FISHERIES RESEARCH BOARD OF CANADA

MANUSCRIPT REPORTS OF THE BIOLOGICAL STATIONS

No. 473A

Title

Preliminary Report of the Scallop Investigation at Digby, Nova Scotia, Summer of 1939

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1952

PRELIMINARY REPORT

OF

THE SCALLOP INVESTIGATION

AT

DIGBY, NOVA SCOTIA

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by

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SUMMARY OF PROCEDURE RE SCALLOP INVESTIGATION IN DIGBY AREA DURING THE SUMMER OF 1939

INTRODUCTION

During the summers of 1933, 1934, 1935 and 1936 the work was carried out by the late J. A. Stevenson under the direction of the Atlantic Biological Station. During those periods Mr. Stevenson obtained much first-hand information concerning both the life and habits of the scallop (Placopecten grandis) and the methods used by the fishermen in catching and marketing these mollusks.

His findings are set forth in the Manuscript Reports of the Biological Stations, No. 347, 363 and 121.

For a period of two years after Mr. Stevanson's untimely death by drowning the work was abandoned, but this year, 1939, it was again taken up in the Digby area.

METHODS

During the month of June and the first week in July the author was stationed at the Biological Station at St. Andrews during which time he familiarized himself with Mr. Stevenson's work and examined numerous publications concerning investigations in related subjects. Methods of investigating various characteristics of related mollusks were examined to see if they could be profitably applied in the case of the scallop, (Placopecten grandis - Solander).

Early in July the author was stationed at Digby, N.S., which is the center of the formerly great scallop industry in the Bay of Fundy.

Routine procedures while at Digby were the periodic taking of water temperatures and plankton tows. As the author was entirely new to the work and had had no previous knowledge of planktonic forms, no significant information could be obtained from microscopic examination on the spot. Later studies of the material during the winter may prove enlightening.

During the months of July and August the services of the F.P.B. "Capelin" were secured on three occasions. Planktonic samples were taken at various points in the Bay of Fundy, notably in a line due north of Point Prim. Water temperatures were also taken at these points. On each of these trips a commercial scallop drag was used to obtain samples of the scallops on the different beds. As the

"Capelin" has no winch for hauling the drag had to be raised by hand and this proved a very strenuous task when fishing in deep water, 40 fathoms or more. Only a few drags were made each trip, and these, not with the aim of obtaining any quantitative results, but merely to obtain a few shells from differing localities for comparative examination and to secure fresh scallops for experiments at artificial fertilization. A number of these mollusks were kept in crates on the Basin bed at Digby so as to have an easily accessible supply of live scallops at any time.

The records of the various draggings are listed on the Biological Station's Fishing Record form but I might mention one or two outstanding items here without discussing them in detail.

On August 1 a 30-minute drift drag 3 miles NNW off Gulliver's resulted in the obtaining, besides a number of mature scallops, of a young scallop of about an inch and a quarter diameter firmly attached to a freshly dead mature shell by a heavy byssus. In a later detailed report I will describe one or two experiments which I conducted with this scallop and how I watched it attach itself by a new byssus when the old one was broken.

On August 28, while dragging on the same ground we secured a similar scallop but this time the mollusk was only a quarter inch in diameter. This scallop also was attached to the inside of a recently dead scallop shell, and when taken from the water exhibited all the characteristics of a mature animal as far as its ability to snap its valves was concerned.

On July 18 a 45-minute drift drag over Station 2, (Zoarces) resulted in the securing of 22 adult scallops and 56 starfish, most of them large.

Three drags (20 minutes) over the Annapolis Basin bed on July 17, resulted in the obtaining of an average of one scallop per drag, and these were seven- to nine-year-old mollusks. Local fishermen maintain that the Annapolis Basin bed has almost entirely disappeared and that no fishing has been done on it during the last six years. This is an interesting point in as much as Stevenson in his MS No. 347 states that "as each new scallop season starts, the scallops on this bed are found to be just as plentiful and fine as they ever were. This year (1931) they appear to be even more so".

Although various methods were employed in an attempt to rear the young larvae from artificial fertilization, no success beyond the trochophore stage was realized. A later report will give an account of these methods and experiments in detail.

During the summer numerous drags were made inside the Gap with a small fine mesh drag with the hope of obtaining small scallops, but these were entirely unsuccessful. On one occasion, however, the dorsal valve in part of a one-inch scallop was caught.

No significant information concerning the time of spawning of the mollusk could be obtained because opportunities for examination of the mature mollusks were far too few and widely spaced. But whenever possible records of the condition of the scallop gonads were made.

An attempt was made to secure data which might lead to the estimating of the time of major spatfall. Freshly caught and cleaned scallop shells were strung on codlines and suspended from various spars in the Basin. These were to be examined and renewed every second day but the means available for detailed examination for spat (i.e. a compound microscope) was not applicable because of the lighting conditions. Moreover, the spars, which were the only available places of mooring spat collectors without expensive anchorings, were all in the vicinity of large clam flats. The author was by no means able to feel sure that the few spat examined with a small lens were scallop or some other mollusk. Sea mussels are common in the Basin.

All of the above topics will be discussed in detail in a later report in which I will also endeavour to present the difficulties which prevent the successful completion of various phases of the investigation. Facilities were more or less limited, in the sense that the mollusks are mainly situated in deep water and most operations would of necessity be expensive. Most of the preliminary investigations have been completed by the late Mr. Stevenson and the detailed phases which he was investigating require much previous experience and knowledge of methods.