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REPORT ON THE EXAMINATION OF RAZOR CLAMS FROM NORTH BEACH,  
QUEEN CHARLOTTE ISLANDS, 1932

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FISHERIES RESEARCH BOARD  
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For some years, clam canners on the Queen Charlotte islands have noticed that at certain seasons, some of the clams lose their fatty, white appearance, becoming very thin and dark in colour. This reduction of weight and darkening greatly lessen the quality of the pack.

McMillin (1924) has reported a similar condition occurring in clams from beaches in Washington. This author states that when the clams are considered white and fat, they are nearly "ripe". The intestine at this time is embedded in the well-developed ovaries and testes. After spawning, when the sex products are gone, the intestine, which is black, is loose in the mantle cavity, and the body is very thin so that "the shells sounded hollow as they rattled down the screens of the weigh shed". The object of the investigation this year was to determine, if possible, the cause of the similar condition reported for clams on the Queen Charlotte islands.

During the spring of 1932, Mr. E.S. Richardson, the fishery inspector, provided the following samples of live clams, dug at random from the beach:

April 21 - 20; May 5 - 12; May 7 - 26; May 14 - 19; May 19 - 14;  
May 24 - 24; and May 27 - 23.

All of these were opened immediately and examined closely. The following table is a summary of the findings.

Date	No. of males	No. of females	No. of im- matures	Length range in inches	Remarks
Apr. 21	7	12	1	2 11/16 - 6 3/16	Ovaries and testes contain well-developed eggs and sperms, which do not break away readily from the tissues.
May 5	7	5		3 1/4 - 5	Eight classed as fat, four as medium in condition. Eggs and sperms only slightly looser than those of April 21.
May 7	13	12		4 1/2 - 5 1/2	Sixteen classed as fat, six as medium, and four as thin and black. In the latter, the ovary and testis were considerably smaller than the fat ones of the same length. Spawning in these four cases at least is no doubt partially completed.
May 14	12	7		3 3/4 - 5	Five were classed as fat, and fourteen as medium. Considered as a whole, the sex products are looser and the gonads more milky than before. Little spawning has gone on because the foot is still quite large.

Date	No. of males	No. of females	No. of im- matures	Length range in inches	Remarks
May 19	7	7		4 1/4 - 5 1/2	Classed as six, fat, seven medium, and one thin. In these, the eggs and sperms are very loose. The testis is beginning to take on a creamy yellow colour. From the size, spawning is not far advanced, except in the thin one.
May 24	15	9		4 1/8 - 5 7/8	Classed as one, fat, thirteen, medium, and ten thin. In all cases, many of the eggs and sperms are loose. Here there is definite indication in some of the thin ones that partial spawning has taken place. Ovaries and testes are assuming a rich colour.
May 27	11	11	1 (Male?)	2 3/4 - 5 1/8	Classed as two, medium and twenty-one, thin. There is absolutely no doubt in this case that spawning has started, majority being partially spawned. The sperms are very motile, and the gonads much reduced in size.

If, as McMillin suggests, the dark colour is due to the black intestine lying loose in the mantle cavity, after spawning is completed, our material was not taken at a date late enough to enable us to establish any correlation. No decision can be reached regarding the blackening observed earlier in the season, since no material could be examined at the time of its occurrence.

From our samples, we can safely conclude that blackening did not occur in connection with the development of the gonads and the inception of spawning.

It is interesting to note that in only two cases was it impossible to discover the gonads and distinguish sex. These individuals were  $2 \frac{11}{16}$  and  $2 \frac{3}{4}$  inches in length. All clams over three inches long, were apparently preparing to spawn.

Apparently some factor, probably temperature, is influencing greatly the time of spawning. Fraser (1930) reports that clams were partially spawned early in July, 1928. Our examination of this year's samples showed that eggs and sperms were being deposited on May 27.

In continuance of this year's work, it would be advisable during the spring of 1933 to have samples taken after spawning, and to stress to a greater extent the examination of the blackened individuals. This should give definite data on the actual cause of the condition.