



THE
ONTARIO WATER RESOURCES
COMMISSION

REPORT ON
**WATER POLLUTION SURVEY
OF THE
MAITLAND RIVER**

1960 to 1963

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ONTARIO WATER RESOURCES COMMISSION

REPORT

ON

**WATER POLLUTION SURVEY
OF THE
MAITLAND RIVER**

**DATES OF SAMPLING: June 1960
Sept. 1962
Nov. 1963**

PREPARED BY: R. G. Quance, C.S.I. (C)

MAITLAND RIVER WATER POLLUTION SURVEY

INTRODUCTION

Samples were collected on three separate occasions from established sampling points on the Maitland River and its main tributaries. The sampling was carried out in June of 1960, September of 1962 and November of 1963.

The laboratory results of the samples collected are included in the report, together with an explanation of the significance of the results. For the location of the sampling points, refer to the watershed map enclosed in the envelope at the back of the report.

This survey was confined to the sampling of the stream in order to determine its sanitary quality and stream usage.

THE MAITLAND RIVER WATERSHED

The Maitland River empties into Lake Huron at the Town of Goderich. The watershed is roughly rectangular in shape and is contiguous on the north with the Saugeen River Watershed, on the east with the Conestoga River Watershed, and on the south with the Thames River and Bayfield River Watersheds. As the crow flies it measures about 37 miles east to west or 100 miles along the crescent, and 27 miles north to south. Five miles from Lake Huron the watershed abruptly narrows to a width of about $4\frac{1}{2}$ miles and from there it funnels through Goderich (where it is only $1\frac{1}{2}$ miles wide) to Lake Huron.

The watershed is drained by four major tributaries; the respective drainage areas from north to south being:

River	Drainage Area Square Miles
The Main Maitland	419.18
The Little Maitland	148.80
The Middle Maitland	257.97
The South Maitland	158.25
Total for the watershed	984.20

The stream drains sections of the Counties of Huron, Perth and the north-east part of Wellington; the municipalities include:

Townships	Towns	Villages	Police Villages
Colborne	Harriston	Blyth	Ethel
Elma	Goderich	Brussels	Fordwich
Goderich	Listowel	Milverton	Gorrie
Grey	Palmerston		Manchester
Howick	Wingham		Wroxeter
Hullet			
McKillop			
Minto			
Mornington			
Morris			
Turnberry			
Wawanosh E.			

The population in the watershed is approximately 42,000 persons. For the most part this area consists of productive agricultural farm land. This could account for the numerous artificial farm drains which discharge excess surface water to the river system.

STREAM USAGE

The Maitland River is the receiving stream for treated and untreated industrial and domestic wastes. At the present time Listowel and Palmerston are the only municipalities offering some form of treatment to the waste discharges. Some of the

milk plants in the watershed offer treatment during the summer months, but discharge contaminated wastes to the stream during the winter.

The watercourse is not used as a source of public water supply for drinking by any community in the watershed.

The river is used for most types of recreational activities, including swimming, boating and fishing. The discharging of untreated industrial and domestic wastes creates an unsatisfactory condition for these activities.

STREAM FLOWS

Stream flow figures were not available during the sampling periods. During the summer the flow normally reaches its lowest point and builds up to a high point during spring thaw.

DISCUSSION OF SAMPLE RESULTS

In the designation of stream sampling stations, the figures refer to the mileage from the mouth of the main stream. Reference to the laboratory report indicates that the municipalities of Blyth, Brussels, Harriston, Listowel, Milverton, Palmerston and Wingham have contributed contaminated wastes to the Maitland River. Samples taken in or downstream from these municipalities have exceeded the Commission's objectives of 4 ppm 5-Day BOD and 2,400 organisms per 100 ml.

At the sampling point number M31.3, which is $1\frac{1}{4}$ miles west of Blyth it will be noted that the coliform count and the BOD exceed the recommended limit. This may be attributed to the discharging of contaminated industrial wastes from a milk plant and a hide-tanning operation, along with domestic wastes from the municipality.

High coliform counts and high BOD found in samples taken in Wingham reveal contamination of the stream. The Town of Wingham is presently installing a sewage works to rectify this problem.

The results of samples taken at two locations in Harriston MH85.1 and M85.8 indicate satisfactory conditions in 1960 and 1963 and gross pollution in 1962. The time of sampling and the flow conditions at the time of sampling could account for this fluctuation.

The results of samples taken in Listowel indicate an improvement in stream quality since the installation of a sewage works, although conditions have not been fully rectified as yet. The sample taken several miles downstream from the Listowel lagoon effluent discharge (MM78.2) suggests that the lagoon may be overloaded at the present time.

The sample taken from the Wallace Drain downstream from Palmerston (MLLW82.0) indicates that the community is contributing inadequately treated wastes to the stream.

High coliform counts and a high BOD at MMB88.6 indicate that contaminated water is being discharged to the Boyle Drain. A recent pollution survey of Milverton indicated adverse conditions existing in the Boyle Drain due to untreated waste discharges.

The fact that pollution has been shown to exist indicates that a continuous pollution abatement program must be carried out by municipalities and industries in the watershed to ensure a satisfactory stream quality.

SUMMARY

Municipal sewage and industrial waste discharges have contributed to the pollution of the Maitland River. Progress in pollution abatement can be achieved by improvements in industrial waste water disposal systems and by ensuring that satisfactory means of sewage disposal are being practised by the smaller municipalities in the watershed.

RECOMMENDATIONS

1. Action should be taken by the municipalities and industries to eliminate the discharge of untreated waste waters to the Maitland River and its tributaries.

All of which is respectfully submitted

District Engineer

A.B. Redekopp

Approved by

K. H. Sharpe, Director

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Date	Sampling Point No.	Description	5-Day BOD (ppm)	Total Solids (ppm)	Suspended Solids (ppm)	Turbidity in Silica Units	M.F. Coliforms per 100 ML
June 1960	M1.7	Maitland River at	1.4	346		4.0	2
Sept 1962		Goderich Bridge at	1.4	520		2.6	1070
Nov 1963		Hwy. #21	1.1	356		0.7	190
June 1960	M3.0	Maitland River up-stream	1.9	280		5.0	6
Sept 1962		from Goderich at end of street	3.4	232		10.0	74
Nov 1963		from Hwy.#8 and railway crossing	2.0	348		0.8	38
June 1960	M 10.1	Maitland River at Ben	0.4	312		6.2	128
Sept 1962		Miller Bridge upstream	1.0	224		2.0	88
Nov 1963		from confluence with Sharp Creek	2.3	358		1.0	46
June 1960	MK10.4	Sharp Creek bridge at	0.7	328		7.0	60
		road from Ben Miller	1.0	316		2.9	2100
		to Goderich	2.0	346		0.7	54
June 1960	MS23.8	South Maitland at	1.9	246		4.0	26
Sept 1962		bridge at Summerhill-	0.8	210		3.1	800
Nov 1963		3 miles north of Clinton	2.0	344		1.8	67
June 1960	M 23.1	Maitland River at road south of	0.6	284		3.0	2
Sept 1962		Auburn and downstream of	1.2	260		2.1	1200
Nov 1963		confluence with Blyth Creek	2.4	390		1.1	700

Date	Sampling Point No.	Description	5-Day BOD (ppm)	Total Solids (ppm)	Suspended Solids (ppm)	Turbidity in Silica Units	M.F. Coliforms per 100 ML
June 1960	MB 24.4	Blyth Brook at	1.7	332		4.0	29
Sept 1962		Auburn to Clinton	1.5	254		5.5	520
Nov 1963		Road	2.6	416		1.0	500
June 1960	MB 31.3	Blyth Brook at side	3.4	294		3.0	1900
Sept 1962		road 1 ¹ / ₄ miles west	3.0	328		12.0	39000
Nov 1963		of Blyth	3.4	690	18	3.5	11700
June 1960	MB 34.2	Blyth Brook at side	1.0	310		3.0	128
Sept 1962		road 1/2 mile east of	2.4	286		6.5	2700
Nov 1963		Blyth	1.0	472		1.1	600
June 1960	M28.5	Maitland River at	1.5	290		2.0	3
Sept 1962		Auburn Bridge	0.8	314		6.5	1100
Nov 1963			1.5	362		0.8	800
June 1960	M38.2	Maitland River at	1.6	294		3.0	46
Sept 1962		bridge at Marmock	1.2	256		2.1	1200
Nov 1963			1.6	384		0.8	5000
June 1960	M49.0	Maitland River at bridge	1.2	302		4.0	14000
Sept 1962		downstream from	1.6	288		2.1	17900
Nov 1963		confluence with Middle Maitland in Wingham	1.2	396		0.8	21000
June 1960	M50.2	Maitland River at	1.7	278		3.0	6000
Sept 1962		Hwy. #4 in Wingham	1.2	244		2.5	158
Nov 1963			1.7	438	2	0.8	58

Date	Sampling Point No.	Description	5-Day BOD (ppm)	Total Solids (ppm)	Suspended Solids (ppm)	Turbidity in Silica Units	M.F. Coliforms per 100 ML
June 1960	M62.4	Maitland River at	1.5	282		3.0	1400
Sept 1962		Hwy. #87 downstream	1.1	280		1.4	114
Nov 1963		from Wroxeter	1.5	414		0.8	18
June 1960	M63.1	Maitland River at	1.3	266		3.0	500
Sept 1962		dam at Wroxeter	1.4	290		1.7	98
Nov 1963			1.4	388			22
June 1960	M66.2	Maitland River at	1.4	270		3.0	600
Sept 1962		dam at Gorrie	1.3	254		1.1	1700
Nov 1963			1.3	426		0.8	36
June 1960	M71.0	Maitland River Conc.	1.6	296		3.0	800
Sept 1962		Rd. 6 west of Fordwich	1.2	266		1.5	76
Nov 1963			1.6	458		0.8	154
June 1960	M76.6	Maitland River at dam	1.5	286		3.0	900
Sept 1962		at Fordwich	2.1	256		5.5	30
Nov 1963			1.4	462		0.7	62
June 1960	M73.8	Maitland River at	1.5	268		2.0	500
Sept 1962		Conc. Rd.1 ½ miles	1.5	298		3.5	48
Nov 1963		east of Fordwich	1.6	430		0.7	54
June 1960	MH85.1	South Creek at Hwy.	1.7	320		3.0	1000
Sept 1962		#87 at Harriston	21.5	394		11.5	1000
Nov 1963			1.9	590		0.7	500
June 1960	M 85.8	Maitland River at Old	1.9	298		2.0	3900
		Gunn's dam, Harriston	14.0	230		12.5	400
			1.3	392		1.1	1200

Date	Sampling Point No.	Description	5-Day BOD (ppm)	Total Solids (ppm)	Suspended Solids (ppm)	Turbidity in Silica Units	M.F. Coliforms per 100 ML
June 1960	MP 86.4	Palmerston Cr. at	1.3	378		4.0	600
Sept 1962		Conc. Rd. north of	20.0	350		12.5	670
Nov 1963		Palmerston	1.1	478		1.4	1900
June 1960	MM 49.3	Middle Maitland at	2.0	332		3.0	260
Sept 1962		William and Victoria	4.4	290	8	11.5	15300
Nov 1963		streets in Wingham	1.3	478		1.1	8700
June 1960	MM 50.4	Middle Maitland at	2.3	326	20	-	1700
Sept 1962		Hwy. #4	1.2	290		2.1	90
Nov 1963			1.4	462		0.8	42
June 1960	MM 67.8	Middle Maitland at	2.4	242		1.0	300
Sept 1962		side road bridge 1 ½	1.6	264	9	1.1	1900
Nov 1963		miles west of Brussels	2.8	520			16
June 1960	MM 69.5	Middle Maitland at	1.6	284		2.0	220
Sept 1962		Turnberry street	1.2	396	10	2.0	2500
Nov 1963		bridge in Brussels	2.6	582			148
June 1960	MM 78.2	Middle Maitland at Ethel	1.3	256		2.0	20600
Sept 1962		side road 1/4 mile south	1.5	436		3.8	190
Nov 1963		of main intersection	4.3	558	13		62
June 1960	MM 91.7	Middle Maitland at	8.6	246		3.0	300
Sept 1962		CNR bridge in	12.0	414		11.5	59000
Nov 1963		Listowel	1.3	426		1.1	2700

Date	Sampling Point No.	Description	5-Day BOD (ppm)	Total Solids (ppm)	Suspended Solids (ppm)	Turbidity in Silica Units	M.F. Coliforms per 100 ML
June 1960	MM 92.5	Middle Maitland at dam in Listowel	1.2	236		2.0	25000
Sept 1962			2.5	148		4.0	400
Nov 1963			5.0	538	25		87000
June 1960	MML53.2	Little Maitland at bridge in Bluevale	1.4	300		4.0	4600
Sept 1962			2.2	194		5.0	198
Nov 1963			1.7	486			36
June 1960	MM 82.0	Wallace Drain at Hwy #23	3.5	338		2.0	150
Sept 1962	LW	½ mile below turn to Palmerston	10.0	398		41.0	4900
Nov 1963			3.3	532			6900
June 1960	MMB81.9	Boyle Drain at Henfryn bridge 1 mile upstream from confluence with Middle Maitland	1.3	324		2.0	1900
Sept 1962			1.2	358		2.5	380
Nov 1963			2.3	546	15		30
June 1960	MMB88.6	Boyle Drain at Hwy.23	2.0	308		3.0	2800
Sept 1962			11.0	700	242	-	14000
Nov 1963			3.2	618	73		370