FISHERIES RESEARCH BOARD OF CANADA

MANUSCRIPT REPORTS OF THE BIOLOGICAL STATIONS

No. 180

Title

An analysis of surface water temperatures for the Atlantic coast of Canada for the year - 1937.

Author

H. B. Hachey.

An Analysis of Surface Water Temperatures for the Atlantic Coast of Canada for the year 1936

by

H. B. Hachey

ntroduction:

The taking of regular surface water temperatures on the Atlantic oast of Canada is being continued in six localities; St. Andrews, N. B., alifax, N. S., Halifax lightship, Entry Is. of the Magdalen group, St. ary's Is., and Mutton Bay on the north shore of the Gulf of St. Lawrence. f these, complete returns are received from St. Andrews, Halifax light- hip, Entry Is., and St. Mary's Is.

It is obvious that the extensive organization of previous years s new reduced to three of four key stations, representing the Bay of Fundy rea; the south coast of Nova Scotia; the central Gulf of St. Lawrence, and he northern Gulf of St. Lawrence. Arrangements have been completed for he taking of water temperatures in the Chaleur Bay region.

)ata:

The available average daily temperatures for the various points of observation are furnished in appended tables. The monthly mean tempera- ures have been calculated, when possible, for each station. These means re furnished in table 1. In table 2, the period with water temperatures bove ten degrees is given for each station, where possible. This period s determined by the date at which the daily average water temperature ttains a permanent value of 10° C, or higher, and the date at which the daily average water temperature attains a permanent autumn value of less than 10° C.

General Observations:

The comparatively mild winter of 1936-37 was reflected in the monthly means of the winter months, which were generally higher than normal at points relatively free from ice. The summer surface water temperatures in the Bay of Fundy were also exceptionally high, with the highest monthly mean of the period 1921-1937 recorded for May, June, and August. On the south coast of Nova Scotia, however, summer suface water temperatures, with the exception of those for July, were either normal or less than normal. July temperatures in Halifax harbour were well above normal, and the July mean was the highest recorded for the period 1926-37. In the Gulf of St. Lawrence, monthly mean surface water temperatures were either normal or less than normal, but in the region of Belle Isle Strait, the monthly means of June and July are the highest on record for the period 1930-37. August temperatures were somewhat higher than normal

The September mean water temperature for St. Andrews was the high- est of the seventeen year period 1921-1937, and mean temperatures were slightly above normal to the end of the year. At other points the monthly mean water temperatures were approximately normal.

TABLE 1.

nth	St. Andrews	Halifax	Halifax Lightship	Entry Is.	St. Mary's Island	Mutton Bay
an.	2.6	?		---	-1.7	
eb.	1.3	?	0.9	---	-1.5	
ar.	1.5	?	2.1	---	-1.3	
pr.	4.1	?	2.5	---	-0.4	
lay	8.1	?	5.5	5.0	3.3	
un.	10.3	11.1?	11.4	9.5	7.7	
ul.	12.6	17.3?	16.3	15.5	13.0	
ug.	14.4	17.9?	15.6	18.3	12.0	
ep.	13.5	14.2?	14.5	15.5	10.8	
ct.	10.8	11.7?	12.1	9.6	6.5	
ov.	8.0	7.4?	8.1	---	3.0	
ec.	4.6	4.9?	4.6	---	0.1	
EAN	7.7				4.3	
IN. MON. EAN	1.3		0.9		-1.7	
AX. MON. EAN	14.4		16.3	18.3	13.0	
ANNUAL VARIATION	11.1		15.4		14.7	

TABLE 2

Station	Date at which a permanent summer temperature of 10° C or greater was reached.	Date at which a permanent fall temperature of less than 10°C was reached
St. Andrews	June 18th	Nov. 1st.
Halifax	after May 26th	Nov. 1st.
Halifax Lightship	June 7th	Nov. 10th.
Entry Is.	June 24th.	Oct. 11th.
St. Mary's Is.	July 1st.	Sept. 27th.
Mutton Bay	June 26th.	Sept. 28th.

FISHERIES RESEARCH BOARD OF CANADA

DAILY AND MONTHLY MEAN WATER TEMPERATURES

ATLANTIC COAST OF CANADA

STE ANDREWS, 1937

TE	JAN.	FEB.	MAR.	APR.	MAY	JUN.	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.
1	3.6	1.7	1.1	1.9	6.2	11.2	11.0	13.2	14.4	12.1	9.1	5.9
2	3.1	1.2	1.6	2.5	6.3	11.2	11.3	13.1	14.9	11.8	9.5	6.0
3	3.1	1.6	1.4	2.5	6.8	9.3	12.3	12.8	15.3	13.4	9.4	5.8
4	2.8	1.4	1.5	2.4	6.7	9.4	11.4	13.8	15.4	11.6	8.8	6.1
5	3.2	1.3	1.5	3.0	6.7	10.1	11.8	13.9	13.7	12.0	8.8	6.0
6	2.8	0.9	1.0	2.9	6.6	9.8	12.0	14.3	13.9	12.1	9.3	5.9
7	2.3	1.1	0.6	3.2	6.6	9.8	12.2	14.0	13.7	12.3	8.2	6.5
8	3.0	1.2	0.9	3.4	7.1	9.4	12.1	13.9	13.6	11.4	8.9	5.9
9	3.2	1.5	1.6	2.9	7.4	10.0	12.5	14.3	13.2	11.0	9.1	5.5
0	2.4	1.6	1.0	2.9	6.9	9.1	12.6	13.9	13.2	11.0	8.4	5.8
1	2.7	0.9	0.8	3.0	6.9	10.0	11.7	14.5	13.2	10.9	7.3	4.5
2	3.0	0.8	0.9	3.1	7.2	9.3	11.6	-----	14.1	10.6	7.9	4.9
3	2.6	1.3	1.0	3.5	7.1	9.6	11.3	15.0	14.1	10.6	8.4	4.4
4	3.3	1.6	1.2	3.7	6.6	9.1	11.7	15.7	14.3	10.3	8.4	4.8
5	3.3	1.7	1.5	3.4	6.4	9.2	12.3	15.9	13.8	10.0	8.2	4.5
6	2.5	1.3	1.7	4.0	7.1	10.3	11.0	15.5	13.5	9.7	8.0	4.7
7	2.0	1.2	1.7	3.8	8.0	10.1	12.1	15.7	14.2	9.7	8.0	4.9
8	3.3	1.0	1.6	3.8	7.5	9.5	14.3	15.6	14.0	10.1	7.9	4.8
9	2.6	1.6	1.8	4.1	8.9	10.3	13.6	14.9	13.4	10.3	7.6	4.7
0	2.7	1.7	2.1	4.6	8.0	11.4	13.8	15.4	12.9	10.5	7.4	4.6
1	2.6	1.4	2.1	4.4	9.2	10.4	13.6	15.1	12.6	10.5	7.2	4.1
2	2.4	1.4	2.0	4.1	10.5	11.1	14.3	14.8	12.6	10.3	7.1	4.2
3	2.2	1.4	1.6	3.8	10.1	11.3	14.4	13.5	12.7	10.3	7.0	4.0
4	2.1	1.6	1.6	4.3	10.5	11.0	13.7	13.8	12.8	10.1	7.2	3.9
5	2.5	1.5	1.4	4.6	10.3	10.9	13.9	13.8	12.8	10.2	7.0	4.4
6	2.2	1.4	1.6	5.4	9.2	10.9	13.2	14.1	13.0	10.2	6.8	5.5
7	1.6	1.2	1.9	5.6	8.3	11.2	12.9	14.2	12.8	10.3	7.4	5.9
8	1.7	0.7	1.8	6.2	10.5	11.5	13.9	14.3	12.2	10.3	7.2	5.9
9	1.7		1.6	5.5	10.2	11.0	13.6	14.9	12.2	10.5	7.5	5.9
0	1.4		2.3	5.8	10.0	11.0	13.6	14.2	12.3	10.0	6.4	3.4
1	1.6		3.1		10.9		13.0	14.0		10.6		2.2
n	2.6	1.3	1.5	4.1	8.1	10.3	13.6	14.4	13.5	10.8	8.0	4.6

FISHERIES RESEARCH BOARD OF CANADA

DAILY AND MONTHLY MEAN WATER TEMPERATURES

ATLANTIC COAST OF CANADA

ENTRY IS., 1937

DATE	JAN.	FEB.	MAR.	APR.	MAY	JUN.	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.
1					3.8	8.1	12.1	18.4	18.0	12.3		
2					4.0	8.5	12.9	18.9	18.5	11.9		
3					4.5	8.5	13.0	19.3	18.8	10.6		
4					4.8	8.8	13.8	18.8	18.5	10.8		
5					4.5	8.1	14.0	18.8	16.5	11.5		
6					5.4	8.0	13.3	18.6	17.3	12.0		
7					4.6	8.0	14.4	19.4	17.1	12.1		
8					4.8	7.8	14.0	19.1	15.0	10.8		
9					3.9	8.1	14.1	20.4	15.3	10.1		
10					4.3	9.0	15.0	20.0	15.6	10.5		
11					4.0	8.4	15.4	19.5	15.9	9.1		
12					5.3	8.8	16.3	19.6	15.9	9.8		
13					3.9	9.0	15.9	17.6	14.5	9.6		
14					4.0	9.0	16.1	17.3	15.6	9.3		
15					3.9	8.5	16.1	19.3	15.8	8.9		
16					3.9	9.5	15.0	19.0	15.5	7.3		
17					4.3	9.8	13.4	19.3	16.0	8.6		
18					3.9	9.5	14.6	19.1	15.9	8.3		
19					5.0	9.9	15.8	19.3	16.0	8.6		
20					4.9	10.0	16.9	19.0	15.1	8.8		
21					5.0	9.9	16.3	18.9	13.6	8.6		
22					5.5	9.4	15.9	18.3	13.9	8.9		
23					6.5	9.0	16.0	18.1	14.5	8.8		
24					6.0	10.1	15.3	18.4	14.4	9.4		
25					5.0	10.6	16.4	18.8	14.4	9.1		
26					5.9	11.3	17.5	18.8	13.8	8.5		
27					5.8	12.1	17.1	18.8	13.8	8.9		
28					5.5	11.5	17.0	19.5	13.3	8.9		
29					6.4	12.8	18.5	18.9	12.9	9.0		
30					7.6	12.4	18.8	19.3	12.6	8.8		
31					9.0		18.3	18.1		7.9		
Mean					5.0	9.5	15.5	18.8	15.5	9.6		

FISHERIES RESEARCH BOARD OF CANADA

DAILY AND MONTHLY MEAN WATER TEMPERATURES

ATLANTIC COAST OF CANADA

STE MARY'S IS., 1937

'E	JAN.	FEB.	MAR.	APR.	MAY	JUN.	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.
1	-1.1	-1.5	-1.5	-1.0	0.7	6.5	10.4	15.1	11.7	8.2	4.7	2.1
2	-1.6	-1.3	-1.4	-0.9	0.8	6.6	12.6	14.9	13.4	8.2	4.4	1.4
3	-1.6	-1.4	-1.3	-0.9	0.8	6.8	11.8	15.2	13.1	6.0	4.3	-0.2
4	-1.1	-1.5	-1.3	-1.0	1.1	6.8	12.8	15.4	12.9	5.6	4.0	0.2
5	-1.3	-1.6	-1.3	-1.0	1.8	7.1	13.9	15.5	12.5	6.5	3.9	0.8
6	-1.4	-1.5	-1.4	-0.9	1.7	7.7	14.7	14.8	12.5	8.6	4.0	1.4
7	-1.6	-1.4	-1.3	-0.3	1.8	6.6	13.8	13.9	12.8	9.6	3.7	2.1
8	-1.7	-1.1	-1.5	-0.2	1.8	6.7	11.4	14.0	11.7	9.0	3.6	1.8
9	-1.7	-0.5	-1.3	-0.2	2.2	6.8	11.7	14.8	11.0	7.1	3.4	1.8
0	-1.7	-1.6	-1.4	-0.3	3.0	6.9	12.3	15.9	9.2	6.3	3.1	1.7
1	-1.8	-1.6	-1.5	-0.2	3.9	7.4	13.6	14.8	10.8	6.4	2.8	-0.4
2	-1.4	-1.7	-1.5	-0.4	3.2	7.6	14.1	15.0	9.6	6.0	2.4	0.1
3	-1.7	-1.6	-1.4	-0.2	3.7	7.6	13.1	15.3	9.5	5.9	2.4	0.5
4	-1.7	-1.5	-1.5	+0.1	3.3	7.5	13.2	15.5	10.7	6.2	2.5	0.9
5	-1.2	-1.6	-1.5	0.5	3.1	7.5	12.7	9.8	10.5	5.6	3.2	0.8
6	-1.6	-1.6	-1.5	0.3	3.7	7.4	12.9	9.6	10.3	4.8	3.4	0.1
7	-1.7	-1.6	-1.4	-0.2	2.5	8.2	13.2	9.8	10.6	5.8	3.8	0.3
8	-1.6	-1.6	-1.4	-0.1	2.7	8.7	13.3	8.7	10.8	5.4	4.1	0.0
9	-1.5	-1.6	-1.5	-0.4	2.8	9.5	13.3	8.4	10.3	5.8	3.7	-0.3
20	-1.7	-1.5	-1.5	-0.1	3.1	7.0	13.5	6.6	10.3	5.9	3.3	-0.4
21	-1.7	-1.5	-1.3	-0.7	3.0	9.2	13.8	8.6	10.2	6.1	3.5	-1.3
22	-1.6	-1.4	-1.1	-0.7	3.8	6.8	11.9	6.6	10.7	6.3	3.2	-1.1
23	-1.7	-1.5	-1.1	-0.6	4.3	8.0	12.2	7.6	10.6	6.0	2.5	-1.0
24	-1.7	-1.4	-1.3	-1.1	4.5	8.1	11.9	9.6	10.3	6.0	0.4	-0.4
25	-1.7	-1.4	-1.2	-0.4	4.7	8.5	11.5	9.7	10.2	6.4	0.8	-0.7
26	-1.6	-1.5	-1.3	-0.6	5.4	8.7	12.6	10.4	10.1	6.1	1.4	-1.4
27	-1.7	-1.5	-1.3	-0.4	5.7	8.6	13.6	12.1	9.6	5.7	2.4	-1.5
28	-1.7	-1.6	-1.1	0.5	5.6	9.0	13.9	11.9	9.3	6.2	1.6	-1.4
29	-1.6		-1.2	0.4	5.7	8.8	14.0	10.6	9.3	6.4	2.1	-1.2
30	-1.5		-1.1	0.5	6.3	9.2	14.4	10.4	9.2	6.8	2.5	-1.6
31	-1.6		-0.9		7.0		15.7	11.1		5.8		-1.4
an	-1.7	-1.5	-1.3	-0.4	3.3	7.7	13.0	12.0	10.8	6.5	3.0	0.1

FISHERIES RESEARCH BOARD OF CANADA

DAILY AND MONTHLY MEAN WATER TEMPERATURES

ATLANTIC COAST OF CANADA

MUTTON BAY 1937

E	JAN.	FEB.	MAR.	APR.	MAY	JUN.	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.
.							12.0	14.0	12.8			
2							12.8	15.3	13.0			
3							14.0	15.9	12.4			
4							14.5	15.8	13.5			
5							14.5	14.0	12.5			
6							15.5	15.3	12.3			
7							14.6	15.5	11.8			
8							13.6	15.0	10.8			
9							13.0	16.9	10.3			
0							11.5	15.8	10.5			
1							12.5	14.8	11.0			
2							13.5	15.0	11.1			
3							14.0	14.9	11.0			
4							14.8	13.8	9.9			
5							15.1	14.0	11.3			
6							14.5	16.3	11.0			
7							14.5	13.8	11.1			
8							13.3	11.3	11.9			
							14.5	11.8	11.0			
						9.8	15.1	10.3	10.4			
						9.8	15.9	8.5	10.3			
						9.8	14.5	9.5	9.5			
3						9.5	15.0	10.1	10.0			
4						9.3	13.3	10.1	9.5			
5						9.5	13.5	9.0	10.3			
6						11.0	13.8	9.3	9.9			
7						11.8	11.0	10.5	10.3			
8						11.8	13.0	10.8	9.5			
9						12.1	15.0	9.8	9.6			
0						11.5	15.0	10.3	9.5			
1							15.0	11.0				
n							14.0	12.9	10.9			