EXTRA

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No.146A

REPORT ON A SURVEY OF CONDITIONS FOR OYSTER CULTURE IN THE VICINITY OF WALLACE AND MALAGASH, N. S.
Report for 1937.

No.146B

OYSTER INVESTIGATIONS AT MALAGASH, N. S.
Report for 1938.

by

B. N. Smallman.

FISHERIES RESEARCH BOARD OF CANADA

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Author

B. N. Swallman.

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FOR OYSTER CULTURE

IN THE VICINITY OF WALLACE AND MALAGASH, N. S.

B. N. Smallman.
Revised by A. W. H. Needler.

Report for 1937.

REPORT ON A SURVEY OF CONDITIONS FOR OYSTERS CULTURE IN THE VICINITY OF WALLACE AND MALAGASH, N. S.

B. N. Smallman.
Report for 1937. Revised by A. W. H. Needler.

This report covers investigations by B. N. Smallman in the summer of 1937 in the vicinity of Wallace and Malagash. The observations were made by him and the report is to quite an extent in his words. As submitted by him it consisted of a number of individual accounts of the observations in the several localities. It has been re-arranged and to some extent re-written for greater brevity and clarity.

A resumé of conditions on the "Gulf shore" of Nova Scotia is given in an earlier report (A. W. H. Needler, "Oysters on the Northumberland strait coast of Nova Scotia". March, 1937). The special problems of the region are indicated there and the topography of each inlet outlined and illustrated with a chart. For a sound basis for the development of oyster culture further information was needed on two general subjects - the conditions in the estuaries of considerable fresh-water rivers and the potentialities of tidal flats.

The present report covers a general preliminary survey of hydrographic conditions, especially in the estuary of the Wallace river but also in less detail on the flats at Malagash basin and in other localities in the district. Some observations were also made on the distribution and reproduction of oysters. The intensive work commenced later in the same year on the use of tidal flats at Malagash is reported elsewhere.

A. Hydrographic observations.

At two stations (Wallace wharf and Wallace bridge) observations were taken twice daily in as complete a series as possible in order to study the changes in conditions during the season. Less frequent observations were taken at other stations in order to study the variation in conditions from place to place.

Observation of temperature and salinity were taken at both surface and bottom. A galvanized iron pail was used to take a surface sample. The temperature of the

water was taken in the bucket immediately after it had been drawn up. The salinity sample was then taken from the pail. A slip of paper stating the station, time, tide and temperature of the water along with the weather, wind and temperature of the air was attached to the bottle containing the sample.

Salinity samples from the bottom were obtained by lowering a weighted bottle from which the cork was removed by a jerk on the cord and the bottom water allowed to enter. The temperature of the bottom was taken with a reversing thermometer until August 16 when it was broken. After that time bottom temperatures were taken by leaving the sample bottle down for about four minutes, raising it rapidly and immediately taking the temperature of the sample.

The temperature of the air was obtained by thoroughly drying the bulb of the thermometer and holding it in the shadow of the body till the mercury became stationary. From August 18 to August 20 - and from August 31 to September 1 includive, a broken thermometer with the broken end sealed off was used to take temperatures of the air and water. A correction graph was later plotted against a standard thermometer.

The direction of the wind was obtained from the weathercock on the steeple of the Presbyterian Church.

The tides were taken from a tide table and recorded as H-high; L - low; R - rising and F - falling.

Salinities were calculated from hydrometer readings, using Knudsen's hydrographic tables. From June 23 to July 8 a piece of galvanized pipe was used in the place of a glass cylinder. On July 8 a glass cylinder was substituted for the pipe and from fifteen parallel observations no correction of the previous readings was found to be necessary. Before the salinity bottles were filled they were always rinsed well. In taking the hydrometer reading the hydrometer was always dried between readings.

The regular frequent observations at the end of Wallace wharf and at the old wharf at Wallace bridge are given in tables I and II respectively. Wallace wharf is some distance below the junction of the two main branches of Wallace bay. Wallace bridge is in the lower part of the estuary of the Wallace river but above its junction with the north branch of the bay.

TABLE I.

Hydrographic observations at Wallace wharf.

Date	Time	Depth	Tide	Weather	Temp. °C	Sp.Gr.	@T°C.	Corr.Sp.Gr.	Sal. per mil.
June 23	9.00 a.m.	Sur.	H	Wind-N. Light	16.2	1.0200	12.8	1.01916	25.1
		Bot.		rain. Air-14°C		1.0215	12.8	1.02065	27.0
	7.00 p.m.	Sur.	R	Wind-N. Cloudy	17.3	1.0175	12.8	1.01669	21.8
		Bot.		Air - 14°C	16.5	1.0202	12.6	1.01933	25.3
June 24	9.00 a.m.	Surf.	H	Wind-N.W.Str-	15.5	1.0202	12.6	1.01933	25.3
		Bot.		ong. Light rain Air - 13.8° C.	14.8	1.0218	12.6	1.02092	27.4
	7.00 p.m.	Sur.	R	Wind-N. cloudy	16.5	1.0160	12.8	1.01621	21.2
		Bot.		Air - 12.8° C.	16.2	1.0188	12.8	1.01798	23.6
June 25	9.00 a.m.	Sur.	R	Wind-strong N.	14.7	1.0200	13.0	1.01919	25.1
		Bot.		E. Air-12.2°C	14.8	1.0205	13.0	1.01969	25.8
	7.00 p.m.	Sur.	L	Wind-NE. Light	15.8	1.0150	19.0	1.01530	20;0
		Bot.		rain. Air-13.2°C	15.6	1.0165	18.6	1.01672	21.8
June 26	8.00 a.m.	Surf.	R	Wind-NE. Light	15.5	1.0182	19.8	1.01869	24.5
				cloud. Air 14.5°	15.0	1.0195	19.8	1.01999	26.2
June 27	8.30 a.m.	Sur.	R	Wind-SW, light	16.8	1.0180	19.8	1.01849	24.2
		Bot.		cloud.Air-17.6°C	16.6	1.0192	19.8	1.01969	25.8
	7.30 p.m.	Sur.	L	Wind-SE,light	18.2	1.0152	19.8	1.01567	20.5
		Bot.		rain.Air-16.8°C	18.2	1.0155	20.2	1.01606	21.1
June 28	8.30 a.m.	Sur.	L.	Wind-SE,light	18.0	1.0170	20.0	1.01753	22.9
		Bot.		rain. A-18.8°C	17.8	1.0182	20.0	1.01873	24.5
	7.30 p.m.	Sur.	L	Wind-S, Air-	19.5	1.0162	21.6	1.01709	22.3
		Bot.		21.4°C.	19.5	1.0158	21.6	1.01666	21.8
June 29	8.30 a.m.	Sur.	L	Winds.Scattered	19.4	1.0172	21.5	1.01807	23.7
		Bot.		cloud. A-19.4°C	19.4	1.0172	21.6	1.01810	23.7
	7.00 p.m.	Sur.	F	Wind-S, light	20.2	1.0172	21.5	1.01807	23.7
		Bot.		cloud. A-22.6°C	20.2	1.0175	21.5	1.01837	24.1
June 30	8.30 a.m.	Sur.	L	SE wind,rain	19.4	1.0175	20.8	1.01821	23.8
		Bot.		Air- 17.4°C	19.4	1.0180	20.8	1.01871	24.5
	7.30 p.m.	Sur.	F	SE wind, heavy	19.6	1.0175	20.5	1.01814	23.7
		Bot.		cld. A-20.°C.	19.6	1.0178	20.5	1.01844	24.1

Table I. Continued.

Date	Time	Depth	Tide	Weather	Temp. °C	Sp.Gr.	°T°C.	Corr. Sp. Gr.	Sal. per mille.
July 1	8.30 a.m.	Sur.	F	Wind-S, fair	19.6	1.0168	22.2	1.01783	23.3
		Bot.		Air- 20.5	19.6	1.0172	22.6	1.01834	23.9
	7.00 p.m.	Sur.	F	SW, cloudy	20.0	1.0184	21.4	1.01926	25.3
		Bot.		Air. - 22	19.9	1.0190	21.2	1.01982	25.9
July 2	8.30 a.m.	Sur.	F	Wind-Strong W,	18.8	1.0185	18.5	1.01870	24.5
		Bot.		clear. A-19	18.9	1.0185	18.5	1.01870	24.5
	7.00 p.m.	Sur.	F	Wind-W, light	18.0	1.0200	18.0	1.02010	26.3
		Bot.		cloud. Air17.8	17.1	1.0205	18.0	1.02060	27.0
July 3	11 a.m.	Sur.	L	Wind-strong W,	19.0	1.0160	24.5	1.01761	23.0
		Bot.		clear. A-23.5	19.1	1.0160	24.8	1.01769	23.2
	7.00 p.m.	Sur.	H	Wind-W, fair	17.5	1.0192	23.8	1.02067	27.1
		Bot.		Air- 19.6	16.8	1.0195	23.8	1.02097	27.5
July 4	8.30 a.m.	Sur.	F	Wind-w, fair	17.6	1.0188	23.8	1.02026	26.6
		Bot.		Air-21.8	17.0	1.0178	23.8	1.01926	25.3
	7.00 p.m.	Sur.	R	Wind-NW, fair	18.2	1.0198	20.5	1.02045	26.7
		Bot.		Air-20.5	17.9	1.0202	20.2	1.02079	27.2
July 5	8.00 a.m.	Sur.	F	Wind-W. fair	18.5	1.0195	20.6	1.02018	26.5
		Bot.		Air-21.0	18.3	1.0195	21.0	1.02027	26.6
	7.00 p.m.	Sur.	R	Wind-W, cloudy	19.5	1.0200	20.4	1.02063	27.0
		Bot.		Air-23.5	19.5	1.0200	20.4	1.02063	27.0
July 6	8.00 a.m.	Sur.	H	Wind-W,thunder	18.8	1.0200	19.8	1.02050	26.8
		Bot.		Air-19.5	18.2	1.0204	19.8	1.02090	27.4
	7.30 p.m.	Sur.	R	Wind-W,thunder	19.8	1.0195	18.8	1.01977	25.9
		Bot.		Air - 19.0	19.7	1.0200	18.6	1.02023	26.5
July 7	8.45 a.m.	Sur.	H	Wind-W, fair	18.5	1.0202	18.8	1.02047	26.8
		Bot.		Air-18.8	18.2	1.0205	18.8	1.02077	27.2
	7.15 p.m.	Sur.	R	Wind-NW,scatter-	21.4	1.0190	20.4	1.01963	25.7
				ed cloud. 20.6	21.0	1.0192	20.4	1.01983	25.9
July 8	8.00 a.m.	Sur.	R	SW wind, cloudy	19.2	1.0202	20.5	1.02065	27.2
		Bot.		Air-20.4	22.0	1.0202	20.6	1.02088	27.4
#	7.30 p.m.	Sur.	R	Calm, cloudy	22.0	1.0174	20.4	1.01802	23.6
		Bot.		Air - 23.0	21.6	1.0190	20.5	1.01965	25.7

Substituted glass cylinder for piece of pipe- no correction.

Table I. Continued.

Date	Time	Depth	Tide	Weather	Temp.	Sp.Gr.	T°C.	Corr. Sp. Gr.	Sal. per mille
				Air -°C.	°C				
July 9	8.15 a.m.	Sur.	R	Wind-W,fair	20.0	1.0200	20.6	1.02068	2711
		Bot.		Air - 19.5°C	19.8	1.0195	20.8	1.02022	26.5
	8.30 p.m.	Sur.	R	Wind-w, fair	22.6	1.0188	20;4	1.01942	25.4
		Bot.		Air- 21.6	22.7	1.0185	20.6	1.01917	25.1
July 10	8.15 a.m.	Sur.	R	Strong W. wind	20.8	1.0190	22.8	1.02021	26.5
		Bot.		Fair. Air 21.2	20;7	1.0190	22.8	1.02021	26.5
	7.15 p.m.	Sur.	L	Wind-E. Fair.	23.4	1.0168	18.8	1.01706	22.3
		Bot		Air - 21	22.8	1.0170	18.8	1.01727	22.6
July 11	8.30 a.m.	Sur.	R	NW wind, fair.	20.8	1.0188	22.6	1.01996	26.2
		Bot.		Air - 19.8	20.6	1.0188	23.5	1.02019	26.5
	7.30 p.m.	Sur.	L	E wind, fair	23.4	1.0172	19.0	1.01751	22.9
		Bot.		Air 18.6	23.2	1.0175	19.0	1.01781	23.3
July 12	8.30 a.m.	Sur.	R.	Wind-E scattered cloud	21.6	1.0188	19.0	1.01911	25.0
		Bot.		Air-23.6	21.3	1.0190	19.0	1.01931	25.3
	7.15 p.m.	Sur.	F	Wind-E, fair.	21.8	1.0188	18.8	1.01907	25.0
		Bot.		Air - 17.6	21.8	1.0188	19.0	1.01911	25.0
July 13	8.00 a.m.	Sur.	L	Wind-E, cloudy	20;6	1.0190	18.2	1.01915	25.0
		Bot.		Air - 16.8	20.6	1.0190	18.2	1.01915	25.0
	7.00 p.m.	Sur.	F	Wind-E, cloudy	20.0	1.0195	17.8	1.01956	25.7
		Bot.		Air - 16.8	20.1	1.0198	18.0	1.01990	26.0
July 14	8.00 a.m.	Sur.	F	Wind-NE, fair	19.0	1.0190	21.2	1.01982	25.9
		Bot.		Air. - 17.8	18.9	1.0190	21.2	1.01982	25.9
	7.45 p.m.	Sur.	F	Calm, fair,	20.8	1.0198	16.8	1.01966	25.8
		Bot.		Air - 16.8	20.8	1.0120	16.8	1.01986	26.0
July 15	8.15 a.m.	Sur.	F	W wind, fair	19.8	1.0192	20.6	1.01988	26.0
		Bot.		Air...20.5	19.8	1.0190	21.2	1.01982	25.9
	7.00 p.m.	Sur.	F	SW wind, cloudy	20.5	1.0190	22.0	1.02001	26.2
		Bot.		Air 21.6	20.4	1.0195	22.0	1.02051	26.8
July 16	8.15 a.m.	Sur.	F	Calm, cloudy	19.0	1.0200	17.8	1.02006	26.3
		Bot.		Air - 15.6	19.1	1.0202	17.8	1.02026	26.6
	7.30 p.m.	Sur.	F	W wind, cloudy	20.8	1.0208	18.0	1.02090	27.4
		Bot.		Air - 18.8	18.7	1.0210	18.0	1.02111	27.6
July 19	7.15 p.m.	Sur.	F	Wind-NW fair	20.6	1.0205	18.2	1.02065	27.0
		Bot.		Air - 19.2	20.5	1.0205	18.2	1.02065	27.0

Table I. Continued.

Date	Time	Depth	Tide	Weather Air - °C	Temp. °C.	Sp.Gr.@T°C.		Corr. Sp. Gr.	Sal. per mille
July 20	8.30 a.m.	Sur.	F	Calm, fair	20.0	1.0198	21.6	1.02071	27.1
		Bot.		Air - 19.5	20.1	1.0200	21.6	1.02092	27.4
	8.00 p.m.	Sur.	R	SW wind, fair	21.0	1.0200	21.0	1.02078	27.2
		Bot.		Air - 21.2	21.2	1.0200	21.4	1.02087	27.4
July 21	8.30 a.m.	Sur.	H	SW wind, fair	20.4	1.0198	22.6	1.02117	27.7
		Bot.		Air - 22.5	20.2	1.0198	22.6	1.02117	27.7
	6.45 p.m.	Sur.	R	Wind SW, fair	22.8	1.0188	22.6	1.01895	24.7
		Bot.		Air 26.0	22.8	1.0188	22.6	1.01895	24.7
July 22	8.30 a.m.	Sur.	H	Wind W, fair	20.8	1.0192	24.0	1.02072	27.1
		Bot.		Air - 21.4	20.2	1.0198	23.8	1.02127	27.9
	7.45 p.m.	Sur.	R	Calm, fair	22.8	1.0192	23.8	1.02067	27.1
		Bot.		Air - 20.5	23.0	1.0192	23.8	1.02067	27.1
July 23	8.15 a.m.	Sur.	R	W wind, fair	21.0	1.0195	24.2	1.02107	27.6
		Bot.		Air - 23.4	21.8	1.0198	24.8	1.02154	28.1
	7.30 p.m.	Sur.	R	Calm, fair.	23.8	1.0192	20.2	1.01978	25.9
		Bot.		Air - 24.6	23.8	1.0188	23.8	1.02026	26.6
July 24	8.30 a.m.	Sur.	R	Wind SW,scatter-	21.5	1.0200	21.8	1.02097	27.5
		Bot.		ed, cloudy. 21.8	20.9	1.0195	24.5	1.02166	28.4
July 25	8.45 a.m.	Sur.	R	SW wind, cloudy	21.4	1.0198	25.4	1.02170	28.4
		Bot.		Air - 23.0	21.1	1.0195	24.8	1.02124	27.7
	7.30 p.m.	Sur.	L	Calm, fair,	24.4	1.0195	22.0	1.02051	26;8
		Bot.		Air - 22.5	24.2	1.0190	22.0	1.02001	26.2
July 26	8.30 a.m.	Sur.	R.	Wind E, Fair	22.6	1.0202	22.0	1.02122	27.7
		Bot.		Air - 22.8	22.5	1.0205	22.0	1.02152	28.1
	7.15 p.m.	Sur.	L	SW wind, fair.	24.8	1.0190	22.0	1.02001	26.2
		Bot.		Air - 26.8	24.8	1.0192	22.0	1.02021	26.5
July 27	8.15 a.m.	Sur.	LR	Wind SW Scatter-	23.6	1.0198	22.0	1.02081	27.2
		Bot.		ed cloud. A-25.5	23.6	1.0198	22.0	1.02081	27.2
	7.00 p.m.	Sur.	L	Wind SW cloudy	24.5	1.0195	22.0	1.02051	26.8
		Bot.		Air - 25.0	24.3	1.0195	22.2	1.02056	27.0
July 28	8.30 a.m.	Sur.	L	SW wind, cloudy	23.5	1.0195	23.2	1.02081	27.2
		Bot.		Air - 20.8	23.6	1.0195	23.4	1.02086	27.4
	7.00 p.m.	Sur.	F	Wind SW, cloudy	22.2	1.0205	20.8	1.02123	27.7
		Bot.		Air - 20.8	22.4	1.0208	18.6	1.02103	27.5

Table I. Continued.

Date.	Time	Depth	Tide	Weather	Temp.	Sp.Gr.@T°C.		Corr. Sp.Gr.	Sal.
				Air - °C	°C				per mille
July 29	8.15 a.m.	Sur.	L	W wind, fair.	21.8	1.0200	21.4	1.02087	27.4
		Bot.		Air - 18.6	21.8	1.0200	21.2	1.02082	27.2
	7.30 p.m.	Sur.	F	Wind SE, fair.	23.0	1.0200	21.4	1.02087	27.4
		Bot.		Air - 19.6	22.9	1.0200	21.8	1.02097	27.5
July 30	8.30 a.m.	Sur.	F	Calm,scattered	22.4	1.0192	22.6	1.02036	26.7
		Bot.		cloud. A-19.2	22.5	1.0198	22.8	1.02101	27.5
	8.00 p.m.	Sur.	F	SW wind,scatter-	22.4	1.0208	20.0	1.02134	27.9
		Bot.		ed cloud. 17.8	22.2	1.0205	20.0	1.02104	27.5
July 31	9.00 a.m.	Sur.	F	Calm, fair	22.4	1.0195	21.6	1.02042	26.7
		Bot.		Air - 21.6	22.3	1.0195	21.5	1.02038	26.7
Aug. 1	8.15 a.m.	Sur.	F	SW wind, cloudy	21.6	1.0208	20.8	1.02153	28.1
		Bot.		Air - 19.6	21.6	1.0182	21.0	1.01896	24.9
	7.30 p.m.	Sur.	F	E gale, rain	21.2	1.0220	21.8	1.02299	30.1
		Bot.		Air - 18.8	21.2	1.0220	21.6	1.02294	30.0
Aug. 2	8.30 a.m.	Sur.	F	Wind SW, scattered cloud. Air. -	20.4	1.0220	21.8	1.02299	30.1
		Bot.		19.6	20.3	1.0200	21.0	1.02092	27.4
	# Bottles mixed salinities perhaps incorrect.								
	7.30 p.m.	Sur.	H	Calm scattered	21.6	1.0210	20.6	1.02193	28.7
		Bot.		cloud. A-21.4	19.0	1.0210	20.6	1.02193	28.7
Aug. 3	8.30 a.m.	Sur.	F	SW wind, scatter-	18.8	1.0190	27.5	1.02151	28.1
		Bot.		ed cloud. A-20.2	20.8	1.0192	26.8	1.02150	28.1
	7.30 p.m.	Sur.	R	SW wind, cloudy	19.0	1.0215	21.0	1.02228	29.2
		Bot.		Air - 20.5	19.4	1.0210	20.0	1.02169	28.4
Aug. 4	8.30 a.m.	Sur.	H	Calm, scattered	18.8	1.0212	20.0	1.02189	28.7
		Bot.		cloud. A-19.8	18.2	1.0215	20.0	1.02219	29.1
	7.30 p.m.	Sur.	R	Calm, fair	19.8	1.0195	25.8	1.02151	28.1
		Bot.		Air 20.1	19.8	1.0195	25.8	1.02151	28.1
Aug. 5	8.30 a.m.	Sur.	H	SW wind, fair	19.5	1.0198	25.8	1.02181	28.5
		Bot.		Air - 23.8	19.5	1.0195	26.0	1.02157	28.3
	7.30 p.m.	Sur.	R	Wind SW, cloud	21.4	1.0198	24.0	1.02132	27.9
		Bot.		Air - 24.2	20.4	1.0198	24.2	1.02137	28.0
Aug. 6	8.40 a.m.	Sur.	R	SW wind, fair	19.6	1.0195	26.0	1.02157	28.3
		Bot.		Air - 22.8	19.6	1.0195	25.8	1.02151	28.1
	7.40 p.m.	Sur.	R	Wind SW, cloudy	22.6	1.0190	26.0	1.02107	27.6
		Bot.		Air- 25.2	22.6	1.0190	26.0	1.02107	27.6

Table I. Continued.

Date	Time	Depth	Tide	Weather Air -°C	Temp. °C	Sp.Gr.	°T°C	Corr. Sp.Gr.	Sal. per mille
Aug. 8	8.45 a.m.	Sur.	R	Calm, fair	24.0	1.0205	26.0	1.02259	29.6
		Bot.		Air - 30.0	22.3	1.0192	26.0	1.02127	27.9
	8.00 p.m.	Sur.	R	Calm, scattered	25.5	1.0200	25.0	1.02181	28.5
		Bot.		cloud. A-24.0	25.5	1.0190	25.2	1.02085	27.2
Aug. 9	8.45 a.m.	Sur.	R	Calm, clear	24.2	1.0202	20.0	1.02074	27.1
		Bot.		Air - 23.8	24.2	1.0202	20.0	1.02074	27.1
	7.45 p.m.	Sur.	L	SW wind, clear	26.4	1.0200	19.5	1.02043	26.7
		Bot.			26.3	1.0200	19.6	1.02045	26.7
Aug. 10	8.30 a.m.	Sur.	R	Wind SW, scattered cloud. A-248	25.1	1.0198	23.2	1.02111	27.6
		Bot.			24.9	1.0195	23.2	1.02081	27.2
#	8.10 p.m.	Sur.	L	SW wind, light fog. Air 26.4	24.5	1.0210	15.0	1.02052	26.8
Aug. 11	10.15 a.m	Sur.	R	SW wind, cloudy Air - 27.5	24.9	1.0212	15.0	1.02072	27.1
	7.55 p.m.	Sur.	L	SW wind, clear Air - 25.8	24.5	1.0215	15.0	1.02102	27.5
Aug. 12	10.15 a.m.	Sur.	LR	SW wind, cloudy Air - 27.5	24.5	1.0212	15.4	1.02079	27.2
	7.10 p.m.	Sur	F	NW wind, cloudy Air-25.0	25.5	1.0215	15.2	1.02105	27.5
Aug. 13	8.45 a.m.	Sur.	L	SW-cloudy	23.5	1.0200	23.2	1.02132	27.9
		Bot.		Air - 25.8	23.5	1.0200	22.8	1.02122	27.7
	7.15 p.m.	Sur.	F	SW wind, clear	23.5	1.0208	20.8	1.02153	28.1
		Bot.		Air - 23.0	23.5	1.0202	22.8	1.02142	28.0
Aug. 14	8.45 a.m.	Sur	F	SW wind, cloudy	23.0	1.0190	26.4	1.02118	27.7
		Bot.		Air - 23.5	22.8	1.0190	25.8	1.02101	27.5
	7.50 p.m.	Sur.	F	Calm, clear	22.8	1.0208	19.4	1.02121	27.7
		Bot.		Air - 20.8	22.6	1.0215	15.4	1.02109	27.6
Aug. 15	8.45 a.m.	Sur.	F	SW wind, clear	22.0	1.0198	23.6	1.02122	27.7
		Bot.		Air - 21.5	21.8	1.0200	23.5	1.02140	28.0
	7.45 a.m.	Sur.	F	SW wind, clear	22.4	1.0208	20.0	1.02134	27.9
		Bot.		Air - 20.8	22.2	1.0208	20.0	1.02134	27.9

Observations from Aug. 10 p.m. to Aug. 12 p.m. taken by Mr. F. Grant.

Table I. Continued.

Date	Time	Depth	Tide	Weather °C	Temp. °C	Sp.Gr.@ T°C.		Corr. Sp. Gr.	Sal. per mille
Aug. 16	8.45 a.m.	Sur.	F	SW wind, clear	21.4	1.0205	22.4	1.02162	28.3
		Bot.		Air - 22.2	21.4	1.0205	22.8	1.02172	28.4
	7.20 p.m.	Sur.	H	SW wind, cloudy	22.5	1.0205	22.0	1.02152	28.1
				Air - 25.2	22.5	1.0205	22.0	1.02152	28.1
Aug. 17	8.45 a.m.	Sur.	F	W wind, clear	22.2	1.0205	22.4	1.02162	28.3
		Bot.		Air - 27.8	22.2	1.0205	22.4	1.02162	28.3
	7.30 p.m.	Sur.	R	SW wind, cloudy	22.8	1.0212	18.0	1.02131	27.9
		Bot.		Air - 26.5	22.8	1.0210	20.6	1.02169	28.4
# Observations from August 10 p.m. to August 12 p.m. taken by Mr. F. Grant.									
Aug. 18	10.15a.m.	Sur.	F	NW wind, rain.	22.4	1.0205	21.2	1.02132	27.9
		Bot.		Air - 18.8	22.4	1.0205	21.8	1.02147	28.1
	7.45 a.m.	Sur.	R	NE wind, clear	22.6	1.0215	15.8	1.02117	27.7
		Bot.		Air - 18.0	22.4	1.0212	18.5	1.02141	28.0
Aug. 19	8.45 a.m.	Sur.	H	SE wind, clear	21.6	1.0208	20.8	1.02153	28.1
		Bot.		Air - 19.6	21.6	1.0198	24.0	1.02132	27.9
	7.45 p.m.	Sur.	R	Wind-SW, clear	22.6	1.0205	20.8	1.02123	27.7
		Bot.		Air - 19.0	22.5	1.0210	18.0	1.02111	27.6
Aug. 20	8.45 a.m.	Sur.	H	W wind, cloudy	21.6	1.0205	22.6	1.02167	28.4
		Bot.		Air - 22.5	21.6	1.0205	22.6	1.02167	28.4
	8.10 p.m.	Sur.	R	Calm, clear	21.8	1.0200	22.6	1.02117	27.7
		Bot.		Air - 20.5	21.8	1.0200	22.4	1.02112	27.6
Aug. 21	9.00 a.m.	Sur.	R	SW wind, clear	21.0	1.0195	27.8	1.02210	28.9
		Bot.		Air - 21.8	21.0	1.0210	20.8	1.02174	28.4
	7.30 p.m.	Sur.	R	Wind-SW scattered	23.4	1.0210	18.4	1.02119	27.7
		Bot.		cloud. Air 24.6	23.4	1.0210	18.6	1.02123	27.7
Aug. 25	8.45 a.m.	Sur.	R	W wind, clear	19.5	1.0208	19.4	1.02121	27.7
		Bot.		Air - 19.4	19.5	1.0208	19.8	1.02130	27.9
	8.30 p.m.	Sur.	R	Calm, clear	20;8	1.0200	22.5	1.02114	27.6
		Bot.		Air 19.6	20.8	1.0202	20.8	1.02093	27.4
Aug. 26	8.45 a.m.	Sur.	H	SW wind, clear	20.4	1.0208	19.4	1.02121	27.7
		Bot.		Air. - 25.0	20.3	1.0205	19.6	1.02095	27.4
	7.45 p.m.	Sur.	R	Wind-W, cloudy	20.8	1.0208	22.4	1.02192	28.7
		Bot.		Air - 28.6	21.1	1.0200	25.0	1.02181	28.5

Table I. Continued.

Date	Time	Depth	Tide	Weather Air - °C	Temp. °C.	Sp. Gr.	@T°C.	Corr. Sp. Gr.	Sal. per mille
Aug. 27	9.00 a.m.	Sur.	L	Wind-W cloudy	20.6	1.0190	27.0	1.02136	28.0
		Bot.		Air 25.5	20.6	1.0198	23.8	1.02127	27.9
	7:45 p. m.	Sur.	L	Wind-W cloudy	20.5	1.0210	19.4	1.02141	28.0
		Bot.		Air - 19.6	20.6	1.0220	15.2	1.02155	28.1
Aug. 28	8.30 a.m.	Sur.	L	Wind-W clear	20.6	1.0212	17.0	1.02110	27.8
		Bot.		Air - 20.5	20.4	1.0202	17.0	1.02110	27.6
	7.45 p.m.	Sur.	F	Wind - E clear	21.0	1.0218	17.0	1.02170	28.4
		Bot.		Air - 19.0	21.0	1.0218	17.0	1.02170	28.4
Aug. 29	9.00 a.m.	Sur.	L	Wind-SW Clear	20.8	1.0212	17.0	1.02110	27.6
		Bot.		Air - 22.5	20.8	1.0218	15.2	1.02135	27.9
	7.30 p.m.	Sur.	F	Wind - SW Clear	21.0	1.0218	17.0	1.02170	28.4
		Bot.		Air - 23.0	21.2	1.0218	17.0	1.02170	28.4
Aug. 30	8.45 a.m.	Sur.	F	Wind-W Clear	20.6	1.0218	15.2	1.02135	27.9
		Bot.		Air - 24.5	20.6	1.0220	15.2	1.02155	28.1
Aug.31	8.45 a.m.	Sur.	F	Wind-W Cloudy	20.6	1.0215	17.0	1.02140	28.0
		Bot.		Air - 18.0	20.6	1.0218	17.0	1.02170	28.4
	7.30 p.m.	Sur.	F	Wind-NW Cloudy	20.5	1.0218	16.8	1.02166	28.4
		Bot.		Air - 18.8	20.2	1.0220	16.8	1.02186	28.7
Sept. 1	9.00 a.m.	Sur.	F	Calm ..rain	20.2	1.0218	17.0	1.02170	28.4
		Bot.		Air - 18.2	20.2	1.0218	16.8	1.02166	28.4
	8.00 p.m.	Sur.	R	Calm, clear	20.2	1.0220	16.8	1.02186	28.7
		Bot.			20.5	1.0220	16.6	1.02182	28.5

TABLE II.

Hydrographic observations at Wallace bridge.

Date	Time	Depth	Temp. °C.	Sp. Gr. @T°C.		Corr.Sp.Gr.	Sal. per mille
June 28	9.30 a.m.	Surface	18.8	1.0102	20.6	1.01081	14.1
		Bottom	18.8	1.0122	20.6	1.01283	16.7
	7.45 p.m.	Surface	19.8	1.0082	20.8	1.00884	11.5
		Bottom	19.8	1.0082	20.8	1.00884	11.5
June 29	9.00 a.m.	Surface	19.6	1.0092	20.6	1.00981	12.8
		Bottom	19.6	1.0100	20.6	1.01061	13.8
	7.30 p.m.	Surface	20.8	1.0102	20.6	1.01081	14.1
		Bottom	21.0	1.0105	20.6	1.01111	14.5
June 30	9.00 a.m.	Surface	20.4	1.0095	20;6	1.01011	13.2
		Bottom	20.2	1.0104	20.6	1.01101	14.4
	8.00 p.m.	Surface	20.5	1.0112	20.6	1.01182	15.4
		Bottom	20.5	1.0110	20.6	1.01162	15.1
July 1	9.00 a.m.	Surface	20.6	1.0090	21.8	1.00987	12.9
		Bottom	20.6	1.0092	21.8	1.01007	13.0
	7.30 p.m	Surface	21.8	1.0105	18.2	1.01063	13.8
		Bottom	21.3	1.0140	18.4	1.01418	18.6
July 2	9.00 a.m.	Surface	20.6	1.0108	18.2	1.01093	14.2
		Bottom	20.6	1.0110	18.2	1.01113	14.5
	7.30 p.m.	Surface	20.5	1.0140	18.5	1.01420	18.6
		Bottom	20.1	1.0162	18.4	1.01638	21.5
July 3	11.30 a.m.	Surface	20.8	1.0080	23.5	1.00925	12.0
		Bottom	20.7	1.0085	22.8	1.00859	11.2
	7.30 p.m.	Surface	19.8	1.0180	23.8	1.01846	24.2
		Bottom	18.3	1.0158	23.8	1.01722	22.5
July 4	9.00 a.m.	Surface	19.2	1.0145	23.8	1.01591	20.8
		Bottom	18.9	1.0150	23.8	1.01642	21.5
	7.30 p.m.	Surface	20.5	1.0170	20.8	1.01771	23.2
		Bottom	19.7	1.0182	20.6	1.01887	24.7
July 5	8.30 a.m.	Surface	19.8	1.0162	21.8	1.01713	22.3
		Bottom	19.4	1.0172	21.8	1.01814	23.7
	7.30 p.m.	Surface	21.4	1.0174	20.2	1.01797	23.6
		Bottom	21.2	1.0180	20.4	1.01862	24.3

Table II Continued.

Date	Time	Depth	Temp. °C.	Sp. Gr @T°C.		Corr.Sp.Gr.	Sal. per mille
July 6	8.30 a.m.	Surface	20.5	1.0160	20.2	1.01656	21.7
		Bottom	19.9	1.0185	20.4	1.01912	25.0
	8.00 p.m.	Surface	20.8	1.0172	18.6	1.01742	22.8
		Bottom	20.8	1.0180	18.6	1.01823	23.8
July 7	8.30 a.m.	Surface	19.8	1.0185	19.0	1.01881	24.6
		Bottom	19.7	1.0190	19.3	1.01938	25.4
	7.45 p.m.	Surface	22.4	1.0155	20.4	1.01610	21.1
		Bottom	22.2	1.0162	20.5	1.01683	22.0
July 8	8.45 a.m.	Surface	20.6	1.0185	20.6	1.01917	25.1
		Bottom	20.6	1.0186	21.0	1.01956	25.7
	8.00 p.m.	Surface	22.8	1.0155	20.6	1.01615	21.1
		Bottom	22.8	1.0158	20.6	1.01645	21.5
July 9	8.45 a.m.	Surface	21.4	1.0180	21.8	1.01895	24.7
		Bottom	21.6	1.0182	21.6	1.01910	25.0
July 10	8.45 a.m.	Surface	22.4	1.0152	21.6	1.01600	21.1
		Bottom	21.9	1.0178	22.0	1.01879	24.6
	7.45 p.m.	Surface	23.6	1.0108	19.6	1.01120	14.6
		Bottom	23.6	1.0110	19.4	1.01137	14.9
July 11	9.00 a.m.	Surface	22.6	1.0152	21.6	1.01608	21.1
		Bottom	22.4	1.0158	21.6	1.01668	21.8
July 11	8.00 p.m.	Surface	23.6	1.0115	17.4	1.01148	15.0
		Bottom	23.4	1.0115	17.4	1.01148	15.0
July 12	8.00 a.m.	Surface	22.6	1.0132	17.2	1.01314	17.1
		Bottom	22.5	1.0138	17.2	1.01374	17.9
	7.45 p.m.	Surface	22.8	1.0140	17.4	1.01398	18.3
		Bottom	22.8	1.0140	17.4	1.01398	18.3
July 13	8.45 a.m.	Surface	21.8	1.0122	18.0	1.01230	16.1
		Bottom	21.9	1.0125	18.0	1.01260	16.5
	7.30 p.m.	Surface	21.2	1.0148	19.0	1.01510	19.7
		Bottom	21.2	1.0148	19.0	1.01510	19.7

Table II Continued.

Date	Time	Depth	Temp. °C	Sp.Gr.&T °C.		Corr.Sp.Gr.	Sal. per mille
July 14	8.30 a.m.	Surface	20.1	1.0142	22.2	1.01521	19.9
		Bottom	20.1	1.0148	22.2	1.01581	20.7
	8.15 p.m.	Surface	21.8	1.0150	16.8	1.01487	19.5
		Bottom	21.8	1.0150	16.8	1.01487	19.5
July 15	8.45 a.m.	Surface	20.9	1.0140	20.4	1.01460	19.1
		Bottom	21.0	1.0142	20.6	1.01484	19.4
	7.30 p.m.	Surface	21.8	1.0152	22.0	1.01617	21.2
		Bottom	21.6	1.0168	22.0	1.01778	23.3
July 16	8.00 p.m.	Surface	20.0	1.0170	21.8	1.01794	23.4
		Bottom	19.7	1.0185	21.6	1.01940	25.4
July 19	7.45 p.m.	Surface	22.4	1.0170	22.8	1.01819	23.8
		Bottom	21.6	1.0180	23.0	1.01925	25.1
July 20	9.15 a.m.	Surface	20.8	1.0170	23.8	1.01844	24.1
		Bottom	20.7	1.0172	23.8	1.01864	24.3
	7.45 p.m.	Surface	23.5	1.0162	23.2	1.01748	22.9
		Bottom	22.7	1.0178	23.0	1.01904	24.9
July 21	9.00 a.m.	Surface	21.8	1.0170	24.0	1.01850	24.2
		Bottom	21.2	1.0188	24.5	1.02044	26.7
	7.00 p.m.	Surface	23.8	1.0158	24.6	1.01743	22.8
		Bottom	23.7	1.0168	24.6	1.01844	24.1
July 22	9.00 a.m.	Surface	22.4	1.0178	25.4	1.01967	25.8
		Bottom	21.8	1.0180	25.2	1.01983	25.9
	8.00 p.m.	Surface	23.8	1.0165	24.8	1.01819	23.8
		Bottom	23.5	1.0172	24.8	1.01891	24.7
July 23	8.45 a.m.	Surface	22.4	1.0182	24.8	1.01992	26.0
		Bottom	22.3	1.0188	25.0	1.02058	27.0
	8.00 p.m.	Surface	24.8	1.0168	19.0	1.01710	22.3
		Bottom	24.8	1.0172	19.4	1.01759	23.0
July 24	8.45 a.m.	Surface	23.0	1.0182	21.6	1.01910	25.0
		Bottom	22.9	1.0188	24.4	1.02041	26.7

Table II Continued.

Date	Time	Depth	Temp. °C.	Sp.Gr @ T°C		Corr.Sp.Gr.	Sal. per mille
July 25	9.00 a.m.	Surface	22.8	1.0178	21.6	1.01870	24.5
		Bottom	22.8	1.0180	25.2	1.01983	25.9
	8.00 p.m.	Surface	24.9	1.0155	22.0	1.01647	21.6
		Bottom	24.9	1.0155	22.2	1.01652	21.6
July 26	9.00 a.m.	Surface	24.5	1.0172	22.0	1.01819	23.8
		Bottom	24.1	1.0178	22.0	1.01879	24.6
	7.30 p.m.	Surface	25.5	1.0148	24.0	1.01626	21.3
		Bottom	25.3	1.0150	22.0	1.01597	20.9
July 27	9.00 a.m.	Surface	24.6	1.0168	22.0	1.01778	23.3
		Bottom	24.6	1.0165	22.0	1.01748	22.9
	7.20 p.m.	Surface	25.5	1.0158	22.0	1.01677	22.0
		Bottom	25.4	1.0162	22.0	1.01718	22.5
July 28	9.00 a.m.	Surface	24.6	1.0155	23.8	1.01692	22.1
		Bottom	24.5	1.0150	24.6	1.01663	21.7
	8.00 p.m.	Surface	24.4	1.0165	21.8	1.01743	22.8
		Bottom	24.3	1.0170	18.6	1.01722	22.5
July 29	8.45 a.m.	Surface	23.5	1.0165	21.6	1.01739	22.8
		Bottom	23.5	1.0162	21.6	1.01709	22.3
	8.00 p.m.	Surface	24.5	1.0172	22.2	1.01824	23.8
		Bottom	24.5	1.0170	22.6	1.01814	23.7
July 30	9.00 a.m.	Surface	23.6	1.0158	22.6	1.01692	22.1
		Bottom	23.6	1.0158	22.6	1.01692	22.1
	7.30 p.m.	Surface	23.8	1.0192	20.0	1.01974	25.8
		Bottom	23.9	1.0190	20.4	1.01963	25.7
July 31	8.45 a.m.	Surface	23.0	1.0170	21.4	1.01785	23.3
		Bottom	23.0	1.0168	21.6	1.01769	23.2
Aug. 1	8.45 a.m.	Surface	23.2	1.0210	20.8	1.02174	28.4
		Bottom	23.2	1.0180	21.0	1.01876	24.8

P. M. No evening observation.....gale.
samples mixed. Salinities probably correct.

Table II Continued.

Date	Time	Depth	Temp. °C	Sp.Gr.	$\sigma T^{\circ}C.$	Corr.Sp.Gr.	Sal. per mille
Aug. 2	9.00 a.m.	Surface	21.6	1.0182	21.6	1.01910	25.0
		Bottom	21.5	1.0182	21.8	1.01915	25.0
	8.00 p.m.	Surface	21.6	1.0210	20.6	1.02169	28.4
		Bottom	21.7	1.0200	20.6	1.02068	27.1
Aug. 3	9.00 a.m.	Surface	21.2	1.0180	25.5	1.01992	26.0
		Bottom	21.2	1.0170	25.8	1.01898	24.9
	8.00 p.m.	Surface	21.2	1.0200	20.6	1.02068	27.1
		Bottom	21.4	1.0202	21.0	1.02098	27.5
Aug. 4	9.00 a.m.	Surface	20.4	1.0198	21.0	1.02057	27.0
		Bottom	20.3	1.0200	21.0	1.02078	27.2
	8.00 p.m.	Surface	21.6	1.0180	25.8	1.02000	26.2
		Bottom	21.6	1.0185	25.8	1.02050	26.8
Aug. 5	9.00 a.m.	Surface	21.0	1.0188	25.8	1.02080	27.2
		Bottom	20.6	1.0188	25.8	1.02080	27.2
	8.00 p.m.	Surface	22.5	1.0178	26.0	1.01984	25.9
		Bottom	21.6	1.0180	26.2	1.02011	26.3
Aug. 6	9.00 a.m.	Surface	21.2	1.0190	26.2	1.02113	27.6
		Bottom	21.2	1.0190	26.0	1.02107	27.6
	8.10 p.m.	Surface	23.8	1.0170	25.6	1.07898	24.9
		Bottom	23.8	1.0180	24.4	1.01961	25.7
Aug. 8	9.00 a.m.	Surface	24.5	1.0188	26.0	1.02085	27.2
		Bottom	23.8	1.0188	26.2	1.02091	27.4
	7.00 p.m.	Surface	26.0	1.0148	25.0	1.01652	21.6
		Bottom	25.9	1.0150	25.0	1.01673	21.8
Aug. 9	9.00 a.m	Surface	26.2	1.0180	20.0	1.01853	24.2
		Bottom	26.3	1.0195	20.0	1.02004	26.2
	8.00 p.m.	Surface	26.6	1.0165	19.5	1.01697	22.1
		Bottom	26.5	1.0165	19.6	1.01693	22.1
Aug. 10	9.00 a.m.	Surface	25.8	1.0163	22.8	1.01738	22.8
		Bottom	25.8	1.0162	23.0	1.01743	22.8

Table II Continued.

Date	Time.	Depth	Temp. °C.	Sp. Gr. @ T°C.		Corr. Sp. Gr.	Sal. per mille
Aug. 13	9.30 a.m.	Surface	25.0	1.0162	23.4	1.01753	22.9
		Bottom	25.0	1.0160	23.5	1.01736	22.8
	8.00 p.m.	Surface	24.5	1.0188	23.0	1.02005	26.2
		Bottom	24.5	1.0185	23.0	1.01975	25.8
Aug. 14	9.30 a.m.	Surface	23.8	1.0160	26.4	1.01813	23.7
		Bottom	23.8	1.0160	27.2	1.01836	24.1
	8.00 p.m.	Surface	23.8	1.0196	19.2	1.02016	26.5
		Bottom	23.7	1.0206	18.5	1.02041	26.7
Aug. 15	9.15 a.m.	Surface	23.5	1.0170	23.6	1.01839	24.1
		Bottom	23.4	1.0172	23.0	1.01844	24.1
	8.00 p.m.	Surface	23.8	1.0186	21.2	1.01961	25.7
		Bottom	23.7	1.0195	21.2	1.02032	26.6
Aug. 16	9.00 a.m.	Surface	22.4	1.0182	22.4	1.01930	25.3
	#	Bottom	22.4	1.0188	22.2	1.01985	25.9
	7.30 p.m.	Surface	23.8	1.0195	22.2	1.02056	27.0
		Bottom	23.4	1.0198	22.4	1.02061	27.4
Aug. 17	9.00 a.m.	Surface	23.0	1.0188	22.2	1.01965	25.9
		Bottom	23.0	1.0188	22.4	1.01990	26.0
	8.00 p.m.	Surface	23.6	1.0196	20.8	1.02052	26.8
		Bottom	23.6	1.0200	20.6	1.02066	27.1
Aug. 18	9.45 a.m.	Surface	23.0	1.0198	20.6	1.02046	26.8
		Bottom	22.6	1.0198	20.6	1.02048	26.8
	8.15 p.m.	Surface	23.2	1.0200	18.2	1.02015	26.3
		Bottom	23.0	1.0210	15.8	1.02067	27.1
Aug. 19	9.15 a.m.	Surface	22.4	1.0205	18.2	1.02065	27.0
		Bottom	22.2	1.0198	20.6	1.02048	26.8
	8.00 p.m.	Surface	22.6	1.0195	21.4	1.02036	26.7
		Bottom	22.6	1.0198	21.4	1.02066	27.1
Aug. 20	9.15 a.m.	Surface	22.2	1.0205	20.6	1.02116	27.7
		Bottom	22.0	1.0202	20.6	1.02088	27.4
	7.45 p.m.	Surface	22.6	1.0182	22.6	1.01935	25.3
		Bottom	22.6	1.0185	22.6	1.01965	25.7

Reversing thermometer broken. Bottom temperatures taken from bottom sample.

Table II Continued.

Date	Time	Depth	Temp. °C	Sp.Gr. at T°C		Corr.Sp.Gr.	Sal. per mille
Aug. 21	9.40 a.m.	Surface	22.5	1.0212	20.8	1.02194	28.7
		Bottom	22.5	1.0188	27.8	1.02138	28.o
	7.45 p.m.	Surface	24.0	1.0188	20.6	1.01947	25.5
		Bottom	24.0	1.0202	15.6	1.01983	25.9
Aug. 25	9.15 a.m.	Surface	20.0	1.0195	20.5	1.02016	26.5
		Bottom	19.8	1.0208	20.6	1.02148	28.1
Aug. 26	9.15 a.m.	Surface	21	1.0182	19.5	1.01862	24.3
		Bottom	21.0	1.0182	19.4	1.01860	24.3
	8.00 p.m.	Surface	21.6	1.0172	24.6	1.01885	24.6
		Bottom	21.7	1.0165	27.5	1.01895	24.7
Aug. 27	10.00 a.m.	Surface	21.4	1.0168	24.8	1.01749	22.9
		Bottom	21.5	1.0170	24.0	1.01850	24.2
	7.55 p.m.	Surface	21.4	1.0192	15.2	1.01876	24.6
		Bottom	21.3	1.0192	16.0	1.01891	24.7
Aug. 28	9.00 a.m.	Surface	21.2	1.0180	17.0	1.01790	23.4
		Bottom	21.4	1.0182	17.0	1.01810	23.7
	8.00 p.m.	Surface	22.0	1.0202	17.0	1.02010	26.3
		Bottom	21.9	1.0202	17.0	1.02010	26.3
Aug. 29	9.15 a.m.	Surface	21.5	1.0178	17.0	1.01770	23.2
		Bottom	21.8	1.0180	16.8	1.01786	23.4
	8.00 p.m.	Surface	22.2	1.0208	17.0	1.02070	27.1
		Bottom	21.6	1.0208	17.0	1.02070	27.1
Aug. 30	9.00 a.m.	Surface	21.6	1.0195	15.2	1.01906	25.0
		Bottom	20.6	1.0195	15.2	1.01906	25.0
Aug. 31	8.00 p.m.	Surface	20.8	1.0215	16.8	1.02136	28.0
		Bottom	20.8	1.0215	16.8	1.02136	28.0

Hydrographic observations in the vicinity of the "aboiteau" at the head of the north branch of Wallace bay are given in table III. The "aboiteau" extends across the north branch near its head. Its tide gates reduce the inflow of salt water but some enters.

Temperatures and salinities were taken just above the aboiteau by wading into the channel just above the sluice. The water is about three feet deep.

Temperatures and salinities were taken just below the middle of the dam by wading out as far as possible. The bottom falls off steeply to a depth of about 15 feet or more at high tide. Whenever possible a boat was used here for taking bottom observations.

Temperatures and salinities were taken at the little bay on the north shore some distance below the aboiteau and called in this report the "Spat bed". Observations were made by wading out to a depth of about four feet or from a boat. Commencing July 16 all observations were taken from the raft anchored in this cove for spat collection experiments, where the depth at high tide was about 20 feet.

TABLE III.

Spat bed.

Date	Time	Tide	Depth	Temp. °C.	Sp.Gr. @ T°C		Sal.	Remarks
June 24	2.15 p.m.	F	Sur.	18.0	1.0178	18.2	23.9	
			Bot.	17.5	1.0192	18.5	25.4	
June 27	3.15 p.m.	F	Sur.	20.5	1.0152	20.6	20.7	In 3' of water next to shore.
June 29	4.45 p.m.	F	Sur.	23.2	1.0152	20.8	20.8	Air temperature 24.5 Close to shore.
July 1	3.45 p.m.	H	Sur.	24.2	1.0152	22.0	21.2	
July 3	5.00 p.m.	R	Sur.	22.2	1.0150	23.4	21.3	
July 5	3.00 p.m.	R	Sur.	24.8	1.0120	20;5	16.5	
July 9	5.30 p.m.	L	Sur.	24.6	1.0170	19.8	22.9	Approx. 5' (Bottom)
			Bot.	24.2	1.0172	20.6	23.4	
July 11	5.30 p.m.	F	Sur.	24.8	1.0178	18.0	23.4	
July 14	4.40 p.m.	F	Sur.	22.4	1.0172	19.0	22.9	
			Bot.	20.9	1.0178	18.8	23.7	
July 16	5.30 p.m.	H	Sur.	20.8	1.0178	20.5	24.1	
July 20	7.10 p.m.	F	Sur.	24.6	1.0142	23.2	20.1	
July 21	5.30 p.m.	R	Sur.	24.6	1.0160	19.0	21.3	
July 22	3.45 p.m.	L	Sur.	25.8	1.0150	25.2	22.0	
			Bot.	24.1	1.0172	25.0	24.9	
July 23	5.15 p.m.	L	Sur.	25.8	1.0175	20.0	23.6	
			Bot.	23.9	1.0168	26.2	24.7	
July 24	4.30 p.m.	F	Sur.	25.2	1.0180	20.8	24.5	
			Bot.	24.1	1.0188	20.8	25.5	
July 25	5.15 p.m.	F	Sur.	26.2	1.0188	22.2	26.0	
			Bot.	23.6	1.0188	22.0	25.9	
July 26	9.30 a.m.	R	Sur;	24.8				
			Bot.	24.0				

Table III Continued.

Date	Time	Tide	Depth	Temp. °C	Sp. Gr. @T°C.		Sal.	Remarks
July 27	5.30 a.m.	F	Sur.	25.5	1.0170	27.0	25.3	
			Bot.	24.8	1.0170	27.4	25.4	
July 28	10.00 a.m.	R	Sur.	24.4				
			Bot.	24.4				
July 29	5.00 p.m.	F	Sur.	25.8	1.0192	20.6	26.0	
			Bot.	23.5	1.0194	20.4	26.2	
Aug.1/37	10.45 a.m.	F	Sur.	24.4	1.0190	19.5	25.4	
			Bot.	24.3	1.0192	19.5	25.7	
Aug. 3/37	11.40 a.m.	F	Bot.	22.4	1.0185	23.6	26.0	
Aug.4/37	11.30 a.m.	F	Bot.	22.7	1.0190	20.8	25.8	
			Sur.	23.2	1.0190	20.8	25.8	
Aug.4/37	10.45 a.m.	F	Sur.	22.4	1.0190	20.6	25.8	
			Bot.	22.3	1.0190	21.0	25.9	
Aug.5	10.30 a.m.	F	Bot.	21.3	1.0178	26.0	25.9	
Aug. 6	10.30 a.m.	F	Sur.	23.6	1.0180	24.2	25.7	
Aug. 9	10.30 a.m.	R	Sur.	26.8	1.0195	20.0	26.2	
			Bot.	26.8	1.0192	20.2	25.9	
Aug. 10	11.00 a.m.	R	Sur.	26.5	1.0192	22.8	26.7	
			Bot.	26.4	1.0188	23.0	26.2	
Aug. 14	11.00 a.m.	L	Sur.	24.2	1.0185	26.2	27.0	
			Bot.	24.2	1.01822	27.0	26.8	
Aug. 20	10.45 a.m.	H	Sur.	23.0	1.0200	22.5	27.6	
			Bot.	22.8	1.0198	22.0	27.2	
Aug. 28	5.15 p.m.	H	Sur.	22.8	1.0210	17.0	27.4	
			Bot.	21.8	1.0210	17.0	27.4	
Sept. 2	5.30 p.m.	R	Sur.	18.0	1.0215	15.2	27.5	
			Bot.	17.0	1.0216	15.2	27.9	

TABLE III.

Above Aboiteau.

Date	Time	Tide	Depth	Temp. °C	Sp.Gr.	T°C	Sal.	Remarks
June 27	3.45 p.m.	F	Sur.	20.8	1.0092	20.6	12.8	
June 29	5.00 p.m.	R	Sur.	24.5	1.0190	21.0	25.9	
July 3	5.20 p.m.	R	Sur.	22.6	1.0100	23.2	14.6	
July 5	3.20 p.m.		Sur.	24.8	1.0095	20.4	13.2	
July 9	5.10 p.m.	L	Sur.	25.6	1.0110	19.8	14.9	
July 11	5.45 p.m.	F	Sur.	24.6	1.0170	18.0	22.3	
July 14	4.00 p.m.	H-F	Sur.	22.4	1.0170	19.0	22.6	
July 16	5.50 p;m.	H	Sur.	20.6	1.0148	20.5	20.1	
July 20	7.30 p.m.	F	Sur.	24.6	1.0128	23.8	18.6	
July 21	5.50 p.m.	R	Sur.	25.0	1.0140	19.0	18.7	
July 22	5.05 p.m.	R	Sur.	25.2	1.0125	26.8	19.2	
July 24	5.05 p.m.	F	Sur.	25.6	1.0140	21.0	19.2	
July 27	6.05 p.m.	F	Sur.	25.8	1.0165	26.6	24.5	
July 29	5.55 p.m.	F	Sur.	26.6	1.0188	20.8	25.5	
Aug.3/37	12 Noon	F	Sur.	24.0	1.0155	26.0	22.9	
Aug.4/37	13 Noon	F	Sur.	23.8-24.6	1.0168	20.6	22.9	
Aug. 9	11.40 a.m.	R	Sur.	27.0	1.0195	19.6	26.0	
Aug. 14	11.45 a.m.	R	Sur.	24.8	1.0175	24.8	25.1	
Aug. 20	11.30 a.m.	F	Sur.	24.5	1.0198	20.6	26.8	
Aug. 28	5.40 p.m.	F	Sur.	22.6	1.0208	17.0	27.1	

Table III Continued. Below Aboiteau.

Date	Time	Tide	Depth	Temp. C	Sp. Gr @T°C.		Sal.	Remarks
June 27	3.15 p.m.	F	Sur.	21.0	1.0115	20.6	15.8	
June 29	4.55 p.m.	F	Sur	23.5	1.0152	21.0	20.8	Close to the Aboiteau.
July 1	2.15 p.m.	R	Sur.	23.4	1.0152	21.6	21.1	15' out
July 3	5.15 p.m.	R	Sur.	21.8	1.0150	23.5	21.3	
July 5	3.15 p.m.	R	Sur.	25.5	1.0102	20.6	14.1	
July 9	5.15 p.m.	L	Sur.	26.4	1.0125	19.8	17.0	
July 11	5.40 p.m.	F	Sur.	24.5	1.0175	18.8	23.0	
July 14	4.15 p.m.	F	Sur.	24.2	1.0175	18.6	23.3	
			Bot.	21.8	1.0172	19.4	23.0	

Aboiteau.

Date	Time	Tide	Depth	Temp. °C	Sp. Gr. @ T°C	Sal.	Remarks
July 16	5.45 p.m.	H	Sur.	21.0	1.0172	20.5	23.3
July 20	7.20 p.m.	F	Sur.	24.2	1.0138	23.5	19.4
July 21	5.45 p.m.	R	Sur.	24.2	1.0150	19.0	20.0
July 22	5.00 p.m.	R	Sur.	25.5	1.0148	25.0	21.6
July 24	5.00 p.m.	F	Sur.	24.8	1.0178	25.0	25.7
July 27	5.50 p.m.	F	Sur.	25.6	1.0172	26.5	25.4
July 29	5.45 p.m.	F	Sur.	26.4	1.0192	20.6	26.0
			Bot.	23.8	1.0190	20.8	25.8
Aug.3/37	11.30 a.m.	F	Sur.	22.8	1.0185	23.6	26.0
Aug.4/37	11.30 a.m.	F	Sur.	23.2	1.0190	20.8	25.8
			Bot.	22.7	1.0190	20.8	25.8
Aug. 9	11.30 a.m.	R	Sur.	27.5	1.0198	19.8	26.6
Aug. 14	11.45 a.m.	R	Sur.	24.6	1.0188	24.8	26.8
Aug. 20	11.25 a.m.	F	Sur.	24.2	1.0200	22.2	27.6
Aug. 28	5.40 p.m.	F	Sur.	23.5	1.0205	17.0	26.7

Hydrographic observations in the North branch of Wallace bay from the aboiteau to the junction with Wallace river are given in table IV. Observations were taken at the Griffin bed, the Birch Island bed, Brander's creek and Burnt point creek.

The Griffin bed is in the first curve of the channel below the "Spat bed". Observations were taken from a boat about 20 feet from shore. The Birch Island bed is some distance below the Griffin bed. Observations were taken in the channel. Brander's creek enters the North branch from the south below the Birch Island bed and about one mile above Wallace bridge. Burnt point creek enters the North branch on the north side directly opposite Wallace bridge.

Hydrographic observations in the North branch were infrequeht because of the inaccessibility without a motor-boat. Surveys of the conditions throughout the length of the North branch were made at a very low tide (- 0.2) on July 9 and on a high to falling tide on July 14.

TABLE IV.

Birch Island bed.

Date	Time	Depth	Tide	Weather	Temp. °C	Sp.Gr. σ_T	°C.	Sal.	Remarks
June 24	3.00 p.m.	Sur.	F	Cloudy-N wind	17.3	1.0172	18.8	22.9	
		Bot.			17.3	1.0178	18.5	23.6	Approx. 9'.
July 1	4.30 p.m.	Sur.	H - F		22.4	1.0152	22.5	21.3	
July 9	6.10 p.m.	Sur.	L		24.8	1.0168	21.0	22.9	
		Bot.			24.4	1.0168	20.8	22.9	7'approx
July 14	5.30 p.m.	Sur.	F		21.6	1.0170	23.6	24.1	
		Bot.			21.0	1.0175	23.8	24.7	
July 28	4.50 p.m.	Sur.			24.0	1.0192	20.8	26.0	Off raft
		Bot.			24.1	1.0195	18.8	25.9	
Aug. 1	11.30 a.m.	Sur.	L		23.6	1.0192	19.6	25.7	Off raft
		Bot.			23.5	1.0195	19.5	26.0	
Aug. 3	5.15 p.m.	Sur.	R		22.5	1.0192	21.0	26.2	
		Bot.			22.5	1.0192	21.0	26.2	
Aug. 10	11.40 a.m.	Sur.	R		25.6	1.0190	23.0	26.6	
		Bot.			25.8	1.0192	23.0	26.8	
Sept. 2	5.50 p.m.	Sur.	R		7.2	1.0215	16.0	27.7	
		Bot.			7.2	1.0212	15.2	27.1	

Griffin bed.

July 1	4.15 p.m.	Sur.	H		22.8	1.0152	22.2	21.2	
July 7	5.45 p.m.	Sur.	R		23.0	1.0170	21.4	23.3	
July 9	5.55 p.m.	Sur.	L (-0.2)		24.6	1.0168	20.6	22.8	
		Bot.			23.8	1.0170	19.8	22.9	Approx. 11'.
July 14	5.00 p.m.	Sur.	F		22.8	1.0172	18.8	22.9	
		Bot.			20.6	1.0178	19.2	23.7	

Burnt point creek.

Date	Time	Depth	Tide	Temp. °C	Sp. Gr.	$\sigma T^{\circ}C$.	Sal.	Remarks
July 1	4.45 p.m.	Sur.	F	22.8	1.0150	23.6	21.5	Below the old dyke.
July 9	7.15 p.m.	Sur.	R	24.8	1.0168	20.6	22.9	Off Burnt point creek.
		Bot.		24.6	1.0165	20.4	22.3	Approx. 15'.

Brander's creek.

July 3	5.40 p.m.	Sur.	R	21.4	1.0160	23.4	22.6	
July 3	5.50 p.m.	Sur.	R	22.4	1.0165	23.4	23.3	Head, close to Branders farm.
July 22	5.30 p.m.	Sur.	L	26.8	1.0168	26.5	24.9	Head of Brander's creek
July 22	5.30 p.m.	Sur.	L	26.4	1.0185	19.0	24.6	Outlet.

Lbase bed.

July 14	6.00 p.m.	Sur.	F	20.8	1.0185	23.8	26.2	Just above the forks in
		Bot.		20.6	1.0190	19.6	25.4	the river channel.

Hydrographic observations in Wallace river from the junction of its channel with the North branch to the head of tide are given in table V. Observations were made at the following places in order from the junction to the head: leased bed just above the junction; Wallace bridge (see table II); off R. Baker's shore; off Harpell's shore; off Annus' shore; off Millbrook; off O'Brien's shore; head of low tide in first bend below Carr's Mill bridge; Carr's Mill bridge. Samples were taken principally by wading.

The river is characterized by muddy flats falling off steeply to the deep channel (20 to 25 feet) in its lower reaches and by a shallow gravel course near the head of tide. The river current is quite swift and depth samples difficult to take.

TABLE V.

Date	Time	Tide	Depth	Temp. °C	Sp.Gr.@ T°C		Sal.	Remarks
Lease bed.								
June 24	3.30 p.m.	F	Sur.	17.2	1.0130	18.2	17.1	
July 28	5.45 p.m.	F	Sur.	23.0	1.0200	18.6	26.7	
			Bot.	22.5	1.0198	22.8	27.5	
Ayres bed.								
June 24	4.15 p.m.	F	Sur.	17.7	1.0065	18.5	8.6	Tide near low.
			Bot.	17.7	1.0120	18.3	15.8	14' approx.
July 23	3.30 p.m.	F	Sur.	25.4	1.0122	27.8	19.2	Ayres wharf.
			Bot.	25.4	1.0142	20.0	19.2	
Carr's Mill bridge.								
June 27	4.45 p.m.		Sur.	19.8	Salinity - fresh			
July 26	2.30 p.m.	F	Sur;	22.8	"		."	River flowing quite perceptably. Tide
Aug. 29	4.30 p.m.	H	Sur.	29.0	"		"	probably still low.
Mr. Bakers.								
June 27	5.45p.m.		Sur.	18.5	1.0068	20.8	9.6	Temperature and salinity sample
Aug. 29	5.45 p.m.	H-F	Sur.	22.4	1.0210	17.0	27.4	was taken.
Harpell's bed.								
July 26	11.30 a.m.	H	Sur.	24.2	1.0195	22.0	26.8	
July 26	5.05 p.m.	R	Sur.	23.8				
Aug. 16	5.20 p.m.	R	Sur.	26.0	1.0178	22.0	24.6	
			Bot.	24.5	1.0185	22.0	25.5	
Head of tide -- Carr's Mill bridge								
July 26	4.00 p.m.	R	Sur.	22.4				First bend below bridge - at rapids.
Millbrook								
July 26	4.30 p.m.	R	Sur.	23.0				
Aug. 16	4.25 p.m.	R	Sur.	29.0	1.0110	22.4	15.7	
Aug. 29	5.00 p.m.	H	Sur.	24.2	1.0118	17.0	15.3	O'Brien's (Just above Millbrook.

Table V Continued. **Annus's**

Date	Time	Tide	Depth	Temp.	Sp.Gr.@ T°C	Sal.	Remarks
Aug. 16	4.40 p.m.	R	Sur.	27.0	1.0132	22.4	18.6
Aug. 29	5.20 p.m.	H-F	Sur.	23.8	1.0152	17.0	19.7
			R. Bakers				
July 26	5.25 p.m.	R	Sur.	22.2			

The temperatures and salinities were taken on July 4 just below the highway bridge at Canfield's creek and at the first point on the north shore of Lazy bay. The latter is a wide shallow bay on the south side of Wallace bay east of the village of Wallace. It is dry at low tide except for two channels the more northern of which leads to Canfield's creek, a small tributary. Just below the highway bridge at Canfield's creek the surface temperature was 26.4°C. and the salinity 17.4 per mille at 3.00 p.m. At the first point on the north shore of Lazy bay the surface temperatures was 25.5°C. and the salinity 25.1 per mille at 3.30 p.m.

Fox harbour is a bay tributary to the mouth of Wallace bay on the north side. The temperature close to shore in shallow water was 30.5°C. at 4.30 p.m. July 5 with a rising tide and the salinity was 29.3 per mille.

Hydrographic observations at Malagash basin are given in table VI. Temperatures and salinities were taken off the tip of the Embree bar, the Round bar, the Fox Island bar, and the McNab bar. Some observations were also taken in a small "dyke" on the flats near the Fox island bar to indicate the temperature variations in shallow water retained on the flats. It was only a few feet square and retained a few inches of water.

On June 26 (?) temperature and salinity observations were taken at Bayhead in about 3 feet of water directly out from the creek. The temperature was 17.2°C. and the salinity 26.0 per mille. This area is just outside the mouth of Malagash basin.

TABLE VI.

Embree bar.

Date	Time	Tide	Depth	Temp. °C	Sp.Gr. @ T°C	Sal.	Remarks
June 26	6.45 p.m.	L	Sur.	18.8	1.0185	20.5	25.0	
July 2	4.15 p.m.	H	Sur.	19.4	1.0194	22.0	26.7	
July 29	11.30 a.m.	R	Sur.	22.8	1.0215	20.6	29.1	Channel of Embree
			Bot.	22.0	1.0215	20;4	28.9	bar - outside basin.

Malagash

Aug. 6	4.00 p.m.	F	Sur.	24.8	1.0200	26.0	28.9	Fox I. - in dyke -
Aug. 6	5.30 p.m.	L	Sur.	26.6	1.0108	24.7	29.5	Off Fox I. bar.
Aug. 14	6.50 p.m.	F	Sur	24.0	1.0220	15.5	28.3	Shore close to Fox I.
Aug. 17	2.30 p.m.	R	Sur.	22.0	1.0215	22.6	29.7	Dyke.
Aug. 17	3.15 p.m.	R	Sur.	25.0	1.0210	20.6	28.4	Off dyke.
Aug. 17	2.30 p.m.	R	Sur.	24.2	1.0212	20.6	28.7	Off Channel marker.
Aug. 19	3.00 p.m.	L	Sur.	25.8	1.0215	20.6	29.1	In dyke.
Aug. 19	2.45 p.m.	L	Sur.	25.4	1.0210	20.6	28.4	Off tip of Fox I.bar
Aug. 20	5.00 p.m.	R	Sur.	25.4	1.0215	20.6	29.1	Dyke.
Aug. 20	4.00 p.m.	L-R	Sur.	23.0	1.0212	20.6	28.7	Off tip of Fox I.bar
Aug. 25	7.30 p.m.	L	Sur.	22.0	1.0205	22.8	28.4	In dyke. Dyke almost covered and not holding.
Aug. 25	7.15 p.m.	L	Sur.	21.5	1.0210	20.6	28.4	Off tip of Fox I.bar
Aug. 30	11.00 a.m.	L	Sur.	25.2	1.0222	17.0	28.9	- Dyke-
Aug. 30	11.10 a.m.	L	Sur.	24.6	1.0110	17.0	28.7	Off tip of Fox I.bar
Aug. 31	10.45 a.m.	F	Sur.	6.0	1.0220	16.8	28.7	Off tip Fox I.bar.
Aug. 31	11.00 a.m.	F	Sur.	6.4	1.0225	16.8	29.3	- Dyke -
Sept. 7	5.30 a.m.	L	Sur.	15.2	1.0232	14.2	29.6	- Dyke -
Sept. 7	6.00 a.m.	L	Sur.	17.4	1.0228	14.4	29.1	Off tip of Fox I. bar.

Table VI. Continued.

Date	Time	Tide	Depth	Temp. °C	Sp.Gr.	$\sigma T^{\circ}C$	Sal.	Remarks
Round bar.								
June 26	7.00 p.m.	L	Sur.	19.3	1.0185	20.5	25.0	
July 8	5.10 p.m.	L	Sur.	23.5	1.0195	21.2	26.6	
McNab bar.								
July 6	5.15 p.m.	R	Sur.	21.5	1.0202	18.8	26.8	
Island bar.								
July 2	5.30 p.m.	H	Sur.	20.6	1.0202	218.	27.7	
Fox Island bar.								
July 8	5.50 p.m.	L	Sur.	25.4	1.0178	21.0	24.3	
July 12	4.55 p.m.	F	Sur.	21.5	1.0210	18.0	27.6	Strong E wind.
			Bot.	21.6	1.0210	18.0	27.6	Approx. off tip.
July 20	5.00 p.m.	H	Sur.	24.2	1.0198	23.8	27.9	Approximate off tip.
July 24	7.40 p.m.		Sur.	24.4	1.0198	25.6	28.5	
			Bot.	24.5	1.0208	20.8	28.1	
July 29	11.45 a.m.	R	Sur.	22.8	1.0208	21.4	28.4	Channel off Fox
			Bot.	22.8	1.0215	20.4	28.9	Island bar.
Aug. 14	7.00 p.m.	F	Sur.	23.8	1.0220	15.8	28.4	Off tip of Fox Islan
			Bot.	23.6	1.0215	18.8	28.5	bar.

B. Distribution and condition of oysters.

Notes on the topography and on the distribution and spawning of oysters in a number of localities in the Wallace - Tatamagouche district are given below. The three subjects are combined as they are closely related and best understood when reported together.

1. Aboiteau. This is the general name given to the district which includes the area just above the Aboiteau, just below the Aboiteau and the little bay on the north shore some distance below the Aboiteau and called in this report (the Spat bed).

The Aboiteau extends across the bay channel near its upper end. The sluice is open and the tide flows through. Above the Aboiteau the water is shallow and extends for two miles. Oysters are present for at least one half mile above the Aboiteau. They are, however, few in number. The water below the Aboiteau is quite deep. The channel extends from the sluice into the bay channel. Many oysters are found in clumps on the sluice and on the rocks just below the Aboiteau. Between the Aboiteau and the Spat bed there are scattered oysters on the mud of the north shore. At the Spat bed the bottom is firmer and there is a fair bed of oysters, much of which is exposed on the sloping beach at low tide. None of these oysters are large.

At the Spat bed the bottom is firm and sandy out to the edge of the channel. Large numbers of small oysters are exposed at every low tide. The oysters further out on the muddy slopes of the channel are larger and usually in clumps. The bed here appears to be quite extensive, the number of oysters exposed at low tide being considerable and the number obtained in one raking (see below) indicating large numbers further out in deep water. The large number of larvae taken in plankton tows here would also indicate a fairly large bed. The smaller oysters found on the hard bottom nearest the shore were for the most part separate and of good shape. Those on the mud were often distorted and clumped.

On June 24 a sample of oysters was taken in deep water off the Spat bed. One sweep of the rake yielded two large clumps of oysters and mussels. The dimensions and condition follow:

These with 6 dead oysters were clumped in one bunch.

- (3½" x 1½" - Spawning or immature
- (3¼" x 1½" - ¼ spawned
- (6" x 1¾" - ½ spawned. 3 large last year's oysters attached.
- (4½" x 1½" - ? 2 large dead last year's oysters attached.
- (5" x 2¼" - ½ spawned.

2¾" x 1" - ?		8½" x 2½" - ¾	spawned
2" x ¾" - ?		4" x 1⅝" - ½	"
2" x ¾" - ?		3½" x 1¾" - ½	"
7" x 2" - ¾	spawned.	3" x 1½" - ½	"
6½" x 2" - ¾	spawned	1¾" x 1½" - ?	
1¼" x ½" - ?		7" x 2" - ¾	spawned
4" x 1½"-½	spawned	2¾" x 1½" - ¾	"
7" x 2¼"- ¾	"	4" x 1" - ½	"
4" x 2" - ½	"	4¾" x 1¼" - ¾	"
		3¾" x 1½" - ½	"

On July 29 samples of oysters were taken from the top of beach, the middle of the inter-tidal range and deep water near the channel of the Spat bed. Oysters on the top of the beach were uniformly smaller than those from the deep water. This may be due to picking.

The oysters from the top of the beach appeared to be less spawned out than those in the deep water. That is, the most spawned oyster from the top of the beach was less spawned than the least spawned oyster from deep water.

A similar condition seemed to prevail at Malagash, on the Fox island bar, where oysters from the top of the bar and the lower slopes were examined.

The spawning season was too far advanced to obtain any positive evidence of this possible difference in spawning time. Earlier in the season more definite results could be obtained. It is suggested that some such differential rate of spawning would account for spawning bursts other than those observed after the first 20 degree temperature peak, i. e. - Spawning burst at Spat bed August 4.

At the Aboiteau the oysters here are clumped on the stones all along the base of the dyke and on the walls of the sluice. There are no large oysters. The point running out from the Aboiteau (see general description) was observed to support many oysters. Crowding and vertical growth is characteristic on the stones.

Above the Aboiteau a few oysters of good shape and size are to be found just above the Aboiteau. The bottom is firm and the oysters are separate. Oysters were found at about one half mile above the Aboiteau and are said to be found even higher.

2. North branch of Wallace bay. The channel of Wallace bay divides just west of the Livingstone bridge to form two channels - the North channel and the channel of the Wallace river. The channels are quite narrow but wide mud flats extend on either side and are covered with water except at low tide.

The North channel as treated in this report is the region extending from the Spat bed to "the Forks" at the Livingstone bridge.

The Griffin bed lies in the first curve of this channel below the Spat bed. The bottom is quite firm and there is a small bed of oysters.

At the Birch island bed, some distance below the Griffin bed, the channel is narrow and the tidal current very strong. There are oyster beds on both sides of the channel. The largest and best oysters of the district come from these beds. The largest oysters are found on south slope of the channel. The bed on the north slope lies in a small cove almost directly opposite and the oysters are characteristically small. Mr. C. Betts states that although the bed on the south shore is fished with success every year there are never any small oysters on it. The Dotten creek empties into the channel from the south just above the Birch island bed. Further above and from the north the Burnt meadow creek enters.

Burnt point creek enters the North channel on the north shore directly opposite Wallace bridge. At low tide it crosses the wide mud flat by a sinuous channel to join the main channel of the bay. After passing the north banks the creek takes a long "S" shaped turn at the head of which is the remains of an old dyke, now open. On the east shore immediately below this old dyke there is a small bed of oysters about 40 yards long and ten yards wide. At a very low tide the whole bed is exposed. The oysters are neither large nor very numerous.

Brander's creek is situated about one mile above Wallace bridge and enters the north channel from the south. It is a long winding inlet with very little influx of fresh water. The channel is quite deep and narrow. Mussels are plentiful and a few oysters were found near its head.

On June 24 a sample of oysters was taken at the Birch island bed. The sample was taken with one haul of the rake. The dimensions and condition follow:

	3¼" x 2¾"	- Beginning to spawn.
	1¾" x 1½"	- " " "
	2¼" x 2¼"	- " " "
	3" x 2¾"	- " " "
	2¼" x 2¾"	- " " "
	2¼" x 1¾"	- " " "
	1¼" x 1¼"	- ?
	(3¼" x 2¼"	- Beginning to spawn
	(1¾" x 1¾"	- ?
Clumped	(1¾" x 1¾"	- ?
	(2" x 1¾"	- ?
	3" x 1¾"	- ¼ spawned
	3" x 2"	- Beginning to spawn.
	2¾" x 2¾"	- " " "

These oysters were all of good shape, largely separate, and with thick shells.

On July 1 a sample of oysters was taken from the bed just below the old dyke at Burnt point creek. There were many mussels on the oysters. The dimensions and condition of the oysters follow:

3½" x 2"	- ¾ spawned
3¼" x 2¼"	- ¾ "
3¼" x 2¼"	- ¾ "
3¼" x 2"	- ¾ "
2¾" x 2"	- ¾ "
2¾" x 2¼"	- ¾ "
2" x 1¾"	- ?
3¼" x 2¼"	- ¼ "
3¼" x 2¼"	- ¼ "
2¾" x 2¼"	- ¼ "
3¼" x 2¼"	- ¼ "
2¾" x 2"	- ¼ "

3. Wallace river. The channel leading from Wallace river joins the channel of the north branch of Wallace bay at the "forks" just above Livingstone bridge. Goose island and wide flats separate the two channels.

Messrs. G. Baker and C. Betts state that there are oysters on the slopes of the channel from the leased bed, near its junction with the north channel, to Wallace bridge. They also state that mussels are progressively covering these oysters.

Oysters appeared to be quite scarce on June 24 on the leased bed. Raking was done on the shallow flat between

the two channels just above the forks. There were many half shells, presumably those spread in 1930 to improve the bed. The bed appeared to be in good condition with little sedimentation. Dimensions and condition of the oysters were as follows:

$4\frac{3}{4}$" x 3" - beginning to spawn.
$3\frac{1}{4}$" x $2\frac{1}{2}$" - " " "
4" x 3" - $\frac{1}{2}$ spawned.
$5\frac{3}{4}$" x 3" - $\frac{1}{2}$ spawned.
3" x 2" - " "
$4\frac{1}{4}$" x $3\frac{1}{4}$" - $\frac{1}{4}$ "

Ten half shells were examined and found to have no spat on them. Three dead oysters in a clump were raked up. It took several hauls with the rake to get the above six live oysters. The oysters were of good shape, separate, and with very thick shells.

Wallace river above the bridge is characterized by muddy slopes falling off steeply to the deep channel (20 to 25 feet deep) in its lower reaches and by a shallow gravel course near the head of tide. Tidal effects are evident as far as Carr's mill bridge and the head of tide varies from the rapids above the bridges to those below the bridge. The river current is very swift.

There is a small oyster bed at Ayre's wharf about one half mile above Wallace bridge, and two beds off Harpell's place, one on each shore. Mr. Annus states that there is an old oyster bed in the river at his place but none further up-stream than this.

At Ayre's wharf the channel slope is very steep. The bottom appears to be good. There are a few mussels. The dimensions and condition of oysters raked there on June 24 were as follows:

$4\frac{1}{2}$" x $2\frac{3}{4}$" - $\frac{1}{4}$ spawned
$4\frac{1}{2}$" x $1\frac{1}{2}$" - $\frac{1}{2}$ "
4" x 2" - beginning to spawn.
$3\frac{1}{2}$" x $1\frac{1}{4}$" - ?
6" x 2" - $\frac{1}{2}$ spawned.
3" x $1\frac{3}{4}$" - " "
$7\frac{1}{4}$" x 2" - $\frac{1}{2}$ "

4. Lazy bay. Two creeks run in from the head of Lazy bay on either side of Canfield's farm. The channels are quite deep. The south creek has a soft muddy bottom and no oysters were seen. The north creek has a hard bottom and large numbers of mussels, and a few oysters were seen. The oysters were very large with a few smaller ones. The dimensions and condition of oysters taken on July 4 were as follows:

5½" x 3¼" - ½ spawned
6" x 3½" - ½ "
3" x 2¼" - " "
4" x 2½" - ½ "
5½" x 3½" - " "
3¼" x 2½" - beginning to spawn.

5. Malagash basin. The basin is an inlet from Tatamagouche bay closed off from the bay by the EMBRKE bar on the east side and the ISLAND bar on the west side. Within the basin there are four distinct bars rising from the mud flats: ROUND bar, MIDDLEGROUND bar, FOX ISLAND bar and MCNAB bar. The channel runs from the bay between the EMBRKE and ISLAND bars into the basin in a crescent shape always south of the bars but flowing quite close to the outer tip of the MCNAB bar.

The EMBRKE bar is completely covered with mussels. At least the portion nearest the shore of the ISLAND bar is similarly covered with mussels. The tip of the ROUND bar is free of mussels although its base is similar and continuous with the EMBRKE bar as regards mussels. The other bars are relatively free of mussels, having a few on the slopes among the oysters.

On the west side of the EMBRKE bar there is a fair number of oysters free of mussels just below the tide line. In the shallow bay between the EMBRKE bar and the ROUND bar the oysters become more scarce proceeding from the EMBRKE bar until in about the middle there are scarcely any. Close to the slope of the ROUND bar they become numerous again. The tip of the ROUND bar exposed at low tide shows an even floor of oysters, majority of which are alive. All are small, (one and one half inches to three inches in length) of good shape and separate. Just off the tip of the ROUND bar a small islet rises abruptly about three feet above low tide. There appear to be more oysters on the north than on the south side of the ROUND bar.

Counts were made of dead and living oysters on the small islet of bar rising above low tide just off the tip of the ROUND bar. On July 9, in company with Dr. Needler, counts were made of all oysters alive and dead on small patches about two feet square from the lower edge of the bar to the top. The counts were as follows:

Lower edge.	Patch 1.	33	alive,	3	dead.
	2.	59	"	6	"
	3.	56	"	33	"
	4.	95	"	29	"
	5.	129	"	21	"
Top.	6.	59	"	96	" (many mussels).

The dimensions and condition of oysters taken from the ROUND bar on June 26 were as follows:

3¼" x 1¾" - ¼ spawned.
2½" x 2" - beginning to spawn
2¾" x 2½" - " " "
3" x 2½" - " " "
3½" x 2½" - " " "
4¼" x 3 - " " "
3" x 2½" - " " "
2¾" x 1¾" - " " "
2½" x 2" - " " "
3¼" x 2¾" - " " "
3½" x 2¼" - " " "
2½" x 1¾" - " " "

The MIDDLEGROUND bar is small and lies unconnected with the shore in the bay between EMBREES point and FOX ISLAND. Little exploration was done here, the condition and number of oysters appearing much the same as those on any of the inner bars.

The FOX ISLAND bar extends in an "S" shape into the basin from Fox island. It is about one quarter of a mile long. There are few mussels on the bar and oysters are most numerous. The north slope is steeper than the south. In many places the oysters are so thick that crowding has resulted in very poor shape - most of them growing vertically. A count made on this bar in such a location showed oysters growing, as many as 344 in a square 2 feet 10 inches. Live oysters are mostly confined to the slopes of the bar, the top being covered with empty shells.

The MCNAB bar is divided into three parts by two shallow channels. The north slope of the bar drops off steeply to the mud flat. There are many mussels on the upper part while oysters are most plentiful just above and below the tide level. Vertical growth among the mussels is characteristic. On the top of the bar there are many empty shells.

The mud flats between the bars support many scattered oysters. These are found singly or in clumps in little pockets in the mud.

At a very low tide the basin is practically emptied. Tidal effects and wind often stir up the mud so that the water is quite murky. Plankton tows showed large quantities of sediment.

6. Bayhead. The location is characterized by wide "one quarter mile or more" gently sloping flats of hard mud. Shallow water extends a long way off the flats. In half an hour's search only six live oysters were found. These were all small. Several large dead oysters were found. Mr. Norman Betts states that the flats have been subject to intensive picking and thus accounts for the presence of only a few small oysters. Killing by ice may also be a factor. It is suggested that the large oysters may have been killed by ice, the smaller ones escaping.

Dimensions and condition of oysters taken:

2¼" x 1¾" - Beginning to spawn.
2¼" x 2" - Beginning to spawn.
2¾" x 2½" - " " "
2½" x 2" - " " "
2½" x 2" - " " "
2½" x 2" - " " "

C. Plankton.

Tows with a # 18 bolting silk plankton net were made at a number of places and times to determine the occurrence of oyster larvae. A record of the tows made is given below together with brief notes on plankton observed in each. Size as well as abundance of larvae is noted, the principal purpose of the tows being to assess the prospects for spat collection.

1. Aboiteau. Plankton tows were taken frequently at the Spat bed and from the data obtained a growth curve for larval Ostrea was constructed. Tows were made from a launch or row boat just off from the Spat bed. After July 14 all tows were made by circling around the raft moored there.

Tows were made several times just below the Aboiteau by circling a row-boat or launch about twenty feet out from the middle of the Aboiteau. - One tow was made above the Aboiteau by holding the net in the current flowing through the sluice at a low tide -

June 24 - Spat bed -
Time - 2.15 p.m.
Tide - F
Many copepods and gastropod larvae
A very few straight-hinge bivalve larvae could be found but were not identified.

July 1 - Spat bed -
Time - 3.45 p.m.
Tide - H
Many copepods and gastropod larvae.
Quite a number of Ostrea straight-hinge larvae

July 9 - Spat bed -
Time - 5.40 p.m.
Tide - F
Many gastropods and copepods.
A few Ostrea, Mytilus and Mya straight-hinge larvae.

July 14 - Spat bed -
Time - 4.30 p.m.
Tide - F
Quite a number of Ostrea straight-hinge larvae.
A few umbone .212mm.
.252mm.

July 14 - Aboiteau -
Time - 5.00 p.m.
Tide - F
Immense number copepods, some gastropods, few Mytilus.

July 21 - Aboiteau -
Time - 5.30 p.m.
Tide - R
A few gastropods, copepods, Mytilus, Mya and Teredo larvae.
- Ostrea - 90% - .072 mm.
10% - .096 mm.
On this date a very large number were observed - 24 per field.

July 22 - Aboiteau-
Time - 4.00 p.m.
Tide - R
Ostrea few - 5 per field -
75% - 10 Div. .084 mm.
15% - 8-9 Div. .064 mm. - .072 mm.
10% - 12 Div. .096 mm.

July 24 - Aboiteau -
Time - 4.30 p.m.
Tide - F near low
Few gastropods, copepods, Mya, Mytilus
Ostrea - 60% - 13 Div. .104 mm.
25% - 11 Div. .088 mm.
10% - 15 Div. .120 mm.
5% - 9 " .072 mm.
numerous - 20 to field

July 25 - Aboiteau
Time 5.15 p.m.
Tide - F
Ostrea - fair number - 11 per field - ranging from 9 Div. .072 mm. to 18 Div. .144 mm.

July 26 - Spat bed
Time - 9.30 a.m.
Tide - R
Ostrea - 40% - 16 div. - .128 mm.
24% - 12 div. - .096 mm.
30% - 10 div. - .080 mm.

July 27 - Spat bed
Time - 5.30 p.m.
Tide - F
Ostrea very numerous: whole field covered, ranging from 11 div. - .088 mm. to 38 div. - .304 mm. - 1 only - -1 .088 mm. -
50% - 20 div. - .160 mm.
25% - 24 div. - .182 mm.
20% - 14 div. - .112 mm.
5% - 17 div. - .136 mm.

July 29 - Spat bed
Time - 5 p.m.
Tide - F
Gastropods, copepods, Mytilus, Mya, in fair numbers.
Ostrea - few. Few straight-hinge
50% - 23 div. - .184 mm.
25% - 20 div. - .160 mm.
25% - 11 to 16 div. - .088 to .128 mm.

Aug. 1 - Spat bed
Time - 10.40 a.m
Tide - F
Ostrea - straight-hinge larvae numerous, copepods numerous. Umbone larvae - 3 only found in six samples.
17 div. - .136 mm.
14 div. - .112 mm.
34 div. - .272 mm.

Aug. 2 - Spat bed
Time - 10.00 a.m.
Tide - F
Gastropods, copepods, large umbone, Mytilus
Ostrea - straight-hinge larvae in large numbers 10 per field. Umbone larvae few.
35 div. - .280 mm.
32 div. - .256 mm. (Only ones found).

Aug. 4 - Spat bed
Time - 11.00 a.m.
Tide - F.
Copepods plentiful - gastropods, Mytilus, Mya.
Straight-hinge larvae, very numerous. 36 in one field. 90% of tow straight-hinge.

Umbone larvae of Ostrea.
40% - 21 div. - .168 mm.
25% - 17 div. - .136 mm.
15% - 24 div. - .182 mm.
10% - 15 div. - .120 mm.
10% - 40 div. - .320 mm.
One - 33 div. - .264 mm.

Aug. 5 - Spat bed -
Time - 10.30 a.m.
Tide - F.
Few copepods; gastropods, Mya and Mytilus numerous.
Ostrea - straight-hinge numerous. Umbone few.
50% - 19 div. - .152 mm.
20% - 17 div. - .136 mm.
30% - 14 div. - .112 mm.

Aug. 9 - Spat bed-
Time - 10.45 a.m.
Tide - R
Many copepods and gastropods. Large Mya and Mytilus larvae.
Umbone Ostrea very numerous - 30 per field.
60% - 12 div. - .096 mm.
20% - 25 div. - .200 mm.
20% - 17-20 div. -.136 mm. - .160 mm.

Aug. 10 - Spat bed -
Time 11.10 a.m.
Tide - R
Field covered with Mytilus, Mya and Ostrea umbone larvae. Some straight-hinge larvae present.
Umbone Ostrea -
35% - 30 div. - .240 mm.
30% - 27 div. - .216 mm.
18% - 32 div. - .256 mm.
14% - 25 div. - .200 mm.
One - 35 div. - .280 mm.

Aug. 14 - Spat bed -
Time - 10.45 a.m.
Tide - L
Much sediment. A few copepods and gastropods.
Many umbone Mytilus, Mya and Teredo.
Ostrea umbone.
40% - 22 div. - .176 mm.
28% - 25 div. - .200 mm.
16% - 30 div. - .240 mm.
10% - 17 div. - .136 mm.
5% - 27 div. - .216 mm.

Aug. 20 - Spat bed -
Time - 10.55 a.m.
Tide - F
Water thick with algal growth.
Few copepods.
Few Mytilus umbone larvae.
Ostrea umbone - only 2 found in 4 samples.
25 div. - .200 mm.
27 div. - .216 mm.

2. North branch of Wallace bay. Plankton tows in the North channel were taken at the Griffin bed, the Birch island bed and Burnt point creek. The tows were taken from a launch circling about 20 feet from the shore at the Griffin bed, between the "Islands" at Birch island, and just below the dyke at Burnt point creek.

June 24 - Birch island bed. -
Time - 3.00 p.m.
Tide - F
Large number of copepods and gastropod larvae.
Many small, oval forms - dinoflagellates?
No bivalve larvae.

July 1 - Griffin bed. -
Time - 4.15 p.m.
Tide - H
Many copepods and gastropod larvae.
Ostrea straight-hinge larvae fairly numerous among many Mya, Mytilus and Teredo larvae.
The water in the Plankton jar was a distinct copper sulphate blue and the sediment very red.
Presence of copper?

- Birch island bed. -
Time - 4.30
Tide - H to F.
Many copepods and gastropod larvae.
Mya, Mytilus and Ostrea straight-hinge larvae in fair numbers.

- Burnt point creek. -
Time - 4.45 p.m.
Tide - F.
Many copepods, gastropod larvae and diatoms.
Mytilus and Mya straight-hinge larvae.

July 14 - Griffin bed. -
Time - 5.00 p.m.
Tide - F.
Mussel larvae in fair numbers.
Gastropods and copepods in large numbers.
A fair number of Ostrea straight-hinge larvae.
A few early umbone Ostrea larvae.

July 14 - Birch island bed -
Time - 5.20 p.m.
Tide - F
Copepods and gastropods.
No bivalve larvae found.

July 21 - Birch island - Plankton
Ostrea - umbone larvae, very few.
Four only found in 7 samples.
14 div. .112 mm.
20 div. .160 mm.
22 div. .176 mm.
25 dig. .200 mm.

July 28 - Birch island. -
Time - 4.50 p.m.
Tide - F
Copepods, Mytilus, Mya.
Ostrea in fair number, 12 per field.
Straight-hinge larvae in fair number.
Umbone larvae.
45% - 21.div. - .168 mm.
30% - 24 div. - .192 mm.
15% - 17 div. - .136 mm.
10% - 26 to 29 div. .208 mm. .232 mm.

Aug 1 - Birch island -
Time - 11.30 a.m.
Tide - L
No gastropods, few copepods, some Mya and Mytilus,
Straight-hinge and umbone larvae.
Ostrea - small number of straight-hinge.
No umbone larvae found.

Aug. 10 - Birch island bed.
Time - 11.50 a.m.
Tide - H
Gastropods and copepods.
Teredo, Mya and Mytilus larvae.
Ostrea umbone larvae - only two found in seven samples.
19 div. - .152 mm.
16 div. - .128 mm.

3. Wallace river.

June 24 - Ayres wharf. -
Many copepods and dinoflagellates .?
No bivalve larvae.

July 23 - Ayres wharf -
Gastropods and copepods.
A few Mytilus larvae.
Ostrea larvae - 18 larvae per field.
50% - 10 div. - .080 mm.
40% - 11 div. - .088 mm.
10% - 19 div. - .072 mm.

July 26 - Harpell's bed.
Copepods, gastropods, Mytilus.
Ostrea - 9 to 11 div. - .072 mm. to .088 mm.
One umbone - 18 div. - .144 mm.

Aug. 16 - Harpell's bed.
Time - 5.10 p.m.
Tide - R
Copepods and Mytilus larvae
No oyster larvae seen in four samples.

June 24 - Leased bed -
Time - 3.30 p.m.
Tide - F
Heavy sediment.
Copepods and gastropods.
No bivalve larvae.

July 14 - Leased bed. -
Time - 6.20 p.m.
Tide - F
Copepods and gastropods.
Mya and Mytilus larvae.
No Ostrea larvae found.

July 28 - Leased bed -
Time - 5.45 p.m.
Tide - F
Tow thick with copepods
Umbone Ostrea - only one in four samples.
44 div. - 352 mm.

4. Malagash. Plankton tows were taken from a boat rowed along the slopes of the Fox island bar and the McNab bar. At low, rising or falling tides the water was shallow and the tows were heavy with sediment.

July 6 - McNab bar. -
Time - 5.15 p. m.
Tide - R
Much sediment, gastropods and copepods.
Large Mytilus larvae.
No Ostrea larvae.

July 12 - Fox island bar -
Time - 4.55 p.m.
Tide - F
Large number of umbone Mytilus.
A few straight-hinge Ostrea larvae.
A few rose-coloured umbone Ostrea larvae.

July 24 - Fox island bar -
Time - 7.40 p.m.
Tide - F
Umbone Mytilus larvae.
Gastropods and copepods.
A very few straight-hinge Ostrea larvae of the order of .096 mm.

Aug. 14 - Fox island bar. -
Time - 6.15 p.m.
Tide - F
Many mussel and clam larvae.
Some Teredo, gastropods and copepods.
Umbone Ostrea:
13 div. - .104 mm.
14 div. - .112 mm.
15 div. - .120 mm.
17 div. - .136 mm.
18 div. - .144 mm.
21 div. - .168 mm.

Aug. 18 - Fox island bar -
Time - 5.00 p.m.
Tide - R
Many Mya, Mytilus, gastropods, copepods and Teredo.
Umbone Ostrea:
19 div. - .152 mm.
20 div. - .160 mm.
24 div. - .192 mm.
25 div. - .200 mm.
27 div. - .216 mm.
32 div. - .256 mm.

July 29 - Fox island bar -
Time - 11.45 a.m.
Tide - R
Gastropods, copepods present in large numbers.
Ostrea - some straight-hinge larvae.
Umbone larvae - very few.
25% - 23 div. - .184 mm.
25% - 32 div. - .256 mm.
10% - 44 div. - .352 mm.
25% - 44 div. - .144 mm.
1 only 27 div. - .216 mm.

D. Spat collection.

Observations on the settlement of spat on experimental and on natural materials are given below.

1. Aboiteau. Spat collection experiments in this vicinity were carried on at the "Spat bed". Trial spat collection was attempted with glass slides, shells and concrete-coated egg-crate fillers.

On July 5 a small box with three glass slides was suspended from a pole driven in the mud off the spat bed. The slides were suspended so as to be just under water at high tide. The slides were changed frequently with fresh slides and those which had been exposed were examined for spat under a binocular microscope.

On July 14 the box of slides was transferred to the raft floated at the Spat bed. Six commercial collectors were also suspended from the raft.

On July 28 a string of six shells was substituted for the glass slides and suspended from the raft.

On August 10, 27 commercial collectors were suspended from the raft.

On August 20, 20 more commercial collectors were suspended from the raft.

No spat were caught on the shells. One spat measuring 4 mm. was caught on a slide, July 25.

The set on the collectors was poor.

On August 6 a sample was taken from the collectors put out July 14. Between 60 and 80 spat per collector was counted. The dimensions of all spat found on three squares of a collector are given below:

15.5 mm.	8.5 mm.	7.5 mm.
25.0 mm.	20.5 mm.	5.8 mm.
15.0 mm.		

2. North branch of Wallace bay. Experimental spat collectors were put out near the Birch island bed as follows:

On July 28 a raft was floated on the edge of the north part of the channel and twelve bunches of collectors and a string of six shells suspended from it.

On August 1 one spat measuring .4 mm. was found on the shells.

On August 10, nine collectors were suspended from the raft.

On September 2, the collectors were moved to the raft at Aboiteau.

Samples were taken from the collectors put out July 28 and those put out August 10.

Put out July 28: found on 6 squares of collectors

22.5 mm.	20.0 mm.
17.0	20.0
16.5	21.5
6.0	17.0
18.0	17.5
16.0	22.0

Put out August 10: found on 6 squares of collectors:

4.0 mm.	2.5 mm.
7.5	5.0
3.0	3.5
6.8	3.0
5.0	12.8
4.0	3.0
3.0	5.5

3. Wallace river. On July 23 a tripod and one collector was put out on the channel slope at Ayres wharf.

On August 11, four more collectors were suspended from the tripod at Ayres wharf.

On September 2 the above collectors were moved to the raft at Spat bed and samples taken. The dimensions follow:

Put out July 23:
Samples taken from 3 squares of collector. "Heavy sedimentation apparently prevented set of later date".

14.0 mm.	14.0 mm.
13.5 mm.	11.5 mm.

Put out August 11:
Three squares of collector - examined under binocular:

1.0 mm.	.8 mm.
1.2 mm.	1.0 mm.
.8 mm.	1.2 mm.
1.0 mm.	1.2 mm.

4. Malagash basin. On July 20 two bundles of collectors and three glass slides were put out on the tip of the Fox island bar. The collectors were held on the bar by a stake and the glass slides suspended in a box from the stake. On August 25 the stake and collectors could not be found having presumably been washed out by the tide.

On August 2 one large spat was found on the glass slides put out July 20. The spat was 1.2 mm. in height.

On August 14 three spat were found on the glass slides. They were between .4 and.5 mm.

On August 17 one collector from the tip of the bar was moved out to deeper water on the edge of the channel. It was hung from the branches of an old submerged tree which was apparently being used as a channel marker. A new collector was also put out on this channel marker on the side nearest Fox island bar.

On August 6 samples of the set on the collectors at the tip of the bar were taken. The dimensions follow:

Height in mm.:	1.65 mm.	2.41 mm.	1.72 mm.
	1.38 mm.	2.53 mm.	1.81 mm.
	3.45 mm.	3.45 mm.	2.30 mm.
	2.41 mm.	1.51 mm.	2.30 mm.
	1.38 mm.	1.44 mm.	3.56 mm.

On August 17 samples of the set on the collector moved out to the channel on this date were taken. The dimensions follow:

Height in mm.:	10.0 mm.	4.5 mm.	11.5 mm.
	6.0 mm.	8.0 mm.	10.0 mm.
	2.0 mm.	9.0 mm.	7.0 mm.
	12.0 mm.	4.5 mm.	

On August 6, a sample of the set on the top of the bar was taken. This was the natural set on shells of the bar. The dimensions follow:

Height in mm.:	1.84 mm.	1.72 mm.	1.38 mm.
	.92 mm.	.92 mm.	1.15 mm.
	.92 mm.	.87 mm.	1.38 mm.

On August 19 a second sample of the set on the top of the bar was taken. The set here was heavy, as many as 90 spat per shell three and one-half inches by two inches. The dimensions follow:

Height in mm.			
	9.0 mm.	6.0 mm.	4.0 mm.
	5.0 mm.	2.0 mm.	3.0 mm.
	1.0 mm.	1.0 mm.	4.0 mm.
	1.5 mm.	5.0 mm.	6.5 mm.
	5.0 mm.	.8 mm.	4.5 mm.
	1.5 mm.	2.0 mm.	8.0 mm.
	3.0 mm.	5.0 mm.	4.5 mm.
	5.0 mm.	8.0 mm.	4.0 mm.
	1.5 mm.	1.0 mm.	3.5 mm.
	6.5 mm.	-	-

On August 19, in addition to the above samples from the top of the bar, samples were taken from the "outside" of the bar and from the "inside" of the bar. The set was not as heavy as on the top of the bar. The average number of spat per shell was between 20 and 30. The dimensions follow:

Height in mm.	"Outside"	"Inside"
	5.5 mm.	8.0 mm.
	3.5	1.5
	2.5	3.0
	1.0	2.5
	7.5	4.0
	7.0	3.5
	4.0	1.0
	3.0	1.0
	1.5	2.0
	2.0	1.5
	2.5	2.5
	5.0	3.0
	3.5	1.5
	2.0	
	2.5	

On September 7 a third sample of the set on the top of the bar was taken. The dimensions follow:

11.0 mm.	8.0 mm.
10.0	15.0
11.5	13.5
15.5	14.0
19.0	13.5
10.0	7.5
6.5	8.0