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Title

VARIATION IN SIZE OF SOCKEYE SALMON EGGS DURING DEVELOPMENT

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Variation in size of Sockeye salmon eggs during development.

by

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At the request of the Department of Fisheries, a study of the above problem was made at Cultus lake during the 1932-33 season.

Procedure

Two methods of measuring the eggs at certain periods were made.

One was that commonly used in hatchery practice and consisted in counting the number of eggs per ounce in a series of one or more ounce samples, calculating the number per quart and using this latter figure when measuring into the hatchery baskets the season's collection of eggs.

The other followed the procedure adopted by VOn Bayer, 1908 (H. von Bayer, C.E., A method of measuring fish eggs, U.S. Bureau of Fisheries Document No. 703, April, 1910) whereby by measuring a certain number (20) of eggs in a trough, the average diameter of an egg can be ascertained and the total number per quart calculated.

Results

The results of the measurements are recorded in the accompanying table.

By the first method it was found on November 24, 1932 from a series of 10 measurements and counts that one ounce contained an average of 196.8 eggs, by calculation, one imperial quart contained 7872 eggs. By similar methods on April 3rd, 1933 one ounce contained 181.7 eggs and one quart 7508 eggs. The difference only 9 eggs per ounce but 364 per quart, indicated roughly that during the 4 month period the eggs had increased slightly in size to an

extent where one quart contained only 7508 eggs instead of 7872. It will be noted that measurements by this means were taken only at the beginning and end of the season.

In following the second procedure, 50 measurements were made at stated periods of the length of a row of 30 eggs in the trough and by division the diameter of a single egg obtained. From a table published by Von Bayer the number of eggs per imperial quart was calculated. On November 24, 1932 the diameter of one egg was found to be 5.84 mm. or 0.230 inches but during the remainder of the season varied around 5.77 mm. or 0.227 inches. The latter variations are quite within the limits of probable error due to sampling and would indicate that no degree of increase or decrease in size of egg resulted. The initial difference may be attributable to a change in technique since the writer conducted the first tests and Mr. Ricker continued the work during the season.

Conclusion

The tests by the general hatchery method indicate a variation in number of eggs per quart amounting to 364 eggs but it is doubtful whether the difference can be considered significant.

The results of the more accurate egg diameter measurements demonstrate that but slight variation exists and this of no general significance.

It is suggested that these tests be repeated this season at Cultus lake, if convenient to confirm the data at hand.

Date	Diameter of a single egg		Calculated	Counted	Calculated
	mm.	inches	no. per qt.	per g.	per qt.
Nov. 24	5.84 ± 0.0144	0.230	6952	196.8	7872
Dec. 6	5.77 ± 0.009	0.227	7231		
Dec. 14	5.73 ± 0.0086	0.226	7367		
Dec. 20	5.77 ± 0.0102	0.227	7231		
Jan. 13	5.73 ± 0.0092	0.226	7367		
Jan. 25	5.77 ± 0.018	0.227	7231		
Feb. 11	5.78 ± 0.0058	0.2275	7184		
March 2	5.78 ± 0.0081	0.2275	7184		
April 3	5.77 ± 0.0128	0.227	7231	187.7	7508