6	20.6	22.8	23.0	18.9
1959**	16.6	17.8	23.1	23.8	20.5
1958**	11.5	17.6	22.1	22.4	19.2
Nineteen Year Average	12.2	19.6	23.6	23.2	19.4
1961 Comparison with average	-1.3	-0.4	-0.6	∕0.3	∕3.0

* Based on Thursday reports
** June through September average of daily reports.

TABLE T#2

Water Temperatures (°C)

Gulf Island Dam
Average Daily Temperature

Week Beginning	Temp. °C	Week Beginning	Temp. °C
June 12	19.4	August 7	24.5
19	20.0	14	24.0
26	21.1	21	22.2
		28	22.6
July 3	21.9		
10	22.3	Sept. 3	23.2
17	22.5	10	23.5
24	25.1	17	21.0
31	24.1	24	20.9

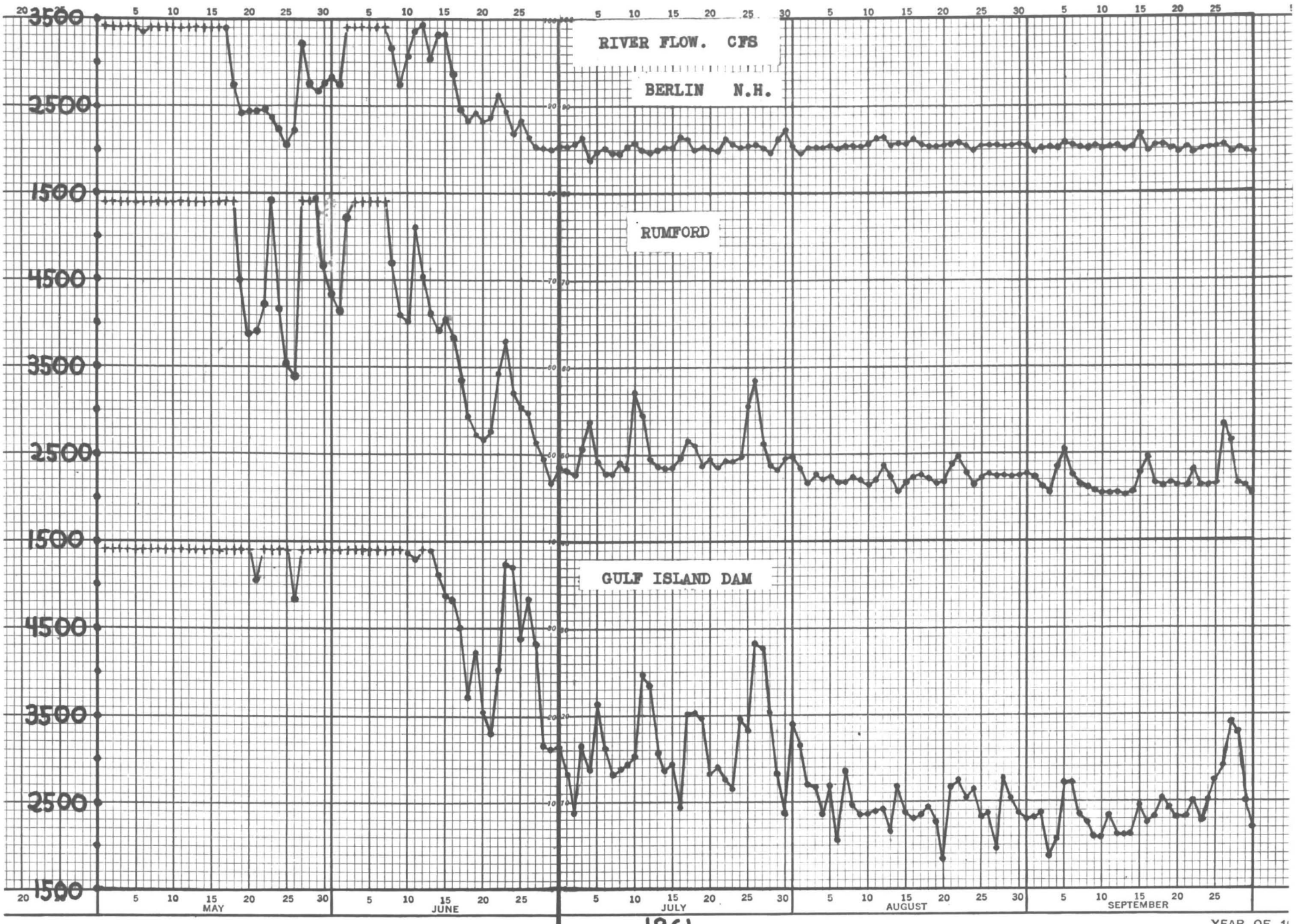

RIVER FLOW. CFS
BERLIN N.H.
RUMFORD
GULF ISLAND DAM
3500
2500
1500
4500
3500
2500
1500
4500
3500
2500
1500
MAY
JUNE
JULY
AUGUST
SEPTEMBER
1961
YEAR OF 1

TABLE A.D.F. #1

Average Daily Flows

C. F. S.

Gulf Island Dam

Year	May	June	July	August	Sept.	J.A.S. Aver.
1961	10545	5192	3450	2452	2422	2775
1960	14346	4782	3093	2637	3464	3065
1959	4115	5964	3222	2707	3212	3050
1958	12420	3970	3105	2785	2751	2880
1957	4567	2541	2343	2120	1956	2132
1938-1961 Aver.	10474	5065	2926	2467	2989	2793

ANDROSCOGGIN RIVER FLOW

C. F. S.

April, 1961

Date	Berlin	Rumford	Gulf Island Dam
1	1604	3410	6650
2	1592	3060	6220
3	1545	3190	6000
4	1511	3110	5850
5	1551	3170	6380
6	1629	3570	7610
7	1792	4170	8310
8	1760	4340	8890
9	1646	3830	8610
10	1661	4060	8630
11	1639	3740	8870
12	1595	3750	9170
13	1649	4110	9590
14	1628	3680	9020
15	1635	3510	8480
16	1763	4250	8740
17	1770	4570	11290
18	1793	4920	12180
19	1651	4170	10350
20	1775	4140	9090
21	2077	5520	9220
22	2543	7340	10980
23	3748	11050	12820
24	4101	13050	17680
25	3877	11720	16890
26	4869	13430	16460
27	5000	12930	18140
28	4991	11900	16330
29	5383	12180	15570
30	5207	11520	14970

ANDROSCOGGIN RIVER FLOW

C.F.S.

May, 1961

Date	Berlin	Rumford	Gulf Island Dam
1	5537	11530	14430
2	5808	12190	14300
3	5377	11410	15440
4	4443	9310	13590
5	3835	8370	11830
6	3362	7430	10760
7	3715	8170	10060
8	3915	9990	11140
9	5454	12010	12910
10	7333	14830	14200
11	7942	14540	16490
12	6596	13260	15660
13	5273	13100	14570
14	5485	13070	14410
15	5351	12090	14320
16	4483	10450	13420
17	3402	7810	11460
18	2786	5600	8990
19	2429	4510	7040
20	2455	3890	5920
21	2427	3910	5020
22	2493	4220	5540
23	2395	5440	6240
24	2233	4180	6770
25	2051	3520	5850
26	2235	3390	4820
27	3203	7690	5890
28	2767	8270	11830
29	2684	5460	9890
30	2786	4680	7450
31	2821	4350	6640

ANDROSCOGGIN RIVER FLOW

C. F. S.

June, 1961

Date	Berlin	Rumford	Gulf Island Dam
1	2726	4130	5800
2	3997	5230	5690
3	5279	7760	7570
4	4852	7290	8520
5	4965	6340	7840
6	4915	6290	7170
7	4167	5660	6950
8	3072	4700	6420
9	2783	4100	5770
10	3074	4040	5370
11	3376	5130	5300
12	3451	4540	6410
13	3031	4120	5420
14	3314	3920	5110
15	3319	4070	4860
16	2857	3840	4830
17	2468	3350	4500
18	2325	2920	3710
19	2424	2730	4230
20	2332	2670	3540
21	2365	2770	3300
22	2638	3430	4020
23	2442	3800	5220
24	2166	3200	5200
25	2312	3030	4360
26	2125	2980	4830
27	2026	2620	4310
28	2018	2440	3180
29	2008	2160	3120
30	2045	2350	3120

ANDROSCOGGIN RIVER FLOW

C. F. S.

July, 1961

Date	Berlin	Rumford	Gulf Island Dam
1	2035	2310	2810
2	2063	2280	2380
3	2132	2570	3180
4	1903	2870	2870
5	1993	2400	3610
6	2002	2260	3100
7	1996	2270	2800
8	1982	2400	2860
9	2021	2330	2910
10	2091	3220	3010
11	2008	2960	3870
12	1990	2450	3750
13	2002	2350	3020
14	2050	2340	2890
15	2030	2320	2930
16	2165	2480	2420
17	2136	2680	3510
18	2003	2600	3510
19	2027	2340	3480
20	2005	2420	3050
21	1997	2340	2900
22	2153	2420	2790
23	2086	2430	2670
24	2033	2470	3460
25	2046	3180	3320
26	2067	3350	4330
27	2012	2610	4290
28	1994	2390	3530
29	2101	2310	2820
30	2225	2440	2380
31	2057	2480	3400

ANDROSCOGGIN RIVER FLOW

C. F. S.

August, 1961

Date	Berlin	Rumford	Gulf Island Dam
1	1986	2340	3150
2	2017	2170	2700
3	2031	2240	2680
4	2027	2200	2360
5	2046	2220	2600
6	2018	2190	2080
7	2044	2190	2890
8	2034	2230	2490
9	2027	2200	2360
10	2076	2160	2360
11	2109	2200	2390
12	2128	2370	2400
13	2049	2230	2160
14	2078	2080	2690
15	2083	2160	2390
16	2113	2230	2300
17	2082	2250	2330
18	2040	2220	2420
19	2031	2160	2260
20	2043	2170	1820
21	2081	2380	2680
22	2092	2480	2730
23	2047	2370	2530
24	2002	2240	2630
25	2034	2220	2310
26	2040	2260	2360
27	2051	2250	1970
28	2030	2250	2760
29	2049	2230	2530
30	2060	2240	2370
31	2033	2270	2300

ANDROSCOGGIN RIVER FLOW

C. F. S.

September, 1961

Date	Berlin	Rumford	Gulf Island Dam
1	1996	2220	2320
2	2005	2100	2390
3	2018	2060	1890
4	2017	2340	2090
5	2081	2550	2710
6	2062	2260	2720
7	2032	2140	2330
8	2037	2110	2280
9	2053	2090	2100
10	2015	2050	2090
11	2028	2050	2340
12	2037	2060	2110
13	2004	2010	2110
14	2026	2060	2110
15	2175	2270	2480
16	1973	2450	2260
17	2050	2160	2310
18	2044	2110	2520
19	2001	2160	2440
20	1972	2070	2340
21	2018	2110	2350
22	1971	2300	2480
23	1995	2130	2240
24	2018	2130	2550
25	2026	2180	2750
26	2071	2870	2890
27	1987	2670	3420
28	2009	2180	3280
29	1971	2120	2540
30	1962	2050	2220

Lewiston 1961 For the second successive year, there was no objectionable river odor present in the downtown areas of Lewiston and Auburn, and there was no general odor coverage.

Local press comment was very favorable through the summer. The June 6, 1961 meeting of the Committee received an amazing amount of publicity throughout the state and elsewhere. The local papers were unusually laudatory in their editorials.

The concentration of hydrogen sulphide in the water was below that detectable by analytical means at Gulf Island Dam. Occasionally slight traces could be detected, olefactorily, over the tailrace.

Biochemical oxygen demands were very low and the methylene blue stabilities were consistently good. However, the dissolved oxygen in the water at the Dams and in Lewiston was low, much lower than had been expected. (cf. Table #7)

TABLE #7

Lewiston Data 1961

Date Week Ending	Water Temp.	B.O.D. 5 day ppm	D.O. ppm	Odor Intens. Number	River* Flow C.F.S.	Compens.* Tons per M.C.F.
June 8	16.5	2.20	8.20	-	6403	0.31
15	19.0	2.45	5.90	4	4977	0.28
22	19.5	2.62	3.70	5	4267	0.31
29	21.0	2.15	2.90	3	3393	0.07
July 6	22.0	2.35	1.25	3	3047	0.08
13	22.5	1.95	1.10	4	3127	0.08
20	22.5	1.78	1.53	2	3130	0.06
27	25.0	1.74	1.60	4	3447	0.07
Aug. 3	23.8	1.86	0.75	2	2710	0.10
10	24.5	1.55	0.80	4	2436	0.16
17	24.0	1.65	1.10	3	2316	0.14
24	22.5	1.38	0.75	4	2459	0.14
31	23.0	1.12	1.60	2	2366	0.12
Sept. 7	23.5	1.36	1.35	2	2332	0.13
14	23.5	1.00	2.25	3	2246	0.10
21	21.0	1.10	2.40	0	2417	0.12
28	21.0	1.20	3.30	0	2761	0.14
Oct. 5	18.0		3.78	-		0.13

* Gulf Island Dam
Week ending Saturday