

**BACTERIOLOGICAL RESULTS OF  
MONITORING PROGRAM OF OYSTER  
SHELLSTOCK HARVESTING AREAS  
MARITIMES REGION - 1978**

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MARCH 1979

**FISHERIES & MARINE SERVICE  
DATA REPORT NO. 123**



Fisheries and Environment  
Canada

Fisheries  
and Marine Service

Pêches et Environnement  
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Fisheries and Marine Service

Manuscript Report

March 1979

Bacteriological Results of Monitoring Program  
of Oyster Shellstock Harvesting Areas  
Maritimes Region 1978

by

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Maritimes Region



BACTERIOLOGICAL RESULTS OF MONITORING PROGRAMS

OF OYSTER SHELLSTOCK HARVESTING AREAS

MARITIMES REGION - 1978

Since August 1967, the Inspection Branch has carried out an annual sampling program to monitor the bacteriological quality of oyster shellstock being commercially harvested from various areas in the Maritime Provinces.

Each year, prior to the opening of the oyster harvesting season, samples of oysters are taken from all harvesting areas and are bacteriologically tested to determine their quality and thereby monitor any significant change in the quality of overlay waters. The purpose of this program is to identify any changes in the level of contamination in the harvesting areas and, where necessary, carry out further bacteriological investigations. The pre-season sampling is further supplemented by bacteriological analyses of samples taken from commercial shipments of oyster shellstock during the oyster harvesting and shipping season.

Prior to the oyster harvesting season, samples of oyster shellstock (approximately 12 oysters per sample) are taken from each harvesting area in the Maritimes Region and analyzed for the most probable number (MPN) Coliform and Faecal bacteria per 100 grams (Standard Methods - Water and Waste, 13th Ed.).

During the oyster harvesting season, weekly samples of oyster shellstock (approximately 12 oysters per sample) are taken from each shipper's oyster grading sheds, where inspections for quality, labelling, etc., are carried out prior to shipment of any lots of oysters. These samples are also analyzed for MPN Coliform and Faecal Coliform bacteria.

Areas yielding oysters having bacteriological results in excess of 2400 MPN Coliforms and/or 100 MPN Faecal Coliforms are resampled.

Where results are consistently above these levels, the Inspection Branch carries out a bacteriological survey of the sea water in the particular harvesting area to obtain more information concerning the quality of the overlay water, and to determine if any significant deterioration has occurred since the previous season. From the results of these surveys, the Inspection Branch may recommend to the Environmental Protection Services, Environment Canada, that a thorough bacteriological survey of the harvesting area be carried out to determine if closure of the area should be recommended.

Table I lists the oyster producing areas of the Maritime Provinces.

Tables II and III outline the percent compliance of bacteriological results with various MPN Coliform and Faecal Coliform levels during the pre-season and harvesting-shipping season monitoring programs respectively.

Tables IV and V illustrate the compliance of the various areas with levels of quality during the pre-season and harvesting-shipping season monitoring programs respectively.

Table VI demonstrates the environmental conditions at the time of sampling and the action taken in respect to those samples collected during the pre-season monitoring program which yielded excessive bacteriological results.

Environmental conditions at time of sampling were not available for samples submitted as part of the harvest-shipping season monitoring program, since these samples were taken from the shippers' oyster grading sheds and not directly from the individual harvesting areas.

Ninety-six (96) percent of the pre-season samples and ninety-six (96) percent of the harvesting-shipping season samples yielded MPN Coliform results of less than 2400 per 100 grams (Tables II and III). Results greater than 2400 MPN Coliforms per 100 grams were found in oysters from none of the twenty-four (24) areas of Prince Edward Island, one of the twenty-three (23) areas of Nova Scotia, and one of the fourteen (14) areas of New Brunswick (Tables IV and V).

Ninety-five (95) percent of the pre-season samples and ninety-six (96) percent of the harvesting-shipping season samples yielded MPN Faecal Coliform results of less than 100 per 100 grams. One hundred (100) percent of the pre-season samples and ninety-nine (99) percent of the harvesting-shipping season samples yielded MPN Faecal Coliform results of less than 250 per 100 grams (Tables II and III). Results greater than 250 MPN Faecal Coliforms per 100 grams were found in oyster samples from one (1) of the twenty-four (24) areas of Prince Edward Island, none (0) of the twenty-three (23) areas of Nova Scotia, and none (0) of the fourteen (14) areas of New Brunswick (Tables IV and V).

In P.E.I. and N.B. and N.S., no excessive bacteriological results persisted beyond the first resample during the pre-season monitoring program (See Table VI).

Results of the harvesting-shipping samples from the Maritimes Region indicate that in no case did excessive bacteriological levels persist beyond the second resample.

TABLE I  
OYSTER PRODUCING AREAS  
MARITIME PROVINCES  
1978  
PRINCE EDWARD ISLAND  
(OYSTER HARVESTING TRACTS)

TRACT NO.	LOCATION	TRACT NO.	LOCATION
1-G	Dock River	3-D	Stanley River
1-I	Mill River	3-K	Covehead Bay
1-K	Foxley River	6-C	Pinette River
1-M	Trout River	7-C	Vernon River
1-O	Black Bank	7-D	Pownal Bay
1-Q	Conway Narrows	7-F	East (Hillsborough R.)
1-R	Conway River (Poplar Grove)	7-H	West River
2-B	Lennox Island Channel	9-B	Salutation Cove
2-D	Trout River 2	9-G	Percival River
2-F	Lennox Island	9-H	Wolfe Inlet
2-H	Grand River		
2-I	Bentick Cove		
2-L	Darnley Basin		
3-B	French River		

NEW BRUNSWICK

AREA NO.	LOCATION	AREA NO.	LOCATION
41.	Shediac	51.	Hardwicke
42.	Shediac R. & Gr.Digue	52.	Neguac
45.	Buctouche Bay	53.	Upper St.Simon
47.	Little Buctouche River	54.	Caraquet
49.	Bay du Vin River	55.	Black River
50.	Bay du Vin, Egg Island & Fox Island Areas	56.	Shippegan Harbour
		57.	Village Bay
		58.	Little Shemoque

NOVA SCOTIA

AREA NO.	LOCATION	AREA NO.	LOCATION
72.	McKinnon Harbour, East Bay, Eskasoni, Evans Island	74.	Tracadie Harbour
73.	River Denys, Whycocomagh Bay, Indian River, Little Narrows, Nyanza Bay, Washabuck River, Lewis Cove, Livingstone's Cove, Orangedale, Patricks Channel	75.	Pictou Co. public beds
		76.	Caribou River
		77.	Malagash Basin
		78.	Wallace Basin
		79.	Fox River Area
		80.	Pugwash River
		81.	Mules Island

TABLE II  
SUMMARY OF BACTERIOLOGICAL RESULTS OF OYSTER SHELLSTOCK  
PRE-SEASON MONITORING PROGRAM - 1978  
PERCENT COMPLIANCE

PROVINCE	NO. OF SAMPLES	MPN COLIFORM RANGE PER 100 GM.					MPN FAECAL COLIFORM RANGE PER 100 GM.			
		<20	<100	<250	<2400	>2400	<20	<100	<250	>250
Prince Edward Island	31	11	23	31	31	0	20	30	31	0
Nova Scotia	* 25	0	5	9	16	2	19	23	25	0
New Brunswick	20	9	12	16	19	1	15	19	20	0
TOTAL (Only 69 Coliforms)	76	20	40	56	66	3	54	72	76	0
PERCENT	100	29	58	81	96	4	71	95	100	0

\* 7 less total Coliform analyses were carried out than Faecal Coliform analyses as Halifax Lab. were not analysing for total Coliform on oysters in 1978.



TABLE III  
MARITIMES REGION  
SUMMARY OF BACTERIOLOGICAL RESULTS OF OYSTER SHELLSTOCK  
HARVESTING-SHIPPING SEASON MONITORING PROGRAM - 1978  
PERCENT COMPLIANCE

PROVINCE	NO. OF SAMPLES	MPN COLIFORM RANGE PER 100 GM.					MPN FAECAL COLIFORM RANGE PER 100 GM.			
		<20	<100	<250	<2400	>2400	<20	<100	<250	>250
Prince Edward Island	85	50	73	84	85	0	59	81	84	1
Nova Scotia	77	14	41	49	69	8	63	74	76	1
New Brunswick	44	35	41	44	44	0	40	43	44	0
TOTAL	206	99	155	177	198	8	162	198	204	2
PERCENT	100	48	75	86	96	4	79	96	99	1

## TABLE IV

MARITIMES REGIONSUMMARY OF BACTERIOLOGICAL RESULTS OF OYSTER SHELLSTOCKPRE-SEASON MONITORING REPORT1978

PROVINCE	AREA NOS.	AREAS WHERE MPN COLIFORM RANGES PER 100 GM. WERE					AREAS WHERE MPN FAECAL COLIFORM RANGES PER 100 GM. WERE						
		>20	<100	>100	<250	>250	<2400	>2400	>20	<100	>100	<250	>250
Prince Edward Island	1-9	1-I,1-K, 1-G,2-B, 1-M,1-O, 2-F,3-B, 1-Q,1-R, 3-D,6-C, 2-B,2-D, 7-F,9-G 2-H,2-I, 2-L,3-K, 7-C,7-D, 7-F,7-H, 9-B					1-G,1-I,1-K, 7-F 1-M,1-O,1-Q, 1-R,2-B,2-D, 2-F,2-H,2-K, 2-I,3-B,3-D, 3-K,6-C,7-C, 7-D,9-B,9-G, 9-H,7-F,7-H						
Nova Scotia	71,3B,78 76,77,80	71,3B, 78,76, 77,80		71		71		71				71	
New Brunswick	51,41,49, 50,55,47, 42,54 (A)	51,41, 54 (A)	--		49,50,55, 47,45,42	41		49,41,42, 54 (A)				47	

TABLE V  
MARITIMES REGION  
SUMMARY OF BACTERIOLOGICAL RESULTS OF OYSTER SHELLSTOCK  
HARVESTING-SHIPPING SEASON MONITORING PROGRAM  
1978

PROVINCE	AREA NOS.	AREAS WHERE MPN COLIFORM RANGES PER 100 GM. WERE					AREAS WHERE MPN FAECAL COLIFORM RANGES PER 100 GM. WERE					
		>20	<100	>100	<250	>250	<2400	>2400	>20	<100	>100	<250
Prince Edward Island	1-9	1-I,1-K, 1-L,1-M, 1-O,1-R, 2-B,2-F, 2-G,2-J, 2-L,3-B, 3-C,3-D, 7-B,7-C, 7-D,7-F, 7-G,7-I, 9-G	1-J,1-K, 1-R,2-D, 7-D,7-H, 7-I	7-I		--	1-I,1-J, 1-K,1-L, 1-M,1-R, 1-Q,2-B, 2-D,2-F, 2-G,2-J, 2-L,3-B, 3-D,3-C, 7-B,7-C, 7-D,7-F, 7-G,7-H, 7-I,9-G	1-I,7-H	7-I			
Nova Scotia	72,73					8A		8A				
New Brunswick	42,45,50, 59,56	59,45,50, 56	45		42		42,45,56	45				

MARITIMES REGIONENVIRONMENTAL CONDITIONS AT TIME OF SAMPLING (AREAS RESAMPLED ONLY)OYSTER SHELLSTOCK MONITORING PROGRAM - PRE-SEASON SURVEY - 1978BACTERIOLOGICAL RESULTS

PROVINCE	AREA NO.	DATE SAMPLED	MPN COLIFORM PER 100 GM.	MPN FAECAL COLIFORM PER 100 GM.	SAMPLING CONDITIONS	ACTIONS
P.E.I.	7-F	14 Aug.78	130	130	Clear; SW winds; air 79F; tide low; water 78F; river bordered by marshes and weeds; no farm animals; previous weather - warm, sunny.	Resample
P.E.I.	7-F	20 Oct.78	<20	<20	Clear; no wind; air 44F; tide falling; previous weather - clear.	OK

TABLE VI

MARITIMES REGIONENVIRONMENTAL CONDITIONS AT TIME OF SAMPLING (AREAS RESAMPLED ONLY)OYSTER SHELLSTOCK MONITORING PROGRAM - PRE-SEASON SURVEY - 1978BACTERIOLOGICAL RESULTS

PROVINCE	AREA NO.	DATE SAMPLED	MPN COLIFORM PER 100 GM.	MPN FAECAL COLIFORM PER 100 GM.	SAMPLING CONDITIONS	ACTIONS
N.B.	41 Shediac Bay	20 July 78	>16,000	93	Sunny and warm; water temp. 72F.	Resample
"	"	14 Aug. 78	45	<18	Sunny and warm; water temp. 72F.	OK
N.B.	47 Little Buctouche River	20 July 78	1,100	170	Sunny and warm; water temp. 72F.	Resample
"	"	27 July 78	45	<18	Sunny and warm; water temp. 72F.	OK
N.B.	45 Buctouche Bay	20 July 78	1,300	20	Sunny and warm; water temp. 72F.	OK
N.B.	42 Shediac River	13 Oct. 78	320	48	Sunny and warm; water temp. 55F.	OK

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PROVINCE	AREA NO.	DATE SAMPLED	MPN COLIFORM PER 100 GM.	MPN FAECAL COLIFORM PER 100 GM.	SAMPLING CONDITIONS	ACTIONS
N.B.	49 Bay du Vin River	20 July 78	230	45	Sunny and warm; water temp. 72F.	OK
N.B.	50 Egg Is.	20 July 78	790	<18	Sunny and warm; water temp. 72F.	OK
N.B.	55 Black River	20 July 78	330	20	Sunny and warm; water temp. 72F.	OK
N.B.	51 Hardwicke	20 July 78	45	<18	Sunny and warm; water temp. 72F.	OK

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PROVINCE	AREA NO.	DATE SAMPLED	MPN COLIFORM PER 100 GM.	MPN FAECAL COLIFORM PER 100 GM.	SAMPLING CONDITIONS	ACTIONS
N.S.	73	30 May 78	700	<20	Air temp, 21 <sup>0</sup> C; water temp. 18 <sup>0</sup> C; wind light; rain - none lately; weather sunny.	This was a survey we carried out from May 30 to July 28, 1978 to see effects of rain on oysters at Little Narrows Pond
		2 June 78	2,200	<20	Air temp, 11 <sup>0</sup> C; water temp. 12 <sup>0</sup> C; wind light to moderate; rain - day before, weather cloudy.	
		6 June 78	9,200	220	Air temp, 12 <sup>0</sup> C; water temp. 14 <sup>0</sup> C; wind none; rain - day before; weather light rain.	

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PROVINCE	AREA NO.	DATE SAMPLED	MPN COLIFORM PER 100 GM.	MPN FAECAL COLIFORM PER 100 GM.	SAMPLING CONDITIONS	ACTIONS
N.S.	73	9 June 78	1,700	170	Air temp, 23 <sup>0</sup> C; water temp. 15 <sup>0</sup> C; wind none; rain - heavy; weather rain.	Same as page 4.
		13 June 78	50	<20	Air temp, 14 <sup>0</sup> C; water temp. 17 <sup>0</sup> C; wind light; rain - none lately; weather cloudy, some fog.	
		16 June 78	2,400	<20	Air temp, 16 <sup>0</sup> C; water temp. 15 <sup>0</sup> C; wind light; rain - overnight; weather cloudy, some sun.	
		20 June 78	460	<20	Air temp, 22 <sup>0</sup> C; water temp. 21 <sup>0</sup> C; wind light; rain - none lately; weather sunny.	



TABLE VI

MARITIMES REGIONENVIRONMENTAL CONDITIONS AT TIME OF SAMPLING (AREAS RESAMPLED ONLY)OYSTER SHELLSTOCK MONITORING PROGRAM - PRE-SEASON SURVEY - 1978BACTERIOLOGICAL RESULTS

PROVINCE	AREA NO.	DATE SAMPLED	MPN COLIFORM PER 100 GM.	MPN FAECAL COLIFORM PER 100 GM.	SAMPLING CONDITIONS	ACTIONS
N.S.	73	23 June 78	140	20	Air temp, 22 <sup>0</sup> C; water temp. 20 <sup>0</sup> C; wind light; rain - night before; weather sunny.	Same as page 4.
		27 June 78	130	<20	Air temp, 27 <sup>0</sup> C; water temp. 23 <sup>0</sup> C; wind light; rain - none lately; weather overcast.	
		30 June 78	1,300	<20	Air temp, 19 <sup>0</sup> C; water temp. 20 <sup>0</sup> C; wind none; rain - heavy two days before; weather overcast.	
		4 July 78	220	<20	Air temp, 23 <sup>0</sup> C; water temp. 18 <sup>0</sup> C; wind none; rain - none recently; weather clear and sunny.	

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PROVINCE	AREA NO.	DATE SAMPLED	MPN COLIFORM PER 100 GM.	MPN FAECAL COLIFORM PER 100 GM.	SAMPLING CONDITIONS	ACTIONS
N.S.	73	7 July 78	80	<20	Air temp, 23 <sup>0</sup> C; water temp. 17 <sup>0</sup> C; wind light; rain - none lately; weather sunny.	Same as page 4.
		11 July 78	140	<20	Air temp, 23 <sup>0</sup> C; water temp. 21 <sup>0</sup> C; wind light; rain - none lately; weather overcast.	
		14 July 78	20	<20	Air temp, 19 <sup>0</sup> C; water temp. 22 <sup>0</sup> C; wind light; rain - none lately; weather sunny and warm.	
		18 July 78	16,000+	<20	Air temp, 22 <sup>0</sup> C; water temp. 18 <sup>0</sup> C; wind none; rain - heavy last few days; weather warm and rainy.	

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PROVINCE	AREA NO.	DATE SAMPLED	MPN COLIFORM PER 100 GM.	MPN FAECAL COLIFORM PER 100 GM.	SAMPLING CONDITIONS	ACTIONS
N.S.	73	21 July 78	50	<20	Air temp. 25 <sup>0</sup> C; water temp. 23 <sup>0</sup> C; wind none; rain - night before; weather sunny.	Same as page 4.
		25 July 78	230	<20	Air temp. 23 <sup>0</sup> C; water temp. 22 <sup>0</sup> C; wind none; rain - none lately; weather clear and sunny.	
		28 July 78	20	<20	Air temp. 21.5 <sup>0</sup> C; water temp. 22 <sup>0</sup> C; wind light; rain - none lately; weather cloudy with sunny intervals.	