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INTRODUCTION

During the summers of 1939 and 1940 a survey of the shore mollusc resources of the Northumberland strait coast of Nova Scotia was made by the Economic Survey Committee of the Nova Scotia Economic Council in cooperation with the Fisheries Research Board.

This survey was part of a general scheme of the Nova Scotia Economic Council to make an inventory of the natural resources of the province to serve as a basis for economic planning in their exploitation. It is of great practical importance for the government and the public to know what latent resources are available for development. In the general plan to assess them attention was first directed to the region which includes the Northumberland strait coast. Shore molluscs constitute an important fisheries resource in this region. Results of the present survey are also of immediate value to the Department of Fisheries in its oyster culture program in the region.

The survey was conducted by Dr. R. A. Ingalls of Mt. Allison University under the direction of Dr. A. W. H. Needler, in charge of oyster investigations for the Fisheries Research Board. It was financed by the Nova Scotia Economic Council, the Fisheries Research Board contributing only direction and the loan of a limited amount of equipment. Valuable assistance was given by the officers of the Department of Fisheries.

OYSTER CULTURE WORK BY THE DEPARTMENT OF FISHERIES

A very brief survey of the region was made in 1936 by Dr. Needler to discover the possibilities and problems for oyster culture. The potentialities were obviously considerable but it was also clear that special local conditions required study.

Jurisdiction over the oyster grounds of the province was transferred to the Dominion in 1937 by agreement between the two governments. Intensive investigation of local conditions was started at Wallace and Malagash in that year. Experimental oyster farming by the department and investigations by the Fisheries Research Board have been centred at Malagash since 1938 where conditions

are favourable for studying the potentialities of tidal flats, an important feature of the region's shore mollusc resources. The results of these investigations are included in manuscript reports made to the Fisheries Research Board and are summarized in the annual reports on oyster culture work published as appendices to the reports of the Department of Fisheries.

The Department of Fisheries has been engaged since 1937 in an effort to develop the oyster industry of the region through oyster farming. Public fishing areas have been defined and leases offered outside of them. A number of applications have been received and some leases already completed. Policies have been directed towards giving the best possible opportunity for oyster farming without interfering with the public fishery. Progress of oyster culture in the region has been reported in the oyster culture reports of the Department of Fisheries since 1937 when the work was first extended to Nova Scotia. The development is still at a very early stage with many problems of producing oysters under the local conditions still requiring solution.

It is obvious that the present survey of the shore mollusc resources of this region is of direct value to the department in formulating its oyster culture policies and in the actual detailed work of making grounds available for oyster culture.

PROCEDURE

It was the purpose of the survey to assess the latent shore mollusc resources as well as those which are already being exploited. This involved not only a survey of the valuable mollusc which now occur naturally but also of the conditions for their culture. The survey had, therefore, to take into account hydrography, bottom conditions, enemies, etc., as well as the molluscs themselves.

Obviously the breadth of the field limited the intensity of the attack. It was considered of the greatest value to get the general view which is necessary to make even an approximate estimate of the potentialities of the region as a whole. An attempt has been made to obtain approximate information which has been supplemented by more detailed data in important places.

Time ~~does~~ did not permit examination of the entire coast. The areas covered are given below. The outer shores and certain inlets (especially Malagash basin, where intensive work has been carried on by the Department of Fisheries) were not surveyed.

Distribution of valuable molluscs and their enemies. Direct observations on the distribution and abundance of the valuable molluscs and their enemies were made by Dr. Ingalls and supplemented by local information. The species noted included the oyster (Ostrea), quahaug (Venus), soft-shelled clams (Mya), two kinds of mussels (Mytilus and Modiolus) and the bivalves' enemies, starfish, whelks, and oyster drills. When possible quantitative observations were made on the abundance but the survey gives a general picture of the distribution and abundance rather than an accurate quantitative estimate of the stocks. Abundance of marine animals is so changeable that the latter would be of little extra value.

Hydrography. The occurrence of the shore molluscs is limited by the hydrographic conditions either directly or indirectly. Of these the two most important are temperature, which limits both growth and reproduction, and salinity. Regular observations were made at a few selected points and these were supplemented by more widespread exploratory observations.

Bottom conditions. The detailed distribution of oysters and other valuable molluscs is limited by bottom conditions. The bottom usually is sandy close to the shore with a transition through firm muddy sand to soft mud in deeper water. This is varied by rock ledge bottom, especially on exposed points, and by shell bottoms produced by the accumulated dead shells of bivalves. The width or depth of the zones of sandy, firm or soft mud bottom varies greatly so that in some areas little or no firm bottom at a sufficient depth to escape ice is present while in others large areas are available. In the present survey it was not possible to make actual measurement of either the positions or area of various types of bottom. An attempt was, however, made to obtain approximate information of their occurrence and especially on the areas of firm ground out of reach of the ice which would be available for mollusc culture.

Presentation of report. This report covers the survey commenced in 1939 with general exploration of Lynwood, Tracadie, Pomquet, Antigonish,Merigomish,Pictou and Caribou Harbours, and continued in 1940 to include Brule, Barachois, Tatamagouche and Wallace bay, as well as Wallace river, Pugwash river, River Phillip, Tidnish river and vicinity. The work of 1940 also supplied more detailed or accurate information on important points in the areas explored in 1939. All information has been plotted on charts wherever available. Hydrographic data are given in the appendix.

TIDNISH RIVER AND BAIE VERTE:

A survey of this area was started in September, 1939, but due to inclement weather was not completed until the summer of 1940 when a careful exploration was made.

Hydrography. Observations in the summer of 1940 indicate that temperatures were high enough for good growth and reproduction. Salinities were also high enough for the production of good quality oysters.

Bottom conditions. A number of shell beds were observed in this vicinity. One about 30' x 50' was found in the river about four hundred yards below the old pier. Another of about the same size was found just inside the mouth of the river, while outside there is an extensive bed of many acres. These beds are made up of oyster shells which are clean and free from sediment. Inside of the large bed a narrow channel runs through entensive tidal flats to the head of the bay. Small scattered hard areas occur in this channel. Another large shell bed was discovered about a mile and a half out from Currie's shore (Nova Scotia coast) in range between Cape Spear and Tidnish Head. This bed is covered by 18' of water at low tide and is dirty.

Mollusc stocks. On the innermost bed in Tidnish river and along the neighbouring shores there are oysters of good shape and quality. More, however, were obtained in 1939 than in 1940. Spat also appeared much more plentiful in 1939 than in 1940. A few oysters occur along the banks of the channel leading through the tidal flats to the head of the bay but no evidence of living oysters was found on either of the large shell beds. Large living mussels were found on the outside shell bed. Smaller mussels occur in the Tidnish river.

Enemies. Polynices and starfish were found.

Summary. An opportunity for growing high quality oysters on clean shell bottom is indicated.

RIVER PHILLIP:

This river consists of a long narrow winding estuary with a very deep channel in which the current is very strong. The river is navigable at low tide as far as Simpson's.

Hydrography. Temperatures and salinity determinations were taken only during the exploration of the river. Such observations, however, seem to indicate that while temperatures are high enough for good production of oysters, especially in the upper part of the river, salinities are very low except in the lower part of the river near the highway bridge.

Bottom conditions. From Simpson's down as far as the Gray Rock Quarry the bottom is firm with a sand or gravel basis. Between this region and the highway bridge the bottom is predominantly soft with scattered patches of shell bottom in the form of "middle grounds". These are very shallow in most cases and very dirty. The sides of the channel are steep but firm in places. Wide mud flats are exposed at low tide throughout the area considered.

Mollusc stocks. Oysters occur over a limited area, chiefly between the Gray Rock Quarry and Embree's creek. They are, however, scarce, clustered and of poor quality generally. No living oysters were found on the shell beds in the lower reaches of the river. No spat were observed. Mussels, both Mytilus and Modiolus, were abundant throughout the full length of the river, occurring on the flats and on the sides of the channel, as well as on the middle grounds.

Enemies. Polynices were found in the lower part of the river.

Summary. The low salinities, combined with the prevalence of soft bottoms and strong currents seem to indicate that this river is not a suitable area for the development of oyster culture.

Soft-shelled Clams — good stock opposite Simpsons surveyed by J.L. Mackay in 1949.

PUGWASH RIVER:

This river, like River Phillip, is a long narrow winding estuary, the channel of which is deep and has a strong current.

Hydrography. Although temperatures were satisfactory for growth and reproduction the salinities of the upper part of the river, where greatest reproduction occurs, are too low for production of good quality oysters.

Bottom conditions. From Britain's creek to Coburn's creek the river has a firm bottom of sand and gravel with some rocky areas. Between Coburn's creek and MacPherson's the bottom is softer with hard patches interspersed. Below this the bottom is predominantly very soft. One large shell bed occurs within this stretch, opposite Doherty creek. Hard shell bottom is also found in that creek. There are extensive tidal flats in the basin at the lower end of the river as well as along the river itself.

Mollusc stocks. Oysters occur mainly between Britain creek and Canfield creek with the greatest yields from the up-river part of this stretch. Those occurring on hard bottom were of good shape and had hard shells but were fresh to the taste. Oysters taken from softer bottoms were clustered and as a result were poorly-shaped as well as having a fresh flavour. Although no spat were found a small number of small oysters were observed at the upper end of the river.

Mussels occur in great numbers between Doherty creek and MacPherson's creek. They occur in other parts of the river as well but mainly in smaller numbers scattered over the tidal flats.

Soft-shelled clams occurred in small quantities along the shores between Canfield creek and the pier below the highway bridge. They were small, however, and there was evidence of many having died.

Enemies. Polynices were observed along the lower stretch of the river while oyster drill egg-cases were found at various places about midway up the river.

Summary. Considering that low salinities occur where hard bottoms are available and that soft bottoms predominate in that part of the river where salinities are suitable for good growth, it seems unlikely that the river will ever be used to any great extent for oyster culture.

WALLACE RIVER AND BAY:

Wallace bay is a long bay with a deep narrow channel. At its upper end it divides to form the north and south branches of the Wallace river, both of which are tidal.

Hydrography. Wallace bay, North Branch and the lower part of the South Branch show sufficiently high salinities to produce good quality oysters. The salinity decreases rapidly up the south branch since it is mainly from this source that the fresh water enters.

Temperature readings indicate that the water becomes warm enough for good growth and reproduction.

Bottom conditions. A number of shell beds occur along the channel of Wallace bay and also in Lazy bay, a branch of Wallace bay near its mouth. Apart from these the bottom is very soft. A few patches of shell bottom are also to be found in the north branch but they are now covered by a considerable quantity of silt. In the south branch, from the highway bridge to the quarry above the railroad bridge, the bottom is mostly soft with only a few small scattered hard areas. Between the quarry and Manning's wharf the bottom becomes somewhat firmer until it passes into a firm mud on which lies rock, gravel and sand. Wide tidal flats occur in the bay and to a lesser extent along the two branches.

Mollusc stocks. The shell beds below the forking of the bay are now barren. In the lower part of the river and up the north branch there are small quantities of oysters of a good quality. In the north branch, however, many of the older ones appear to be smothered by the accumulating silt. In its upper reaches large numbers of small oysters were in evidence, indicating favourable conditions for growth and reproduction. In the south branch between the highway bridge and the quarry the oysters are on soft bottoms and are, therefore, of very poor shape. They are not at all plentiful. Toward the upper reaches of this stretch they are poor in quality as well as shape. Above the quarry the oysters have a better shape but are of poor quality due to the low salinities.

Many clams occur along the shores of Wallace bay and the lower stretches of the two branches. They are very small and often occur in a clay-like bottom which makes digging very difficult. Some evidence of death among these forms was noted.

Exploration of the entire area produced only a few living quahaugs. A larger number of dead ones were found. In Lazy bay greater quantities of quahaugs may be ontained but there, too, there was evidence of heavy mortality.

Mussels are present in great numbers in the south branch between Goose Island and the railway bridge. They also occur over the tidal flats, as well as in the north branch, but to a lesser extent.

Enemies. Polynices and starfish were observed.

Summary. Hydrographic conditions are suitable for oyster growth. The most likely areas for development are the barren shell bottoms in the bay. There is little or no firm bottom in the river where suitable hydrographic conditions prevail.

BARACHOIS:

This is an inlet off Tatamagouche bay consisting of an outer exposed basin and an inner sheltered basin, the two being joined by the "narrows".

Hydrography. In 1940 salinities were high enough for good quality in both the inner and the outer basins. Although temperatures were high enough in the inner basin for good growth and reproduction they were barely so in the outer basin.

Bottom conditions. The bottom of the channel in the inner basin is very soft as are the broad flats on either side. The bottom of the "narrows" on the other hand is mostly firm rock while in the outer basin considerable firm mud bottom exists. Two small areas of shell bottom occur here as well. Although much of this firm bottom is covered with several feet of water its value for oyster culture is questionable because of exposure. Broad flats occur in the outer basin.

Mollusc stocks. Oysters of a very poor shape are found in the channel and on the flats of the inner basin as a result of the very soft bottom. Small numbers of a better-shaped oyster are picked by hand from the flats of the outer basin. The "narrows" are barren.

In the inner basin many quahaugs occur in the channel and over the flats. While they do occur on the flats of the outer basin they are fewer in number and there was evidence that they were dying off rapidly.

Only a very few small clams are to be found.

Mussel beds are making their appearance in the channel of the inner basin. Small numbers of mussels occur over the flats.

Enemies. Polynices and starfish were observed.

Summary. Although considerable firm bottom is available its value for oyster development is questionable because of its exposure.

BRULE HARBOUR:

This harbour is an inlet from Tatamagouche bay but somewhat more sheltered than the outer basin of Barachois.

Hydrography. Both temperatures and salinities were found high enough for growth and reproduction of oysters.

Bottom conditions. Sandy shores predominate near the mouth of the harbour. Between the middle area and the inner western end, the bottom of which is generally soft, lies a considerable area of bottom of firm mud at a sufficient depth to escape ice damage. Two small patches of shell bottom are also in this area. Broad tidal flats extend around most of the shore.

Mollusc stocks. Many quahaugs are to be found as indicated on the chart at E, F, G, H, I and J, the most numerous and best specimens being at F and G. A large proportion of those at H were dead while some evidence of death was found at I.

Scattered oysters occur over the tidal flats and also on and around the outer shell bed.

Very few small clams occur around most of the shore of the inner part of the harbour.

Scattered mussels likewise occur along the shore. No concentration was found.

Enemies. Starfish and Polynices were observed. Starfish appeared plentiful.

Summary. Hydrographic conditions as well as bottom conditions seemed to indicate that the harbour might be suitable for the development of oyster culture.

CARIBOU HARBOUR:

Hydrography. The observations indicate the occurrence of temperatures quite high enough for good reproduction of oysters at the mouth of Caribou river, but barely so in the lower part of the bay in 1939. The maximum temperatures were somewhat higher in 1940. Salinities were high enough for good quality in the bay and even in the rivers in 1939 which was an unusually dry season. The latter would not be expected in a wetter season.

Bottom conditions. There is a relatively small area of deep firm bottom not subject to shifting. Bottom in the rivers is predominantly soft except at the upper reaches and much of the firmer bottom in the bay is badly exposed. Wide tidal flats occur at the west end of the bay and have in the past supported much of the public fishery. The production of these flats at the present time is very low.

Mollusc stocks. There are few oysters of marketable size outside the rivers except on private areas. Enough are present on flats at the west end of the bay to support some picking but the greater number occur in the rivers where the oysters are long, thin and clustered. Good natural spat production apparently occurs in the rivers and small oysters occur naturally on many stretches of shore in the bay at such high levels that they are subject to winter killing.

Mussels are very abundant at the mouth of Caribou river. Smaller numbers occur up the rivers and at a number of places along the shores of the bay.

Soft-shelled clams were found widely distributed but were extremely small. Large specimens were either lacking or in a state of decomposition indicating the presence of a high mortality.

Considerable quantities of quahaugs were found in a cove on Caribou island and scattered specimens elsewhere.

Enemies. Starfish, oyster drills and Polynices were all found plentiful and widely distributed.

Summary. Suitable conditions for the production of high quality oysters are present only in limited areas. The ground available for oyster culture would be greatly increased if the technique of using tidal flats was developed. Other mollusc resources seem small.

PICTOU HARBOUR:

Pictou harbour with its branches East, Middle and West rivers, comprises a large area with a considerable natural production of oysters.

Public Health. Direct marketing of oysters without purification is now prohibited in East river and in the vicinity of Pircou because of sewage pollution. This seriously affects the potential value of the area for oyster culture.

Hydrography. In all three rivers temperatures high enough for reproduction, and salinities high enough for good quality, occurred in the seasons of 1939 and 1940.

Bottom conditions. Soft bottom predominates and there are only very limited areas of deep firm bottoms. As is usual with a considerable tidal range, wide flats exposed at extreme low tide and deep central channels are the rule. Some reasonable firm bottom occurs to the outer edge of the tidal flats where it is barely covered at low spring tides.

Mollusc stocks. Although unproductive for many years East and West rivers recently supported a considerable and increasing oyster industry. Due, however, to the large amounts of soft bottom a large percentage of the yield is clustered and of poor shape. Due to the firmer nature of the bottom West river oysters are better-shaped than are those from East and Middle river. Direct marketing was at first prohibited in all three rivers but may now be resumed in Middle and West rivers. Grounds new to the fishery with large stocks of oysters were discovered in West river. Much of the natural production is on flats barely covered at low tide.

Clams were found widely distributed but only small sizes were present.

Mussels were widely distributed and very abundant as shown by the chart.

Enemies. Careful exploration revealed no oyster drills but starfish and Polynices were widely distributed in all three rivers.

Summary. The survey of Pictou Harbour and its tributaries revealed considerable oyster stocks which had not yet been used. There is, therefore, prospect for an increasing public fishery in the next few years. The grounds available for oyster culture are limited as most of the suitable bottom in the inlets supports a public fishery.

MERIGOMISH:

Hydrography. Temperatures high enough for the reproduction of oysters occurred over most of the inlet during the 1939 season. However, during the 1940 season indications were that such conditions did not exist in the deeper waters near the mid section of the harbour. Salinities high enough for good quality occurred even close to the head of the inlet.

Bottom conditions. Very soft mud predominates. The best bottoms for oyster culture occur in the eastern and where firm mud extends to a depth of two to five feet at low tide. Elsewhere only a very narrow zone of bottom barely firm enough or deep enough for oyster culture is present.

Mollusc stocks. The yield of the oyster fishery was about 100 barrels in 1938 and somewhat larger in 1939. Interest was increasing because of economic conditions and public health closures in Pictou harbour. Good-shaped oysters were found in considerable numbers on firm bottoms in the eastern end of the harbour and have not yet been exploited there. Production has higherto been from the west end where they are badly clustered and the shape poor.

Quahaugs were found to be abundant in the deep waters of Big Cove and Blackhall Gut in the west end.

Soft-shelled clams were widespread but were mostly small with evidence of recent high mortality.

Enemies. Starfish and Polynices were abundant and widely distributed. Oyster drills, although not common, were found at both the east and west ends of the harbour.

Summary. Large stocks of quahaugs are present which have not been exploited. Good oysters not yet used were found in the east end of the harbour. Bottom conditions limit the potentialities for oyster culture. They are best at the east end of the harbour but the area of suitable bottom is small in proportion to the size of the bay.

ANTIGONISH HARBOUR:

Hydrography. Very limited observations indicated temperatures fully high enough for oyster reproduction but salinities somewhat low for good quality.

Bottom conditions. Antigonish harbour is characterized by very soft bottoms throughout. Only two very small firm areas were found.

Mollusc stocks. Oysters of good shape were abundant on two small firm areas. A few poor oysters were scattered on soft bottoms. A dark colour and unpalatable taste were noted in some of the oysters.

Summary. The potentialities for mollusc culture are very small owing to bottom conditions.

POMQUET HARBOUR:

This is a small, well-sheltered, branching inlet west of Tracadie Harbour.

Hydrography. Limited observations over two seasons indicate temperatures high enough for good oyster reproduction. Salinities, which were high during the dry season of 1939, were somewhat lower in 1940, but not enough to affect the quality of oysters materially.

Bottom conditions. Only very small areas of deep firm bottom are present including several small oyster shell beds. Of the latter one is badly covered with mussels but the others are apparently clean.

Mollusc stocks. Oysters were present in very small numbers. Most of the individuals were very old and no spat were seen. Numerous small shell beds indicate former abundance.

Clams were numerous in the east end of the harbour. They were mostly quite small with a few large ones. There were indications of recent heavy mortalities.

Mussels are abundant in a few areas.

Enemies. Polynices and starfish were widely distributed but oyster drills were not found.

Summary. The potentialities of the inlet are not great. A few areas of shell bottom might be used for oyster culture.

TRACADIE HARBOUR:

This is the principal oyster producing inlet of Antigonish county with an average annual yield of somewhat less than one hundred barrels. It is a small inlet protected by a barrier beach with the oyster production principally in a westerly extension of the main bay just inside the beach.

Hydrography. Although maximum temperatures were far above those required for good reproduction, the minimum temperature dropped to an unusual low during the 1940 season. The conditions were suddenly changed by a new opening in the beach, leading directly to the western arm, made by the storm of November 25, 1938. Salinities are now probably higher and temperatures lower than formerly, making conditions somewhat less favourable for reproduction and better for high quality oysters. There are now strong tidal currents which may influence distribution of mollusc larvae.

Bottom conditions. Firm bottoms at sufficient depths to escape ice are common in the west arm. The bottom of the main bay is soft except for very small areas. The new opening in the barrier beach has rendered some bottom shifty in this vicinity.

Mollusc stocks. Oyster production rose to 200 bushels in 1938 and to 600 bushels in 1939 as compared with 150 bushels for 1937.

In 1938 many spat were produced but very few were found in 1939. The new conditions may have either reduced reproduction or else the larvae were carried to the outside. The oysters occur principally on hard bottoms in the west arm but even these areas are not producing to capacity. Only a few scattered oysters are present in the main bay.

Clams were found but were very small.

Mussels were found scattered in the western arm in the tidal pond.

Enemies. Starfish and Polynices were found during the season of 1940 but not in 1939.

Summary. In the western arm deep, firm bottoms and salinities suitable for high quality occur. The fluctuation between maximum and minimum temperature is so great as to make conditions for reproduction questionable. Other mollusc resources are not apparent.

LYNWOOD OR LITTLE TRACADIE HARBOUR:

A brief exploration was made of Lynwood harbour which is a small inlet east of Tracadie harbour.

Hydrography. The very brief observations indicate sufficient warmth for oyster culture and high enough salinities for good growth.

Bottom conditions. A considerable area of deep firm bottom was present but it was too rocky to be suitable for oyster cultivation. The remainder of the bottom in the harbour was soft.

Mollusc stocks. Only a few oysters are present but an abundance of spat was observed on the rocky shores.

Clams are plentiful. They were, however, near a bottom subject to shifting and there was evidence that some had already been smothered out.

A few mussels were found along the shores and on some of the shallow soft bottoms.

Enemies. Starfish and Polynices were widespread but there was no evidence of oyster drills.

Summary. Although hydrographic conditions were suitable for oyster culture the hard bottom was much too rocky and too deep for practical purposes.

GENERAL SUMMARY

Tidnish river and vicinity, River Phillip, Pugwash river, Wallace bay and river, Tatamagouche bay, Barachois, Brule, Pictou, Caribou, Merigomish, Antigonish, Pomquet, Tracadie and Lynwood harbours were explored for valuable molluscs and conditions suitable for their culture.

The survey confirmed the relative scarcity of deep firm grounds and the accompanying importance of tidal flats. The scale on which oyster culture may be developed depends on success or failure in the development of methods for using flats.

Hydrographic conditions suitable for oyster reproduction and for good quality are widespread in the region, bottom conditions being a more important limiting factor for expansion of the industry.

Salinities for the various harbours were lower in 1940 than in 1939 which was an unusually dry season.

Natural stocks of oysters and quahaugs which have not yet been exploited were discovered by the survey.

The survey emphasized the increased production of oysters in the Pictou harbour area which for many years had been unproductive.

There was evidence of a recent heave mortality among soft-shelled clams, which had advanced further in some inlets than in others, but was serious in all those studied.

There was evidence of a still more recent mortality among the quahaugs..

The occurrence of the enemies of oysters and other bivalves was noted. The oyster drill was found in Caribou and Merigomish harbours, Tatamagouche bay and Pugwash river. Starfish were widely distributed with the exception of the upper reaches of Wallace and Pugwash rivers and River Phillip. Polynices likewise was not observed in these areas. No trace of it was found in Tracadie harbour.

HYDROGRAPHIC OBSERVATIONS

Northumberland strait coast of Nova Scotia

1939 and 1940

Collected through cooperation of

Fisheries Research Board of Canada

and

Nova Scotia Economic Survey Committee

Table 1.

Temperatures & salinities in Tidnish river and vicinity, 1939 & 1940.

Date	Time	Depth	Tide	Temp. (°C)	Salinity (per mille)	Place
1939						
Sep. 18	8:00A	Surf.		13.1	28.5	400 yds. below old pier.
		Bot. 4'		12.8	28.7	
" 20	9:45A	Surf.		13.2	28.4	
		Bot. 5'		13.0	28.7	" " " "
" 18	8:45A	Surf.		12.8	29.2	Mouth of river.
		Bot. 6'		12.5	29.2	
" 20	10:30A	Surf.		12.6	29.2	Old bed of shells outside of river.
		Bot. 6'		12.4	29.2	
1940						
July 2	8:00A	Surf.	High		28.0	Below old pier.
		Bot.			28.3	
8	5:00P	Surf.	Ebb		28.1	
		Bot.			28.7	
15	4:00P	Surf.	Flood		28.5	
25	9:30A	Surf.	Low		28.2	
		Bot.			28.7	
Aug. 6	8:30A	Surf.	Flood		27.9	
12	9:00A	Surf.	"		28.4	
19	5:00P	Surf.	Low		28.4	
		Bot.			28.6	
27	4:00P	Surf.	High		28.2	
		Bot.			---	
Sep. 2	10:30A	Surf.	"		28.3	
		Bot.			28.5	

Table 2.

Temperatures & salinities in river Phillip, 1940.

				(°F)		
June 20	6:00P	Surf.	Slack	60.8	2.6	Head of river.
		Bot.		60.	3.5	
July 12	3:00P	Surf.	High	68.	3.4	
		Bot.		67.1	4.8	
June 20	5:00P	Surf.	Ebb	59.8	10.2	Green Point.
		Bot.		59.1	11.1	
July 12	4:00	Surf.	"	68.2	14.4	
		Bot.		67.4	15.7	
Aug. 21	10:00A	Surf.	Flood	71.2	11.6	
		Bot.		70.6	12.1	
June 20	5:00P	Surf.	Low	59.9	26.8	Bridge
		Bot.		59.	28.3	
July 12	5:30P	Surf.	Ebb	70.5	27.2	
		Bot.		69.9	28.4	
Aug. 21	1:00P	Surf.	High	72.2	27.6	
		Bot.		----	28.2	

Table 3.

Salinities in Pugwash river off Canfield's creek, 1940.

Date	Time	Depth	Tide	Salinity (per mille)
June 17	8:00A	Surf.	Ebb	20.7
		Bot.		21.1
July 9	9:00A	Surf.	Flood	22.2
		Bot.		22.6
16	5:00P	Surf.	"	21.8
		Bot.		22.0
21	10:00A	Surf.	"	22.8
		Bot.		23.0
29	8:30A	Surf.	Ebb	22.6
		Bot.		23.0
Aug. 5	5:00P	Surf.	"	22.6
		Bot.		22.8
13	8:00A	Surf.	"	21.8
		Bot.		22.4
21	10:00A	Surf.	"	22.1
		Bot.		22.6

Table 3A.

Maximum and minimum temperatures near surface in Pugwash river off Canfield's creek, 1940.

Date	Time	Tide	Temp. (°F) Max.	Min.
y 12	8:50P	Ebb	71	63
13	8:15A	"	68	68
	4:45P	Flood	68	67
14	9:00A	Ebb	70	66
	8:50P	"	72	66
15	9:00A	"	68	68
	7:00P	Flood	72	62
16	9:15A	Ebb	69	68
	8:30P	Flood	71	66
17	9:00A	Ebb	68	66
	7:30P	Flood	72	66
18	9:45A	Ebb	70	67
	7:30P	Flood	74	67
19	9:30A	"	72	68
	7:30P	"	73	69
20	9:30A	"	74	70
	4:30P	Ebb	73	68
21	10:00A	Flood	74	68
	5:00P	Ebb	72	67
22	10:00A	Flood	71	67
	5:00P	Ebb	70	68
23	9:45A	Flood	72	68
	4:30P	Ebb	70	68
24	10:00A	Flood	72	69
	5:00P	Ebb	70	68
25	10:00A	Flood	73	69
	5:30P	Ebb	72	70
26	10:00A	Flood	72	68
	6:00P	Ebb	74	70
27	7:30A	"	74	71
	5:00P	"	74	72
28	8:30A	"	75	72
	7:30P	"	74	73
29	8:30A	"	75	72
	5:00P	Flood	74	70

Date	Time	Tide	Temp. (°F) Max.	Min.
July 30	9:00A	Ebb	75	68
	7:00P	"	74	71
31	9:00A	"	72	70
	6:00P	Flood	74	70
Aug. 1	9:00A	Ebb	74	70
	6:00P	Flood	70	71
2	8:30A	Ebb	68	64
	9:00P	Flood	70	60
3	9:15A	Flood	71	63
	6:00P	"	70	68
4	8:00A	"	72	67
	9:00P	"	74	68
5	9:15A	"	73	70
	5:00P	Ebb	73	70
			74	72
7	10:00A	Flood	74	71
	5:15P	Ebb	72	71
8	10:00A	Flood	73	70
	5:00P	Ebb	72	70
9	8:00A	Ebb	73	71
	5:30P	"	72	70
10	7:30A	"	74	72
	5:30P	"	74	70
11	8:45A	"	73	70
	5:30P	Flood	72	70
12	8:30A	Ebb	74	71
	7:00P	"	72	70
13	9:45A	"	72	68
	7:00P	Flood	72	69
14	9:30A	Ebb	70	67
	7:00P	Flood	70	68
15	9:00A	Ebb	68	68
	7:30P	Flood	70	68
16	8:45A	"	68	68
	7:30P	"	72	67

Table 3A--Continued

Date	Time	Tide	Temp.(°F) Max.	Min.	Date	Time	Tide	Temp.(°F) Max.	Min.
Aug. 17	9:00A	Flood	70	68	Aug. 24	10:30A	Flood	70	69
	7:00P	"	73	68		5:00P	Ebb	70	68
18	10:00A	"	72	70	25	10:30A	Flood	69	67
	7:30P	"	72	69		7:30P	Ebb	68	66
19	9:00A	"	71	68	26	7:15A	"	68	66
	7:45P	"	73	70		7:00P	"	66	62
20	8:30A	"	72	68	27	7:30A	"	66	63
	5:00P	Ebb	71	69		7:00P	"	62	60
21	8:30A	Flood	74	70	28	9:00A	"	62	62
	5:00P	Ebb	72	69		7:15P	"	63	62
22	10:30A	Flood	72	68	29	9:15A	"	63	62
	5:00P	Ebb	70	66		7:00P	"	66	62
23	11:00A	Flood	70	70	30	9:00A	"	64	64
	5:00P	Ebb	70	70		7:00P	"	63	60
					31	9:30A	"	66	62

Table 4.

Temperature and salinities in Wallace river, 1940

Date	Time	Depth	Tide	Temp. (°F)	Salinity (per mille)	Place
June 10	4:00P	Surf.	Ebb	60.	27.1	Wallace bridge.
		Bot.		59.	27.9	
11	8:00A	Surf.	Flood	62	20.8	
		Bot.		61.8	21.6	
12	10:00A	Surf.	"	62	19.7	
		Bot.		61.2	21.3	
21	4:30P	Surf.	Ebb	-	23.3	
		Bot.		-	27.2	
July 3	9:00A	Surf.	Ebb	68.	24.	
		Bot.		66.2	26.4	
17	2:30P	Surf.	Low	72.	21.7	
		Bot.		71.4	27.4	
Aug. 2	8:30A	Surf.	High	74.	23.7	
		Bot.		-	26.0	
June 11	10:30A	Surf.	Low	60.1	21.2	
		Bot.		59.4	21.8	Head of North Branch
July 4	8:00P	Surf.	High	68.	22.3	
		Bot.		67.5	22.7	
Aug. 22	4:30P	Surf.	Ebb	72.2	21.7	
		Bot.		-	22.4	
June 11	2:30P	Surf.	High	62.	26.3	Government wharf
		Bot.		60.8	26.3	
July 10	9:00A	Surf.	Flood	70.2	27.2	
		Bot.		-	27.4	
Aug. 20	8:00A	Surf.	"	72.4	26.7	
		Bot.		71.8	26.8	
June 10	8:00A	Surf.	Low	61.2	2.2	Manning's wharf
		Bot.		60.8	8.1	
July 10	11:00A	Surf.	Flood	68.	3.6	
		Bot.		67.5	9.0	
Aug. 20	5:00P	Surf.	Low	73.1	3.6	
		Bot.		72.6	7.3	

Table 5.

Temperatures and salinities in Barachois harbour, Amet sound, 1940.

Date	Time	Depth	Tide	Temp. (°F)	Salinity (per mille)	Place
June 15	9:00A	Surf.	Flood	65	27.9	Inner Basin
		Bot.			28.0	
July 3	8:00A	Surf.	High	67.4	28.0	
		Bot.			--	
10	5:00P	Surf.	Ebb	69.8	27.0	
		Bot.			28.5	
18	3:00P	Surf.	Ebb	69.5	28.0	
		Bot.			28.8	
27	4:00P	Surf.	High	73.1	28.2	
		Bot.			28.4	
Aug. 7	1:00P	Surf.	High	71.8	27.9	
21	6:00A	Surf.	Low	74.1	27.6	
		Bot.			28.0	
26	5:00P	Surf.	Ebb	72.8	27.6	
June 15	10:30A	Surf.	Flood	61.0	28.6	Outer Basin
		Bot.			28.7	
July 10	3:00P	Surf.	Ebb	68.0	28.4	
		Bot.			28.5	
July 27	5:30P	Surf.	"	71.0	28.5	
		Bot.			28.5	
Aug. 7	10:00A	Surf.	Flood	70.0	28.6	
		Bot.			28.6	
26	6:00P	Surf.	Ebb	73.0	28.4	
		Bot.			28.4	

Table 6.

Temperatures and salinities in Brule harbour near point, 1940.

July 9	8:00A	Surf.	Flood	64.0	28.7	
		Bot.			--	
28	11:00A	Surf.	Low	70.0	28.9	
		Bot.			28.9	
Aug. 6	5:00P	Surf.	"	71.0	28.3	
		Bot.			28.4	
14	5:00P	Surf.	Flood	70.0	28.8	
22	7:30A	Surf.	Low	73.0	28.6	
		Bot.			28.7	

Table 7.

Temperatures and salinities in Caribou harbour, 1939 and 1940.

1939				(°C)		
July 27	10:00A	Surf.		23.8	29.2	Caribou bridge
		Bot. 10'		23.5	29.2	
29	9:00A	Surf.		23.0	29.2	
		Bot.		22.6	29.2	
Aug. 8	12:00 noon	Surf.		22.5	29.0	
		Bot.		22.3	29.0	
23	9:00A	Surf.		21.5	29.1	
		Bot.		21.2	29.1	
Sep. 12	9:00A	Surf.		17.0	29.1	
		Bot.		16.8	29.1	
July 31	3:00P	Surf.		28.9	28.8	Head of Little
		Bot. 4'		28.7	29.0	Caribou river
Aug. 28	2:30P	Surf.		23.0	28.3	
		Bot.		22.7	29.0	
July 31	1:30P	Surf.		29.0	28.6	Head of Big Caribou
		Bot. 5'		28.7	29.0	river
Aug. 28	4:30P	Surf.		25.1	28.1	
		Bot.		24.8	29.0	
July 28	3:15P	Surf.		19.8	30.1	Off Falconer's shore
		Bot. 15'		19.0	30.4	
Aug. 23	10:00A	Surf.		18.8	29.4	
		Bot.		18.3	29.4	
Sep. 12	9:00A	Surf.		14.5	29.4	
		Bot.		14.0	29.4	
July 31	3:15P	Surf.		19.8	30.1	Finlay McKenzie's
		Bot. 8'		19.2	30.4	shore

Table 7--Continued.

Date	Time	Depth	Tide	Temp. (°C)	Salinity (per mille)	Place
Aug. 31	2:30P	Surf.		18.9	30.0	Finlay McKenzie's
		Bot.		18.5	30.2	shore.
Sep. 13	11:00A	Surf.		15.0	30.1	
		Bot.		14.8	30.3	
1940						
June 11	4:00P	Surf.	Ebb		28.0	Mouth of Caribou
18	7:00A	Surf.	Flood		28.2	river.
		Bot.			28.2	
26	8:00A	Surf.	Low		28.1	
July 1	6:00P	Surf.	High		28.4	
		Bot.			28.4	
8	8:00A	Surf.	Flood		28.2	
15	6:30P	Surf.	"		28.3	
		Bot.			28.4	
22	7:00A	Surf.	"		28.0	
Aug. 6	6:30A	Surf.	"		28.4	
12	7:00P	Surf.	Ebb		28.0	
		Bot.			28.6	
20	5:00P	Surf.	Low		28.3	
27	8:00A	Surf.	Ebb		28.3	
		Bot.			28.5	

Table 7A

Maximum and minimum temperatures near surface in Caribou harbour, 1939 and 1940.

Robert Murray's shore					Finlay McKenzie's shore				
Date	Time	Tide	Temp.(°F) Max.	Min.	Date	Time	Tide	Temp.(°F) Max.	Min.
1939									
July 26	8:00A	5'	72	72	Sep. 6	8:10A	3½'	70	62
26	7:15P	6'	73	68	7	8:00A	4'	68	52
27	7:00A	6½'	75	68		7:20P	6'	54	48
	6:00P	5'	80	74	8	8:15A	5'	64	54
28	7:00A	6'	74	68		7:30P	6',4"	63	56
	5:15P	3'	80	60	9	8:00A	5', 9"	62	56
29	7:30A	6'	76	68		6:00P	6', 2"	66	54
	3:30P	2'	78	70	10	9:00A	6', 3"	62	56
30	9:45A	6½'	78	68	11	8:00A	7'	64	58
	7:15P	3½'	78	68		5:00P	4'	65	60
31	8:45A	6½'	76	70	12	8:30A	7', 2"	64	58
	8:15P	4'	80	72	13	6:10P	3"	64	57
Aug. 1	7:15A	5'	76	72	14	8:00A	5'	62	58
	7:15P	3'	74	68					
22	7:10A	3',7"	72	70	July 26	5:00P	4½'	72	64
	7:00P	5',2"	72	70	27	7:00A	5½'	70	68
23	6:20A	5½'	74	70		7:30P	4',10"	74	72
24	6:30A	5½'	74	70	28	11:30A	3½'	72	71
	6:00P	5',2"	75	71	29	8:00A	6½'	74	64
25	7:00A	6'	76	72	31	8:30A	6'	73	68
	6:20P	5'	79	71		7:00P	3½'	76	72
26	7:30A	5',10"	78	71	Aug. 2	7:00P	3½'	75	57
	5:20P	4'	77	70	22	7:30A	4'	68	66
27	8:00A	6½'	73	70		6:00P	6'	70	68
28	7:20A	6',4"	78	71	23	7:30A	4½'	70	68
	6:30P	3½'	72	65		6:30P	5'	72	68
29	7:30A	5',8"	72	66	24	7:30A	5'	72	68
	5:00P	3'	73	68		7:00P	6½'	74	68
30	6:30A	4½'	73	68	25	9:00A	4½'	73	66
31	7:30A	6'	72	62		6:30P	5'	74	69
	5:00P	3'	73	62	26	7:00A	6'	73	69
ep. 1	8:00A	3',10"	66	60		7:00P	5'	74	68
3	8:20A	3', 9"	68	62	27	8:00A	7'	74	67
	6:00P	3', 2"	70	65		7:00P	6'	70	66
4	7:30A	2',10"	70	64	28	7:00A	6½'	68	65
	7:30P	3', 3"	70	64		6:30P	4½'	72	65
5	8:00A	3'	70	66					
	5:20P	5'	70	62					

Table 7A--Continued.

Date		Time	Tide	Temp.(°F) Max.	Min.
Aug.	29	8:00A	6½'	70	64
		6:30P	5'	69	65
	30	8:00A	5½'	69	62
		P	strong easterly wind, no reading.		
	31	9:00A	6'	69	62
		7:00P	4'	66	60
Sep.	1	7:00A	4½'	64	61
		7:00P	4'	64	60
	2	7:30A	4'	65	62
		7:15P		66	63
	3	9:00A	4'	66	63
		7:00P	4½'	67	64
	4	9:00A	4'	67	64
		6:00P		66	64
	5	8:00A	4'	68	63
		6:00P	5½'	68	65
	6	8:00A	4'	68	66
		6:00P	6'	66	64
	7	8:00A	4½'	65	62
		6:00P	6'	63	62
	8	8:00A	4½'	63	61
		6:00P	4½'	61	59
	9	8:00A	4'	62	59
		6:00P	4'	62	59
	10	8:30A	5'	63	60
		6:00P	4½'	63	60
	11	8:30A	5'	64	61
		P	strong wind, no reading.		
	12	8:30A	5½'	62	61
		P	strong wind, no reading.		
	13	9:00A	6'	63	61
		6:30P	5'	62	60
	14	8:00A	6'	61	59
		4:30P	4½'	62	58

Mouth of Caribou river

1940					
July	1	7:00A	5',4" Ebb	70	64
		6:30P	6' Flood	68	53
	2	6:30A	6',6" Ebb	70	53
		6:15P	5',2" Flood	62	54
	3	7:00A	6',2" "	64	58
		6:30P	5',8" "	70	60
	4	7:30A	6' "	68	56
		7:00P	3',10" "	66	58
	5	8:00A	7' "	68	62
		7:00P	2',6" "	66	62
	6	7:30A	5',10" "	66	62
		6:00P	2'	68	66
	7	8:00A	5',10" "	70	60
		6:00P	2" Ebb	72	64
	8	7:30A	5',2" "	70	64
		6:30P	2',6" "	72	66
	9	8:00A	4',6" Flood	68	66
		6:30P	2',8" Ebb	72	68
	10	7:30A	3',10" Flood	72	62
		6:30P	5' "	72	64
	11	7:30A	3',8" "	72	62
		6:00P	5' Ebb	68	62
	12	7:30A	4' "	70	62
		6:30P	5',6" "	68	64
	13	7:30A	4',6" "	70	64
		6:30P	5',10" "	68	62
	14	8:00A	4'.10"	68	62
		7:30P	6',6" Flood	70	64
	15	7:30A	6' Ebb	68	66
		6:30P	6'.1" Flood	72	64
	16	8:00A	6',6" High	68	64
		6:00P	5' Flood	70	64
	17	6:30A	6',6" "	68	64
		7:00P	4',8" "	72	62
	18	6:30A	6',4" "	68	66

Date		Time	Tide	Temp.(°F) Max.	Min.
July	18	7:00P	4',1" Flood	72	64
	19	6:30A	6',2" "	68	66
		7:00P	3',2" "	72	66
	20	7:00A	6',2" "	70	66
		6:00P	2',6" "	74	68
	21	8:00A	6',6" "	74	68
		7:15P	2',10" "	74	68
	22	7:30A	4',6" "	72	68
		7:30P	2',9" "	74	66
	23	7:30A	3',11" "	72	68
		6:00P	3',8" Ebb	72	68
	24	7:30A	4' Flood	72	70
		6:00P	3',10" Ebb	74	68
	25	7:30A	4',3" "	74	70
		6:00P	4'.6" "	72	70
	26	7:30A	4',2" "	74	72
		6:00P	4'.10" "	74	70
	27	7:10A	4',10" "	76	72
		6:00P	5' "	74	72
	28	7:30A	5' "	74	72
		7:00P	5',4" "	76	74
	29	7:30A	5',6" "	76	70
		7:00P	5',6" "	76	70
	30	7:30A	5',10" "	76	70
		7:00P	6'.1" "	76	70
	31	7:30A	6',10" "	72	68
		7:00P	6',4" Flood	74	68
Aug.	1	Blowing, no reading.			
	2	8:30A	6',2" High	72	64
		7:30P	5',2" Flood	72	64
	3	7:00A	6' "	68	64
		8:00P	6',6" "	70	64
	4	8:00A	6' Flood	72	64
		7:30P	4' "	76	68
	5	7:30A	5',7" "	72	68
		7:30P	3',10" "	74	68
	6	6:30A	3'.2" "	76	66
		7:00P	3',10" "	76	70
	7	6:30A	3',1" "	76	72
		7:30P	2',4" "	74	73
	8	6:30A	2',8" "	76	72
		7:00P	3' Ebb	76	70
	9	No reading.			
	10	7:30A	3',10" "	76	72
		7:15P	4',4" "	74	68
	11	8:30A	2',4" "	74	68
		6:00P	5',3" "	74	66
	12	7:00A	5',6" "	73	38
		6:00P	5',8" "	72	64
	13	7:15A	6" "	72	68
		6:00P	6' Flood	72	68
	14	7:30A	6',6" "	72	70
		6:15P	5' "	74	70
	15	7:30A	7' "	72	66
		6:00P	3',11" "	72	64
	16	7:30A	6',8" "	70	62
		7:15P	4',6" "	72	63
	17	9:00A	7',4" "	70	68
		6:30P	3',7" "	74	68
	18	8:30A	6',2" "	72	70
		P	No reading		
	19	7:30A	5',7" Flood	76	72
		6:30P	3' "	76	70
	20	7:30A	4',10" "	76	72
		6:30P	2',6" "	76	68

Finlay McKenzie's shore

June	28	5:00P	5' Ebb	60	54
	29	8:00A	5' "	62	56
		5:00P	6' Flood	60	58
	30	8:00A	5½' Ebb	60	55
		5:30P	5' Flood	62	58
July	1	8:30A	5½' Ebb	62	56
		5:30P	4½' Flood	61	58

Table 7A--Continued.

Finlay McKenzie's shore.

Date 1940		Time	Tide		Temp.(°F) Max.	Min.	Date		Time	Tide		Temp.(°F) Max.	Min.
July	2	5:00P	4½'	Flood	62	61	Aug.	2	8:00A	5'	Ebb	72	66
	3	8:00A	5'	"	62	58		3	8:00A	6'	High	72	64
	4	5:00P	5'	"	63	56		4	9:00A	6'	"	70	64
	5	9:00A	6'	High	65	55		5	8:30A	5'	Flood	74	66
	6	8:30A	5½'	High	60	56		6	8:30A	5'	"	73	64
	7	9:00A	5½'	Flood	65	60		7	8:00A	5'	"	74	67
	8	9:00A	4½'	"	62	60		8	9:00A	5½'	"	73	68
	9	8:00A	4½'	"	66	62		9	8:00A	4'	"	75	67
	10	8:30A	4'	"	62	58		10	9:00A	4'	"	74	67
	11	5:00P	4'	Ebb	65	60		11	8:30A	4'	Ebb	76	68
	12	8:00A	5'	Flood	65	58		12	8:00A	4'	"	73	66
	13	6:00P	4'	"	65	60		13	9:00A	3½'	"	74	68
	14	9:30A	3½'	Ebb	62	60		14	9:30A	5'	"	72	70
	16	9:30A	5½'	Ebb	68	65		15	9:00A	5'	"	74	68
	17	1:00P	3'	Low	62	62		16	9:30A	6'	"	72	64
	18	9:00P	6'	High	69	62		17	8:30A	5'	"	73	68
	25	9:30A	4'	Flood	70	62		18	8:00A	5'	"	73	68
	27	9:00A	4½'	Ebb	72	63		19	8:00A	3'	Low	70	64
	28	8:30A	4'	"	71	68		20	9:30A	4'	Flood	70	62
	29	8:00A	4'	"	72	66		21	9:30A	4½'	"	70	61
	30	9:00A	4½'	"	70	65		22	8:00A	4'	"	70	60
	31	8:30A	5'	"	71	68		23	8:00A	4½'	"	72	64
Aug.	1	8:00A	4½'	"	70	67		24	8:30A	4½'	"	70	62

Table 8.

Temperatures and salinities in Pictou harbour, 1939 and 1940.

Date 1939		Time	Depth	Tide	Temp. (°C)	Salinity (per mille)	Place
							Middle river
Aug.	1	5:30P	Surf.		23.6	29.3	Old Drummond Pier
			Bot. 10'		23.4	29.4	
	14	12:00N	Surf.		23.4	29.2	
			Bot.		23.2	29.2	
	30	2:30P	Surf.		22.8	29.2	
			Bot.		22.6	29.4	
Aug.	3	12:30P	Surf.		27.5	29.7	Inside Lock Broom
			Bot. 10'		27.3	29.7	
	14	12:30P	Surf.		23.2	29.3	
			Bot.		23.0	29.3	
	30	3:00P	Surf.		22.6	29.3	
			Bot.		22.4	29.3	
Aug.	1	4:30P	Surf.		23.4	29.5	Mouth of river
			Bot. 15'		23.2	29.5	
	14	1:00P	Surf.		23.4	29.3	
			Bot.		23.2	29.3	
	30	2:45P	Surf.		22.5	29.5	
			Bot.		22.3	29.5	
Aug.	1	6:00P	Surf.		24.2	28.8	Sylvester Station
			Bot. 10'		24.0	28.8	
	30	5:30P	Surf.		21.5	28.4	
			Bot.		21.3	28.6	
							East river
Aug.	1	3:45P	Surf.		21.0	29.5	Mouth of river
			Bot. 10'		20.7	29.5	
	30	3:00P	Surf.		20.0	29.3	
			Bot.		19.8	29.3	
Aug.	1	4:00P	Surf.		23.8	29.0	Old Loading ground
			Bot. 16'		23.4	29.2	
	30	3:30P	Surf.		22.0	28.9	
			Bot.		21.8	29.1	
Aug.	1	2:30P	Surf.		23.6	28.8	
			Bot. 15'		23.3	29.0	Green's point
	5	2:30P	Surf.		23.1	28.4	Dunbar's point
			Bot. 6'		23.0	28.8	
	5	3:00P	Surf.		22.6	28.5	Off Johnston's
			Bot. 5'		22.5	28.8	shore.
	3	9:00A	Surf.		19.1	28.9	West river
			Bot. 15-20'		18.9	28.9	Brown's point

Table 8--Continued.

Date	Time	Depth	Tide	Temp. (°C)	Salinity (per mille)	Place
						West river
						Brown's point
Sep. 1	4:00P	Surf.		18.0	29.0	
		Bot.		17.8	29.0	
Aug. 3	11:30A	Surf.		20.0	28.8	Lank point
		Bot. 12'		19.8	29.1	
Sep. 1	5:00P	Surf.		19.0	28.0	
		Bot. 8'		18.8	28.4	
Aug. 3	9:30A	Surf.		19.5	29.3	Outside Gavin island
		Bot. 7'		19.2	29.5	
Sep. 1	3:30P	Surf.		18.2	29.1	
		Bot. 6'		18.0	29.2	
1940				(°F)		Middle river
June 26	4:30P	Surf.	Ebb	60.1	27.8	Old Drummond Pier
		Bot.		59.6	28.2	
July 6	2:30P	Surf.	"	67.1	28.0	
		Bot.		66.8	28.3	
26	10:00A	Surf.	Flood	70.0	28.4	
		Bot.		69.5	28.4	
Aug. 12	4:00P	Surf.		72.2	28.0	
		Bot.	Low	71.6	28.2	
27	3:45P	Surf.	High	70.0	28.5	
		Bot.		69.5	28.5	
June 26	5:30P	Surf.	Ebb	61.0	25.0	Sylvester Station
		Bot.		60.2	27.6	
July 6	4:30P	Surf.	Low	70.2	25.8	
		Bot.		69.7	27.1	
26	12:00 noon	Surf.	Flood	73.1	26.7	
		Bot.		72.8	28.0	
Aug. 12	2:00P	Surf.	"	72.8	26.2	
		Bot.		72.4	27.8	
27	5:00P	Surf.	Ebb	70.0	25.3	
		Bot.		69.8	27.4	
						East river
June 26	9:00A	Surf.	Low	59.8	27.8	Off Green point
		Bot.		59.4	28.0	
July 16	8:30A	Surf.	High	68.0	28.1	
		Bot.		67.8	28.4	
26	3:30P	Surf.		71.0	28.2	
		Bot.		70.6	28.2	
Aug. 12	10:00A	Surf.	Low	73.4	27.6	
		Bot.		73.0	27.8	
27	9:45A	Surf.	"	70.0	28.0	
		Bot.		70.7	28.2	
June 22	5:00P	Surf.	Ebb		25.3	West river
		Bot.			27.0	
24	5:30P	Surf.	"		24.6	
		Bot.			26.5	
July 3	4:30P	Surf.	Flood		27.2	
		Bot.			27.4	
11	8:30A	Surf.	"		26.2	
		Bot.			28.0	
16	8:00A	Surf.	Ebb		24.8	
25	7:30P	Surf.	"		25.3	
		Bot.			27.2	
Aug. 2	7:00P	Surf.	Flood		27.4	
		Bot.			---	
8	7:30P	Surf.	Ebb		26.2	
19	7:30P	Surf.	Flood		28.2	
		Bot.			28.2	

Table 8A

Maximum and minimum temperatures near surface, Pictou harbour, 1939 and 1940.

Date 1939	Time	Tide	Temp.(°F) Max.	Min.
	East river			
	Near old loading place.			
Aug. 2	4:00P	Ebb	78	57
3	5:00A	"	73	60
4	8:00A	Flood	72	59
	6:00P	Ebb	76	65
5	6:00A	"	71	62
	6:30P	"	72	68
6	9:00A	Flood	72	68
	7:00P	Ebb	78	71
7	7:00A	"	76	70
	6:00P	"	80	72
8	7:00A	"	77	71
	5:00P	Flood	81	72
9	8:00A	Ebb	80	71
	5:00P	Flood	81	73
19	7:00A	Ebb	83	72
	7:00P	"	82	73
20	8:00A	"	81	72
	7:00P	"	84	73
21	9:00A	"	84	70
	6:00P	Flood	85	73
22	6:00A	"	83	71
	7:00P	"	84	73
23	6:00A	"	83	72
	8:00P	"	82	69
24	6:00A	"	84	71
	7:00P	"	85	74
25	7:00A	"	85	73
	6:00P	"	84	72
26	6:00A	"	81	70
	7:00P	"	82	73
27	7:00A	"	79	71
	6:00P	"	82	72
28	7:00A	"	78	66
	7:00P	"	79	68
29	6:00A	"	77	68
	7:00P	"	80	69
30	9:00A	"	79	67
	6:00P	"	80	69
31	7:00A	"	78	67
	6:00P	"	79	69
Sep. 1	7:00A	Flood	78	66
	6:00P	"	77	67
2	6:00A	Low	77	66
	6:00P	"	78	69
	West river			
	Off Lyons brook.			
Aug.10	8:30A	4'Ebb	74	72
	7:15P	6' "	76	70
11	8:15A	4½' "	74	68
	7:15P	5' "	74	66
12	8:00A	6' "	70	68
	6:30P	4½'Low	76	68
13	9:00A	5½'Ebb	74	70
	6:45P	4'Flood	77	66
14	7:30A	6½' "	76	68
1940				
June17	6:50P	7'	62	60
18	10:15A	8'	60	58
	5:15P	4'	66	58
19	11:30A	8'	62	60
	7:05P	8'	62	58
20	10:00A	10'	58	58
	7:30P	6'	62	57
21	6:45A	6'	60	58
	6:30P	5',6"	66	56
22	9:00A	10'	60	58
	6:01P	4',6"	58	56

Date	Time	Tide	Temp.(°F) Max.	Min.
June 23	9:15A	11'	58	58
	5:45P	6'	58	56
24	10:00A	9'	60	56
	8:30P	8'	62	58
25	8:30A	7'	61	58
	8:30P	High wind, no reading.		
26	10:30A	7'	60	58
	7:00P	8'	62	60
27	8:30A	6'	62	60
	5:30P	7'	62	58
28	10:00A	6'	60	58
	8:00P	8'	61	58
29	10:00A	5'	58	57
	5:00P	8'	50	69
30	11:00A	6'	62	57
	9:00P	8'	62	58
July 1	11:00A	5'	58	57
	8:00P	8'	60	59
2	9:00A	6'	62	57
	P	Thermometer broken		
12	10:45A	8'	70	64
	7:00P	6'	66	64
13	9:30A	5'	67	65
	5:15P	10'	66	65
14	11:30A	6'	71	67
	7:30P	9'	66	64
15	10:00A	5'	68	65
	7:30P	8'	70	66
16	9:30A	5'	68	65
	7:00P	7'	68	66
17	9:30A	9'	65	63
	7:00P	6'	72	68
18	11:30A	9'	68	66
	7:00P	7'	75	65
19	8:30A	11'	68	65
	7:15P	8'	72	66
20	9:30A	12'	72	67
	8:00P	8'	72	68
21	10:15A	11'	72	69
	9:30P	7'	72	68
22	10:00A	11',6"	70	69
	5:15P	5'	72	68
23	9:15A	8'	71	69
	7:30P	4',6"	73	68
24	9:30A	8'	72	66
	5:30P	5'	71	69
25	7:30P	7'	72	68
26	9:00A	6'	73	69
	6:00P	6',6"	73	70
27	9:30A	7'	72	67
	6:30P	8'	70	68
28	7:00P	7'	70	66
29	9:30A	9'	72	69
	6:00P	6',6"	73	67
30	9:45A	8'	70	67
	6:10P	9'	73	69
31	11:45A	7'	70	64
	7:00P	8'	71	70
Aug. 1	11:45A	8'	72	69
	7:30P	7'	68	66
2	9:30A	8'	72	67
	7:00P	6'	71	68
4	11:45A	10'	75	71
	9:00P	7'	75	70
5	9:30A	4'	76	72
	7:00P	5'	74	70
6	10:00A	9'	77	72
	5:00P	4'	74	72
7	9:30A	8'	74	72
	7:00P	5'	76	70

Table 8A--Continued.

Date 1940	Time	Tide	Temp.(°F) Max.	Min.	Date 1940	Time	Tide	Temp.(°F) Max.	Min.
Aug. 8	9:00A	7'	74	72	Aug. 14	10:30A	8'	70	68
	6:30P	7'	76	71		6:45P	8'	68	67
9	9:30A	6'	76	70	15	9:30A	7',6"	72	65
	7:00P	8'	76	72		7:45P	9'	70	63
10	9:30A	5'	75	68	16	9:30A	7'	67	63
	5:00P	8'	76	70		7:30P	8'	69	67
11	11:45A	6'	75	72	17	8:45A	9'	70	66
	7:45P	8'	72	68		6:30P	7'	73	70
12	9:30A	5'	72	66	18	10:45A	10'	71	70
	5:00P	9'	72	68		7:15P	7'	76	72
13	9:00A	7'	74	69	19	9:00A	11'	74	70
	7:30P	9'	69	68		8:00P	7'	74	71

Table 9.

Temperatures and salinities in Merigomish harbour, 1939 and 1940.

Date 1939	Time	Depth	Tide	Temp (°C)	Salinity (per mille)	Place
Aug. 8	10:00A	Surf.		24.7	28.5	Pine Tree Gut Bridge
		Bot. 6'		24.3	28.8	
14	12:00 noon	Surf.		23.8	28.6	
		Bot.		23.6	28.6	
26	9:00A	Surf.		18.8	28.0	
		Bot.		18.6	28.2	
Aug. 8	10:00A	Surf.		24.4	29.2	Pine Tree Gut mouth
		Bot. 12'		24.2	29.2	
14	1:30P	Surf.		22.3	29.2	
		Bot. 6'		22.0	29.2	
26	10:00A	Surf.		18.2	29.0	
		Bot. 10'		18.0	29.0	
Aug. 9	9:30A	Surf.		23.2	29.3	Campbell's cove
		Bot. 18'		23.0	29.3	
25	1:00P	Surf.		22.5	29.1	
		Bot.		22.0	29.1	
Aug. 9	11:30A	Surf.		22.5	29.3	Inside Pine island
		Bot. 14'		22.3	29.3	
16	4:00P	Surf.		22.4	29.6	
		Bot. 10'		22.0	29.6	
Aug. 11	2:30P	Surf.		25.7	28.0	Sutherland river
		Bot. 4'		25.6	28.3	
25	12:00 noon	Surf.		26.0	28.3	
		Bot. 6'		25.8	28.7	
Aug. 14	3:30P	Surf.		21.6	30.0	Blackhall Gut
		Bot. 20'		21.0	30.0	
26	1:30P	Surf.		26.2	27.0	East end
		Bot. 4'		25.8	27.4	
26	4:00P	Surf.		23.8	28.8	Channel of Big Island
		Bot. 22'		23.1	28.8	
1940						
June 25	8:00A	Surf.	Low		27.8	Pine Tree Gut
		Bot.			28.0	
July 2	7:00P	Surf.	High		28.0	
		Bot.			28.4	
8	66:00P	Surf.	Low		27.6	
		Bot.			27.8	
15	8:00A	Surf.	Ebb		27.8	
22	12:55P	Surf.	High		28.2	
30	7:00A	Surf.	Flood		28.1	
		B ot.			28.2	
Aug. 6	4:00P	Surf.	Ebb		28.0	
18	11:00A	Surf.	Full		27.7	
28	5:15P	Surf.			27.7	
		Bot.	Ebb		28.6	
29	7:00P	Surf.	"		28.1	
		Bot.			28.4	
June 24	8:00A	Surf.	Low		27.8	McVicar's shore
		Bot.			27.8	
July 1	4:00P	Surf.	Flood		28.0	
9	7:00A	Surf.	"		28.2	
18	6:45A	Surf.	Ebb		27.7	
		Bot.			28.0	

Table 9--Continued.

Date 1940	Time	Depth	Tide	Temp. (°C)	Salinity (per mille)	Place
July 23	5:00P	Surf.	Ebb		28.4	
Aug. 5	11:00A	Surf.	Flood		28.5	
13	7:30A	Surf.	Ebb		28.0	
		Bot.			28.2	
21	10:15A	Surf.	Flood		28.0	
25	7:00P	Surf.	Ebb		28.2	
		Bot.			28.7	

Table 9A.

Maximum and minimum temperatures near surface in Merigomish harbour, 1939 and 1940.

Pine Tree Gut Date 1939	Time	Tide	Temp.(°F) Max.	Min.
July 28	6:45A	High	71	64
	5:45P	Flood	77	61
29	6:45A	"	73	65
	4:50P	"	76	65
30	8:00A	"	75	67
	6:55P	"	76	66
31	6:45A	"	73	70
	6:30P	"	77	71
Aug. 1	6:45A	"	78	71
	5:45P	"	76	68
2	6:45A	"	75	60
	5:45P	Ebb	70	54
3	6:45A	Flood	72	58
	6:55P	Low	72	64
Sep. 2	7:30A	Flood	67	60
	6:30P	Ebb	69	61
3	8:30A	Flood	70	62
	6:00P	Ebb	70	64
4	8:00A	"	72	67
	6:00P	"	72	66
5	8:00A	"	71	67
	6:00P	"	71	68
6	8:30A	Ebb	69	62
	6:30P	"	70	63
7	8:00A	"	67	50
	6:30P	"	64	52
8	8:15A	"	63	54
	6:00P	High	64	55
9	8:30A	Ebb	64	58
	6:30P	Flood	68	59
10	8:30A	Ebb	67	61
	6:30P	Flood	69	58
12	8:30A	Full	68	57
	6:30P	Flood	64	56
13	6:30A	"	63	57
14	8:15A	"	66	57
15	8:00A	"	65	56
	McVicar's shore			
Aug. 18	7:05A	8'Flood	70	68
	5:00P	9'Ebb	72	68
19	7:30A	7'Flood	72	66
	5:05P	8'Ebb	71	65
20	7:40A	6' "	72	68
	5:43P	9½' "	70	68
21	6:55A	8' "	71	68
	5:15P	8½' "	71	66
22	7:20A	8½' "	70	68
	5:04P	10' "	71	69
23	7:17A	9½' "	70	70
	7:20P	10' "	74	70
Aug. 24	7:32A	10½' "	74	70
	5:59P	12'Flood	75	70
25	7:25A	13'Ebb	74	70
	5:02P	11'Flood	74	67

Date	Time	Tide	Temp.(°F) Max.	Min.
Aug. 26	7:25A	12'Flood	74	70
	5:15P	11½' "	75	71
27	7:53A	12' "	73	68
	5:08P	8½' "	74	67
28	7:48A	11½' "	74	65
	5:54P	6½' "	72	61
29	7:38A	12' "	73	63
	5:20P	7½' "	71	60
30	7:50A	10' "	70	62
	4:58P	8½' "	70	64
31	7:43A	9' "	69	64
	5:01P	8' Ebb	68	64
Sep. 1	7:37A	8'Flood	68	64
	5:40P	7' Ebb	66	63
2	7:40A	7½'Flood	66	64
	5:10P	8' Ebb	66	64
3	7:43A	7' Flood	67	64
	5:35P	8' Ebb	67	65
4	7:30A	6' Flood	67	65
	5:07P	9' Ebb	67	65
5	7:03A	7' "	68	65
	5:15P	9½' "	68	65
6	6:37A	9' "	68	65
	5:45P	9' "	68	65
7	7:13A	10' "	68	64
	5:05P	11' "	64	61
8	6:53A	10' Flood	64	60
	6:28P	11' "	64	61
9	8:17A	9' "	64	61
	5:48P	10' "	64	60
10	6:35A	8½' "	64	61
	5:57P	10' "	65	61
11	7:50A	11' "	64	62
	5:05P	6½' "	64	61
12	7:30A	9' "	64	59
	5:30P	8' "	63	58
13	7:05A	7' "	62	59
	5:12P	8' "	64	60
14	7:20A	8' "	62	58
15	11:07A	10' "	64	59
1940	Pine Tree Gut			
June 21	6:45A	Flood	62	58
	5:15P	"	64	57
22	6:45A	"	63	57
	5:15P	Ebb	61	54
23	6:45A	"	60	53
	5:15P	"	62	51
24	6:45A	"	62	58
	5:15P	"	64	53
25	6:45A	"	64	56
	5:15P	"	63	54
26	6:45A	"	64	55
	5:15P	"	63	56
27	6:45A	"	63	58
	5:15P	"	64	57

Table 9A--Continued

Date 1940		Pine Tree Gut Time	Tide	Temp.(°F) Max.	Min.
June	28	6:45A	Ebb	63	57
		5:15P	Flood	64	55
	29	6:45A	Ebb	63	56
		5:15P	Flood	60	53
	30	8:45A	Ebb	63	54
		5:35P	"	65	56
July	1	6:45A	Flood	65	57
		5:30P	"	64	59
	2	6:45A	"	67	61
		5:30P	"	69	63
	3	6:45A	"	68	62
		5:30P	"	68	63
	4	6:45A	"	67	61
		5:30P	"	66	60
	5	6:45A	"	65	59
		5:30P	"	69	64
	6	6:45A	"	68	63
		5:30P	"	70	65
	7	8:30A	"	69	61
		6:00P	Ebb	69	62
	8	6:30A	"	68	63
		5:30P	"	70	64
	9	6:45A	"	70	63
		5:30P	"	67	61
	10	6:45A	"	68	63
		5:30P	"	71	65
	11	6:45A	"	69	64
		5:30P	"	71	66
	12	6:45A	"	70	64
		5:30P	"	73	67
	13	6:45A	"	67	62
		5:30P	"	67	61
	14	8:30A	"	69	63
		5:45P	"	70	62
	15	6:45A	"	66	63
		5:30P	"	67	65
	16	6:45A	Flood	67	62
		5:30P	"	69	64
	17	6:45A	"	69	63
		5:15P	"	68	65
	18	6:45A	"	64	64
		5:30P	"	69	62
	19	6:45A	"	70	63
		5:30P	"	70	61
	20	6:45A	"	68	60
		5:30P	"	69	63
	21	8:00A	"	69	67
		5:45P	Ebb	70	65
	22	6:45A	"	68	65
		5:30P	"	69	64
	23	6:45A	"	74	68
		5:30P	"	68	60
	24	6:45A	Flood	71	63
		5:30P	Ebb	71	64
	25	6:30A	"	74	66
		5:30P	Flood	76	63
	26	6:45A	Ebb	78	61
		5:30P	"	74	65
	27	6:45A	"	75	67
		5:30P	"	76	67
	29	6:45A	"	78	69
		5:30P	High	79	69
	30	6:30A	Ebb	77	66
		5:00P	Flood	78	67
	31	6:45A	"	76	66
		5:30P	"	79	68
Aug.	1	6:30A	"	80	69
		5:30P	"	81	68
	2	6:45A	"	81	71
		5:30P	"	79	70
	3	6:30A	"	79	68
		5:30P	"	80	71

Date		Time	Tide	Temp.(°F) Max.	Min.
Aug.	4	8:00A	Flood	80	69
		7:30P	"	82	70
	5	6:45A	"	78	70
		5:30P	"	80	70
	6	6:45A	"	79	71
		5:30P	"	78	72
	7	6:30A	"	76	70
		5:30P	Low	78	72
	8	6:45A	"	74	70
		5:30P	Ebb	76	68
	9	6:45A	"	75	69
		5:30P	"	76	70
	10	6:30A	"	77	70
		5:30P	"	76	71
	12	6:45A	"	74	70
		5:30P	"	76	68
	13	6:30A	"	75	69
		5:30P	"	76	70
	14	6:30A	"	76	68
		5:30P	"	74	62
	15	6:45A	Flood	74	63
		5:30P	"	70	60
	16	6:30A	"	71	64
		5:25P	"	72	68
	17	6:45A	"	74	66
		5:30P	"	76	69
	19	6:30A	"	74	64
		5:30P	"	78	64
	20	6:45A	"	74	69
		5:30P	Ebb	76	70
	21	6:45A	"	75	71
		5:30P	"	74	70
	22	6:45A	"	74	69
		5:30P	"	76	70
	23	6:45A	"	75	70
		5:30P	"	74	68
	24	6:45A	"	76	71
		5:30P	"	77	70
	27	6:45A	"	64	60
		5:30P	"	64	61
	28	6:45A	"	62	60
		5:15P	"	62	58
			McVicar's shore		
June	26	7:10A	10' Ebb	56	54
		5:40P	8' Flood	58	55
	27	8:02A	10½' Ebb	57	54
		6:55P	7' Flood	59	57
	28	7:40A	9' "	57	55
		7:20P	9½' Ebb	60	56
	29	8:27A	10' Flood	58	54
		5:20P	10' Ebb	60	57
	30	6:50A	8' Flood	59	55
		7:29P	7' "	63	58
July	1	7:45A	11' "	61	58
		6:10P	9' "	64	59
	2	8:05A	12' "	63	60
		5:45P	10' "	64	60
	3	7:23A	11' "	63	59
		6:05P	9½' "	64	60
	4	8:20A	9½' "	63	60
		7:20P	9' "	64	60
	5	8:55A	12' "	62	58
		5:55P	8' Ebb	62	56
	6	9:25A	12' "	63	59
		5:15P	8' "	64	60
	7	8:35A	11' "	65	60
		6:05P	7' "	66	60
	8	9:10A	10' Flood	64	61
	9	7:05A	10' "	65	62
		5:15P	8' Ebb	64	62
	10	6:45A	11' Flood	66	63
		5:20P	9'	65	63

Table 9A--Continued.

McVicar's shore

Date	Time	Tide	Temp.(°F) Max.	Min.
1940				
July 11	7:05A	10' Flood	66	62
	7:20P	8' "	66	62
12	5:07P	7½' Ebb	66	63
13	7:20A	9' Flood	65	62
	5:10P	8' Ebb	66	64
14	7:02A	10' Flood	66	64
	5:12P	8' Ebb	66	63
17	10:55A	7½' "	69	63
	6:10P	9' Flood	69	66
18	6:45A	11' Ebb	68	65
	5:05P	8' Flood	69	67
Aug. 5	11:00A	8' "	72	68
	7:20P	4' "	72	69
6	6:55A	4' Ebb	74	70
	7:35P	4½' Flood	73	70
7	7:20A	5' Ebb	72	69
	8:05P	4' Flood	73	71
8	8:35A	4' "	72	69
	7:23P	4' "	72	70
9	7:45A	3½' Ebb	73	70
	5:35P	4' "	72	70
10	8:30A	4½' "	73	69
	6:10P	4' "	71	68
11	7:25A	5' "	72	69
	8:05P	4½' "	72	70
12	7:30A	5' "	71	68
	4:50P	6½' Flood	74	70
13	7:35A	6' Ebb	72	68
	7:00P	6' "	71	68
Aug. 14	8:15A	7' Ebb	71	68
	5:45P	5½' Flood	70	67
15	10:30A	6' Ebb	70	66
	7:05P	6' Flood	69	64
16	6:45A	7' "	69	66
	7:20P	5' "	70	67
17	6:55A	7' "	71	69
	7:50P	5½' "	74	70
18	6:20A	6½' "	74	71
	7:38P	4' "	74	72
19	6:10A	5' "	74	70
	7:18P	4' "	74	70
20	6:22A	4½' "	74	69
	6:15P	4' Ebb	73	68
21	10:15A	7' Flood	66	66
	6:38P	5' Ebb	69	67
22	7:05A	4½' Flood	70	68
	7:10P	5' Ebb	70	67
23	6:15A	5½' "	69	66
	6:45P	5' "	71	69
24	6:27A	5' "	70	67
	7:33P	5½' "	68	65
25	7:15A	5½' "	67	64
	7:00P	6' "	66	64
26	7:50A	5' "	64	60
	7:39P	5½' "	62	58
27	7:30A	6½' "	64	60
	7:20P	5' "	64	60
28	7:45A	6½' "	64	60
	7:30P	7' "	66	60

Table 10.

Temperatures and salinities in Antigonish harbour, 1939 and 1940.

Date	Time	Depth	Tide	Temp. (°C)	Salinity (per mille)	Place
1939						
Aug. 31	2:30P	Surf.		19.7	27.6	North river off
		Bot. 10'		19.2	27.9	Cameron's shore
Sep. 6	12:00	Surf.		16.8	25.5	
	noon	Bot. 15'		16.2	25.5	
Aug. 31	12:00	Surf.		22.6	25.5	South river bridge
	noon	Bot. 10'		22.0	27.0	
Sep. 6	10:30A	Surf.		20.8	21.7	
		Bot. 20'		20.2	27.2	
Aug. 31	10:30A	Surf.		22.5	26.4	Inside False island
		Bot. 5'		22.3	26.8	
Sep. 6	11:00A	Surf.		20.2	26.4	
		Bot. 7'		20.0	26.6	
1940						
June 17	8:00A	Surf.	Ebb		25.6	Off Cameron's shore
	4:00P	Surf.	"		26.0	
		Bot.			26.8	
July 3	5:30P	Surf.	Flood		26.2	
8	7:05P	Surf.	"		26.2	
15	8:00A	Surf.	Ebb		25.4	
		Bot.			26.6	
23	6:00P	Surf.	"		26.2	
g. 1	1:30P	Surf.	Flood		26.2	
		Bot.			26.4	
9	7:00P	Surf.	Ebb		26.5	
16	6:00P	Surf.	Flood		26.0	
		Bot.			26.2	
25	1:00P	Surf.	Ebb		25.7	

Table 11.

Temperatures and salinities in Pomquet harbour, 1939 and 1940.

Date	Time	Depth	Temp. (°C)	Salinity (per mille)	Place
1939					
Aug. 23	7:00A	Surf.	24.0	29.1	Alex MacDonald's cove
		Bot. 20-25'	23.8	29.3	

Table 11--Continued.

Date	Time	Depth	Tide	Temp. (°C)	Salinity (per mille)	Place
1939						
Sep. 9	11:00A	Surf.		17.2	28.5	Alex MacDonald's cove
		Bot.		16.8	28.7	
Aug. 23	9:00A	Surf.		23.9	28.8	Pomquet river where
		Bot.12-14'		23.5	29.1	mud oysters located.
Sep. 9	9:00A	Surf.		16.1	27.5	
		Bot.		15.8	27.5	
Aug. 22	8:00A	Surf.		22.8	28.8	West end--outside of
		Bot.12-15'		22.3	28.8	island.
Sep. 8	5:30P	Surf.		17.8	29.1	
		Bot.		17.2	29.2	
Aug. 22	9:00A	Surf.		22.9	28.8	West end--near the old
		Bot. 8-12'		22.5	28.8	shells.
Sep. 8	5:00P	Surf.		18.1	28.8	
		Bot.		17.7	28.8	
Aug. 22	10:00A	Surf.		23.2	28.4	West end--near Pomquet
		Bot. 5'		23.1	28.8	village.
1940				(°F)		
June 23	6:00P	Surf.	Low	64.0	24.5	Pomquet river,
		Bot.		64.0	25.0	opposite station.
July 9	9:00A	Surf.	Flood	69.7	24.2	
		Bot.		69.4	24.4	
Aug. 18	5:00P	Surf.	"	75.5	24.5	
		Bot.		75.3	24.7	
June 21	8:00A	Surf.	"	62.0	27.0	West end near town.
		Bot.		61.8	27.1	
July 11	5:00P	Surf	Ebb	68.0	27.7	
		Bot.		68.0	27.7	
Aug. 10	noon	Surf.	High	74.0	28.0	
		Bot.		74.0	28.0	

Table 12.

Temperatures and salinities in Tracadie and East harbours, 1939-40.

1939				(°C)		
						Tracadie
		Surf.		21.0	29.7	East end
Aug. 18	10:45A	Bot.12-18'		20.6	29.7	
18	6:00P	Surf.		21.0	29.1	
		Bot.		20.6	29.1	
19	7:30A	Surf.		20.2	28.8	
		Bot. 4'		20.2	28.8	
Sep. 8	2:00P	Surf.		16.6	28.3	
		Bot. 5'		16.4	28.7	
Aug. 18	4:30P	Surf.		21.4	29.2	West arm.
		Bot. 11'		20.9	29.2	
Sep. 8	1:00P	Surf.		17.0	28.2	
		Bot. 8'		16.5	28.6	
Aug. 18	11:30A	Surf.		20.0	29.7	West end--near new
		Bot.10-12'		19.4	29.9	opening.
Aug. 19	3:00P	Surf.		20.9	28.8	East harbour
		Bot.18-25'		20.3	28.8	At the mouth.
Aug. 19	5:00P	Surf.		21.2	28.4	Near passage leading
		Bot.10-12'		20.8	28.4	to Tracadie.
Aug. 19	3:30P	Surf.		23.8	28.0	Near the river.
		Bot. 6'				
1940						
June 4	4:00P	Surf.	Flood		28.2	Tracadie
		Bot.			28.2	West arm
12	8:00A	Surf.	Ebb		28.0	
25	7:15A	Surf.	"		27.8	
		Bot			28.0	
July 2	5:00P	Surf.	Flood		28.4	
10	6:00P	Surf.	Ebb		28.4	
		Bot.			28.6	
22	5:00P	Surf.	Low		28.1	
		Bot.			28.3	
31	8:30A	Surf.	Flood		27.4	
Aug. 7	5:00P	Surf.	Ebb		28.0	
7	8:00A	Surf.	Flood		28.1	
		Bot.			28.1	

Table 12A

Maximum and minimum temperatures near surface in West arm of Tracadie harbour, 1939-40.

Date	Time	Tide	Temp.(°F) Max.	Min.
1939				
July 27	7:05A	5'	68	66
	5:15P	3'	80	65
28	7:15A	5'	80	63
	5:07P	3'	79	63
29	7:10A	5'	79	66
	5:15P	3'	77	64
30	7:15A	5'	76	65
	5:10P	3'	75	64
31	7:12A	5'	75	63
	5:05P	3'	74	62
Aug. 1	7:20A	4',8"	76	63
	5:15P	3',8"	72	63
2	7:15A	5'	73	63
	5:10P	4'	73	62
20	7:00A	4',9"	72	66
	5:15P	3',9"	72	63
21	7:05A	4',9"	72	64
	5:10P	3',9"	72	66
22	7:00A	4½'	71	70
	5:15P	3',8"	75	69
23	7:05A	4¼'	72	70
	5:05P	3',9"	74	69
24	7:15A	4',7"	73	69
	5:00P	3',9"	76	72
25	7:10A	5'	76	70
	5:00P	3',4"	75	71
26	7:10A	5',3"	76	69
	5:05P	3½'	74	69
27	7:00A	5',3"	76	69
	5:00P	3',4"	73	68
28	7:00A	4'.10"	74	62
	5:00P	3'	74	58
29	7:15A	4',9"	74	62
	5:10P	3'	70	58
30	7:15A	3',8"	70	59
	5:00P	3½'	69	61
31	7:00A	3',2"	70	61
	5:00P	3½'	71	64
Sep. 1	7:00A	2',10"	69	60
	5:00P	3',8"	64	54
2	7:15A	3'	66	58
	5:00P	3',8"	64	59
9	7:00A	5',8"	63	53
	5:00P	4'	64	50
10	7:00A	5',8"	64	52
	5:00P	3'.4"	63	45
11	7:15A	5½'	58	50
	5:00P	3',4"	63	48
12	7:00A	6'	48	46
	5:00P	3',4"	54	48
13	7:00A	5',8"	49	46
	5:10P	3',3"	58	48
14	7:00A	5',4"	49	46
	5:15P	3',4"	56	47
1940				
June 15	7:00A	5',4"	72	47
	5:00P	3'	76	48
16	7:15A	5',2"	73	49
	5:10P	3',2"	74	50
17	7:00A	5',6"	71	49
	5:15P	3',4"	74	48
18	7:00A	5',3"	73	47
	5:00P	3'	68	46
19	7:10A	5'	66	48
	5:15P	3',2"	67	50
20	7:00A	5',2"	67	48
	5:00P	3',1"	68	49
June 21	7:15A	5'	64	46
	5:00P	3'.4"	66	47
22	7:00A	4',9"	62	48
	5:00P	3',5"	60	48
23	7:00A	4',10"	63	49
	5:00P	3',4"	61	47
24	7:00A	4',9"	60	44
	5:00P	3',5"	61	46
25	7:00A	4',10"	62	42
	5:00P	3',6"	61	41
26	7:15A	4',11"	63	43
	5:00P	3',8"	61	42
27	7:00A	5'	62	41
	5:15P	3',7"	60	40
28	7:00A	5'	64	44
	5:00P	3'.8"	61	42
29	7:15A	4',11"	63	43
	5:00P	3',10"	61	41
30	7:00A	4',10"	62	42
	5:00P	3',11"	60	43
July 1	7:00A	4',9"	61	42
	5:00P	4'	62	43
2	7:00A	5'	66	48
	5:00P	3',9"	67	49
3	7:00A	5',2"	68	51
	5:00P	3',6"	67	49
4	7:00A	5',3"	68	52
	5:00P	3',4"	66	48
5	7:00A	5',2"	69	50
	5:30P	3'	68	49
6	7:15A	5',3"	72	52
	5:00P	3'	74	53
7	7:00A	4',6"	69	50
	5:00P	3'	70	50
8	6:45A	4',2"	76	54
	5:15P	3',8"	72	52
9	7:00A	4'	74	53
	5:00P	3',10"	70	50
10	7:00A	3',10"	76	54
	5:15P	4',2"	72	52
11	7:15A	3',8"	74	54
	5:00P	4',4"	72	52
12	7:00A	4'	71	54
	5:00P	4',2"	73	52
13	7:15A	4',3"	76	53
	5:15P	4',3"	74	56
14	7:00A	4',6"	78	57
	5:00P	4'	76	54
15	7:15A	4',3"	77	56
	5:00P	3',9"	74	53
16	7:00A	4',5"	76	54
	5:15P	3',6"	77	56
17	7:00A	4',6"	47	54
	5:00P	3',2"	76	56
18	7:00A	4',8"	74	54
	5:00P	3'	78	56
19	7:15A	5'	76	53
	5:15P	2',10"	78	57
20	7:30A	5',3"	78	58
	5:00P	3',9"	80	60
21	7:00A	5'	79	59
	5:15P	3',4"	80	61
22	7:15A	5'	76	58
	5:00P	3',5"	74	58
23	7:15A	4',10"	73	57
	5:00P	3',4"	72	56
24	7:00A	4',9"	73	59
	5:15P	3',2"	74	57

Table 12A--Continued.

Date 1940	Time	Tide	Temp.(°F) Max.	Min.	Date	Time	Tide	Temp.(°F) Max.	Min.
July 25	7:00A	4',8"	72	56	Aug. 11	7:15A	3',5"	77	58
	5:00P	3'	71	55		5:00P	3',11"	80	60
26	7:00A	4',9"	72	56	12	7:15A	3',8"	78	59
	5:00P	2',11"	73	54		5:00P	4'	80	58
27	7:00A	4',8"	71	53	13	7:00A	3',9"	79	59
	5:15P	3',3"	72	54		5:00P	4',2"	81	60
28	7:00A	4',3"	74	57	14	7:00A	3',10"	78	59
	5:00P	3',6"	71	53		5:00P	4'	80	58
29	7:00A	4',6"	70	54	15	7:00A	4',2"	78	58
	5:15P	3',8"	72	56		5:15P	4',2"	79	59
30	7:15A	4',8"	71	54	16	7:15A	4',6"	76	58
	5:30P	3',10"	73	56		5:15P	4',3"	78	59
31	7:00A	5'	74	54	17	7:00A	4',6"	76	58
	5:15P	4'	76	56		5:15P	4'	74	58
Aug. 1	7:15A	5',3"	74	54	18	7:00A	4',8"	78	56
	5:15P	4',3"	72	54		5:00P	4',2"	80	57
2	7:00A	5',3"	70	54	19	7:20A	4',6"	79	54
	5:15P	4',2"	73	52		5:00P	4'	81	59
3	7:15A	5',4"	72	53	20	7:00A	4',4"	78	56
	5:15P	4',2"	76	52		5:15P	3',11"	79	58
4	7:00A	4',3"	76	58	21	7:15A	4',2"	76	56
	5:00P	3',9"	78	56		5:00P	3',10"	78	57
5	7:00A	4'	74	56	22	7:15A	4',2"	79	58
	5:00P	3',6"	76	54		5:15P	3',11"	80	59
6	7:15A	4'	73	56	23	7:00A	4'	78	56
	5:15P	3',3"	74	54		5:15P	3',10"	79	58
7	6:45A	3',11"	76	54	24	7:15A	4'	78	57
	5:00P	3',8"	78	58		5:00P	3',10"	76	56
8	7:00A	3',4"	78	58	25	7:00A	4',2"	76	57
	5:00P	3',9"	80	59		5:20P	4',4"	79	58
9	7:00A	3',4"	79	56	26	7:00A	4',4"	78	56
	5:00P	3',8"	80	59		5:15P	4',3"	79	58
10	7:15A	3',5"	78	56	27	7:00A	4',6"	79	52
	5:00P	3',10"	59	58		5:15P	4',5"	74	56

Table 13.

Temperatures and salinities in Lynwood harbour, 1939.

Date 1939	Time	Depth	Temp. (°C)	Salinity (per mille)	Place
Aug. 19	10:30A	Surf.	20.3	28.7	Inner part.
		Bot. 20'	19.8	28.7	
21	8:00A	Surf.	21.2	29.3	
		Bot. 15'	20.8	29.5	
Aug. 19	11:00A	Surf.	20.1	28.7	Outer part.
		Bot. 20'	19.6	28.7	
21	10:00A	Surf.	21.0	29.5	
		Bot. 15'	20.6	29.5	