Scallop Spat Collection 1986

MAFF Commission
Technical Report No. 329
March 1988

MAFF R&D Commission 1986/87

J.T. MacMillan (Ardtoe)

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SEA FISH INDUSTRY AUTHORITY
Marine Farming Unit Ardtoe

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SUMMARY

The scallop spat collection at Ardtoe undertaken during the Summer of 1986 followed a similar format to that carried out in previous years.

The peak settlement occurred during the last two weeks of July, and the first week of August for Pectan and Chlamys respectively. An increased yield of Pecten from the commercial collectors compared to that of 1985 produced a total of 24,000 spat. 48,000 Chlamys were retained for various ongrowing and marketing trials.

The collection data provided by the 1986 settlement is compared to that recorded in previous years.

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1. Introduction

The annual collection of scallop spat and monitoring of settlement levels is a vital feature of the continuing programme to develop techniques for comercial cultivation. Every year, netting filled bags are placed in the sea off Ardtoe to collect the spat of Pecten maximus and Chlamys opercularis. The data which is gathered assists in the optimum timing and placing of spat collectors in the settlement area. Relative effectiveness of different collector bag design and fillings can also be assessed while test collectors can be used to determine the settlement pattern without disturbing the main collectors.

The material used for collector bag filling was the same as that used in previous trials and was found to have produced the best results.

2. Materials and Methods

As in previous years the 1986 collection of spat was carried out in Loch Ceann Traigh on the north Ardnamurchan coast using three different types of spat collector.

2.1.Test Collectors

These consisted of 1m x 0.5m pieces of 6mm mesh netlon formed into rolls and attached to a single collector line at approximately 2m intervals in groups of five (MacMillan.J.T. 1985). These lines were then placed in the sea at weekly intervals and were in position for a period of two weeks. On removal from the sea the collectors were washed in a solution of 5% Hypochlorite/fresh water to remove settled material. This was then sieved through a 80 u mesh filter and then examined under a microscope for larval content.

2.2. Standard Collectors

These were of the same design as used in previous years, (Paul,J.D. 1984) consisting of 1m x 0.5m x 6mm mesh netlon oyster bags formed into a tetrahedron shape and filled with nylon monofilament netting. Eight of these bags were attached to a single collector line and placed in the sea at weekly intervals. They remained in this site until the commencement of spat collector sorting in October/November. The start of the sorting was governed by the settled spat which was periodically sampled from the collectors. A total of 80 bags were set out.

2.3. Commercial Collectors

These consisted of three types of winkle/onion bag. Two had been used in previous years and measured 0.75m x 0.5m. The third type was smaller at 0.5m x 0.5m. 70% of the bags were filled with monofilament netting the remaining 30% contained blue Japanese mesh. The bags were attached in batches of ten to 6mm polypropylene rope. The collector lines were set out on a 200m longline in 3 batches at fortnightly intervals to cover the main settlement period.

June 25th - 420 collectors

July 11th - 500 collectors

July 29th - 540 collectors

Pecten

The spat were sorted, predators removed, and returned to the sea at a density of 75 per level in pearl nets.

A total of 24,000 were set out.

Chlamys

After sorting these were returned to ongrowing lines in various types of holding units in the following numbers.

Pearl nets at 150 /level

Total 30,500

Pocket nets at 10-15 per level (Total 4000)

Plastic mesh discs covered with onion bags) 13,500

Total number of Chlamys approx. 48,000.

3. Results

Figures 1 and 2 show the results obtained from the test collectors. They show a good correlation between the results obtained from processing standard and commercial collectors, and the settlement pattern indicated by the test collectors.

The largest volume of spat that settled on the commercial collectors (Fig.5) occurred on the 2nd and 3rd batches which were placed in the sea on the 11th and 29th July.

The spat was subsequently examined in the following February to determine survival levels whilst overwintering in pearl nets and was found to be in excess of 90% for Pecten. The mean shell size had increased from 12mm to 17.5mm. Chlamys survival was recorded at 84%.

Figure 3 shows the number of Pecten spat that were recovered from standard collectors which had been initially set out from mid June at weekly intervals. This was carried through until the second week in August.

A rapid decline in settlement was noticeable once the peak had occured during the last week in July. This was approximately 3 weeks later than the corresponding peak in 1985.

Unfortunately two standard collector lines were lost. One of which

was the last to be placed in the sea, consequently a complete display of the settlement trend was not possible. Also shown are the numbers of spat that settled on the commercial onion bag collectors.

Figure 4 indicates that the peak of Chlamys settlement occurred in the first week in August. This like the Pecten settlement was later than in the previous year when two settlement peaks were recorded, one at the end of June, the other during the second and third week of July.

Figure 5 shows the total volume of spat removed from the standard collector bags. Number 5 and 10 collectors were missing. Thought to have been lost to trawlers operating in the area.

4. Discussion

As in more recent years 3 types of collector bag were used in the 1986 collection. From data that had been recorded in previous years it had been established that the main settlement period usually occurred between the end of June until the end of July.

The practice of setting the collectors out in 3 batches to cover the peak settlement period was implemented again in 1986.

The spat as in previous years was sorted by the conventional method of agitation in seawater tanks with the subsequent removal of predators being carried out by hand.

An assessment of stock mortalities was carried out in February 1987. This established that the majority of the Pecten that had been overwintered in pearl nets had survived (90%).

The survival of overwintered Chlamys was lower, as the results show. However this apparent reversal of survival characteristics between the two species may have been a result of the Chlamys being more densily stocked whilst awaiting placement into holding units.

The total number of collectors set out in 1986 was equivalent numerically to those set out in 1985. However the large increase in Pecten

collection (41% higher) may well have been attributable to the fact that the increased collection per bag from the commercial collectors (36%) may have resulted from the use of new smaller onion bags which were generally more productive than the red winkle bags used in 1985.

5. Conclusions

(i) The peak of settlement for both species was later than that of 1985. The main settlement period occurred during the last two weeks of July and the first week of August.

(ii) A 40% increase in Pecten settlement was obtained from the same quantity of collectors as had been previously set in 1985.

(iii) A total of 24,000 Pecten and 48,000 Chlamys were collected in 1986.

References

Paul, J.D. 1984

Technical Report No. 277

Scallop Spat Collection 1984 with comparisons of methods of spat sorting.

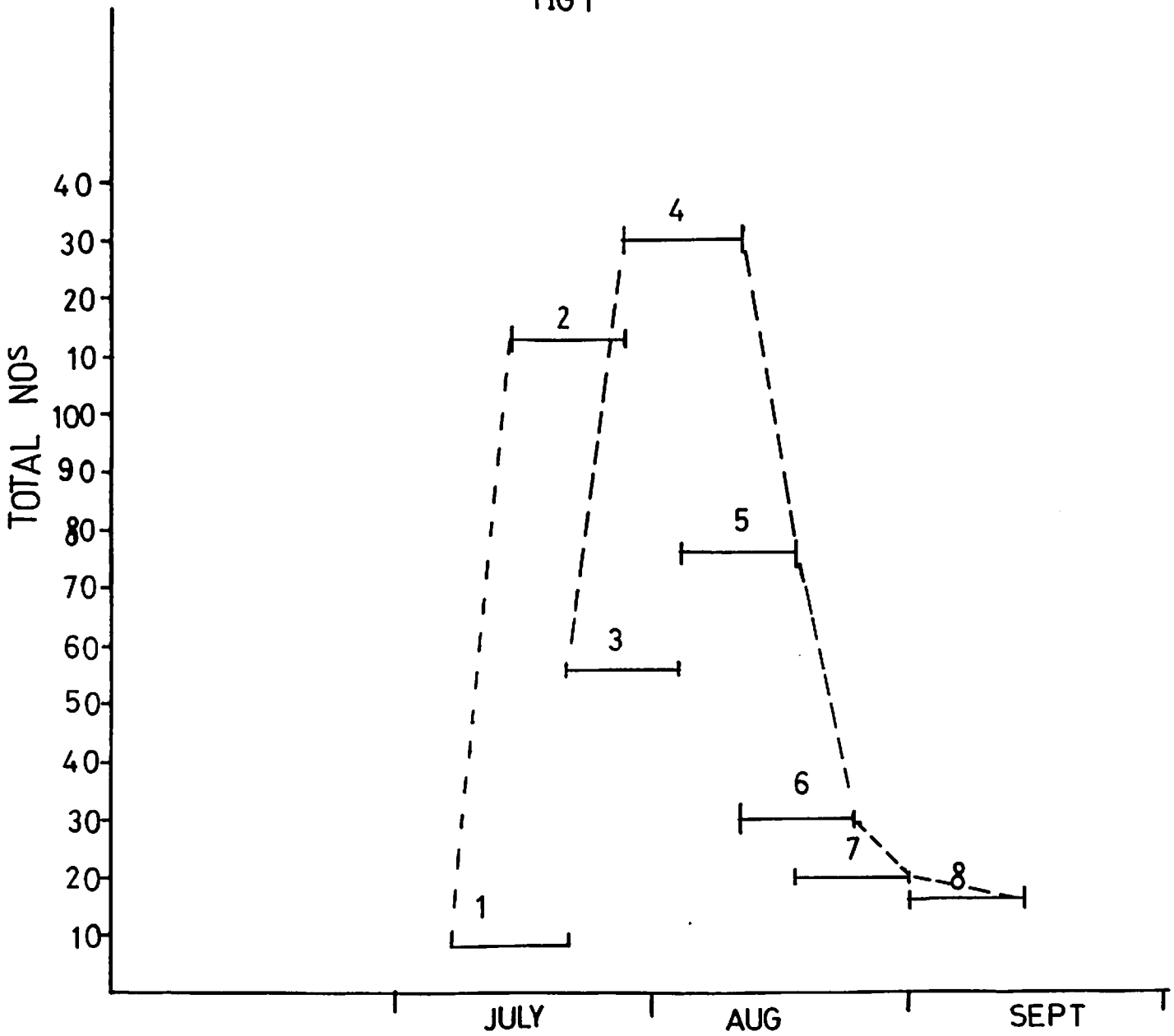
MacMillan, J.T. 1985

Scallop Spat Collection

Internal Report

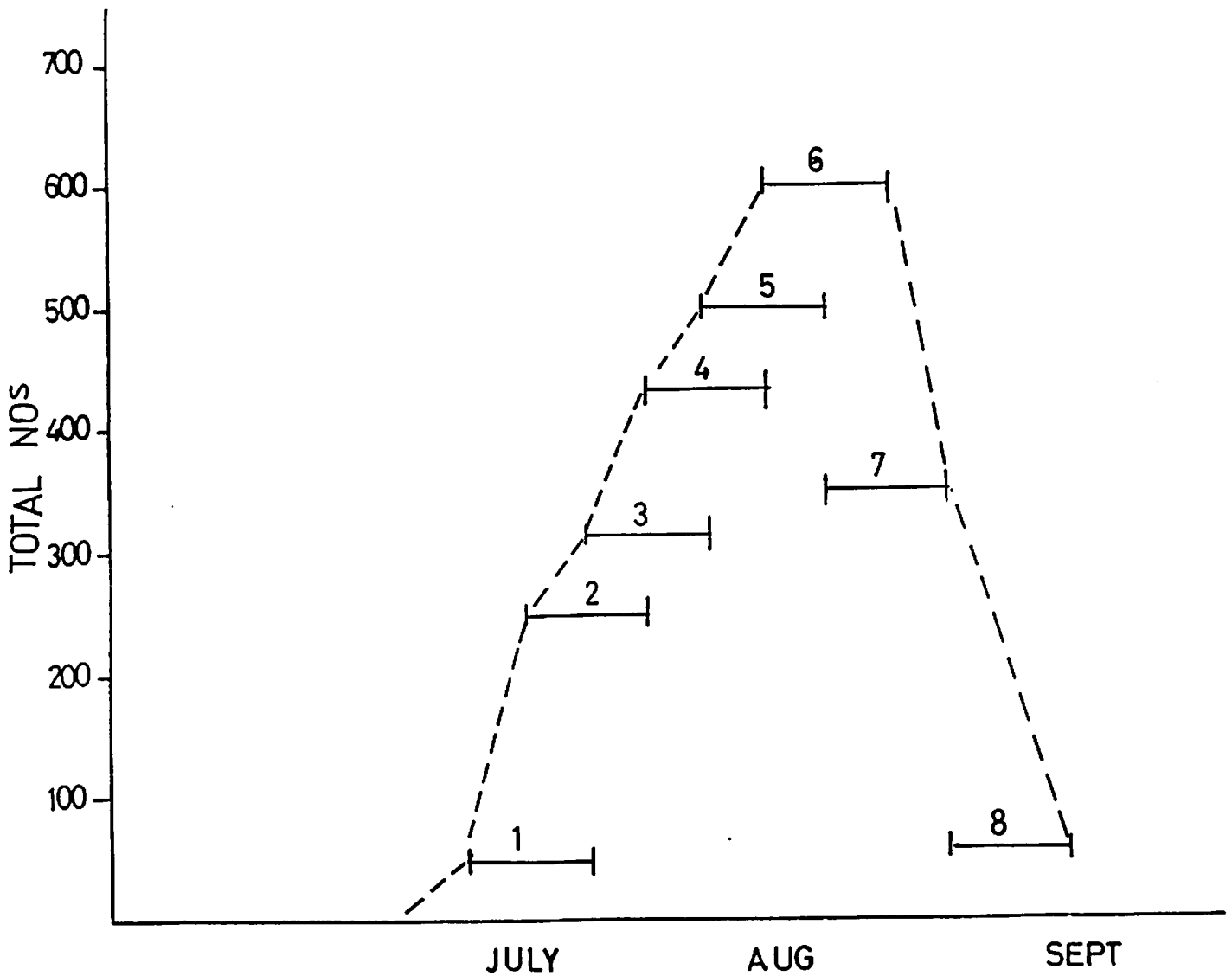
TEST COLLECTORS PECTEN

FIG 1



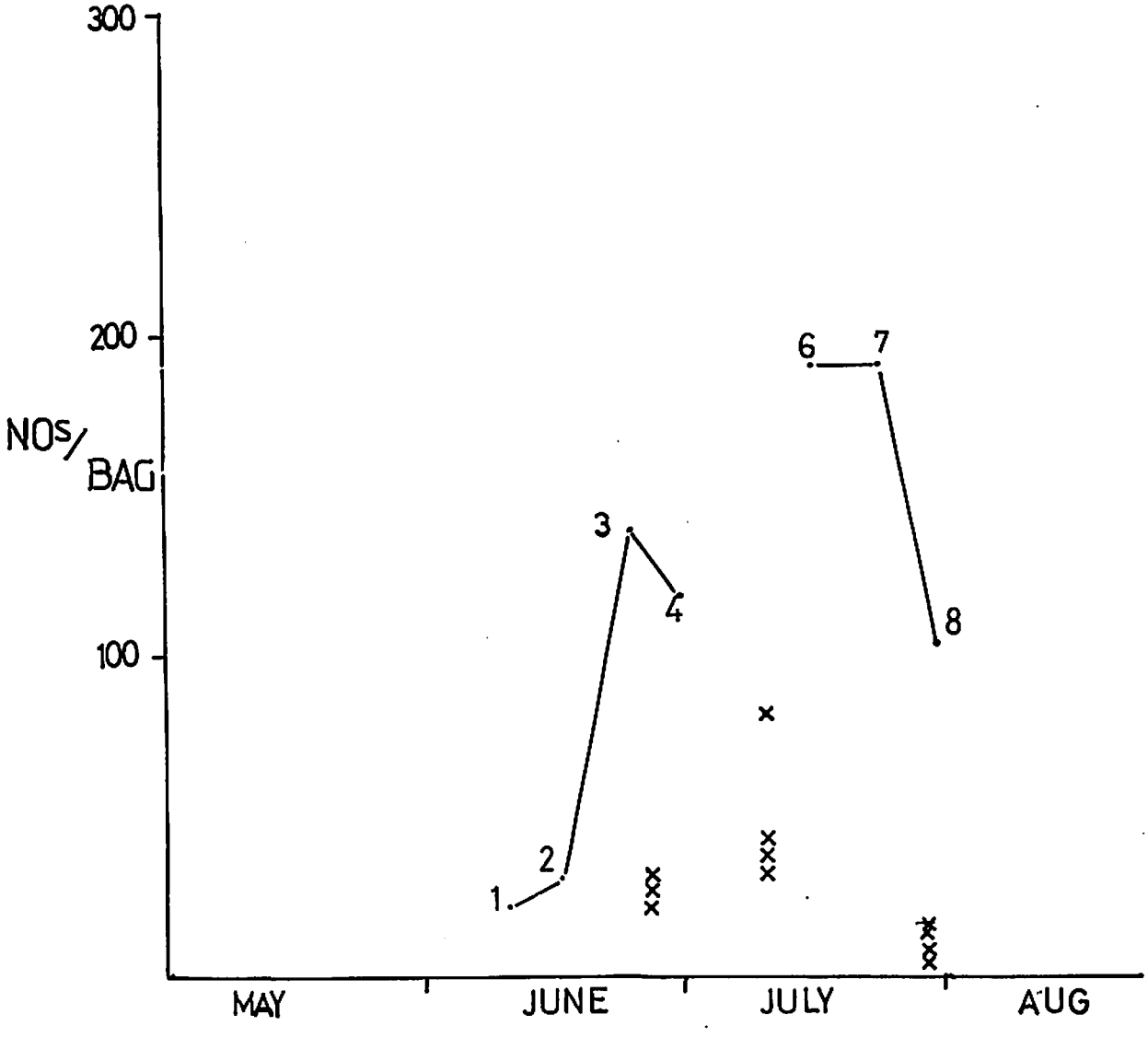
TEST COLLECTORS CHLAMYS

FIG 2



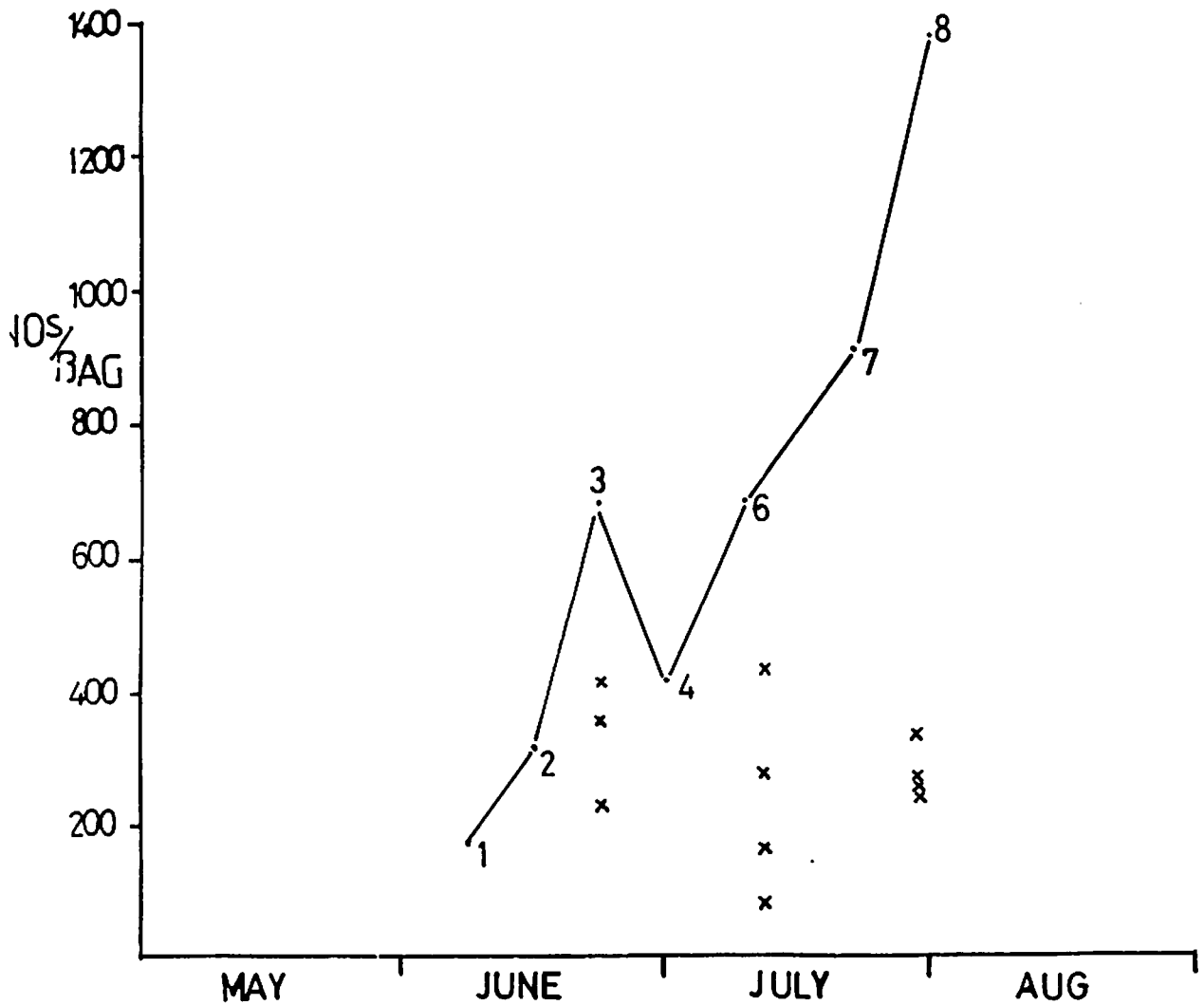
STANDARD COLLECTORS PECTEN

FIG 3



STANDARD COLLECTORS CHLAMYS

FIG 4



TOTAL VOLUME OF SPAT REMOVED FROM STANDARD COLLECTORS

FIG 5