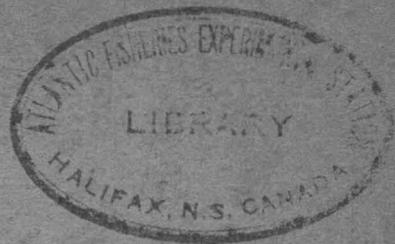


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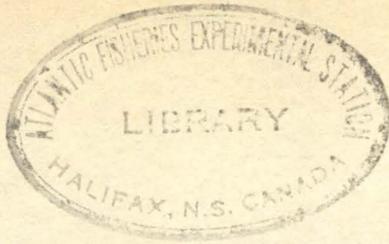
No. 332

OYSTER CULTURE IN THE SHIPPIGAN DISTRICT

by

D. C. Metcalfe.

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MANUSCRIPT REPORTS OF THE BIOLOGICAL STATIONS

No. 332

Title

OYSTER CULTURE IN THE SHIPPIGAN DISTRICT

Author

D. C. Metcalfe.

OYSTER CULTURE IN THE SHIPPIGAN DISTRICT

On June 10th, 1943, oyster culture work was begun in the Shippigan area, and this work was continued until August 31st. The purpose of the work was to determine the feasibility of collecting oyster spat artificially. As previous investigations in this area had shown, the natural supply of young oysters was apparently dying out, and, if such were the case, the oyster fishing industry would necessarily die with it unless some means were adopted to ensure the continuity of young oyster stocks. In order to ascertain whether or not a scheme of artificial collection would be feasible in this area, experimental collectors, of a type which had already proven so successful elsewhere, were placed at various locations throughout the district. An attempt was also made to acquaint the various lessees, as well as the public fishermen, with the seriousness of the general situation in regard to the paucity of young oysters, and an attempt was also made to give them information relevant to oyster-culture problems in general. As time permitted a small amount of work was carried out upon the clam populations of several localities. Details of all phases of the program pursued are set forth under the various headings in the body of this report as given below.

General Weather Conditions and Hydrographic Data

In the main the weather conditions under which the investigations were carried out were quite favourable. The season saw much wet weather, and, generally speaking, the season was quite a cold one. However, the weather during the first three weeks of July was of such a nature as to promote a fair spawning, so that spatfalls could be predicted and a set of spat could be collected.

Hydrographic data for the various localities were gathered during the period June 14 - August 29, inclusive, and are here presented. Daily temperatures and salinities were taken at the temperature station in the South Branch of the St. Simon Inlet, directly opposite the cottage of Dr. Cormier. The temperature records so obtained are given in the graphs at the conclusion of the report.

HYDROMETRY

Date	Time	Tide	Depth	Weather	Temp.	Hyd. Read.	Pres. Temp.	Sal.	Locality
June 14	3:15 p.m.	HF	Sur.	Bright, light SW	12.3	19.1	25.2	26.9	Shippigan sound off Pt. Spruce in channel
			Bot.		9.6	19.2	24.8	26.9	
			18'		9.3	19.1	25.2	26.9	
	3:45 p.m.	HF	Sur.	Bright, light SW	14.6	19.0	25.2	26.9	Sewell river
			Bot.		14.5	----	----	----	
	4:15 p.m.	HF	Sur.	Bright, light SW	13.8	19.0	24.2	26.6	Between Little Pokesudie Id. and Spruce Point
			Bot. (5')		12.6	19.1	25.2	26.9	

HYDROMETRY (CONTINUED)

Date	Time	Tide	Depth	Weather	Temp.	Hyd. Read.	Pres. Temp.	Sal.	Locality
June 14	4:45 p.m.	HF	Sur.	Bright, mod. SW	14.2	19.0	25.0	26.8	Temp. Sta.
			Bot.		13.7	-----	-----	-----	
15	7:20 p.m.	LW	Sur.	Overcast, rain, light NE	12.0	19.1	25.2	26.9	" "
16	8:30 a.m.	LR	Sur.	Cloudy, mod. NE	11.2	19.0	24.4	26.6	Bed off Riseau Canot
			Bot.		11.2	-----	-----	-----	
	8:45 a.m.	LR	Sur.	Cloudy, mod. NE	11.0	18.2	24.2	25.4	Riseau Canot
	5:00 p.m.	HF	Sur.	Bright, warm, light SW	14.6	19.1	24.4	26.7	Temp. Sta.
			Bot. (6')		12.0	-----	-----	-----	
17	9:30 a.m.	LR	Sur.	Bright, light SW	13.6	15.3	24.8	21.8	Bed in North branch St. Simon Inlet
	10:00 a.m.	LR	Sur.	Bright, light SW	15.0	19.2	25.2	27.0	Temp. Sta.
	1:30 p.m.	LR	Sur.	Bright, light SW	13.6	-----	-----	-----	" "
	4:15 p.m.	HW	Sur.	Bright, mod. SW	18.5	-----	-----	-----	Riseau Canot
	Bot.	18.3	-----		-----	-----			
5:30 p.m.	HF	Sur.	Warm, mod. SW	13.2	-----	-----	-----	Temp. Sta.	
Bot.	12.8	-----	-----	-----	-----				
19	12:15 p.m.	HF	Sur.	Cloudy, mod. NW	16.2	-----	-----	-----	Lameque bridge
	2:15 p.m.	HF	Sur.	Cloudy, mod. NW	12.8	-----	-----	-----	Savoy Landing
	Bot.	-----	-----		-----				
6:30 p.m.	LR	Sur.	Bright, calm	13.5	19.0	24.0	26.5	Temp. Sta.	
Bot.	13.2	-----	-----	-----	-----				
20	6:00 p.m.	HW	Sur.	Cloudy, rain strong W.	15.0	-----	-----	-----	" "
			Bot.		14.4	-----	-----	-----	
21	7:30 p.m.	HW	Sur.	Cloudy, mod. NW	14.0	-----	-----	-----	" "
			Bot.		13.8	-----	-----	-----	
22	7:00 p.m.	HW	Sur.	Cloudy, mod. NW	14.5	19.1	24.4	26.7	" "
			Bot.		14.3	-----	-----	-----	

HYDROMETRY (CONTINUED)

Date	Time	Tide	Depth	Weather	Temp.	Hyd. Read.	Pres. Temp.	Sal.	Locality
June 23	7:00 p.m.	LR	Sur. Bot.	Bright, Strong SE	16.8 16.5	20.0 -----	23.0 -----	27.5 -----	Temp. Sta.
24	9:05 a.m.	HW	Sur. Bot.	Fair, light SW	14.4 14.2	19.1 -----	24.4 -----	26.7 -----	" "
	11:15 a.m.	HF	Sur. Bot.	Cloudy, light SW	16.5 16.5	19.5 -----	24.4 -----	27.2 -----	Brule bay
	6:15 p.m.	LR	Sur. Bot.	Cloudy, mod. NE	17.0 16.5	20.2 20.3	20.5 20.5	27.2 27.3	Temp. Sta.
25	6:40 p.m.	LR	Sur. Bot.	Overcast, mod. SE	19.0 18.8	19.7 19.7	23.0 23.0	27.1 27.1	" "
	7:10 p.m.	LR	Sur. Bot.	Overcast, mod. SE	19.5 19.4	19.4 19.7	23.2 22.8	26.8 27.1	Dr. Cormier's channel
26	9:05 a.m.	HR	Sur. Bot.	Fair, warm, light SW	17.8 17.5	19.5 19.5	23.0 22.8	26.8 26.8	Riseau Canot
	9:30 a.m.	HR	Sur. Bot.	Fair, light SW	17.0 16.9	19.7 19.5	23.2 22.8	27.2 26.8	Bed off Riseau Canot
	9:45 a.m.	HR	Sur. Bot.	Fair, light SW	17.0 17.0	19.7 19.5	22.6 22.8	27.0 26.8	Dr. Cormier's channel
	10:15 a.m.	HR	Sur. Bot.	Fair, light SW	17.3 16.9	19.4 19.7	23.4 23.0	26.8 27.1	Temp. Sta.
	2:50 p.m.	HF	Sur. Bot.	Bright, light SW	18.5 18.5	19.6 19.7	23.0 23.0	27.0 27.1	Dr. Cormier's channel
	4:00 p.m.	HF	Sur. Bot.	Warm, mod. SW	19.0 18.5	19.4 19.5	22.8 23.2	26.7 26.7	Temp. Sta.
28	8:15 a.m.	LR	Sur. Bot.	Cloudy, light SE	18.5 18.5	20.0 -----	21.0 -----	27.0 -----	Brule bay
	10:00 a.m.	LR	Sur. Bot.	Cloudy, warm, mod SE	18.5 18.5	19.0 -----	23.8 -----	26.4 -----	Petit Lameque
	10:20 a.m.	LR	Sur. Bot.	Cloudy, mod. SE	19.3 18.5	19.0 19.6	23.8 21.0	26.4 26.5	Lameque Bridge
	6:35 p.m.	HR	Sur. Bot.	Cloudy, mod. NW	19.6 19.2	19.6 19.6	22.6 22.6	26.9 26.9	Temp. Sta.

HYDROGRAPHY (CONTINUED)

Date	Time	Tide	Depth	Weather	Temp.	Hyd. Read.	Pres. Temp.	Sal.	Locality
June 29	10:00 a.m.	LW	Sur.	Cloudy, mod. NW	15.4	20.4	20.4	27.4	Brule bay
	10:50 a.m.	LW	Sur. Bot.	Cloudy, mod. NW	16.2 16.2	20.0 ----	20.2 ----	26.8 ----	Sewell river
	11:40 a.m.	LR	Sur. Bot.	Cloudy, mod. NW	17.8 17.8	19.5 ----	20.4 ----	26.2 ----	St. Simon
	12:15 p.m.	LR	Sur. Bot.	Cloudy, mod. NW	17.0 16.2	20.1 ----	20.8 ----	27.1 ----	Temp. Sta.
	7:15 p.m.	LW	Sur. Bot.	Cloudy, light SW	17.8 17.2	20.1 20.2	21.2 21.2	27.2 27.4	" "
30	1:20 p.m.	HR	Sur. Bot.	Overcast, light SE	16.3 16.3	20.2 20.2	18.0 18.6	26.6 26.8	" "
5	2:25 p.m.	HW	Sur. Bot.	Overcast light SE	16.5 16.3	20.2 20.2	18.8 18.8	26.8 26.8	Dr. Cormier's channel
July 1	5:40 p.m.	LW 5	Sur. Bot.	Cloudy, light NW	15.8 15.6	19.2 19.3	22.8 22.8	26.5 26.6	Temp. Sta.
2	8:30 a.m.	LF	Sur. Bot.	Bright, light NW	16.2 16.0	19.4 19.3	23.5 23.0	26.9 26.6	" "
	6:15 p.m.	HF	Sur.	Bright, mod. SW	19.2	----	23.0	Fresh	Waugh river
	8:30 p.m.	HF	Sur. Bot.	Bright, mod. SW	19.2 18.5	19.1 19.4	23.8 23.6	26.5 26.9	Temp. Sta.
3	8:45 a.m.	HF	Sur.	Bright, mod. NW	17.5	----	----	----	" "
	10:15 a.m.	HF	Sur.	Bright, mod. NW	18.2	19.2	23.4	26.5	Riseau Canot
	10:30 a.m.	HF	Sur. Bot.	bright, mod. NW	16.8 16.8	20.4 19.3	22.4 22.8	27.9 26.6	Bed off Riseau Canot
	5:05 p.m.	HF	Sur. Bot.	Warm, light NW	20.0 19.5	----	----	----	Temp. Sta.
4	7:15 p.m.	HF	Sur. Bot.	Cloudy, strong NW	18.5 18.5	----	----	----	" "

HYDROMETRY (CONTINUED)

Date	Time	Tide	Depth	Weather	Temp.	Hyd. Read.	Pres. Temp.	Sal.	Locality
July 6	10:10 a.m.	HF	Sur. Bot.	Bright, strong NW	16.5 16.5	19.0 17.4	23.0 29.0	26.2 ----	Sewell river
	11:15 a.m.	HF	Sur. Bot.	Strong NW	17.8 17.5	19.2 16.1	21.4 31.2	26.0 ----	St. Simon
	7:00 p.m.	LR	Sur. Bot.	Cloudy, strong NW	17.4 17.2	19.4 19.4	22.0 22.2	26.5 26.5	Temp. Sta.
7	4:05 p.m.	LR	Sur. Bot.	Bright, mod. NW	19.0 19.0	17.5 18.2	27.0 26.6	25.3 26.1	" "
	8	9:45 a.m.	HF	Sur.	Bright, light SW	17.2	18.4	27.4	25.1
10:15 a.m.		HF	Sur. Bot.	Bright, light SW	17.8 17.8	18.5 18.8	26.2 25.6	25.5 25.3	Sewell river
11:30 a.m.		HF	Sur. Bot.	Bright, mod. SW	19.2 18.9	17.4 17.4	27.2 27.4	25.3 25.4	St. Simon
9	9:25 a.m.	HF	Sur. Bot.	Cloudy, mod. NW	19.0 19.0	18.8 ----	25.4 ----	26.6 ----	Brule bay
	11:20 a.m.	HF	Sur. Bot.	Cloudy, mod. NW	19.5 19.3	18.4 18.4	25.8 25.8	26.2 26.2	Caribou bridge
	2:10 p.m.	HF	Sur. B	Rain, mod. NW	21.0	18.4	26.6	26.4	Petit Lameque
	2:30 p.m.	HF	Sur. Bot.	Rain, mod. NW	20.5 20.5	17.6 18.4	26.0 26.4	25.1 26.4	Lameque Bridge
	6:00 p.m.	LR	Sur. Bot.	Cloudy, light SW	19.2 18.4	18.8 18.6	25.8 26.4	26.7 26.6	Temp. Sta.
10	10:30 a.m.	HF	Sur. Bot.	Warm, light SE	19.8 19.4	18.2 18.4	27.8 27.8	26.5 26.8	Dr. Cormier's channel
	3:00 p.m.	HF	Sur.	Very warm light SW	25.0	18.4	27.0	26.5	Riseau Canot
	6:20 p.m.	LR	Sur. Bot.	Warm, light SW	24.5 24.3	17.8 ----	27.8 ----	26.0 ----	Temp. Sta.
11	6:35 p.m.	LR	Sur. Bot.	Calm, warm, no wind	22.2 21.8	18.5 18.8	26.5 26.5	26.5 26.9	" "
12	10:25 a.m.	HF	Sur. Bot.	Warm, light NW	20.6 20.6	18.6 18.6	26.6 26.6	26.6 26.6	Dr. Cormier's channel

HYDROMETRY (CONTINUED)

Date	Time	Tide	Depth	Weather	Temp.	Hyd. Read.	Pres. Temp.	Sal.	Locality
July 12	3:05 p.m.	HF	Sur. Bot.	Warm, light SW	25+ 25+	below scale	26.4 26.4	Fresh "	Waugh river
The temperature was greater than 25° and could not be taken.									
	6:45 p.m.	--	Sur. Bot.	Warm, mod. SW	25.0 24.6	18.2 18.2	27.0 27.0	26.2 26.2	Temp. Sta.
13	9:25 a.m.	LR	Sur. Bot.	Fair, light NW	23.6 23.4	18.2 18.2	26.8 26.8	26.2 26.2	Brule bay
	10:10 a.m.	LR	Sur. Bot.	Warm, light NW	23.4 23.4	17.8 17.8	27.0 27.0	25.7 25.7	Sewell river
	11:25 a.m.	LR	Sur. Bot.	Warm, light NW	24.4 24.0	17.5 17.8	27.4 27.2	25.6 25.8	St. Simon
	6:25 p.m.	--	Sur. Bot.	Fair, light SW	25.0 25.0	18.4 18.4	26.8 26.8	26.7 26.7	Temp. Sta.
14	6:45 p.m.	--	Sur. Bot.	Warm, mod. NE	24.8 24.4	19.5 19.6	21.4 21.0	26.4 26.4	" "
15	1:45 p.m.	HW	Sur. Bot.	Overcast mod. SW	22.6 22.4	18.4 18.6	27.0 26.8	26.3 26.7	Brule bay
	2:25 p.m.	HW	Sur. Bot.	Overcast mod. SW	22.8 22.0	18.4 18.4	26.4 26.4	26.4 26.4	Sewell river
	3:35 p.m.	HF	Sur. Bot.	Cloudy, mod. SW	23.2 23.0	18.2 18.4	26.6 26.4	26.1 26.4	St. Simon
	7:00 p.m.	HF	Sur. Bot.	Overcast strong SW	23.6 23.0	18.6 18.8	26.0 26.0	26.5 26.8	Temp. Sta.
16	6:05 p.m.	HF	Sur. Bot.	Cold, strong NW	20.2 19.6	19.1 19.3	23.8 23.0	26.5 26.6	" "
17	5:30 p.m.	HF	Sur. Bot.	Cold, strong NW	19.4 19.0	20.1 20.1	18.7 18.7	26.8 26.8	" "
19	8:30 a.m.	HF	Sur. Bot.	Cool, strong NW	17.8 17.6	19.2 19.1	23.3 23.5	26.5 26.5	Brule bay
	9:30 a.m.	HF	Sur. Bot.	Cool, strong NW	17.0 16.8	19.3 19.3	22.8 22.7	26.6 26.6	Sewell river
	10:45 a.m.	HF	Sur. Bot.	Cool, strong NW	17.2 17.0	19.2 19.4	22.6 22.6	26.3 26.6	St. Simon

HYDROMETRY (CONTINUED)

Date	Time	Tide	Depth	Weather	Temp.	Hyd. Read.	Pres. Temp.	Sal.	Locality
July 21	9:25 a.m.	HF	Sur.	Mod. SW	17.4	19.0	23.4	26.3	Caribou Bridge
			Bot.		17.0	19.2	23.4	26.5	
	11:15 a.m.	HF	Sur.	Mod. SW	16.8	18.9	23.8	26.2	Petit Lameque
			Bot.		16.8	18.9	24.0	26.3	
12:05 p.m.	HF	Sur.	Light SW	17.6	19.0	23.6	26.4	Lameque	
		Bot.		17.4	19.0	23.5	26.4		
5:30 p.m.	LR	Sur.	Light SW	17.8	19.2	23.0	26.4	Temp. Sta.	
		Bot.		17.4	19.2	23.2	26.5		
22	2:35 p.m.	LW	Sur.	Cool, mod. NW	17.6	18.4	23.6	25.6	Waugh river
			Bot.		17.2	18.7	23.5	26.0	
	5:50 p.m.	LR	Sur. Bot.	Cool, light NE	17.8 17.4	19.2 19.2	23.5 23.6	26.6 26.6	Temp. Sta.
6:45 p.m.	LR	Sur.	Cool, light NE	17.6	19.0	23.2	26.3	Dr. Cormier's channel	
		Bot.		17.3	19.0	23.4	26.3		
27	7:20 a.m.	LR	Sur.	Calm, light NW	20.2	19.2	22.6	26.3	Temp. Sta.
			Bot.		20.0	19.2	22.5	26.3	
8:15 p.m.	LR	Sur.	light NW	20.4	19.0	23.2	26.3	Dr. Cormier's channel	
		Bot.		20.0	19.1	23.0	26.3		
28	11:40 a.m.	LR	Sur.	Mod. NW	21.8	19.4	22.4	26.6	Lameque
			Bot.		21.8	19.4	22.4	26.6	
	2:15 p.m.	HF	Sur.	Mod. NW	22.0	19.3	22.0	26.4	Petit Lameque
			Bot.		21.8	19.4	22.2	26.5	
4:05 p.m.	HF	Sur.	Mod. NW	21.6	19.1	22.8	26.3	Caribou bridge	
		Bot.		21.3	19.1	22.8	26.3		
8:15 p.m.	LR	Sur.	Strong NW	21.2	19.5	23.6	27.0	Temp. Sta.	
		Bot.		21.2	19.6	23.8	27.3		
29	10:30 a.m.	LR	Sur.	Bright, light SW	20.6	19.2	23.6	26.6	St. Simon
			Bot.		20.2	19.3	23.6	26.8	
	12:35 p.m.	LR	Sur.	Bright, light SW	20.8	19.4	23.5	26.9	Sewell river
Bot.			20.6		19.4	23.6	26.9		
7:20 p.m.	HF	Sur. Bot.	Bright, mod. SW	20.8 20.4	19.0 19.1	23.6 23.5	26.4 26.5	Temp. Sta.	

HYDROMETRY (CONTINUED)

Date	Time	Tide	Depth	Weather	Temp.	Hyd. Read.	Pres. Temp.	Sal.	Locality
July									
30	9:45 a.m.	LW	Sur. Bot.	Overcast light SE	20.1 19.8	19.2 19.2	23.6 23.6	26.6 26.6	Dr. Cormier's channel
	11:20 a.m.	LR	Sur. Bot.	Overcast, mod. SE	19.8 19.6	19.4 19.4	23.4 23.6	26.8 26.9	Bed off Risseau Canot
	12:15 p.m.	LR	Sur. Bot. (1')	Rain, mod. SE	19.8 19.8	19.0 19.0	23.8 23.8	26.4 26.4	Riseau Canot
31	7:10 p.m.	HF	Sur. Bot.	Strong NW	20.4 20.1	19.4 19.4	23.4 23.6	26.8 26.9	Temp. Sta.
Aug.	7:30 p.m.	HF	Sur. Bot.	Mod. NW	19.6 19.2	19.1 19.2	23.2 23.2	26.4 26.5	" "
1									
2	11:25 a.m.	HF	Sur. Bot.	Mod. SW	20.4 20.2	20.0 20.2	19.6 19.6	26.7 27.0	Caribou bridge
	2:35 p.m.	LR	Sur. Bot.	Mod. SW	19.8 19.8	20.0 20.0	19.5 19.6	26.7 26.7	Petit Lameque
	3:30 p.m.	LR	Sur. Bot.	Mod. SW	20.6 20.4	20.4 20.5	19.0 19.0	27.0 27.1	Lameque
	6:30 p.m.	HF	Sur. Bot.	Light SW	20.1 20.0	20.2 21.2	19.4 19.6	26.9 27.0	Temp. Sta.
3	1:10 p.m.	LR	Sur. Bot.	Light NW	19.6 19.6	---- ----	25.0 25.0	Fresh "	Waugh river
	5:35 p.m.	HW	Sur. Bot.	Strong NW	19.4 19.0	20.0 20.0	19.6 19.6	26.7 26.7	Temp. Sta.
4	8:15 a.m.	HF	Sur. Bot.	Light NW	19.2 19.0	20.0 20.0	19.6 20.0	26.7 26.8	Brule bay
	9:05 a.m.	HF	Sur. Bot.	Mod. NW	20.0 20.0	19.2 19.2	25.0 24.9	27.0 27.0	Sewell river
	10:30 a.m.	HF	Sur. Bot.	Mod. NW	20.8 20.6	19.0 19.2	25.0 25.0	26.8 27.0	St. Simon
	6:10 p.m.	HW	Sur. Bot.	Mod. NW	21.0 20.6	18.6 18.9	25.0 25.0	26.2 26.6	Temp. Sta.

HYDROMETRY (CONTINUED)

Date	Time	Tide	Depth	Weather	Temp.	Hyd. Read.	Pres. Temp.	Sal.	Locality
Aug. 5	2:00 p.m.	LR	Sur. Bot.	Cloudy, Mod. NE	20.8 20.4	18.8 18.8	24.0 24.0	26.2 26.2	Dr. Cormier's channel
	3:05 p.m.	LR	Sur. Bot.	Bright, mod. NE	19.3 19.0	18.6 18.7	24.0 24.0	25.9 26.1	Bed off Riseau Canot
	3:45 p.m.	LR	1'	Bright, mod. NE	20.4	18.4	23.8	25.6	Riseau Canot
	5:40 p.m.	LR	Sur. Bot.	Cloudy, mod. NE	19.4 19.0	18.8 18.3	24.0 23.6	26.2 26.2	Temp. Sta.
6	4:40 p.m.	LR	Sur. Bot.	Rain, strong NW	18.6 18.3	19.2 19.4	21.2 21.2	26.0 26.3	" "
7	2:35 p.m.	LW	Sur. Bot.	Cloudy, mod. NE	17.8 17.8	19.4 19.4	21.4 21.4	26.3 26.3	Petit Lameque
	3:20 p.m.	LR	Sur. Bot.	Cloudy, mod. NE	18.2 18.0	19.5 19.6	21.0 21.0	26.3 26.5	Lameque
	4:45 p.m.	LR	Sur. Bot.	Bright, mod. NE	18.0 18.0	19.5 19.5	20.8 20.8	26.3 26.3	Caribou bridge
	7:30 p.m.	LR	Sur. Bot.	Bright, light NE	17.8 17.6	19.4 19.4	20.8 21.0	26.2 26.2	Temp. Sta.
8	1:10 p.m.	HF	Sur. Bot.	Fair, mod. NW	18.8 18.2	19.0 19.0	22.3 22.4	26.1 26.1	" "
9	8:45 a.m.	HW	Sur. Bot.	Cloudy, mod. NW	18.2 18.1	19.5 19.6	20.8 20.2	26.3 26.3	Brule bay
	9:50 a.m.	HW	Sur. Bot.	Rain, mod. NW	18.0 17.4	19.5 19.5	20.6 20.6	26.2 26.2	Sewell river
	5:30 p.m.	LR	Sur. Bot.	Rain, mod. NW	17.8 17.0	19.4 19.5	20.8 20.6	26.2 26.2	Temp. Sta.
10	10:30 a.m.	HW	Sur. Bot.	Cloudy, mod. NE	18.2 18.0	19.2 19.4	21.2 20.8	26.0 26.2	Caribou bridge
	2:10 p.m.	HF	Sur. Bot.	Cloudy, mod. NE	17.8 17.4	19.5 19.5	20.2 20.2	26.1 26.1	Petit Lameque
	3:25 p.m.	HF	Sur. Bot.	Cloudy, mod. NE	18.0 17.8	19.5 19.6	20.4 20.6	26.2 26.4	Lameque
	6:30 p.m.	LR	Sur. Bot.	Fair, light NE	17.8 17.8	19.4 19.5	20.8 21.0	26.2 26.3	Temp. Sta.

HYDROMETRY (CONTINUED)

Date	Time	Tide	Depth	Weather	Temp.	Hyd. Read.	Pres. Temp.	Sal.	Locality
Aug. 11	2:30 p.m.	HF	2'	Bright, mod. SW	18.8	19.4	21.0	26.2	Riseau Canot
	3:30 p.m.	HF	Sur. Bot.	Bright, mod. SW	18.6 18.2	19.5 19.6	21.0 21.0	26.3 26.5	Bed off Riseau Canot
	4:15 p.m.	HF	Sur. Bot.	Bright, mod. SW	18.0 18.0	19.4 19.4	21.2 21.4	26.3 26.3	Dr. Cormier's channel
	4:55 p.m.	HF	Sur. Bot.	Bright, mod. SW	18.4 17.9	19.4 19.6	20.8 20.8	26.2 26.5	Temp. Sta.
12	10:10 a.m.	LR	Sur. Bot.	Cloudy, light NE	17.4 17.2	19.0 19.2	23.6 23.6	26.4 26.6	St. Simon
	12:15 p.m.	HW	Sur. Bot.	Cloudy, light NE	17.8 17.1	19.1 19.1	23.4 23.4	26.4 26.4	Temp. Sta.
13	-----	LR	Sur. Bot.	Cloudy, mod. SW	17.2 17.0	-----	21.0 21.2	Fresh "	Waugh river
	4:30 p.m.	HF	Sur. Bot.	Cloudy, mod. SW	17.8 17.1	19.4 19.4	20.8 20.8	26.2 26.2	Temp. Sta.
14	-----			THUNDER STORM					
15	4:20 p.m.	HF	Sur. Bot.	Cloudy, mod. SW	17.8 17.2	19.0 19.0	20.6 20.6	25.6 25.6	Temp. Sta.
16	4:10 p.m.	HW	Sur. Bot.	Warm, light SW	18.6 18.2	18.7 18.9	22.8 22.8	25.8 26.0	Dr. Cormier's channel
	5:05 p.m.	HW	Sur. Bot.	Warm, light SW	18.8 18.2	18.6 18.6	23.0 23.0	25.6 25.6	Temp. Sta.
17	4:15 p.m.	LR	Sur. Bot.	Overcast mod. NW	17.9 17.4	18.5 18.6	23.0 23.0	25.5 25.6	" "
20	6:35 p.m.	LR	Sur. Bot.	Fair, light NW	18.6 18.3	18.8 18.8	23.2 23.4	26.0 26.0	" "
18	5:15 p.m.	LR	Sur. Bot.	Fair, light NW	22.2 22.0	-----	23.0 23.2	Fresh "	Waugh
19	10:30 a.m.	HF	Sur. Bot.	Fair, mod. NW	18.2 18.2	18.3 18.5	23.0 23.0	25.2 25.5	St. Simon
	12:10 p.m.	HF	Sur. Bot.	Fair, mod. NW	18.6 18.6	18.5 18.7	23.0 23.0	25.5 25.8	Off Riseau Canot

HYDROMETRY (CONTINUED)

Date	Time	Tide	Depth	Weather	Temp.	Hyd. Read.	Pres. Temp.	Sal.	Locality
Aug. 21	4:10 p.m.	LR	4'	Warm, light SW	19.4	18.6	23.4	25.7	Off Munroe Island
	4:40 p.m.	LR	Sur. Bot.	Warm, light SW	19.7 19.4	18.6 18.8	23.0 23.2	25.6 26.0	Temp. Sta.
22	5:10 p.m.	LR	Sur. Bot.	Warm, light SW	20.0 19.7	18.5 18.5	23.0 23.0	25.5 25.5	" "
23	6:10 p.m.	LR	Sur. Bot.	Bright, mod. SW	18.6 18.2	18.8 18.8	24.0 24.1	26.2 26.2	" "
24	6:30 p.m.	LR	Sur. Bot.	Bright, light SW	17.8 17.2	18.7 18.9	24.0 23.8	26.1 26.4	" "
25	7:35 p.m.	LR	Sur. Bot.	Mod. NW	18.4 18.4	18.7 18.7	23.9 24.0	26.1 26.1	" "
26	7:20 p.m.	HF	Sur. Bot.	Mod. NW	18.0 18.0	19.4 19.3	22.2 22.0	26.5 26.4	" "
27	7:10 p.m.	HF	Sur. Bot.	Strong NW	17.6 17.1	19.2 19.4	23.6 22.4	26.6 26.6	" "
28	7:30 p.m.	HF	Sur. Bot.	Bright, light SE	18.8 18.6	19.5 19.4	23.6 23.5	27.0 26.9	" "
29	5:15 p.m.	HF	Sur. Bot.	Bright, mod. SW	19.2 19.0	19.4 19.4	23.5 23.5	26.9 26.9	" "

The hydrographic data and temperature records need but little comment. The symbols HW and LW refer to high water and low water respectively and are used when the stage of the tide is within one-half hour, either way, of the high or low water mark as the case maybe.

It will be noted that on July 22nd, the salinity of the Waugh river was found to be 25.6‰ at the surface and 26.0‰ at the bottom, whereas on all other occasions it was found to be so fresh that the salinity could not be determined with the hydrometer. This was probably due to the fact that the excursion to the Waugh river on July 22nd followed a very dry period, and that, consequently, the salinity at that date was much higher than at any other time. It will also be noted that the salinities at all localities are quite constant, varying between the rather narrow limits of 25 to 29‰,

indicating that the ebb and flood of fresh water is at all times very small in amount. The salinities in every locality with the exception of the Waugh river are adequate for the spawning and rearing of oysters. The temperatures prevailing for the month of July were favourable for the prediction of spawn, and, as the July temperature graph indicates, the conditions were such as to reduce the larval period to fifteen days.

Prospective Sites for Experimental Collectors

On arriving at Shippigan, in company with Dr. Kerswill and Dr. Medcof, excursions were made to various places throughout the area in order to become thoroughly acquainted with the local geography and to choose favourable sites for the distribution of collectors. Among these localities, Lameque and Caribou, on Shippigan island, and Brule bay, St. Simon, Sewell river, Waugh river, Dr. Cormier's channel, Bandy bed, and Riseau Canot on the mainland seemed to present the best possibilities for the purpose. A few days later Petit Lameque was added to this list.

Condition of Gonads

From time to time in various localities the gonads of several oysters were examined in order to determine approximate spawning dates. Difficulty was encountered in determining to what extent spawning had occurred, as no experience had been gained hitherto along this line. The results of this phase of oyster investigations was as follows:

Date	Locality	No. Observed	Condition of Gonads
June 16	Bandy bed	6	Oysters immature
21	Riseau Canot	9	" "
24	Dr. Cormier's channel	4	" "
26	Riseau Canot	6	" "
July 3	Bandy Bed	10	" "
9	Petit Lameque	12	White veins apparent
10	Dr. Cormier's channel	10	Veins quite discernible
10	Riseau Canot	10	Veins quite prominent
12	Temperature Station	9	Appear ready for spawning
13	St. Simon	7	Appear to have spawned a little
13	Sewell river	7	" " " " " "
15	St. Simon	12	Appear to have spawned considerably
19	Brule bay	6	Appear to have spawned considerably
21	Caribou Bridge	10	Appear to have spawned considerably

Tow Records

Plankton tows were taken at intervals at all of the eleven locations mentioned above. All tows were of the twenty minute variety and were taken with a net of #18 silk bolting cloth. In the following tabulations of results, the comments made upon the individual tows are those which were made at the time when the tows were initially examined:

Date	Oc.	U.	Number	TEMPERATURE STATION	Remarks
June 16	----	----	----		Very few bivalve larvae of any kind
24	----	----	----		Few bivalve larvae. Straight hinge <u>Mya</u> forms present.
26	----	----	----		Straight-hinge <u>Mya</u> quite discernible
30	----	----	----		Many straight-hinge <u>Mya</u> , a few in later stages, one measuring 248 x 276u
July 2	----	----	----		Many straight-hinge <u>Mya</u> . Some later stages.
7	----	----	----		Sample full of <u>Mya</u> , straight hinge. First large brood noted to date.
10	----	----	----		Sample full of <u>Mya</u> , about half in early umbo stage. Probably later stage of brood encountered in July 7.
12	----	----	----		Many <u>Mya</u> larvae. Some small straight-hinge oysters, but very few in number.
22	----	----	----		Many clams and snails, but not many oyster larvae.
27	----	----	----		Very few oyster larvae in tow.
Aug. 5	4	55.2	3		Too few oysters to base accurate prediction, but possibly a fair settlement in a week's time.
	5	69.0	8		
	6	82.8	4		
	7	96.6	1		
	8	110.4	2		
	9	124.2	2		
	10	138.0	2		
	11	151.8	1		
	12	165.6	--		
	13	179.4	2		
	14	193.2	2		
	15	207.0	1		
	16	220.8	3		
	17	234.6	2		
	18	248.4	1		
	19	262.2	1		
	20	276.0			
	21	289.8	1		
	22	303.6			

TEMPERATURE STATION

Date	Oc.	Number	Remarks
Aug. 12	----	---	Few oyster larvae.
<u>DR. CORMLER'S CHANNEL</u>			
June 26	----	--	Tow full of debris: only a few straight-hinge <u>Mya</u> forms.
30	----	---	A few <u>Mya</u> forms, all stages.
July 10	----	---	Few bivalves, very poor tow
12	----	---	Many <u>Mya</u> . A few <u>Ostrea</u> forms have appeared for the first time.
22	----	---	Few oyster larvae in tow.
28	4	3	Two broods present in tow. Brood I settlement will probably occur August 1st.
	5	7	
	6	11	
	7	3	
	8	4	
	9	0	
	10	0	
	11	0	
	12	6	
	13	8	
	14	6	
	15	4	
	16	5	
	17	6	
	18	5	
	19	3	
	20	2	
	21	1	
Aug. 5	4	1	Too few larvae to base a prediction
	5	2	
	6	2	
	7	1	
	8	2	
	9	0	
	10	0	
	11	1	
	12	1	
	13	0	
	14	0	
	15	1	
	16	0	
	17	1	

DR. CORMIER'S CHANNEL

Date	Oc.	Number	Remarks
Aug. 5	18	1	
	19	1	
	20	0	
	21	1	
	22	0	
	23	1	
	24	0	
12	----	----	Very few oyster larvae. Water very muddy.

BANDY BED

July 10	4	3	Settlement probably to occur near end of July
	5	2	
	6	7	
	7	11	
	8	8	
	9	3	
	10	2	
	11	0	
	12	1	
	13	0	
	14	0	
	15	0	
	16	0	
	17	1	
	18	0	
	19	1	
	20	0	
Aug. 5	----	----	Few oysters in tow. Sand.
11	----	----	Few oysters in tow

RISEAU CANOT

June 26	----	----	Fair amount of Mya, mostly a straight-hinge forsy.
July 10	4	4	Settlement probably due around end of month
	5	10	
	6	12	
	7	4	
	8	2	
	9	2	
	10	1	
	11	0	
	12	1	
	13	1	
	14	0	
	15	0	
	16	1	

RISEAU CANOT (CONTINUED)

Date	Oc.	Number	Remarks
July 10	17	0	
Aug. 5	----	----	Very few oysters in tow. Sand.
11	----	----	Very poor tow. Water full of snad.

BRULE BAY

June 24	----	----	Many <u>Mya</u> , both straight-hinge and umbo
July 9	----	----	Few bivalve larvae. Dropped most of sample on way home.
13	4	2	Too few larvae for accurate prediction, as some straight-hinge forms may actually be <u>Mya</u> , also, the stage is too early for good predicting. However, setting should probably take place about August 1st.
	5	4	
	6	5	
	7	3	
	8	2	
	9	2	
	10	1	
	11	1	
	12	1	
	13	2	
	14	0	
	15	1	
	16	0	
	17	1	
	18	0	
	19	0	
	20	1	
July 21	4	4	Modal group Oc. 6. <i>SETTING SHOULD OCCUR ABOUT AUGUST 10th.</i>
	5	11	
	6	13	
	7	6	
	8	2	
	9	1	
	10	2	
	11	1	
	12	2	
	13	2	
	14	1	
	15	1	
	16	0	
	17	1	
	18	1	
	19	0	
	20	1	
	21	0	
	22	1	

BRULE BAY (CONTINUED)

Date	Oc.	Number	Remarks
Aug. 5	----	----	Few larvae in tow.

LAMEQUE

June 28	----	----	Few bivalve larvae. Poor tow. Sand.
July 9	----	----	Considerable <u>Mya</u> larvae. A few straight-hinge forms look suspiciously like oysters.
July 21	5	4	Modal group Oc. 7. Settlement probably about August 4th.
	6	9	
	7	13	
	8	5	
	9	3	
	10	3	
	11	2	
	12	1	
	13	0	
	14	0	
	15	1	
	16	0	
	17	0	
	18	1	
	19	0	
	20	1	
	21	0	
	22	1	

PETIT LAMEQUE

July 9	----	----	No oysters in tow
21	4	1	Modal group Oc. 10. Setting to take place in 11 days: August 1st.
	5	3	
	6	3	
	7	4	
	8	3	
	9	8	
	10	15	
	11	4	
	12	6	
	13	2	
	14	2	
	15	1	
	16	0	
	17	1	
	18	1	
	19	1	
	20	0	
	21	1	

PETIT LAMEQUE (CONTINUED)

Date	Oc.	Number	Remarks
Aug. 10	----	----	Poor tow. Mostly sand. A few clams.

CARIBOU BRIDGE

July 9	----	----	Fair number <u>Mya</u> , many in late umbo stage
21	5	3	
	6	6	
	7	3	
	8	1	Oyster larvae not so numerous as at Lameque and Petit Lameque. Settlement probably in about 15 days' time - August 5th.
	9	3	
	10	5	
	11	1	
	12	1	
	13	0	
	14	0	
	15	1	
	16	0	
	17	1	
	18	0	
	19	0	
Aug. 10	----	----	Few oyster larvae in tow.

ST. SIMON

July 8	----	----	Fair numbers of all stages of soft-shell clams.
13	4	3	Best tow taken anywhere to date. So far as number of oyster larvae is concerned. Almost all in straight-hinge stage. Setting about August 1st.
	5	11	
	6	42	
	7	17	
	8	8	
	9	6	
	10	2	
	11	1	
	12	1	
	13	1	
	14	0	
	15	1	

ST. SIMON (CONTINUED)

Date	Oc.	Number	Remarks		
July 15	5	11	Later stage of July 13th. Settlement expected August 1st. Water very clear when tow taken.		
	6	17			
	7	18			
	8	15			
	9	13			
	10	15			
	11	7			
	12	5			
	13	3			
	14	1			
	15	2			
	16	1			
	17	1			
	18	0			
	19	0			
	20	1			
	21	0			
	22	1			
	23	1			
	Aug. 4	5		2	Appear to be three distinct broods. Brood I is probably a follow-up of July 13th and 15th tows, and should settle immediately. Brood II should set in 4 or 5 days.
		6		5	
		7		4	
		8		2	
9		1			
10		0			
11		0			
12		1			
13		2			
14		3			
15		8			
16		4			
17		1			
18		0			
19		0			
20		0			
21		2			
22	1				
23	3				
24	4				
25	1				
26	1				
27	1				
12	----	----	Few oyster larvae in tow. Bad day for the taking of tow. Water dirty, sea choppy.		

SEWELL RIVER

Date	Oc.	Number	Remarks
July 8	----	----	Considerable numbers of all stages of <u>Mya</u> .
13	4	1	Setting will probably be about August 1st.
	5	6	
	6	10	
	7	8	
	8	5	
	9	3	
	10	2	
	11	2	
	12	2	
	13	3	
	14	2	
	15	1	
	16	0	
	17	1	
	18	0	
	19	1	
15	5	15	Setting probably about August 3rd.
	6	17	
	7	11	
	8	5	
	9	3	
	10	2	
	11	2	
	12	1	
	13	1	
	14	0	
	15	2	
	16	3	
	17	0	
	18	2	
	19	1	
	20	1	
	21	1	
	22	0	
	23	1	
Aug. 4	5	2	Good settlement should take place about August 8th.
	6	6	
	7	4	
	8	3	
	9	2	
	10	0	
	11	0	
	12	1	
	13	2	
	14	3	
	15	2	
	16	12	
	17	2	
	18	1	
	19	2	
	20	0	

SEWELL RIVER (CONTINUED)

Date	Occ.	Number	Remarks
Aug. 4	21	0	
	22	1	
	23	1	
	24	2	
	25	1	

WAUGH RIVER

July 12	----	----	Mya prevalent. Very few straight-hinge oysters.
22	5	8	Settlement date about August 7th.
	6	8	
	7	6	
	8	3	
	9	2	
	10	2	
	11	0	
	12	2	
	13	1	
	14	0	
	15	1	
	16	0	
	17	2	
	18	0	
	19	1	
	20	0	
	21	1	
Aug. 3	----	----	Many clams. Few oysters in tow.
13	----	----	Large brood straight-hinge <u>Mya</u> . No <u>Ostrea</u> .

Disposition of Collectors

During the period July 29th to August 12th, 102 experimental collectors were placed at the eleven stations at which plankton tows had been taken. The exact dates on which the collectors were distributed are as follows:

Station	Date	Number of Collectors
Temperature Station	August 11	2
	August 12	5
Dr. Cormier's channel	July 30	5
	July 30	5
Bandy bed	August 11	5
	July 30	5
Riseau Canot	August 11	5
	July 30	5
Sewell river	August 11	5
	July 29	5
St. Simon	August 9	5
	July 29	5
	August 4	3
Brule bay	August 12	5
	July 29	6
	August 9	5
Petit Lameque	August 2	4
	August 10	4
Lameque	August 2	6
	August 10	7
	August 2	3
Caribou bridge	August 2	3
	August 10	4
Waugh river	August 3	8

The collectors used were of the concrete-coated egg-case filler type. The time to place the collectors in each locality was, of course, chosen from the results of the tows already presented, although some difficulty was experienced in placing the collectors on the exact date as the various localities were widely scattered. The first group of collectors put out were hung by ordinary haywire which, although ungalvanized and lighter in weight, served the purpose equally as well. All of the collectors except those on Shippigan Island were hung from 18' crosspoles supported at each end by a tripod of 14' poles. These stands, so constructed, stood up well even though much rough weather was encountered. The collectors placed at the Shippigan Island locations were hung from bridge supports.

The collectors at the Temperature Station which was located in the South Branch of St. Simon Inlet were placed about 100 yards from shore, where the water was about 5' deep at low tide. The exposure at this site was good. Southwest, northwest, and northeast winds were all favourable.

Dr. Cormier's channel offered an excellent site. The exposure was adequate, all winds were favourable. The collectors were placed on a stand situated near the widest part of the channel which sweeps across the corners of the adjoining leases. The private beds located here have good populations of oysters, which are necessarily a prerequisite for the production of wholesale spawning and formation of good sets. The water coursing through the channel was the clearest encountered in all of the eleven stations.

The collectors located in the Bandy bed area were disposed in two groups, one group along the west side of Bandy Island, the other group along the south side. Both groups were exposed to a considerable degree; the water in both cases was about five feet deep at low water level. The water here was extremely dirty at all times.

Riseau Canot offered a distinct advantage in that the temperature of the water here was higher than at any other locality because of the extreme shallowness, at low tide only about one foot of water remained. Consequently, the collectors in this locality had to be placed upon their sides. The water was very clear, and good protection was afforded for the collectors. A southwest wind was unfavourable.

In Sewell river, the collectors were placed near the head of the channel, the July 29th group being more to the head than the August 9th group. Good protection was afforded from the prevailing winds. A fair amount of seaweed and eel grass was present. Both groups were placed in four feet of water at low tide level.

Conditions in the north branch of St. Simon inlet were quite favourable. Early in the season a small channel was discovered running along about thirty feet from the western shoreline at dead low tide, above the village of St. Simon, and the collectors were placed here. Adults oysters in the channel are not prevalent, but numerous adjacent beds were sufficient to ensure an adequate supply of oyster larvae and spat. This site was well sheltered, but the exposure was good. The water in the channel was quite clear until the second week in August when large amounts of dirt and debris began to appear in the water.

Brule bay possessed several distinct advantages as a site for collectors. The water was quite warm, the amounts of debris in the water were not considerable, and numerous oyster beds were located here. It possessed one serious disadvantage in that it was vulnerable to the prevailing southwest and northwest winds. The collectors were put out in four feet of water near the south shore of the bay.

The collectors at Lameque, Petit Lameque, and Caribou bay were suspended from the bridges located at these localities. The amount of debris in the water was considerable, the localities were open to the northeast wind, and the current at all three sites was very swift. The number of adult oysters in the Petit Lameque and Caribou areas was not large. The tops of the collectors at Petit Lameque and Caribou were exposed at dead low tide.

At the Waugh river locations, the collectors were hung from stands placed along the west shore near the junction with the Pokemouche river. The number of adult oysters was sufficient to give a fair supply of larvae. During most of the season, the water contained large amounts of seaweed. Exposure was fair, the current was not too swift.

Catch on Collectors

On August 18th and 19th, excursions were made with Dr. Medcof to all localities where the collectors had been placed, several sections were taken from each group of collectors, and counts were made of the number of spat found upon the sections. In the majority of cases, eight sections were taken from each group in a uniform manner from the lower part of the collectors.

Locality	Group	Number of Sections	No. of spat	Spat per Section
Temperature Station	Aug. 12	8	7	.9
Dr. Cormier's channel	July 30	8	321	40.1
Bandy bed	July 30	8	40	5.0
	Aug. 11	8	3	.4
Riseau Canot	July 30	6	80	13.3
	Aug. 11	8	4	.5
Sewell river	July 29	8	29	3.6
	Aug. 9	8	2	.3
St. Simon	July 29	8	182	22.8
	Aug. 4	4	12	3.0
	Aug. 12	8	3	.4
Brule bay	July 29	8	43	5.4
	Aug. 9	8	nil	----
Petit Lameque	Aug. 2	8	14	1.8
	Aug. 10	15	5	0.3
Lameque	Aug. 2	15	15	1.0
	Aug. 10	8	12	1.5
Caribou bridge	Aug. 2	4	8	2.0
	Aug. 10	14	29	2.1
Waugh river	Aug. 3	--	--	----

From the above results, it may be seen that the best sets were obtained at Dr. Cormier's channel, St. Simon, Riseau Canot, Brule bay, Bandy bed, and Sewell river, in the order named. Obviously, Dr. Cormier's channel was by far and away the best site as far as the number of oyster spat were concerned, and the difference between St. Simon and the next highest spat-site, Riseau Canot, is equally striking. No samples were taken from the Waugh river locality, as precursory examinations failed to reveal any spat whatsoever. The sizes of the spat obtained in the various localities were roughly measured, and it was found that those from Dr. Cormier's channel were largest in average size, closely followed by those from St. Simon and Riseau Canot, thus suggesting a close correlation between number of spat caught and growing conditions of the area concerned.

Condition of Collectors

Visits to the different areas in which the collectors were located yielded the following results as to the condition of the collectors after they had been out for two to three weeks:

Locality	Condition
Temperature Station	Clean, undamaged
Dr. Cormier's channel	Clean, undamaged
Bandy bed	Heavily silted, undamaged
Riseau Canot	Clean undamaged
St. Simon	Slightly silted, undamaged
Sewell river	Covered with seaweed
Brule bay	Slightly silted, undamaged.
Petit Lameque	Damaged
Lameque	Badly damaged
Caribou	Damaged
Waugh river	Lightly silted, seaweed

In the above, the term "clean" means that the collectors were comparatively free from silt, although naturally small amounts of brown slime were found on all collectors.

Comparison of Collector Localities

The collector localities may now be compared in the light of the various data given above, and the results interpreted.

Locality	No. larvae in tows	Exposure	Condition	Spat per Collector	Salinity
Temp. Station	Poor	Good	Very good	0.9	Good
Dr. Cormier's channel	Good	Good	Very good	40.1	"
Bandy bed	Fair	Fair	Fair	5.0	"

CONTINUED FROM PAGE 25

Locality	No. larvae in tows	Exposure	Condition	Spat per Collector	Salinity
Riseau Canot	Fair	Good	Very good	13.3	Good
St. Simon	Very good	Good	Good	22.8	"
Sewell river	Very good	Fair	Good	3.6	"
Brule bay	Fair	Fair	Good	5.4	"
Petit Lameque	Fair	Poor	Poor	1.8	"
Lameque	Fair	Poor	Poor	1.5	"
Caribou	Fair	Poor	Poor	2.0	"
Waugh river	Poor	Fair	Fair	nil	Poor

It will be seen at once that Dr. Cormier's channel leads all other localities in practically every department, and this region appears to offer good possibilities for the dispersal of commercial collectors. St. Simon and Riseau Canot are promising localities, although there is a restraining factor in the latter instance as the adult oysters in the vicinity are situated on picking grounds which are steadily becoming depopulated. Brule bay suffers from the fact that the exposure is not good and this may well account for the surprisingly low number of spat per collector. Bandy bed is unfortunate in having a large amount of dirt in the water. The sites on Shippigan Island suffer from excessive exposure. The excessively low salinity in the Waugh river is not conducive to good spawning and spatfall. From the data, Sewell river should furnish an excellent site for commercial collectors, yet the number of spat caught was surprisingly low in view of the number of larvae encountered in plankton tows. This may be due in part to the amount of exposure. The matter would bear further investigation.

The best sites, then, for the artificial collection of spat appear to be located in the heart of the leasing areas, and there is every reason to believe that commercial collectors placed here would prove to be economically valuable.

Other Types of Collectors

The only collectors used during the season were those of the concrete-coated egg-case filler type. It would be advisable in ensuing seasons for other types to be used as well, especially shell collectors of the approved designs. Brush collectors might also prove to be suitable in this district, and, if this were found to be the case, the economic advantages are readily apparent. Three shell collectors built from laths were constructed but were found to be too frail to endure the heavy storms encountered due to the fact that adequate tools and material were not available at the time of construction. With these facts in mind it should be an easy matter in the course of future investigations to construct sturdy shell collectors which would stand up under all weather conditions and which might achieve results comparable to those obtained by commercial collectors.

At the beginning of the season, two stones on Dr. Cormier's property were examined and were found to have upon their surfaces large numbers of 1942 spat. One stone, approximately 1" x 1½" x 5" bore six spat, while the other stone, approximately 4" x 4" x 9", bore thirty-three spat, a clear indication of the magnitude of the spawning which must have occurred in the preceding season. Subsequent investigations during the season revealed many spat on large rocks in the northern end of the South Branch of the St. Simon Inlet.

On the same day that the first collectors were put out, Arthur Breau deposited three dory loads of mixed shells on his lease in the South Branch of the St. Simon. On August 29th, 43 of these shells were collected at random and examined for spat. Eleven spat were found, no two spat on any one shell. Considering the proximity of Breau's lease to Dr. Cormier's channel, results might well have been better. However, it is to be noted that the shells were laid out in a strip 15' wide and 150' long, and hence the layer of shells was very thin. If the shells had been distributed more thickly, better undersurfaces would have been provided for setting, and the results might have proven more satisfactory.

On the same date, Bruno Mallet planted several barrels of shells on his lease in Brule bay. Details as to the manner of planting could not be obtained, but it seems likely that they were placed more thickly than on Arthur Breau's bed. Thirty-six spat were found.

1942 Spat

In explorations conducted October 21-26, 1942, by J. C. Medcof and C. J. Kerswill, a few 1942 spat were observed on oyster shells fished from the Bandy bed and from the branch fronting Bruno Mallet's property.

In July of this year, a few 1942 spat were observed on shells taken from the leases of John Robichaud, Arthur Breau, Dr. Cormier, and Wilfred Mallet. During the period August 26-29, extensive fishing from several areas revealed the presence of a relatively large number of 1942 spat.

Location	No. of spat	Average size mm.
East side of Munro Island	10	32.8
Dr. Cormier's channel	10	40.3
Riseau Canot	7	38.2
Bandy bed	17	34.0
Lameque bay flats	10	35.6
Brule bay	15	36.4

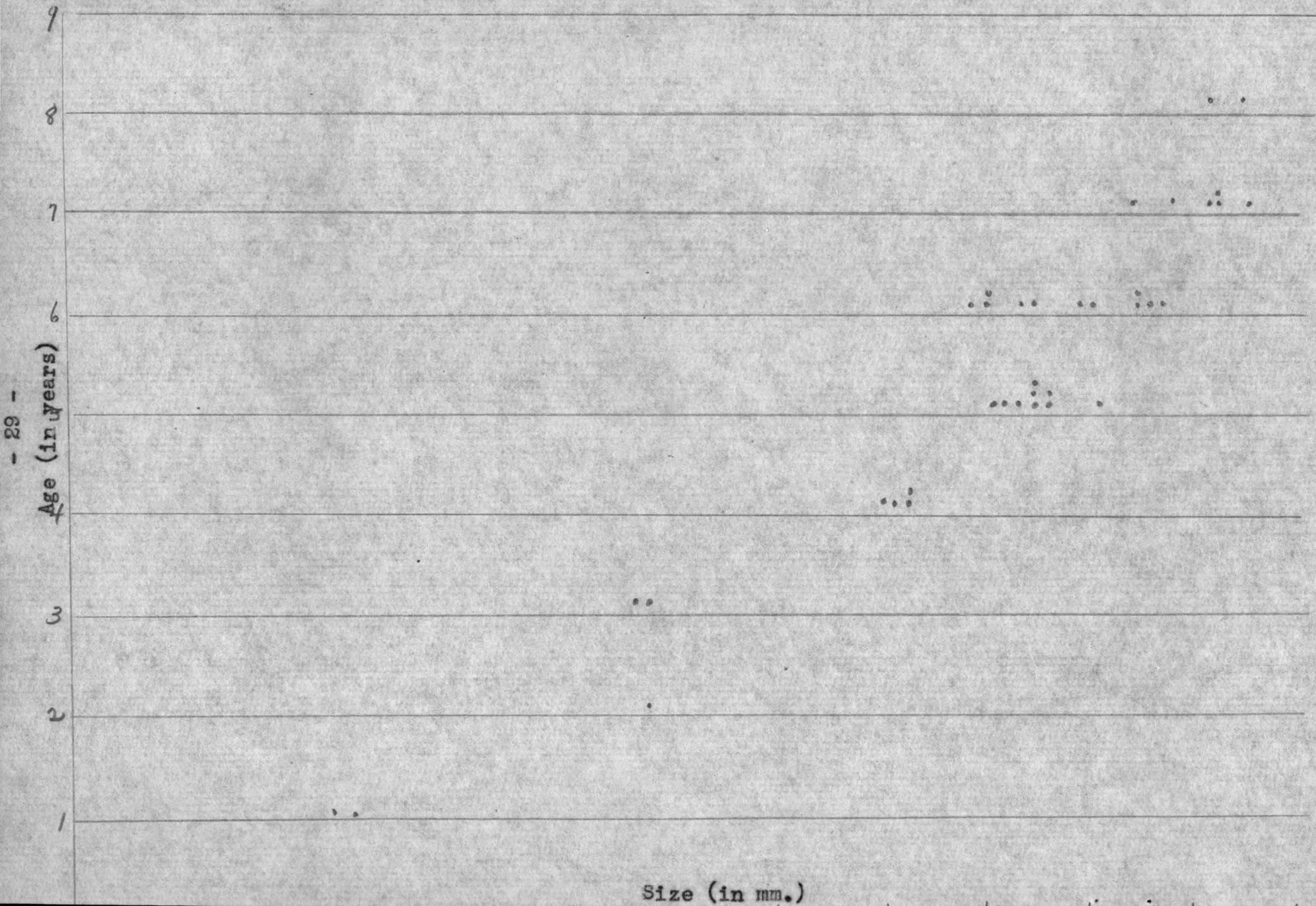
The above results indicate that the 1942 season was a favourable one for spat production and for spat growth, and demonstrate the probability that variation in suitability of growing grounds does exist in the Shippigan district, and that such a variation occurs even in localities which lie in close proximity to each other. It appears that the area of Dr. Cormier's channel provides the best rearing grounds for the young spat, an observation substantiated by the observations of 1943 spat size mentioned above.

Prevalence of Adult Oysters

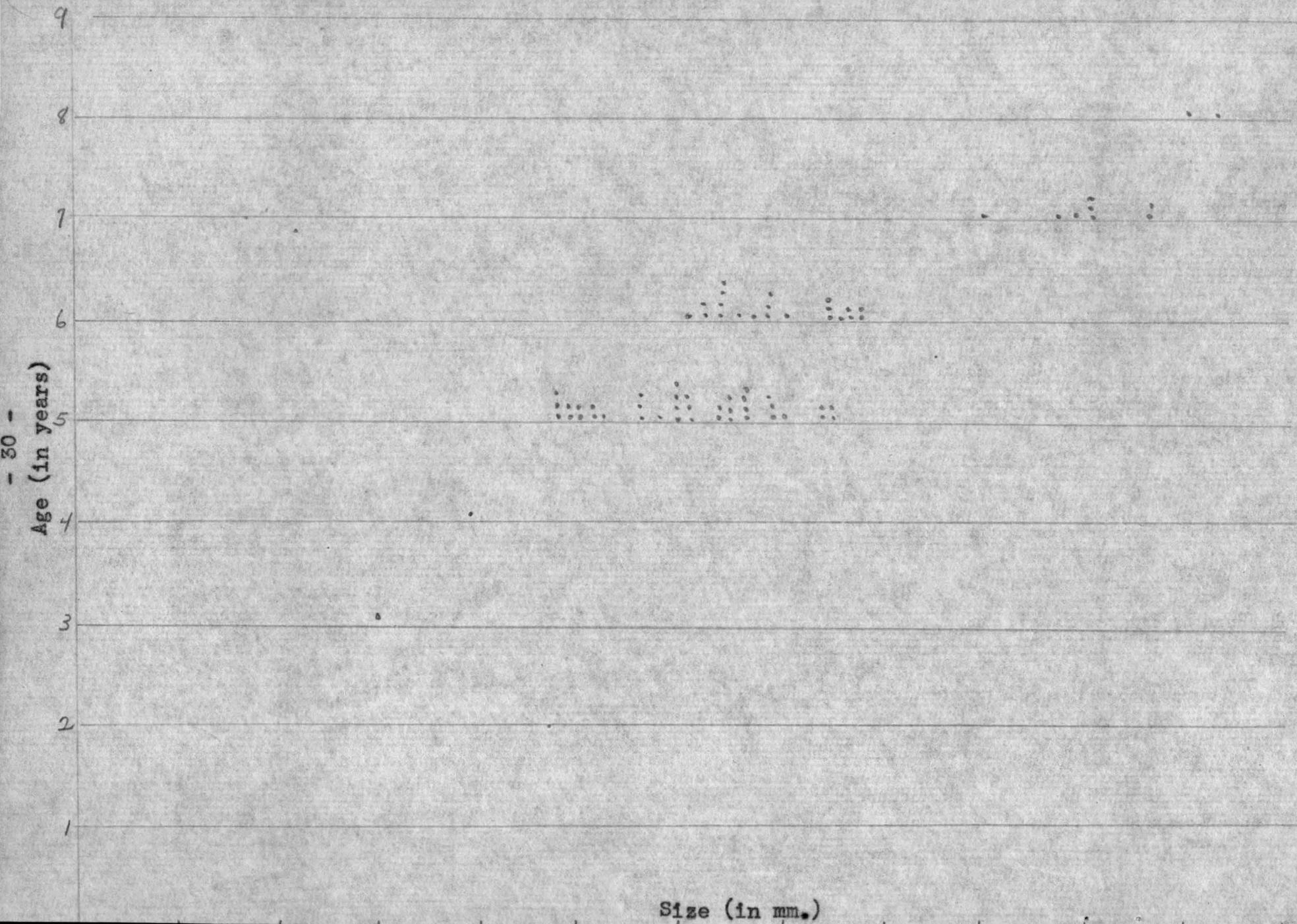
Despite the optimism of some lessees in the district, it seems certain that the oyster population is rapidly becoming depleted and will continue to do so until the oyster fishing has been destroyed unless some means of artificial collection of spat is inaugurated. Hopes for the continuance of the local fishing based upon the catch of 1942 spat from the beds seem unwarranted inasmuch as the total number of spat so found has borne such a small ratio to the number of adult oysters fished.

In 1942, analyses were made of samples of oysters taken at random from various private leases and public beds (see Medcof, 1942) and the work was carried on again this year. The age of the oysters was computed from the annular rings and the size of each was measured. The same restrictions and warnings on the measurements made in 1942 are applicable to the 1943 sets of figures. The size-age frequency distribution curves for the different localities investigated are given in the succeeding pages of this report.

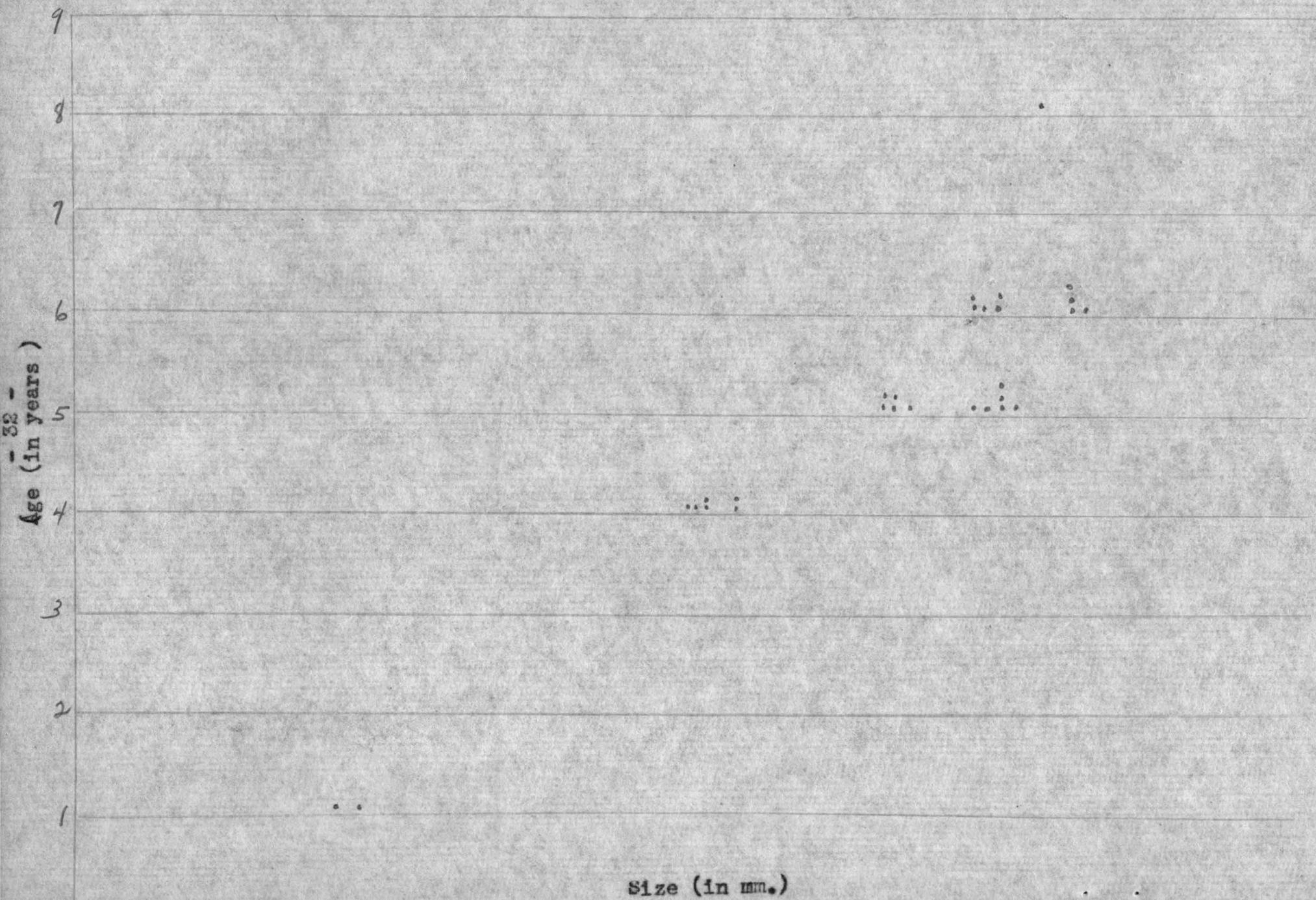
Age-Size Distribution of 37 Oysters from Lameque Bay Above Bridge



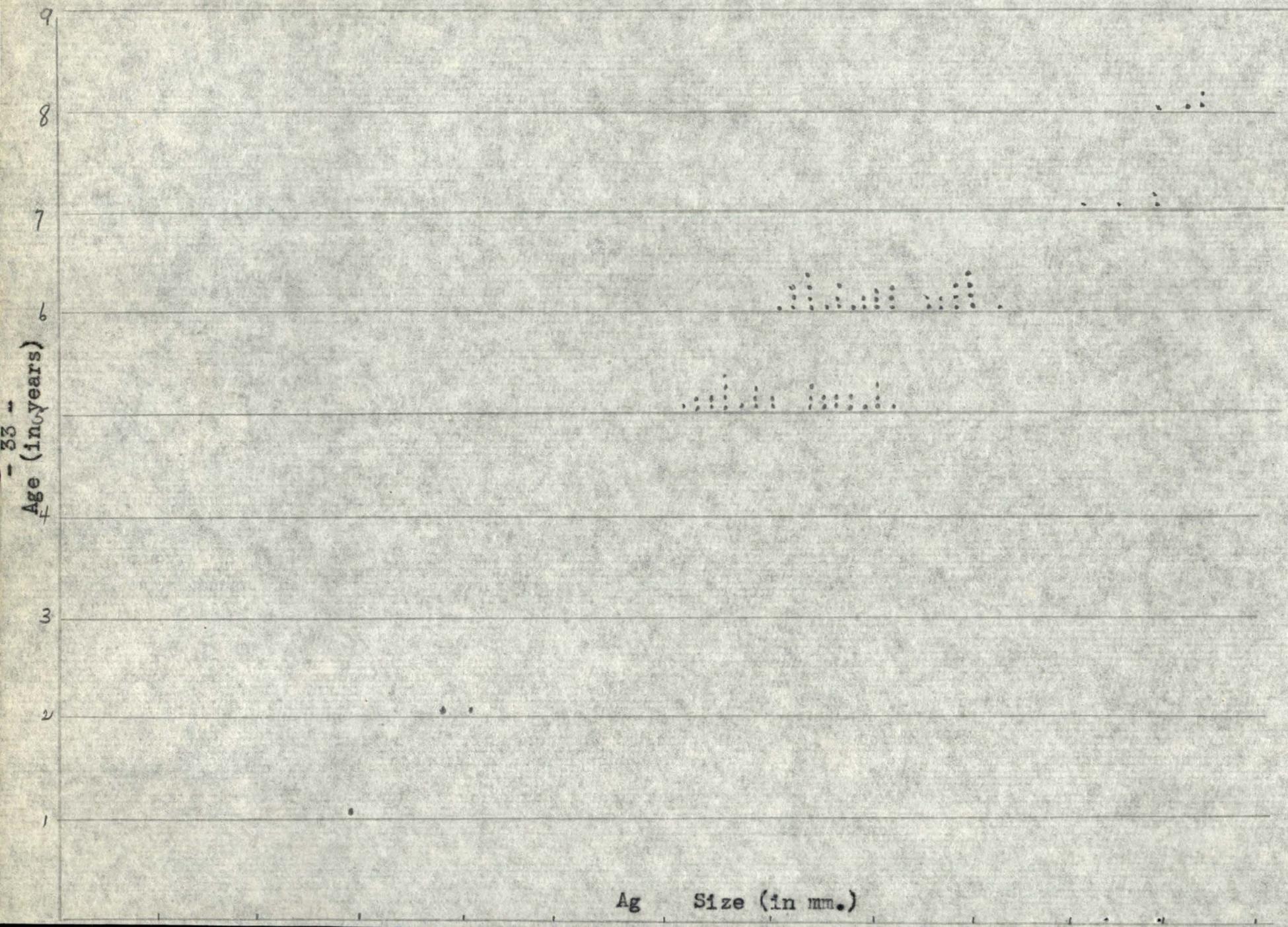
Age-Size Distribution of 71 Oysters from Riseau Canot



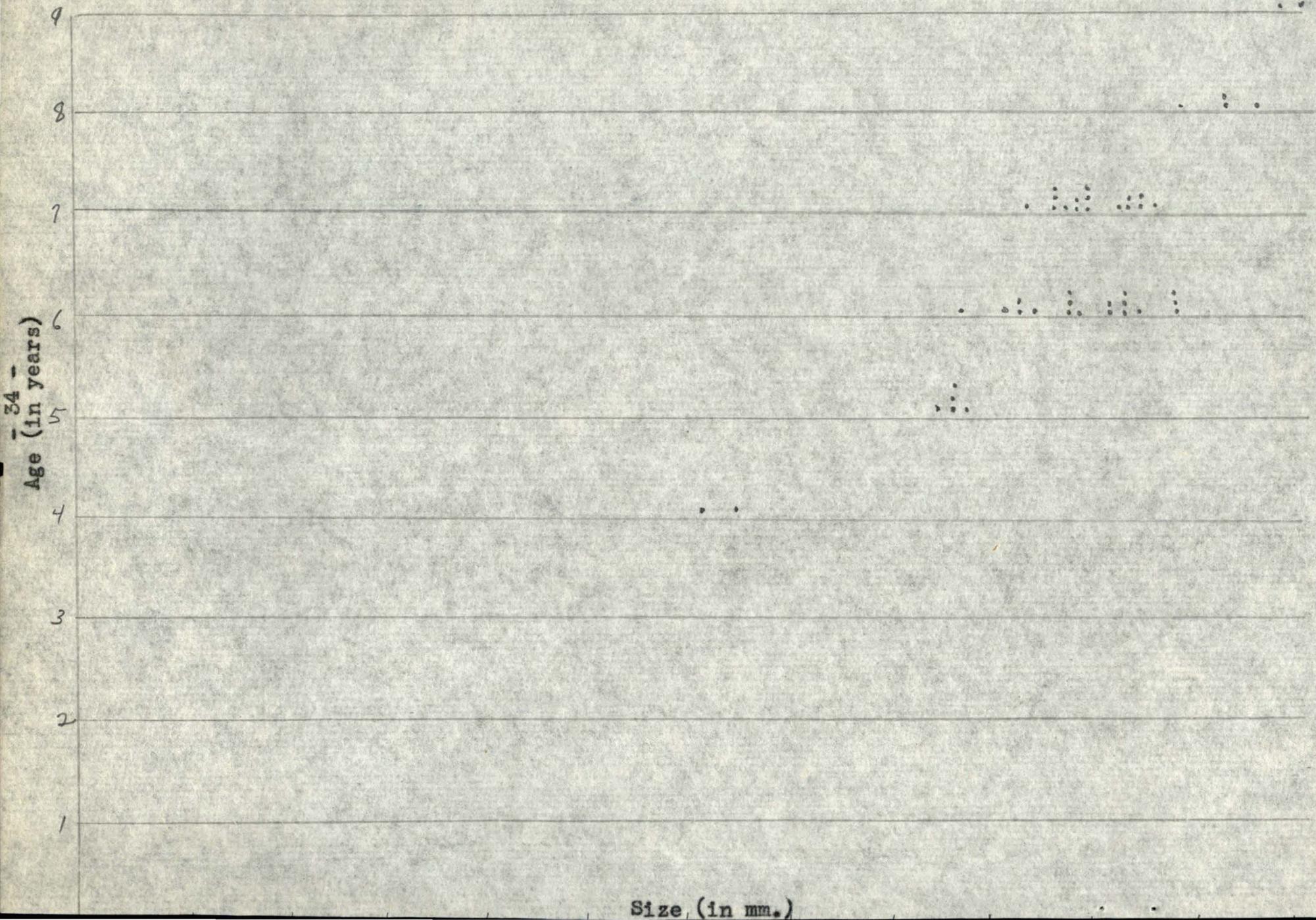
Age-Size Distribution of 29 Oysters from Lameque Bay Flats



Age-Size Distribution of 73 Oysters from North and East Sides of Munro Island



Age-Size Distribution of 48 Oysters from Dr. Cormier's Channel



Age-Size Distribution of 44 oysters from Petit Lameque



Conclusions

In 1942, the two chief year classes were the four and five year classes. In 1943, these classes have advanced to the five and six year stages.

Although 1942 was an exceptionally good season for oyster reproduction in other districts, the reproduction level in the Shippigan district was comparatively low, and rates for the three preceding years were very low also. Thus we have further evidence that artificial spat collection is the only means available for the perpetuation of the Shippigan fishery.

General Impressions

The evidence given above in the body of the report for the necessity of introducing artificial spat collection seems conclusive. Unless some satisfactory scheme is worked out the oyster fishery will be irreparably ruined. Moreover, it appears that the concrete-coated egg-case filler collector can adequately supply the answer to the problem as judged by the results obtained by the experimental collectors used this season. Additional work along the same lines of investigation should be carried on in the next year or two in order to verify the results obtained and the conclusions reached. Experiments should also be carried on with other types of collectors and thereby a more economical scheme of artificial spat collection may be devised.

Interviews with Lessees

Much time was spent during the latter part of the season in discussing oyster culture problems with the various lessees and public fishermen of the district. For the most part, the oyster fishermen are unaware of the danger which threatens their fishery, and, even when the situation is explained to them, they seem unable to comprehend its seriousness. The majority seem unwilling to face the facts, and appear to be concerned only with the immediate present, being well satisfied with the fact that there are still places in the district where oysters may be picked. There are some, of course, who have a realization of the plight in which the fishery is situated, but the majority, not comprehending the intensity of the problem, refuse to look ahead to the future. It seems a logical conclusion, therefore, to say that even if they were encouraged to attempt artificial spat collection, they would show little interest. Hence, if artificial collection on a wholesale basis is to be inaugurated, the local fishermen must first be completely convinced of its value.

Mussels and Starfish

From all observations it appears that mussels are not generally prevalent in the Shippigan district to a degree sufficient to become a menacing competitor to the young oyster spat. They appear to be concentrated particularly in the North Branch of St. Simon Inlet and on the north and east sides of Munro Island.

According to the reports of lessees, starfish are increasing in number in all areas but have not yet reached the stage where they have become a definite threat to the oyster industry. Lessees in the district, ignorant of other phases of oyster culture, seem to be well aware of the danger which the presence of starfish presents, and are very eager to secure information on the subject. Several, in the more heavily infested areas, have expressed the desire of obtaining starfish mops such as are used by oyster fishermen elsewhere. Starfish are especially prevalent in the areas where the best results were obtained with the experimental collectors - Dr. Cormier's channel and Brule bay.

CLAM POPULATIONS

Some investigations on clam populations in the district were carried on, particularly in the latter part of the season. The results obtained from the surveys completed are presented below. The method and procedure in all cases were the same. Stations were marked at 25 foot intervals, beginning at dead low tide level and ending at high tide mark. A definite number of shovelsful of sand was taken at each station, passed through a box-type plot screen (ordinary window screening being employed for the purpose) and the number of each class-size of young clams was noted. The work was carried on during extreme low tides, so that the largest possible area of beach was exposed. Only the first two or three inches of sand was dug up.

- (1) Robichaud's cove in South Branch of St. Simon Inlet, July 31st, 1943 - 175 feet of beach - 20 shovelsful taken at each station.

Size Range	I	II	III	IV	V	VI	VII	VIII	
0.0 - 0.5 cm.	7	8	3	5	4	2	1	2	32
0.5 - 1.0	6	11	4	4	9	8	4	8	54
1.0 - 1.5	2	6	7	9	9	10	6	6	55
1.5 - 2.0	2	4	7	10	11	12	10	8	64
2.0 - 2.5	3	3	4	7	4	6	10	9	46
2.5 - 3.0	2	3	1	4	3	2	6	8	29
3.0 - 3.5	0	3	2	3	4	4	3	8	27
	22	38	28	42	44	44	40	49	

(2) Robichaud's cove, August 23rd, 1943 - 225 feet of beach -
25 shovelsful taken at each station.

Size Range	I	II	III	IV	V	VI	VIII	VIII	IX	X
0.5 - 0.5	13	11	6	3	1	1	0	1	0	0
0.5 - 1.0	8	10	8	6	8	9	5	4	1	0
1.0 - 1.5	4	7	6	8	11	8	6	3	4	3
1.5 - 2.0	2	8	10	11	17	19	11	8	5	3
2.0 - 2.5	2	0	3	6	13	15	15	13	8	8
2.5 - 3.0	3	4	5	8	10	11	10	11	15	13
3.0 - 3.5	1	5	2	9	7	9	7	12	13	9
	33	45	40	49	67	72	54	52	46	36

(3) West side of Munro Island, August 24th, 1943 - 200 feet of beach -
25 shovelsful taken at each station

Size Range	I	II	III	LV	V	VI	VII	VIII	IX
0.0 - 0.5	15	10	5	5	2	0	1	2	2
0.5 - 1.0	7	11	8	10	9	7	4	7	3
1.0 - 1.5	7	5	7	9	10	12	8	6	3
1.5 - 2.0	2	4	7	10	17	19	16	10	6
2.0 - 2.5	0	0	5	8	12	15	17	12	14
2.5 - 3.0	1	2	2	4	9	7	11	13	18
3.0 - 3.5	0	1	4	2	4	3	1	4	5
	32	33	38	48	63	63	58	54	51

(4) Riseau Canot - July 20th, 1943 - 225 feet of beach - 15 shovelsful taken at each station.

Size Range	I	II	III	IV	V	VI	VII	VIII	IX	X
0.0 - 0.5 cm.	7	8	12	10	9	4	0	0	0	0
0.5 - 1.0	6	9	10	12	14	10	7	4	0	1
1.0 - 1.5	6	9	4	10	15	19	8	7	4	0
1.5 - 2.0	2	6	0	4	6	14	13	14	20	12
2.0 - 2.5	0	4	7	5	7	3	12	17	16	17
2.5 - 3.0	0	2	4	2	3	7	9	4	11	10
3.0 - 3.5	0	4	4	2	0	1	2	0	4	8
	21	42	41	45	54	58	51	46	55	48

(5) Riseau Canot - August 25th, 1943 - 200 feet of beach - 15 shovelsful taken at each station.

Size	I	II	III	IV	V	VI	VII	VIII	IX
0.0 - 0.5 cm.	8	10	8	7	5	0	1	0	1
0.5 - 1.0	9	6	8	12	10	9	3	2	4
1.0 - 1.5	5	9	7	10	14	18	8	6	3
1.5 - 2.0	4	5	8	4	9	10	17	12	8
2.0 - 2.5	2	6	3	0	7	11	10	12	9
2.5 - 3.0	1	0	2	4	7	4	4	3	9
3.0 - 3.5	0	1	0	2	3	7	8	4	6
	29	37	36	39	55	59	51	39	40

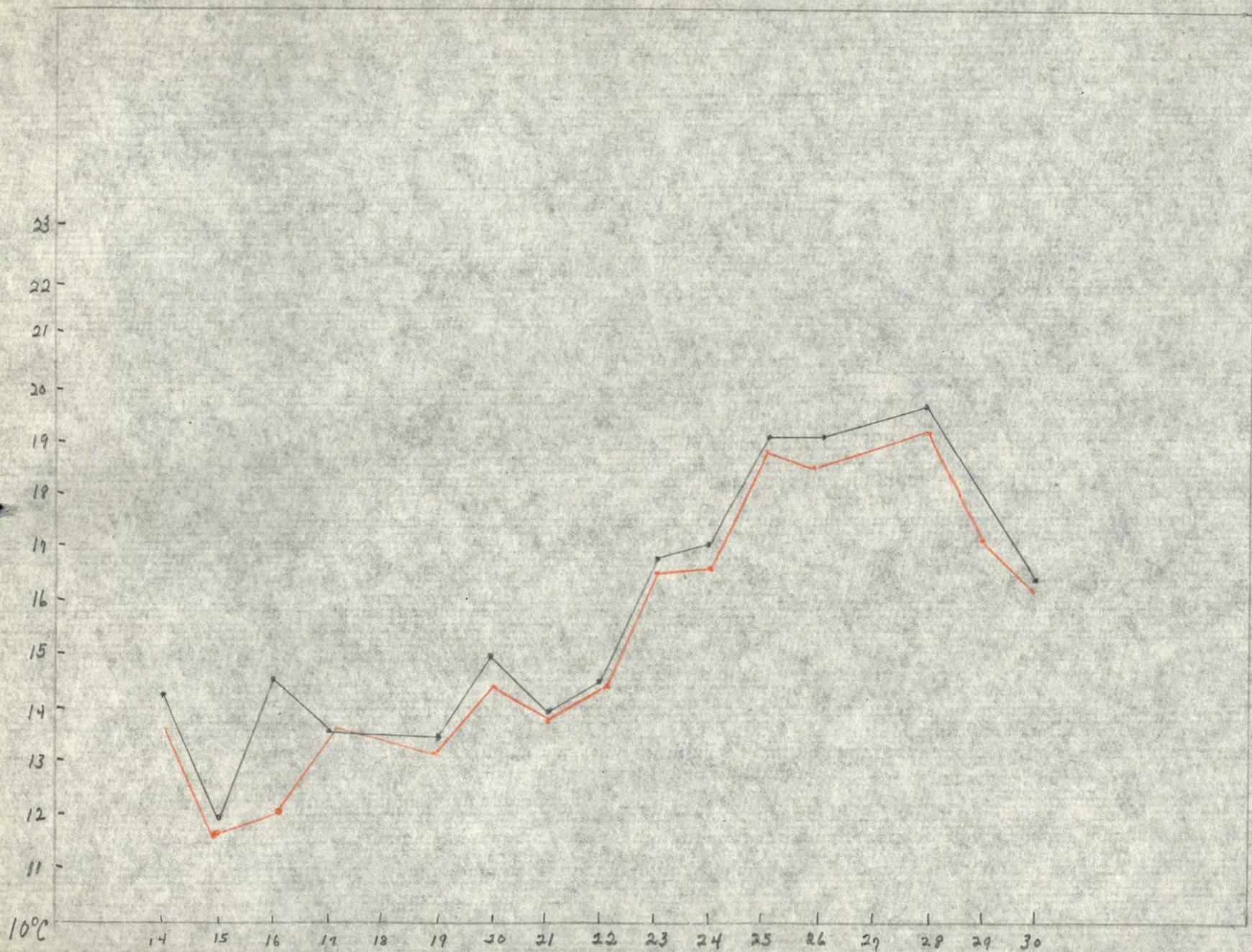
(6) South side of Munro Island - August 26th, 1943 - 275 feet of beach - 20 shovelsful taken at each station.

Size Range	I	II	III	IV	V	VI	VII	VIII	IX	X	XI
0.0 - 0.5 cm.	7	6	8	4	5	3	0	4	0	5	0
0.5 - 1.0	7	8	8	10	12	11	8	7	0	1	1
1.0 - 1.5	8	7	4	4	10	17	14	6	4	2	3
1.5 - 2.0	4	5	8	6	8	9	21	18	9	7	7
2.0 - 2.5	0	5	3	4	3	6	5	17	11	9	8
2.5 - 3.0	0	1	7	8	4	0	10	2	11	9	2
3.0 - 3.5	0	3	0	2	5	0	2	1	3	8	8
	26	35	38	38	47	46	60	55	38	41	29

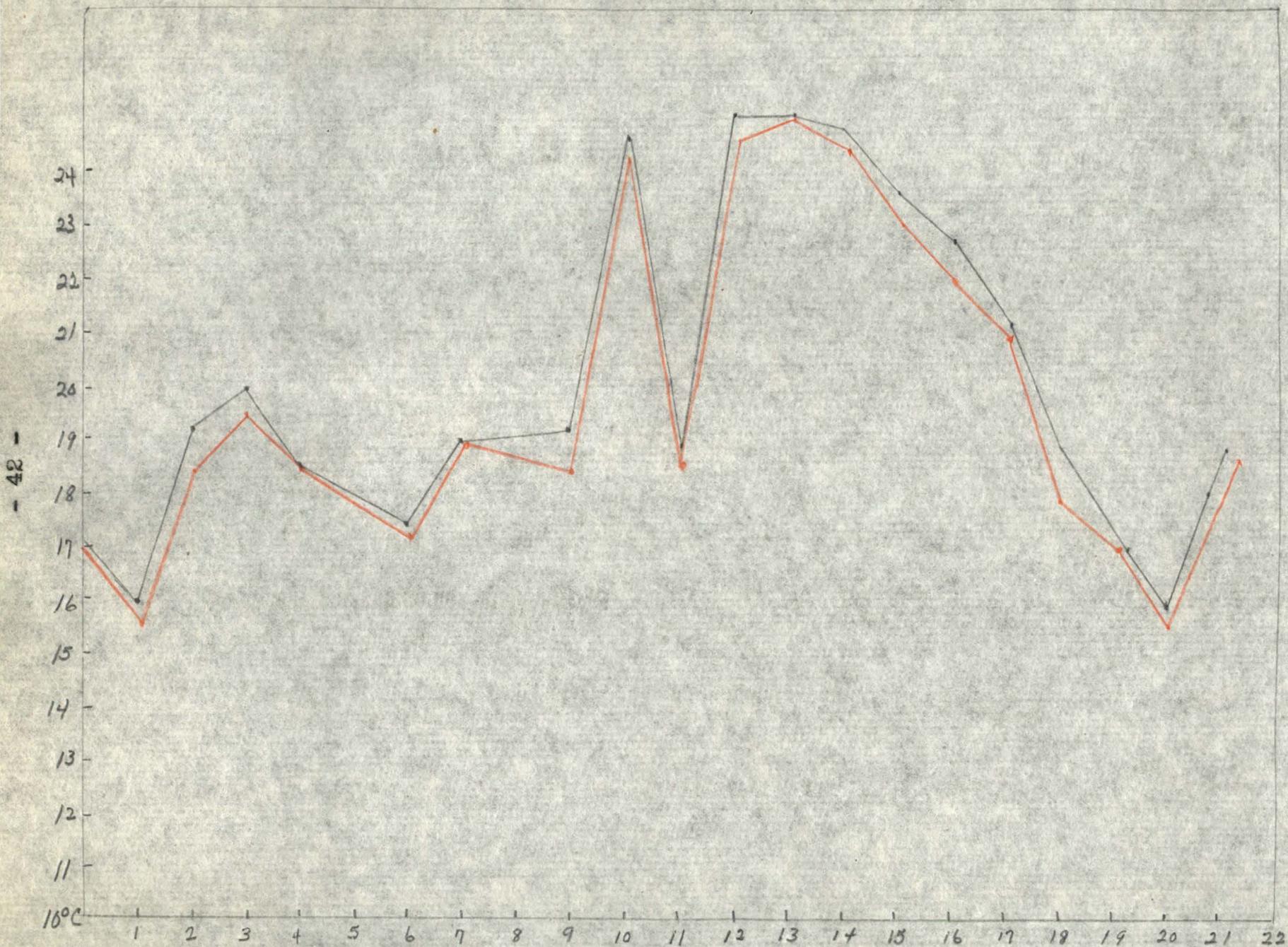
Conclusions

On looking at the foregoing tables, one may safely say that the area of maximum distribution is at the half tide level, although Table (1) presents an exception to this general statement. This may be due to the fact that in this instance only eight stations were used. If ten or even twelve stations had been available, the results might have fallen in agreement with the other sets of figures. On the whole, the plotting of Station vs Number forms a "cocked-hat" type of graph with the greatest numbers of clams occupying the V and VI Station positions. Moreover, it is significant that the higher levels of beach seem to contain the larger sizes of clams, whereas at low tide levels the average size is small. The half-tide levels have clams which are intermediate in size (on the average) between those of high-and low-tide levels.

This mode of distribution of small clams may well be correlated with ease of disposition and velocity of currents as well as other factors. The fact that the larger sizes are found at higher levels may be due to better feeding conditions and also to salinity conditions. It should be observed, however, that these results should not be applied loosely to the entire district, as they may apply only to the particular region of the district investigated, the South Branch of St. Simon Inlet.

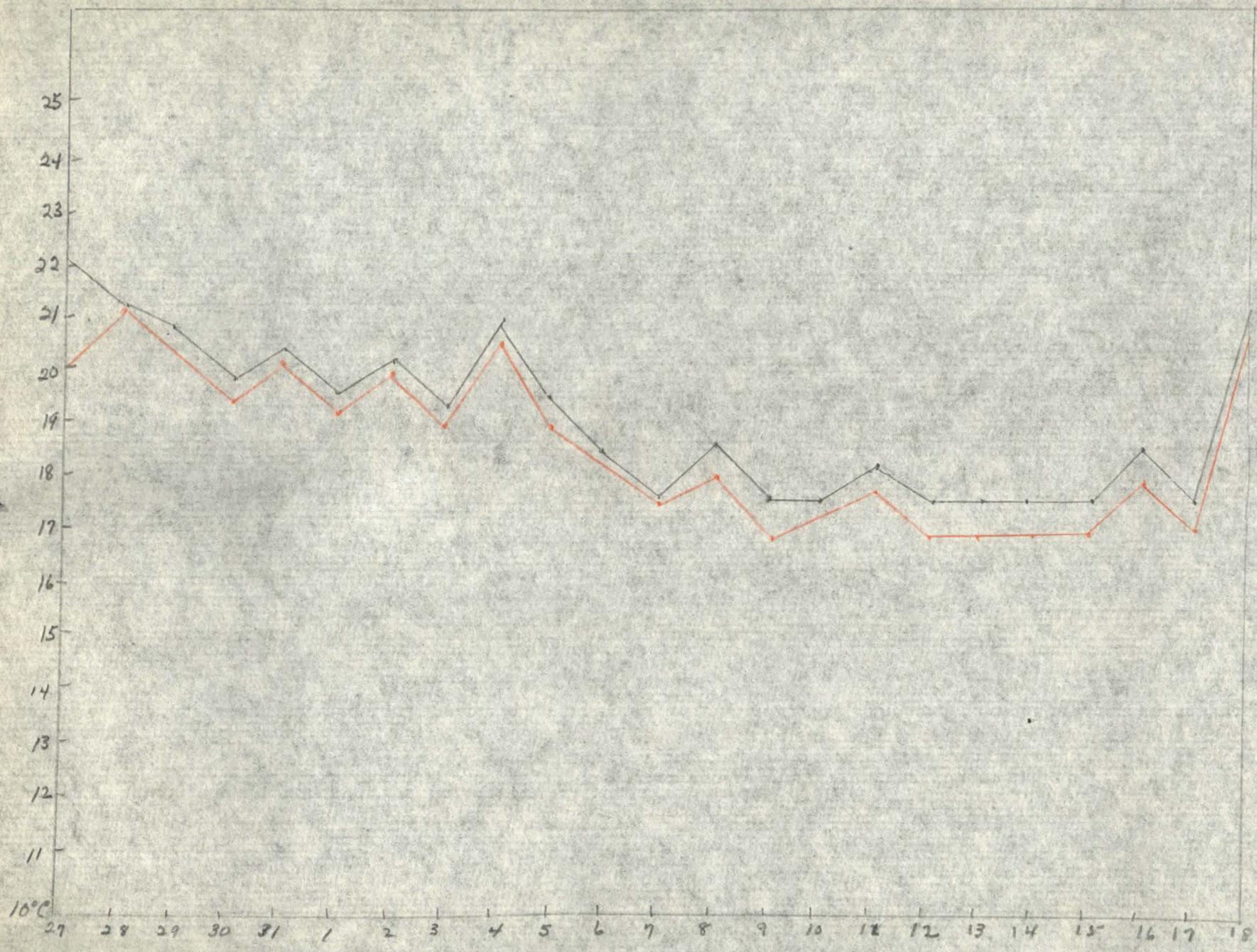


Temperature Curve - Temperature Station, Shippigan, N.E., for the Month of June



Temperature Curve - Temperature Station, Shippigan, N.B., for Month of July.

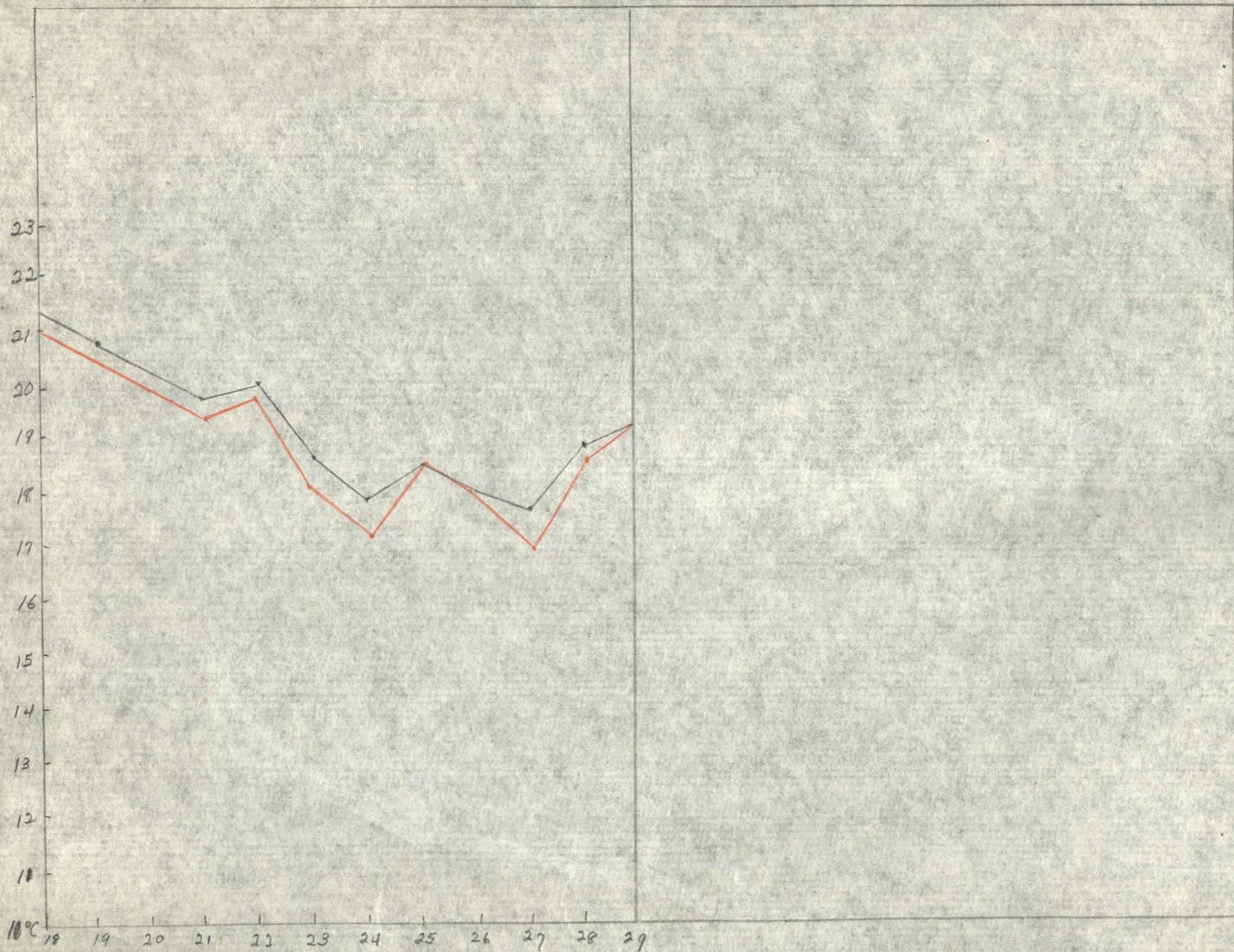
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July

August

Temperature Curve for July and August



Temperature Curve - Temperature Station, Shippigan, N.E., (latter part of August)