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CHARTER VESSEL CRUISE

MV "Nich-Tola"

REPORT

6-10 December 1989

Personnel

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Objectives

1. To complete the cockle survey of Barnhourie and Mershead Sand using suction dredging to sample the areas inaccessible to the land based survey in August.
2. To survey other commercially exploited cockle grounds in the Solway Firth.
3. To locate suction dredge tracks when expose at low tide and measure dredge efficiency.

Narrative

The scientific staff joining "Nich-Tola" at 0915 on 6 December to make preparations and brief the skipper and crew prior to sailing on the evening tide. "Nich-Tola" departed from Annan at 1630 and made for Barnhourie sands where sampling commenced. Thirty five sampling stations on the Barnhourie and Mershead sands and three in the Kippford Rough Firth were completed before the scientific staff came ashore at Kippford at 1600 on 7 December. The vessel then returned to Annan where she was based for the remainder of the cruise. Samples were taken to Kirkcudbright, where freezing facilities had been arranged, before the scientists rejoined the "Nich-Tola" at 0550 on 8 December. "Nich-Tola" continued sampling, when the tide allowed, on commercial cockle grounds at Carsethorn and the North Bank where 13 and 48 stations were completed respectively. On 9 December "Nich-Tola" was beached so that during low tide shore samples could be taken from within and to either side of a marked dredge track. The scientific staff left the "Nich-Tola" at 2200 on 10 December when the cruise was completed.

Results

The stations covered during the charter and during the earlier land based quadrat survey are shown in Figure 1. Mean density of cockles per m² by age for each area are compared in Table 1. For Barnhourie/Mersehead, densities estimated by quadrat sampling, shown separately, were higher than those estimated by suction dredging. It is unlikely that these differences are explained by large scale mortality between August and December. A more credible explanation is the relative inefficiency of the suction dredge as a sampling tool. Table 1 also shows the suction dredge estimates of density for the four main areas surveyed. Ranked in order of increasing density they are; Barnhourie/Mersehead, North Bank, Kippford, and Carsethorn.

In terms of age structure, the commercial cockles (ie those retained by the vessels riddle) were dominated by the 1986 year class, which were 3 years old at the time of the survey.

T Howell

4 April 1990

FIGURE 1 COCKLES SOLWAY 8/89 AND 12/89 STATION POSITIONS

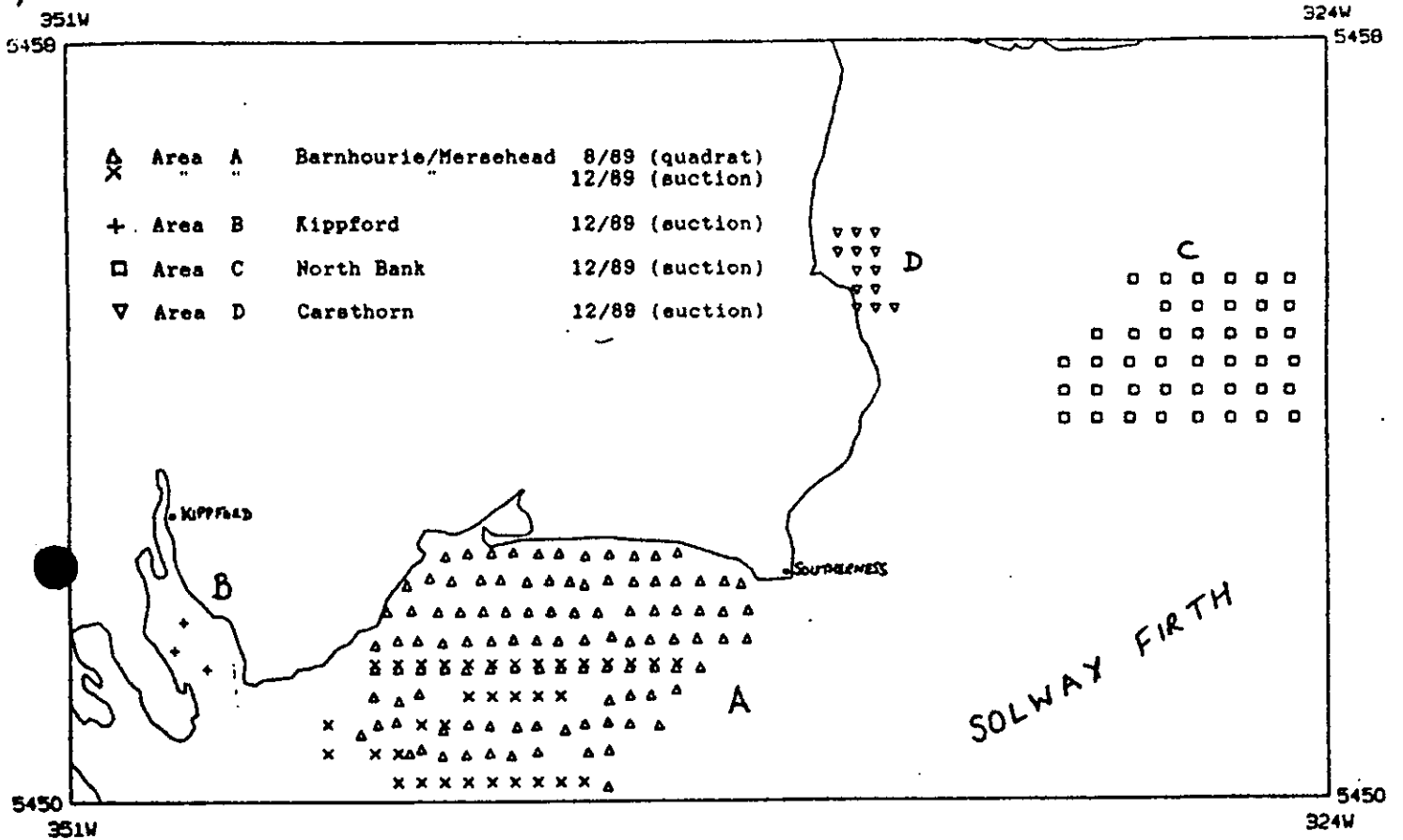


Table 1 Overall mean density (number per m²) of cockles in each age group for the areas surveyed. Means calculated from only those grid squares in which some cockles were found. ie stations with no cockles excluded.

Area	Method	Age							
		0	1	2	3	4	5	6	
A Barnhourie	quadrat	143.9	10.0	9.0	10.7	2.9	1.0	-	
	suction	2.59	0.22	0.08	0.44	0.10	0.01	+	
B Kippford	suction	0.14	0.03	0.18	2.76	0.19	-	-	
C North Bank	suction	12.80	0.91	0.17	0.89	0.05	0.01	+	
D Carsthorn	suction	17.08	2.65	0.29	7.15	0.05	-	-	