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A Bacteriological Assessment of Pocologon Harbour, Charlotte Co. (Shellfish Area, N.B. No. 12)

Surveillance Report EPS 5-WP-72-23
Atlantic Region

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A BACTERIOLOGICAL ASSESSMENT OF POCOLOGON HARBOUR, CHARLOTTE CO. (SHELLFISH AREA, N.B. #12)

by

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for

Shellfish Bacteriological Surveillance
Environmental Protection Service
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ABSTRACT

During the month of August 1972, the waters of Pocologon Harbour, Charlotte County, N.B. were assessed bacteriologically to determine the adequacy of the existing shellfish closure, N.B. Fishery Regulations, Schedule "G" Item 12-2.

Water samples for bacteriological analysis were collected and a physical sanitary investigation was completed in Pocologon Harbour and the river estuary. The existing shellfish closure in Pocologon Harbour was found to be adequate and in compliance with criteria for National Shellfish Standards.

From the bacteriological data of this survey it is recommended that the existing shellfish closure in Pocologon Harbour, Charlotte County, as defined in the New Brunswick Fishery Regulations, P.C. 1971-16, January 12, 1971, remain in effect.

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1. INTRODUCTION

A bacteriological survey of Pocologon Harbour was carried out during July and August 1970. The existing closure #12-2 was implemented as recommended by the Manuscript Report, No. OR-70-8 by R. Legault (Bacteriological Laboratories, Ottawa, Division of Public Health Engineering, Department of National Health and Welfare).

Following notification by the New Brunswick Water Authority Board, that a tourist trailer park was being developed at the estuary of the Pocologon River, it was felt that the area warranted investigation during the tourist season.

During the period August 24 through August 30, 1972, a bacteriological assessment of Pocologon Harbour and the river estuary was carried out by the Mobile Laboratory of Environmental Protection Service, Atlantic Region.

A total of 100 water samples were collected from 20 sampling stations. The sampling times were so arranged as to obtain samples representative of conditions at different tidal phases (See Table 1).

The physical sanitary survey of the surrounding watershed was conducted during the sampling period for evidence of actual or potential pollution sources.

Salinity determinations were made each day from a composite of water samples collected to determine the effects of dilution due

to rainfall and induced landwash (See Table 2).

Weather data was obtained from the Department of Environment, Atmospheric Environment Service, for the area. Parameters such as wind, velocity and direction, atmospheric temperatures, precipitation and cloud cover, were recorded for consideration in this report (see Table 3).

2. METHODS

All samples were tested for coliform bacteria by the methods outlined in A.P.H.A. "Recommended Procedures for the Bacteriological Examination of Sea Waters and Shellfish", Fourth Edition, 1970. Coliform and fecal coliform densities were determined from all samples by multiple dilution tubes (MPN) methods using Bacto-Lauryl Tryptose Broth with three or five tubes in each of at least three consecutive decimal dilutions with incubation at 35.5°C for 24 and 48 hours. Confirmation of all positive cultures was completed in: (a) Bacto-Brilliant Green Bile Broth with incubation at 35.5°C for 24 and 48 hours, and (b) Bacto-E.C. medium with incubation for 24 hours at 44.5°C in a recirculating water bath.

Salinity determinations were made by the Knudsen Method from composite samples. Salinities were expressed as parts per thousand (PPT).

Samples were obtained from the 20 sampling stations with the aid of a rod sampling device. These samples were placed into sterile

8-ounce glass bottles and transported to the Mobile Laboratory within 30 minutes of collection. The samples were immediately inoculated into prepared fermentation tubes in the appropriate graduated quantities for incubation.

3. RESULTS

The location of a total of 20 stations sampled during the study are shown in Figure 1. Coliform and fecal coliform MPN counts for 100 water samples collected from these stations are recorded in Table 4.

Sampling station #1 represents the water quality of the Pocologon River. The median values at sampling station #1, for the five samplings, was 75 MPN for coliforms and 33 MPN for fecal coliforms.

Sampling station #2, represents the water quality of the lagoon between the new and old highway N.B. No. 1. This body of water is tidal, and moves through culverts to and from Pocologon Harbour. The tourist trailer park is located on the shoreline of the lagoon. The median coliform MPN value of the samples at station #2 for the five different samplings was 93 (See Table 4).

Sampling stations #3 to #20 inclusive had median coliform MPN values ranging from 21 to <3 per 100 ml.

Salinity determinations of the daily composite samples from Stations #3 to #20 inclusive was consistent with data from previous survey and shows a range differential of 1.5 PPT. Considering the

dilution due to flow from the Pocologon River, the salinities and ranges appear to be normal and similar to the data of the 1970 survey (see Table 2).

The Atmospheric Environment Service in the area recorded no precipitation during survey period (see Table 1).

4. DISCUSSION

Low bacterial counts were recorded from all samples collected at stations #3 to #20 inclusive. Stations #1 and #2 represent tributary waters to Pocologon Harbour and are not within a shellfish growing area. The MPN coliform counts at these two stations are slightly higher than acceptable limits (770/100 ml) for shellfish growing waters. The median values at all sampling stations are in close comparison with those of the 1970 survey.

The tourist trailer park is a small operation and only 8 trailer unit connections are available. During the survey period only one trailer was occupying the park. The daily register indicated that the maximum occupation during the 1972 season was only 6 units.

The sewage collector system servicing the 8 trailer connections, 2 washrooms and a small laundry, drains to a 300 gal. tank. A lift pump (not automatic) pumps the untreated sewage across the old No. 1 highway and into a septic tank that also services the trailer park proprietor's residence.

During the survey period there was no visual evidence of malfunction or overflow from the system. However, any increase in load to

the system, electrical failure, or lack of close attention would result in overflow that would subsequently reach the harbour waters.

5. CONCLUSIONS

(a) the bacteriological data and other information of this report further qualifies the recommendations of the 1970 survey and the adequacy of the existing shellfish closure N.B. #12-2.

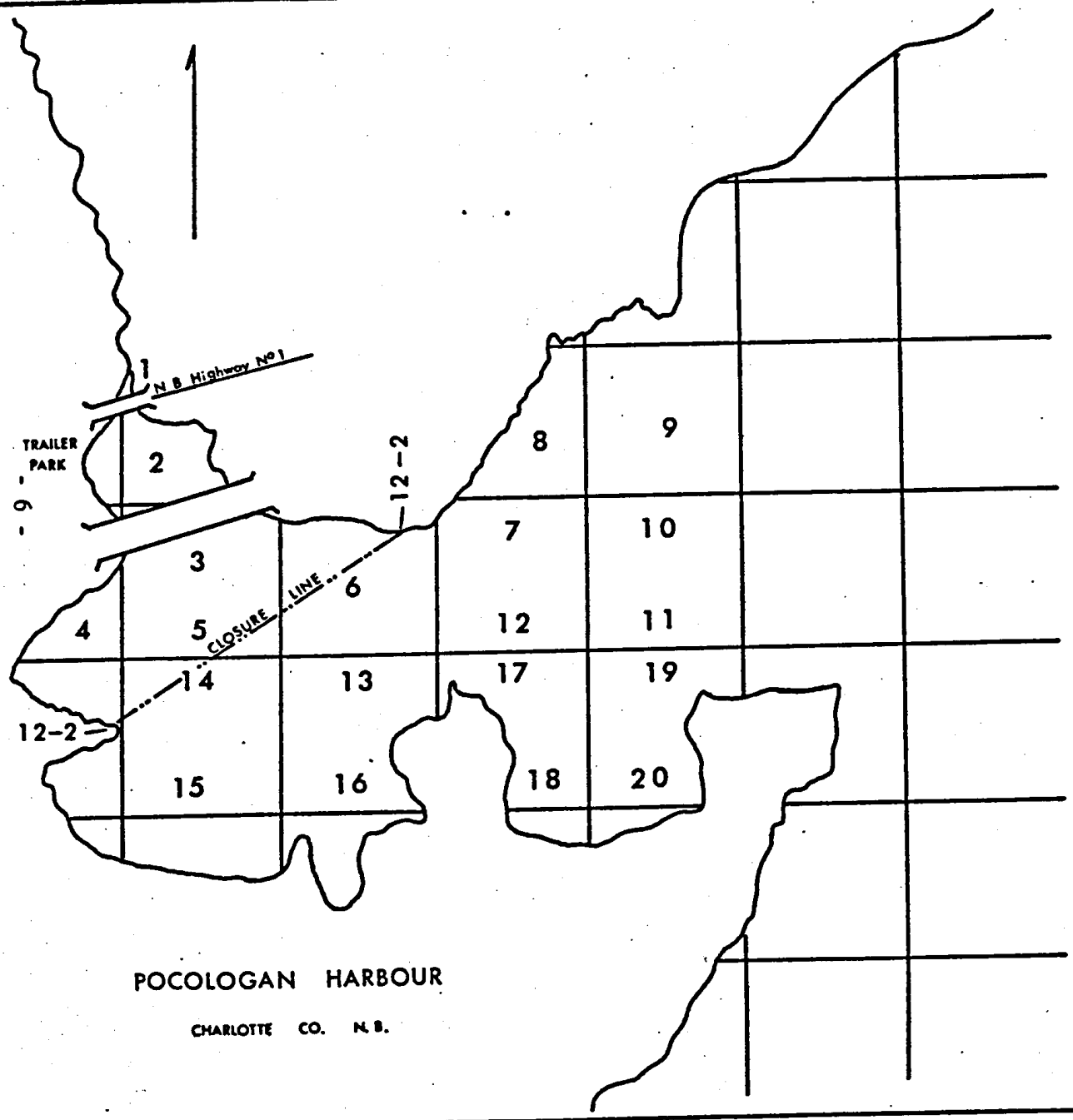
(b) all sampling stations representing shellfish producing waters, #3 to #20 inclusive, were within the standards of satisfactory compliance.

(c) the sewage collector and disposal system, servicing the tourist trailer park, at Pocologon, could pose a potential health hazard during periods of overload, mechancial failure or increase in the number of tourist occupants.

6. RECOMMENDATIONS

(a) The seasonal shellfish closure on Pocologon Harbour, Charlotte County, N.B., as defined in the New Brunswick Fishery Regulations, P.C. 1971-16, January 12, 1971, Schedule "E" is adequate and to remain in effect.

(b) The tourist trailer park licensing authority and the Department of Fisheries and Environment for the Province of New Brunswick should be advised of the minimal facilities for sewage collection and disposal at the tourist trailer park in Pocologon, N.B.



POCOLOGAN HARBOUR

CHARLOTTE CO. N.B.

FIGURE 1.

DEPT. OF THE ENVIRONMENT

ENVIRONMENTAL PROTECTION SERVICE

ATLANTIC REGION

Pocologon Harbour
Shellfish Area N.B. #12
Survey Sampling Stations

SCALE: 1 : 12,500	DATE: FEB. 1973	DWG. NO.
DRAWN: w l p	CHECKED:	APPROVED:

TABLE 1 TIDAL PHASE & SAMPLING TIME FOR POCOLOGON HARBOUR DURING SURVEY AUGUST, 1972.

DATE	TIDAL PHASE HIGH TIDE (hrs)	LOW TIDE (hrs)	SAMPLING TIME (hrs)
Aug 24	0220	0813	0930- 1030
Aug 25	0250	0850	0900 - 1000
Aug 28	0430	1045	1300 - 1400
Aug 29	0505	1125	1400 - 1500
Aug 30	0540	1210	1300 - 1400

TABLE 2 SALINITY DATA OF COMPOSITED SAMPLES FOR POCOLOGON HARBOUR DURING AUGUST 1972

DATE 1972	SALINITY PARTS PER THOUSAND
Aug 24	28.9
Aug 25	31.6
Aug 28	29.9
Aug 29	32.4
Aug 30	31.9

TABLE 3 CLIMATOLOGICAL DATA FOR POCOLOGON HARBOUR SURVEY DURING AUGUST, 1972.

DATE 1972	SAMPLING TIME (HRS)	WATER TEMP. °C	AIR TEMP. °C	WIND VELOCITY DIRECTION (MPH)
Aug 24	0930 - 1030	14°	17°	W 5
Aug 25	0900 - 1000	13°	19°	SW 5/10
Aug 28	1300 - 1400	15°	19°	NW 5/10
Aug 29	1300 - 1400	14°	20°	NW 5/10
Aug 30	1300 - 1400	14°	19°	W 5/10

TABLE 4 COLIFORM & FECAL COLIFORM MPN DATA FOR

POCOLOGON HARBOUR SURVEY 1972, SHELLFISH AREA N.B. #12

Station No.	Coli-form Aug. 24	F.C. Aug. 24	Coli-form Aug. 25	F.C. Aug. 25	Coli-form Aug. 28	F.C. Aug. 28	Coli-form Aug. 29	F.C. Aug. 29	Coli-form Aug. 30	F.C. Aug. 30	Median Coli-form	Median F.C.
1	7	7	43	43	93	23	75	43	93		75	33
2	93	93	1100	1100	93	13	150	150	75		93	122
3	93	43	15	15	43	9	21	9	11		21	12
4	93	23	7	7	23	9	7	4	4		7	8
5	43	23	4	4	23	23	93	43	<3		23	23
6	93	43	4	4	15	4	75	15	<3		15	10
7	23	23	9	9	23	15	4	<3	4		9	12
8	23	23	4	4	11	4	7	4	4		7	4
9	<3	<3	9	4	9	4	11	7	<3		9	4
10	9	4	3	<3	<3	<3	4	<3	<3		3	<3
11	9	9	3	3	9	3	<3	<3	<3		3	3
12	4	4	4	<3	7	<3	<3	<3	<3		4	<3
13	9	9	9	3	<3	<3	15	9	4		9	6

TABLE 4 CONTINUED

Station No.	Coli-form Aug. 24	F.C. Aug. 24	Coli-form Aug. 25	F.C. Aug. 25	Coli-form Aug. 28	F.C. Aug. 28	Coli-form Aug. 29	F.C. Aug. 29	Coli-form Aug. 30	F.C. Aug. 30	Median Coli-form	Median F.C.
14	93	15	4	<3	20	7	11	4	<3		11	6
15	7	7	43	43	4	4	11	7	4		7	7
16	7	7	<3	<3	4	<3	21	7	<3		4	5
17	7	7	<3	<3	<3	<3	<3	<3	<3		<3	<3
18	4	4	4	3	9	3	4	<3	4		4	3
19	15	15	23	9	9	3	4	<3	4		9	6
20	4	4	<3	<3	<3	<3	<3	<3	4		<3	<3

A BACTERIOLOGICAL ASSESSMENT OF POCOLOGON HAR
BOUR, CHARLOTTE CO. (SHELLFISH AREA, N. B. #1
BAXTER, M. D