

BIOLOGICAL BOARD OF CANADA

MANUSCRIPT REPORTS OF THE BIOLOGICAL STATIONS

No. 83H

Title

Sex Reversal in *Ostrea virginica*

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1937

SEX REVERSAL IN OSTREA VIRGINICA

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Report for 1937

In 1937 experiments were continued on the effect of crowding on sex change in oysters. These experiments were started in 1935 when a number of oysters were suspended in individual wire baskets and others were crowded together in bigger wire baskets. Several of these baskets were lost during the winter so that the results were worthless. In 1934 the experiments were repeated and some of the baskets of crowded oysters contained mussels as well as oysters. The oysters were of known sex and baskets only contained oysters of one sex. In 1935 it was found that there was very little difference in sex ratios between oysters kept individually and those crowded in baskets without mussels. The baskets containing mussels had a slightly lower proportion of males.

The experiments were repeated over the season 1935-36 except that quahaugs were used instead of mussels. In addition a number of young oysters, undrilled and therefore of unknown sex, were similarly disposed. The sex ratios among the drilled oysters were similar in 1936 to those found in 1935, that is, similar ratios among those kept individually and those crowded with quahaugs. But the undrilled oysters showed quite different results. There was a much higher proportion of females among those kept in baskets and, in the baskets, a slightly greater proportion of females among those mixed with quahaugs. As the sexes were, of necessity, mixed in the baskets of undrilled oysters it was thought that these results indicated that the close

proximity of oysters of opposite sexes might influence the change of sex.

Over the winter of 1936-37 the drilled oysters from previous experiments were again arranged in individual and other baskets but the sexes were not separated. The following table summarizes the results of this experiment.

Table I. Effect of crowding on older oysters.

	<u>Number of oysters</u>	<u>% male in 1937</u>	<u>% female in 1937</u>
Oysters suspended individually	77	42	58
Oysters in baskets, no quahaugs	33	70	30
Oysters in baskets with quahaugs	77	45	55

Here it appears that there was very little difference between the oysters kept individually and those kept in baskets with quahaugs, but a high proportion of males in the baskets without quahaugs. It must be noted, however, that much fewer oysters were kept crowded without quahaugs than in either of the other two ways.

Also over the winter of 1936-37 a number of undrilled oysters were kept in baskets. These were all 1+ years old, over 2" long and had been kept in a floating tray all summer. Of these 100 were put in a basket with 50 quahaugs, 100 were more closely crowded in another basket and 99 were suspended in individual baskets. Ten of those crowded with quahaugs and three of those in the basket without quahaugs died and some of the individual baskets were lost. The following table summarizes the sex ratios of the remainder of 1937:

Table II. Effect of crowding on young oysters.

	<u>Number of oysters</u>	<u>% male in 1937</u>	<u>% female in 1937</u>
Oysters suspended individually	87	43	57
Oysters in baskets, no quahaugs	97	45	55
Oysters in baskets with quahaugs	90	53	47

Here another variation appears. The oysters kept individually and those crowded without quahaugs behaved similarly but there was a higher proportion of males among those crowded with quahaugs.

It now seems that there is so much variation in the behaviour of oysters kept in the three different ways that crowding probably has little influence. Certainly the results obtained in 1937 did not support those of 1936. Still it is desirable to have a further check so a number of undrilled oysters are again being kept much as before over the winter of 1937-38.

