

MIGRATION OF *Salvelinus fontinalis* IN RELATION TO THE DATE OF SPRING THAW (ICE-OUT) OF EIGHT ISLAND LAKE, GUYSBOROUGH COUNTY, NOVA SCOTIA*

S.G. WHITEWAY† and A.W. McCULLOCH
20, Day Avenue, Dartmouth, Nova Scotia, B2W 2V6

In the period 1965-1992 the mean difference in days between the spring thaw ("ice-out") of Eight Island Lake in Guysborough County, Nova Scotia and the first catch, by sport fishermen, of *Salvelinus fontinalis* was 11.5 ± 2.7 , despite the spread of ice-out during the same years, over a period of 43 days (March 24 - May 6).

Pendant la période de 1965 à 1992, la différence moyenne entre le dégel printannier (ice-out) du Lac Eight Island du comté Guysborough en Nouvelle-Ecosse et la première prise de *Salvelinus fontinalis* était 11.5 ± 2.7 jours, malgré l'écart du dégel pendant les mêmes années à travers une période de 43 jours (du 24 mars au 6 mai).

Salvelinus fontinalis, hereinafter called "sea trout" to distinguish fish that had migrated to salt water, is an anadromous char which spawns in fresh water like other salmonids (Livingstone, 1951). In this species spawning usually occurs in the fall. Unlike *Salmo salar* these fish do not forage into the ocean and populations of the various river/bay systems tend to remain separate. Thus rivers have characteristic periods for the annual return of sea trout.

This paper presents data gathered since 1965 on the run of sea trout up the Country Harbour River, Guysborough County and its relation to the times of ice-out of Eight Island Lake ($45^{\circ} 20'N$, $61^{\circ} 57'W$; Alexander et al., 1986).

Details of the catch of all trout made from two fishing camps have been recorded since 1965. Fishermen used a variety of lures, bait etc. and the fishing started when the lake cleared of ice or the legal fishing season began - whichever was later. There are gaps in the data, partly due to bad weather and the absence of early fishing trips

The data are collected in Table I

Table I Dates of ice-out and the first catch of sea trout (*Salvelinus fontinalis*)

Year	Date	
	Ice-out	First catch
1965	May 1	May 15
1967	May 6	May 19
1968	April 7	April 20
1969	?	April 19
1973	April 21	May 3
1975	May 3	May 11
1976	March 24	?
1977	April 27	?
1981	March 28	April 11
1983	April 6	April 16
1986	April 7	April 18
1987	April 18	?
1990	April 15	April 19
1991	April 28	May 9
1992	May 2	May 15

* Dedicated to the memory of Walter J. Chute

† Author to whom correspondence should be addressed

In general the fish caught were about 30 cm in length (largest recorded 40 cm). They were slim, silvery sided with very pink flesh (some trout caught were not - presumably they had been in the lake over the winter and they are not included in the Table).

The ice cleared from the lake usually in a matter of hours and its timing was therefore more precise than the date of the run of the first sea trout. Nevertheless the mean value of this time interval is about 11.5 days with a standard deviation of less than 3 days, this despite the fact that the onset of the run was unlikely to be detected in all years. By contrast the date of ice-out was more variable and over the 27 years this varied from March 24 to May 6.

This early migration of *S. fontinalis*, 16 Km up the Country Harbour River may be compared to the July (anecdotal among sport fishermen) migration of the species up the Musquodoboit River, also draining into the Atlantic Ocean and June and July migration up the Dunk River in Prince Edward Island (Johnston and McKenna, 1976). It seems possible that this early migration reflects a survival strategy related to the shallow depth of the Country Harbour River and the small streams that drain into Eight Island Lake from lakes higher in the watershed. By contrast, the Musquodoboit River is deeper, and the Dunk River is shorter and close connected to salt water.

The factors that stimulate this migration are unknown but it seems unlikely to be due to light intensity since the onset of the run is seasonably variable. A more plausible factor might be the water temperature since this is probably higher earlier in the season in this shallow river as compared e.g. to the Musquodoboit.

References

- Alexander, D.R., Kerekes, J.J. and Sabean, B.C. 1986. Description of selected lake characteristics and occurrence of fish species in 781 Nova Scotia lakes. *Proc. Nova Scotian Inst. Sci.*, 36: 63-106.
- Johnston, C.E. and McKenna, K. 1976. Fecundity of brook trout (*Salvelinus fontinalis*) from a coastal stream in Prince Edward Island. *Proc. Nova Scotian Inst. Sci.*, 27: 160-170.
- Livingstone, D.A. 1951. The fresh water fishes of Nova Scotia. *Proc. Nova Scotian Inst. Sci.*, 23: 1-90.

(Received 20 May 1993)