International Council for the Exploration of the Sea

CM 1968/K:11
Shellfish and Benthos Committee

The 1963 year-class of cockles in England and Wales

by

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Introduction

In the late 1950s and early 1960s, the four main cockle-producing areas in England and Wales were the Wash, the Thames Estuary, the Burry Inlet in South Wales, and the Liverpool Bay/Morecambe Bay area of the north-west of England (Figure 1). By the end of 1962, landings from these areas had risen to around 190 000 cwt (Figure 2). The winter of 1962-63, however, was exceptionally severe, with extremely long periods of sub-zero temperatures (Hancock and Urquhart 1964). The result was a very considerable reduction in the cockle stocks in all areas of England and Wales, those on the west coast being almost completely wiped out. During the following summer, there occurred one of the largest settlements of cockle spat ever known, in all the major areas except the north-west coast. The Morecambe and Liverpool Bay area received negligible settlement and stocks have so far not recovered, landings during the last three years being negligible (Figure 3).

In the other cockle areas, landings generally fell during the two or three years following the winter of 1962-63, but by the end of 1964 much of the 1963 spatfall reached fishable size, and was almost entirely responsible for the steady increase in landings between 1965 and 1967, during which year the unusually high figure of 305 000 cwt, valued at £218 000, was achieved (Figure 2).

Llanrhidian Sands (Burry Inlet, South Wales)

During the period 1960-1967, which included the hard winter and the subsequent great spatfall, stock surveys were made of the Llanrhidian Sands, and the influence of the 1963 spatfall on this fishery can be studied in detail. Figure 4A shows the annual stock of "0-group" cockles (i.e. spat) and older cockles (i.e. those of or growing into commercial size), with an indication of the contribution of the 1963 spatfall to the stock; the landings for each year are shown in Figure 4B. The landings in the years immediately before the cold winter had been around 20 000 cwt, taken from a population of between 1 000 and 1 500 million (excluding "0-group"). After

the severe winter the landings were drastically reduced to 12 000 cwt in 1963, the total fishable population having dropped to only 100 million by November 1963. By this time, however, almost 11 000 million spat had settled on the beds, and although they suffered substantial losses during their first winter, there still remained over 3 000 million by the end of 1964, by which time many had grown to fishable size. Since then, the 1963 year-class has completely dominated the fishable stocks, as 2-, 3-, 4- and 5-year-olds during the years 1965-1968 respectively. The normal practice before 1963 was to fish a mixed population dominated by second-year and older cockles, but since 1963 this has not occurred, because the only good spatfall (1965) was reduced by a heavy mortality to a small proportion of the fishable stock. Despite the lack of recruitment, the stock of survivors of the 1963 spatfall was so large that the take-off rose steadily to the 1967 total of 62 000 cwt (Figure 4).

The Thames Estuary and the Wash

During 1967 and early 1968, the two other main cockle-producing areas - in the Thames Estuary and the Wash - were surveyed (Franklin and Pickett 1968a and b). Both these areas contain very large areas of intertidal sand flat (c. 70 square miles in the Thames, 40 square miles in the Wash) and both were found to contain immense numbers of cockles (Figure 1A), virtually all of which were survivors of the 1963 spatfall.

In the Thames Estuary second-winter cockles did not appear to suffer so severely from the hard winter (Hancock and Urquhart 1964), and in 1964 the landings remained as high as 44 000 cwt, compared with an average of 56 000 cwt for the three years before the hard winter. In 1967, the Thames Estuary was estimated to contain around 27 square miles of cockles in densities of 100 and more per square metre, which included over 7 square miles with cockles in densities of 300 and more per square metre. Despite the vast quantities of cockles present, estimated at around 17 000 million, the landings during the last three years, reaching 64 000 cwt in 1967, have not shown such a spectacular increase as in other areas (Figure 3).

The survey of the Wash showed around 10 000 million cockles present in commercial densities of more than 100 per square metre over 10 square miles. Virtually all of these were 4-year-old survivors of the 1963 spatfall. The only notable exceptions were two dense beds of 1965 cockles. The Wash fishery had been severely hit by the hard winter, landings having fallen from between 60 000 and 70 000 cwt before that winter to around 35 000 cwt in the years immediately following it (Figure 3). The present stock shows that there was a big spatfall in 1963 similar to that in other areas, but

landings did not start to increase until 1966 (Figure 3), in which year they almost equalled those of 1962. The delayed fishing may have been due to slow growth, resulting perhaps from the very high densities present, and even now large areas containing over 1 000 cockles per square metre are not uncommon. In 1967, although landings reached around 90 000 cwt and represented the largest catch for many years, this was still less than one-tenth of the available resource provided by the 1963 spatfall.

Future prospects

For the cockle industry 1967 was an outstanding year, the landings of 320 000 cwt from England and Wales representing the highest recorded since separate cockle statistics were commenced in 1926 (Hancock and Urquhart 1966). The prospects for 1968 are still good, but the recent sharp rise in landings is unlikely to continue, and recent information suggests that there will now be a fall in total landings.

In South Wales the 1963 stock is very much depleted due to the intense fishing during the past two years, and also to natural mortality which, with the cockles now entering their sixth year, seems to be becoming increasingly important. By August 1968, the 1963 stock on Llanrhidian Sands was reduced to just over 300 million and this is likely to support fishing at its present level for only about six months more. The fishable stocks will shortly be dominated by the survivors of the good 1967 spatfall, some of which have already reached commercial size, but landings have already begun to fall below those of 1967. Landings from South Wales (Figure 3) also included those from two neighbouring areas, Llanelli and Three Rivers (Figure 1), which in 1967 were responsible for over half of the total cockles landed. With the virtual removal of the 1963 stock from these beds due to the intensive fishing, and the almost negligible recruitment since 1963, future landings from these areas are likely to be very small.

In the Thames Estuary, two factors seem to have greatly reduced the stocks. The first was severe storms during the winter of 1967-68, which caused damage to some of the most important beds. The second seems to be increased natural losses amongst cockles from the 1963 spatfall, which began to operate by the end of 1967, when the cockles were in their fifth year. No figures are available for the 1968 stock, but it is believed to be fairly low, and there are signs that the fishermen are already working on the survivors of the 1967 settlement. Fishing prospects in the Wash are still good, with vast quantities of 1963 cockles remaining on the beds, which should be more than enough to maintain the landings up to the present level for the time being.

It seems clear that, as a result of the stimulus given to the cockle fishery of England and Wales by the vast resource created by the 1963 spatfall, landings reached a peak in 1967, but the short-term benefits appear to be nearly over in most areas. However, the 1963 spatfall seems to have been responsible for the development of wider markets to absorb the increased catches of 1967, and, if these markets are to be maintained from reduced stocks, this situation may supply the impetus for better utilization of the available stocks, and the introduction of improved fishing methods such as hydraulic dredges, particularly in areas at present relatively underexploited.

References

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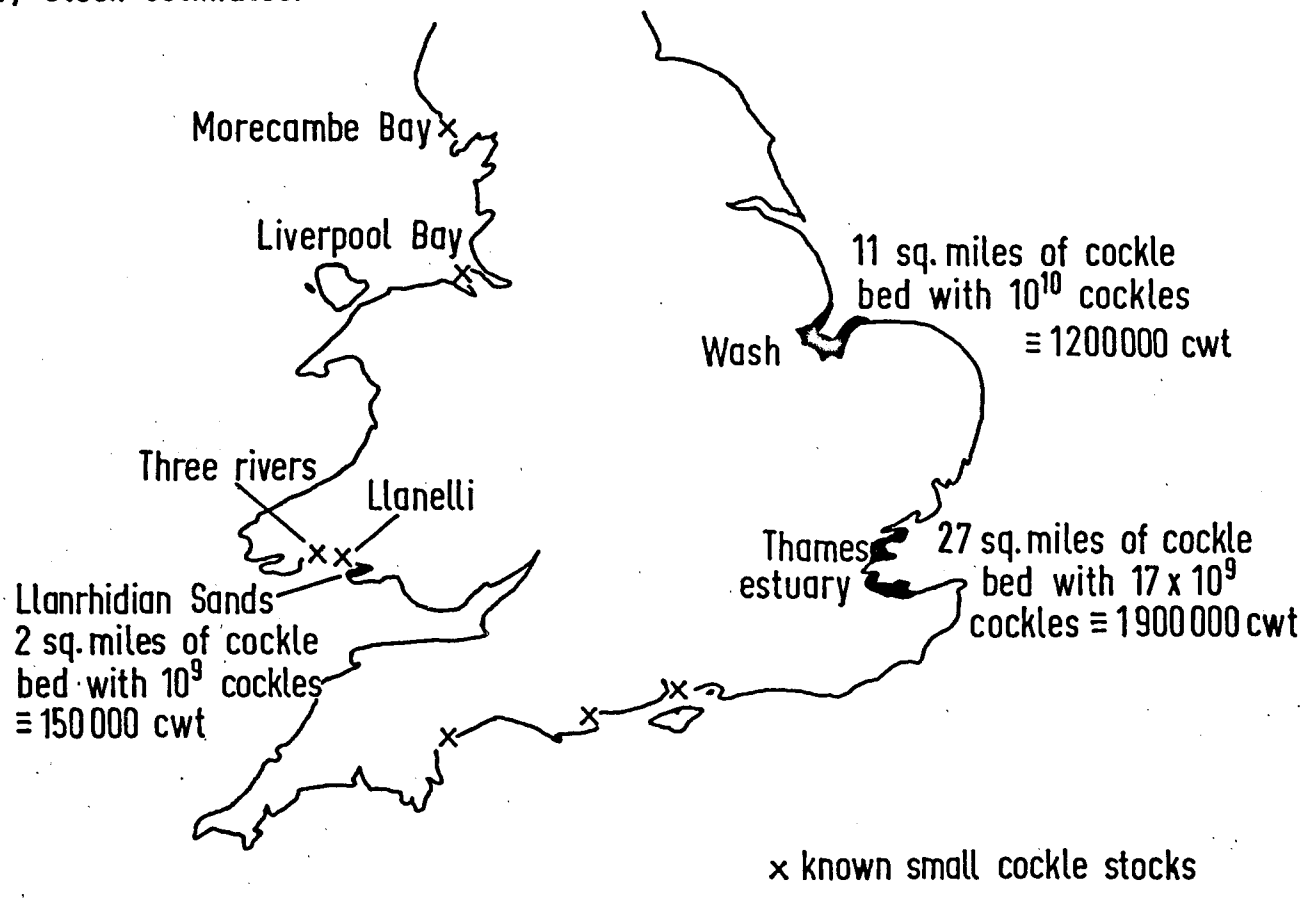
HANCOCK, D. A. and URQUHART, A. E., 1966. The fishery for cockles (Cardium edule L.) in the Burry Inlet, South Wales. Fishery Invest., Lond., Ser. 2, 25 (3).

(a) Stock estimates.



(b) Landings, weight and value.

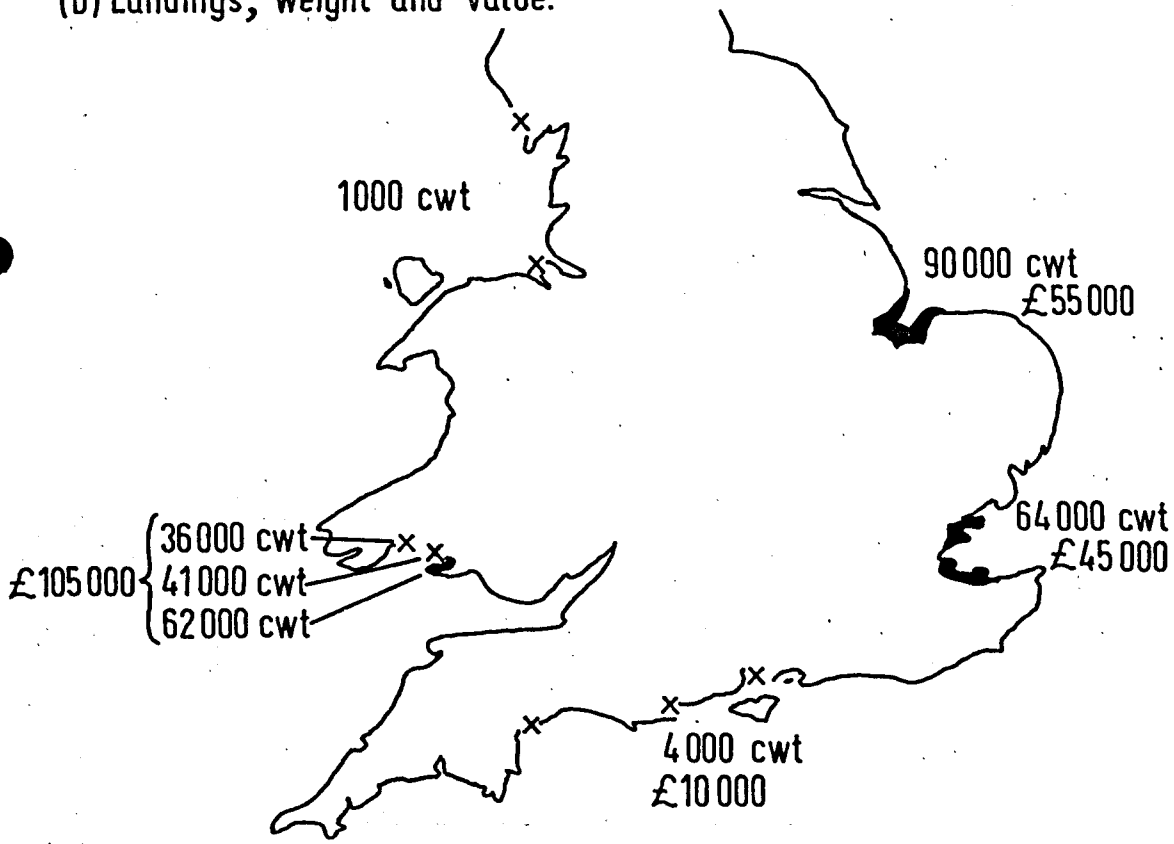


Figure 1. The 1967 stock estimates and landings of cockles in England & Wales.

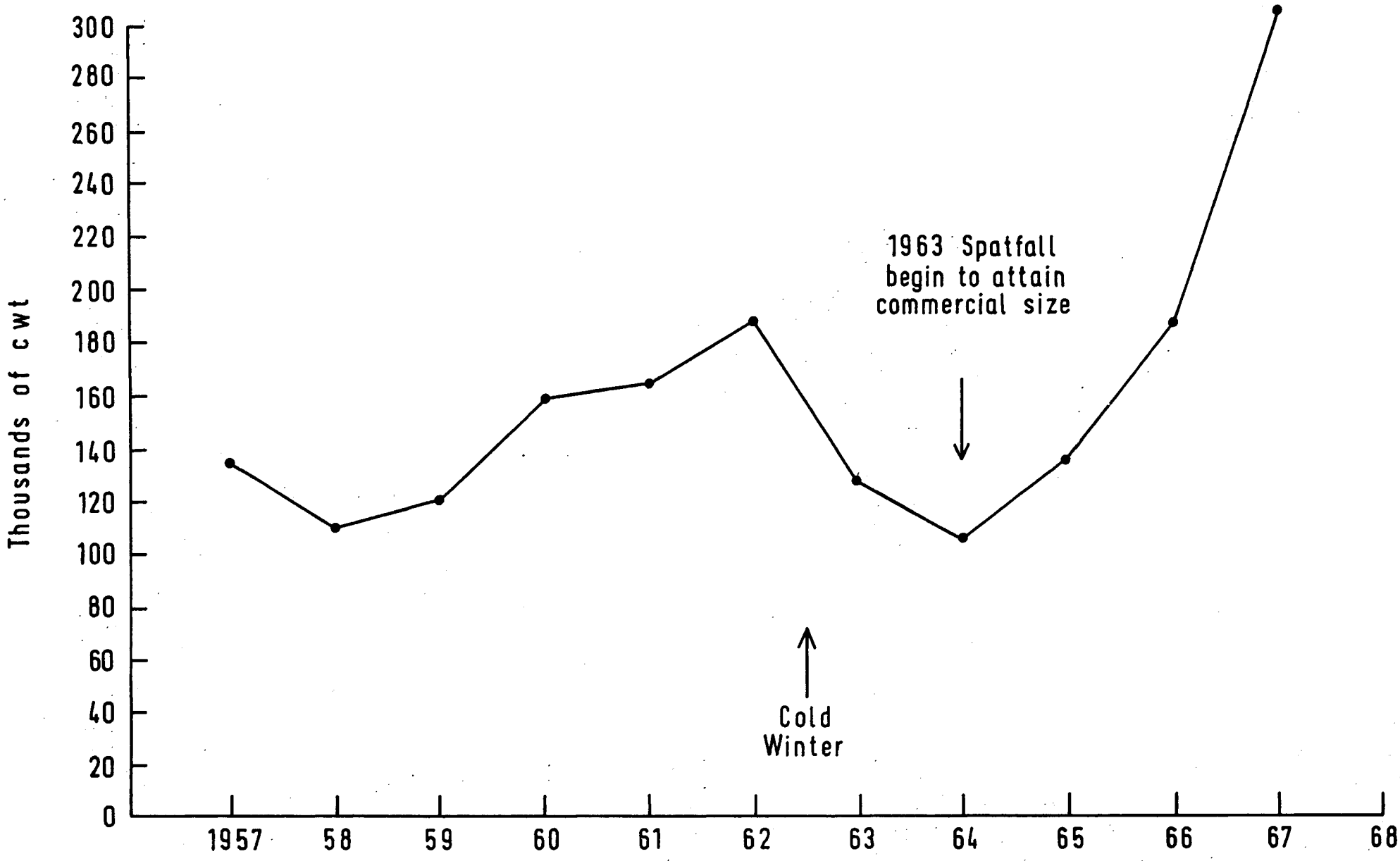


Figure 2. Cockle landings in England and Wales, 1957–1967.

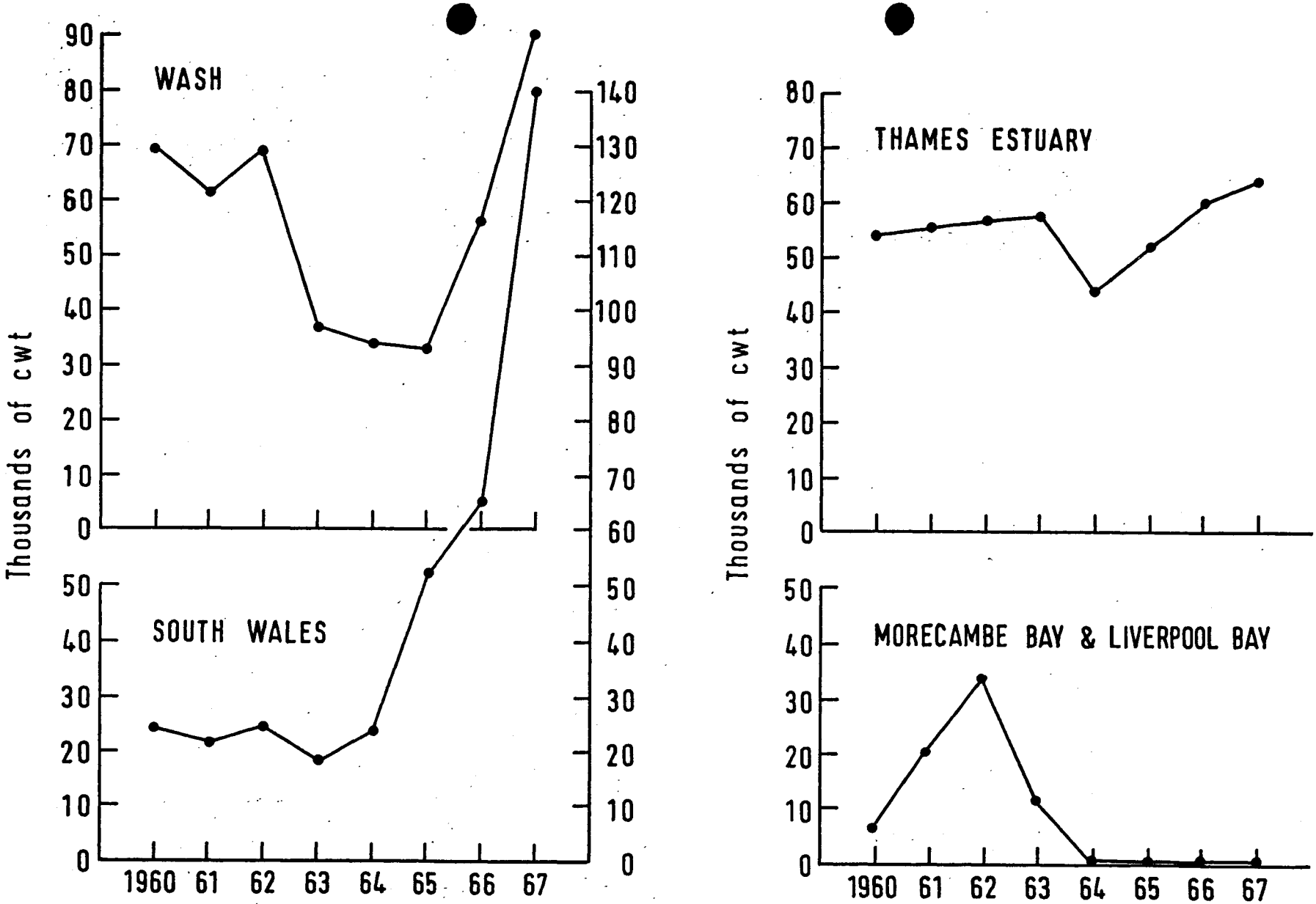


Figure 3. Landings in the four main cockle-producing areas of England and Wales, 1960–1967.

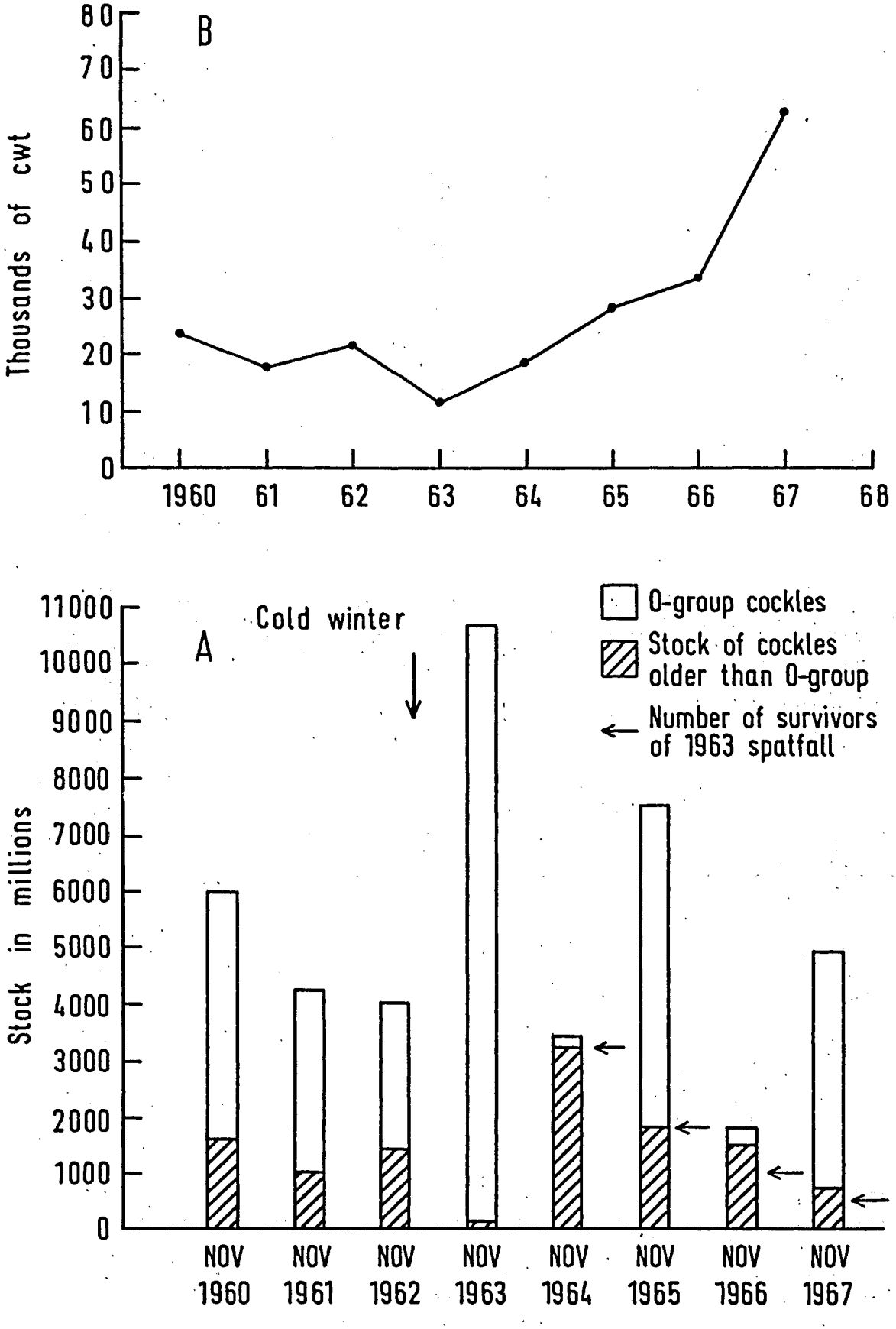


Figure 4. (A) Cockle stocks from surveys of Llanrhidian Sands each November 1960–1967, showing the number of survivors of the 1963 spatfall.

(B) Annual landings from Llanrhidian Sands are shown relative to the period between surveys.

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