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## Special Reports

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## ANDROSCOGGIN RIVER

1972

## Environmental Protection Agency (E.P.A.)

From several sources information was obtained that: two EPA groups would sample and test the Androscoggin River water during late June and through July.

1. The Massachusetts group would work in:

- a. Berlin-Bethel sector, June 26 to 30.
- b. Rumford Sector, July 3 or 5 to 8.
- c. Riley to Chisholm, July 10 to 14.
- d. Livermore Falls to Tidewater, July 17 to 21.

2. The Cincinnati group were scheduled to conduct their river program July 10 to 14. (They arrived in Auburn early Friday morning, July 14 and departed July 21. The late arrival was stated as due to major motor trouble en route from Cincinnati, Ohio.)

On June 28, William Hinkley of the Maine Environmental Improvement Commission telephoned from Augusta to make two requests:

- a. to obtain permission for the E.P.A. to use the dock facilities at the end of Waterman Road and,
- b. to grant E.I.C. permission to give E.P.A. copies of our Thursday reports for 1971 and 1970.

Both requests were granted. Hinkley stated that Mr. Porteous (EPA) disclosed that the EPA program would make a study of the Androscoggin River water from Berlin, New Hampshire to Tidewater, Maine, employing the usual tests and analyses. Also the group from Cincinnati, would make an investigation of the "river water and bottom."

The EPA divided the river into two sectors, upper, Berlin to Livermore Falls Bridge and lower, from this Bridge to Tidewater. One large and one small mobile laboratories were employed plus station wagon and a boat. The large laboratory was located

- a. Berlin sector, at Gorham where it was connected to Public Service Power Company's line.
- b. Rumford sector, at the Madison Motel and connected by special power line to the "Mains".
- c. Livermore Falls - Tidewater sector, at the Central Maine Vocational School, Engineering Building, Auburn.

The staff consisted of twelve persons most of them appeared to be college students. The boat was a flat bottom fishing boat powered by a nine horsepower outboard motor! and always contained a two man crew.

The Cincinnati large mobile laboratory was located in Auburn, Maine, at the Vocation School sewage treatment plant. The staff consisted of five, possible, seven, persons who were more mature than most of the EPA group.

#### E.P.A. Group One (Mass.)

##### Berlin-Bethel sector

1. Not much is known about the work done in this area. It may be presumed that the usual water tests and measurements were made, D.O., B.O.D., pH and temperature. Color, turbidity, suspended and setttable solids may have been included. It is known that Time of Passage measurements were made, Gorham to Gilead, to Bethel, to Rumford Center Bridge. It is assumed Rhodamine was used, and it is known that the method employed was to make instrumental detection until the peak was

obtained and to continue until a 10% decrease was recorded. Nothing is known to us concerning location of sampling stations but EPA probably chose some, perhaps all, of our usual sampling sites. A representative of EPA was taken by Mr. Hinckley to all of our stations which are used in the Thursday tests and the results reported to the appropriate commissions in Concord, New Hampshire and Augusta, Maine.

2. Rumford sector. The EPA large mobile laboratory was stationed at the Madison Motel. The power demand was large enough to require a line from the power company's road line. We have no information concerning the sampling stations selected in this sector, but it may be assumed they chose, at least, some if not all of the regular locations.
3. Jay area. EPA men sampled river water at least once daily at Riley Dam, and were observed sampling at Jay, and from a location opposite to Otis Mill (West side of the river). Livermore Falls Bridge station was used for sampling during the two week period, July 10 to 21.

On July 10, 11 and 12, I.P. Co's analyst sampled water at Riley Dam at the same time and location as the EPA. On these three days I.P. Co. sampled and tested the water at Riley Dam twice each day.

4. Livermore Falls Bridge to Tidewater. A few river water samples may have been obtained during the week of July 10 but most were taken during the week of July 17.
- The major EPA sampling activity during this period was on

the Androscoggin Pool. They planned to work at North Turner Bridge, Mile 12, 10, 8, 6, 4, 2 and Gulf Island Dam. The writer was consulted about the location of the Pool Mile positions and in a separate boat our staff accompanied them to each station. However, probably due to navigation hazards in the Mile 10 to 12 sector, and available time, they probably did not take samples at Mile 12. The EPA crew placed buoys at Mile 10, 8, 6, and 2. They may have sampled at Mile four but did not place a marker there. Samples were known to be taken in the morning and late afternoon. On at least one day samples were taken in dark brown D.O. bottles in addition to the usual colorless ones.

Water samples were taken at Gulf Island Dam but there is no evidence that Deer Rips Dam and Lewiston Canal were included in the testing program. However, one observer reported "two men with station wagon were sampling Little Androscoggin water from the New Auburn bridge."

The EPA were not observed retrieving benthal deposits or surface floaters. They did not appear to have equipment capable of obtaining bottom sludge.

## E.P.A. Group 2 (Cin.)

Very little information is known concerning the activities of the group. For the record the following items are known.

1. Friday morning about 8 a.m., July 14, five men launched a boat at Gulf Island Dam. With two men the boat proceeded upstream.
2. Late in the afternoon (7/14) at Gulf Island Dam two men and a boat were observed at the extreme Lewiston end of the Dam. The men were cautiously walking around the boat in about two to three feet of water. They removed a large reel from the boat, one man took one end of a fine mesh net fitted with floaters and walked away about ten or fifteen feet and circled back to the man holding the other end. After examining the net they rewound it.
3. About seven p.m. (7/14) the writer went to the Landing and observed two red buoys placed in a small bay at the island opposite the dock. The markers were there at nine Saturday morning but were removed sometime before 11:30 a.m.
4. Sunday July 16, two men were observed fishing from shore in the area from the Pump House intake to just below the entrance to the I.P. Co's Mill at Jay. They identified themselves as Federal Government biologists. Their catch consisted of one large yellow perch, a few hornpout and suckers. They said that they were proceeding

upstream to Rumford and beyond.

5. Tuesday July 18, two men in a boat were observed "fishing" at Mile 0.5 North of Gulf Island Dam.
6. Members of this group were not observed sampling benthal deposits.

Of considerable interest is the fact that, although two large mobile laboratories were stationed for over a week in a public place and a smaller mobile laboratory was travelling around the two cities and at least seventeen persons were involved, there was not one reference to their presence or activities in the Lewiston Daily Sun or the Evening Journal

Listed in the following pages are the results of the routine analyses and tests made by the regular Androscoggin river analysts during the period when the E.P.A. were in their sector.

## ANDROSCOGGIN RIVER STATISTICS

Berlin, N.H. to Virginia Bridge, Me.

June 26 to 30 incl. 1972

Location	Flow av.cfs	Temp. av.°C	pH	Dissolved av. ppm	Oxygen lbs/day	B.O.D.5 ppm	lbs/day	Popln. Equiv.
Berlin Bridge St.	3034	17.8	6.6	8.2	127530	0.7	10890	65340
Gorham	3118	18.2	6.5	7.8	131340	6.9	114880	689280
Gilead	3463	17.9	6.6	7.2	135040	4.9	90680	544080
Bethel	3597	18.1	6.5	7.1	137970	3.9	75250	451500
Virginia Bridge	4322	17.2	6.6	7.1	166050	3.1	73890	443340

## Commint.

1. River Flows were much larger than those recorded during the same period in 1971; at Berlin and Rumford (VB) approximately 1000 and 2000 cfs respectively.
2. Water Temperatures averaged about 3.5°C lower than last year.
3. Dissolved Oxygen, (lbs/day), at most sampling stations averaged about three times larger than in 1971. At Virginia Bridge the reported lowest D.O. during the week was 6.5 ppm.
4. Biochemical Oxygen Demand, (lbs/day), at Gorham was approximately the same as in 1971, but was much larger at the other locations, principally due to shorter Time of Passage and lower water temperatures. At Virginia Bridge the reported maximum B.O.D.5 was 3.5 ppm.



## ANDROSCOGGIN RIVER STATISTICS

Rumford (V.B.) to Riley

July 3 to 8 incl. 1972

Location	Flow av.cfs	Temp. av. <sup>o</sup> C	pH av.	Dissolved Oxygen ppm	Oxygen lbs/day	B.O.D. <sub>5</sub> ppm	B.O.D. <sub>5</sub> lbs/day	Popln. Equiv.
Rumford (V.B.)	4720	17.8	6.5	6.9	175120	2.7	75820	454920
Dixfield (S.P.)	5193	17.3	6.9	8.1	234490	4.2	110430	662580
Canton Point	5432	17.6	6.8	7.6	228890	5.2	143970	863820
Riley	5514	18.4	6.7	7.1	213650	2.8	81440	488640

## Comment.

1. River Flows were much higher than usual; about 3000 cfs at most sampling stations.
2. Water Temperatures were about four degrees lower than the 1971 period.
3. Dissolved Oxygen content in the river averaged about double the five day Biochemical Oxygen Demand.
4. The quality of the river water entering and leaving this sector was better than normal for this time of the year, which includes the holiday shut-down at the Oxford Paper Company.

## ANDROSCOGGIN RIVER STATISTICS

## Riley to Livermore Falls

July 10 to 14 incl. 1972

Location	Flow av.cfs	Temp. av. <sup>o</sup> C	pH av.	Dissolved ppm	Oxygen lbs/day	B.O.D.5 ppm	B.O.D.5 lbs/day	Popln. Equiv.
Riley	4096	20.5	6.8	5.9	130870	3.0	68330	409980
Riley*	4429	20.8	6.8	6.0	144250	3.2	76450	458700
Riley**	4429	20.2	6.8	6.0	144250	3.1	74060	444360
Jay	4164	20.8	7.1	7.1	159500	7.2	159720	958320
Chisholm into Otis	4177	21.2	6.7	7.3	164260	5.8	164260	760920
Livermore Falls	4177	21.3	6.7	7.7	174620	6.7	147320	883920

## Comment.

1. The statistics recorded for Riley, Riley\* and Riley\*\* are very similar and may be considered as representative of conditions in the sector during the different periods.
2. The large aeration in this sector appears to approximate the B.O.D.5 load discharged from the Jay and Chisholm mills.
3. River Flows were much higher and temperatures were about two degrees lower than normal.

\*Additional tests made July 11, 12, 13.

\*\*Average of tests made on samples duplicated with USEPA group, July 11, 12, 13.

## ANDROSCOGGIN RIVER AND POOL STATISTICS

## Livermore Falls to Lewiston

July 17 to 22 incl. 1972

Location	Flow av.cfs	Temp. av.°C	pH av.	Dissolved ppm	Oxygen lbs/day	B.O.D.5 ppm	B.O.D.5 lbs/day	Popln. Equiv.
North Turner Bridge	3932	24.5	6.7	5.8	123730	3.5	74260	445560
Mile 12	3932	24.8	6.7	5.9	125550	3.2	67200	403200
Mile 10	3932	24.9	6.6	5.0	106460	3.2	66580	399500
Mile 8	4089	25.0	6.6	4.1	94250	3.0	68270	409630
Turner Center Bridge	4089	25.0	6.5	3.7	84430	2.9	67870	407210
Mile 6	4090	24.9	6.5	3.0	68290	3.0	68680	412100
Mile 4	4090	25.2	6.4	1.3	29890	3.2	72290	433710
Mile 2	4090	25.4	6.3	0.33	7370	2.7	62430	374550
Gulf Island Dam	4090	25.1	6.4	1.2	26450	--	--	--
Deer Rips Dam	4090	24.3	6.3	0.64	14110	2.1	46290	277740
Lewiston	4145	24.2	6.3	1.20	26800	--	--	--

## Comment.

1. Water Temperatures were slightly above normal for this period.
2. The gradual change in pH is due, in part at least, to the diffusion of organic acids from the Benthals.
3. Dissolved Oxygen entering the Pool at North Turner averaged 6.6 ppm (previous week) was reduced to an average 0.33 ppm when the water was in the Mile Two area.
4. The pollution loads (B.O.D.5) were normal.
5. On July 18 the floating benthals and gassing were more extensive than that observed over a period of several years.