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MINISTRY OF AGRICULTURE, FISHERIES AND FOOD
FISHERIES LABORATORY, LOWESTOFT, SUFFOLK, ENGLAND

1983 RESEARCH VESSEL PROGRAMME

REPORT: RV CIROLANA : CRUISE 11

STAFF:

S J Lockwood
B C Bedford
D J Symonds
W A Dawson
M J Boon
S H Stevens
S P Milligan
J L Coleman
P Fox (Paddy O'Bserver, Galway University).

DURATION:

23 November - 19 December

LOCALITY:

English Channel, Celtic Sea, and Bay of Biscay

AIMS:

1. To sample juvenile fish.

2. To sample pelagic fish shoals.

3. To sample demersal fish species in the western Celtic Sea and Bay of Biscay.

NARRATIVE:

Staff joined CIROLANA at 1800 h 22 November and the ship sailed at 0640 h 23 November. Sampling began on the afternoon 24 November when stations were worked between Anvil Point and Lyme Bay. Between 25 and 29 November the area between Start Point and the Lizard were surveyed and stations were worked with demersal and Agassiz trawls, neuston and Boothbay nets. Due to strong westerly winds work was not possible during the afternoon of 25 November nor throughout 27 November. From 30 November to 7 December three lines of depth stratified trawl and young fish sampling stations were worked at 51°, 49° 30', and 47°N. On 8 December CIROLANA went alongside in Lorient at 0850 h and departed again 0808 h 9 December but was unable to work that day due to westerly gales. Work also stopped at mid-day on 11 December due to excess wind, and the ship was forced to dodge throughout the following day also. Fishing resumed at 46°N on 13 December and continued off the coast of Spain 14 December. With conditions deteriorating rapidly, and north-westerly storms forecast, CIROLANA left the Spanish coast during the afternoon and made course for Lands End. Due to south-easterly gales shelter was sought in St Ive's Bay where the ship remained at anchor overnight, 15-16 December. Work resumed off the north Cornish coast at lunchtime 16 December and was completed when the final two hauls were made in Mount's Bay and south of the Eddystone Light, where the commercial mackerel boats were working, on 17 December. Course was then set for Grimsby where CIROLANA docked at 1645 h 19 December.

RESULTS:

1. Sampling for juvenile fish was carried out with the Portuguese High Headline Trawl (PHHT), the 1600 Engel trawl (both fitted with 25 mm liners), the Isaac - Kidd trawl, Boothbay net, Neuston net, Agassiz trawl and the 2 m Young Flatfish trawl.

The Boothbay net was successfully rigged to work from just one pair of bridles, the frame was mounted upside down, so that the diving plane was between the bridles, and three Scripps depressors were used to hold the frame vertical. The net was towed in the surface 50 m only and no fish, of any size, were caught with it.

The Isaac - Kidd net was used to sample to the seabed and was used successfully to identify a mid-water scattering layer in the central Celtic Sea. It comprised gobies, shrimps and medusae, but the samples did not include any commercial species.

Rather as expected at this time of year, the Neuston samples rarely included any fish. A few juvenile sandeels were caught, and also some clupeid larvae.

The Agassiz trawl, as it is rigged for use on the Norway pout surveys, was found to be most unreliable. In complete contrast, and contrary to general expectations, the 2 m Young Flatfish Beamtrawl was very dependable. There was only one invalid haul, which resulted from the codend becoming tangled in the tickler chains. Samples included a wide range of macro-benthos and fish species, but mostly flatfish, from 0-group topknots and scaldfish up to large soles and monks.

The Engel trawl was only shot twice, once to sample the mid-water scattering layer, and once to sample the surface scattering layer in the Celtic Sea. The catch taken from the mid-water layer did not differ from the sample taken with Isaac - Kidd trawl, and the surface layer appeared to comprise entirely of the medusa Rhizostoma sp.

Most fishing was carried out with the PHHT, a total of 41 stations yielding 88 species of finfish and a wide variety of commercial invertebrates. The most abundant juvenile fish (0- and 1-group) were scad, which were widely distributed throughout the Bay of Biscay and were also present south of Start Point. The young of other fish species were only caught in ones and twos, but again included a wide range of species. Both 0- and 1-group mackerel were notable for their absence from the catches throughout the Celtic Sea area and the Bay of Biscay. When comparing this cruise with others in this area at this time of year one can only conclude that both the 1982 and 1983 year classes of mackerel are effectively non-existent.

2. Pelagic fish shoals were rarely seen, and were generally too small to justify shooting the Engel trawl. Samples of mackerel, scad, pilchard and blue whiting (see Table 1) were all taken with the PHHT.

3. Otoliths were collected from 15 demersal species and the majority of other demersal species were measured. Some length frequency distributions are shown by six depth bands in Figure 2. Insofar as there are any trends in these distributions, the younger Norway pout and poor cod are absent from the deeper water (the Norway pout population appears to be limited to depths less than 150 m), whereas the smaller fish in the megrim and blue whiting populations appear to be most abundant in the deeper water.

4. Ovaries were taken, and preserved from 147 mackerel for Mr L Mariduena. A sample of 103 mackerel caught off the north coast of Spain were frozen, and returned to Lowestoft, for Dr K McKenzie's (Aberdeen) parasitic tag studies. A sample of 100 pout whiting and the spiral valves from a number of elasmobranchs were also collected for him.

A wide variety of decapod crustacea were collected throughout the cruise and held in a deck tank for collection at Grimsby by Dr R F Uglow (University of Hull).

Stephen J Lockwood
23 December 1983

SEEN IN DRAFT:
J F
E P

INITIALLED:
D J G

DISTRIBUTION:

Basic List +

S J Lockwood
B C Bedford
D J Symonds
W A Dawson
M J Boon
S H Stevens
S P Milligan
J L Coleman
P Fox
Clerk, Devon SFC, County Hall, Exeter
Clerk, Cornwall SFC, County Hall, Truro
Dr K McKenzie, DAFS, Aberdeen
Foreign and Commonwealth Office, 6 copies (Mr Ramster)

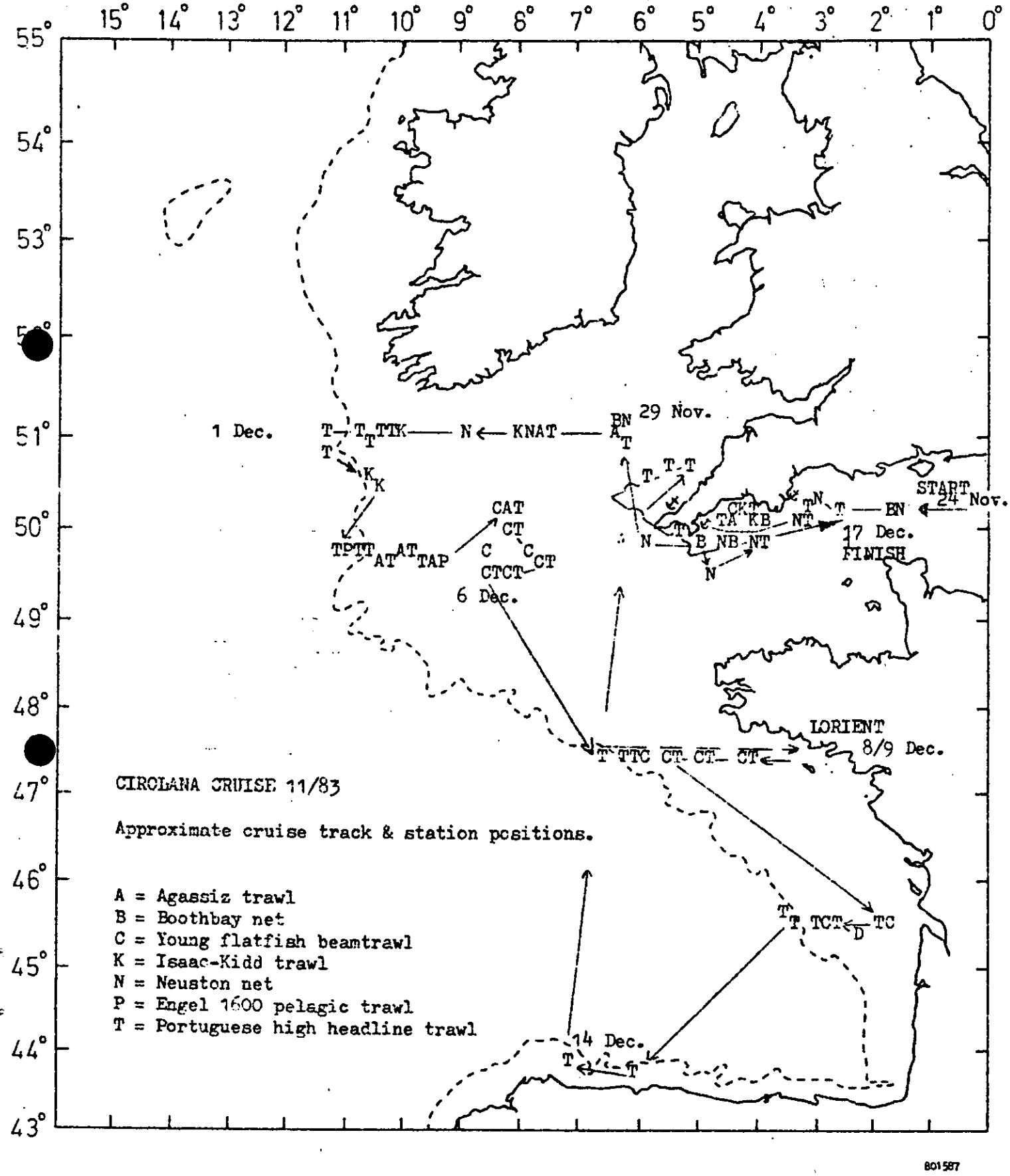

15° 14° 13° 12° 11° 10° 9° 8° 7° 6° 5° 4° 3° 2° 1° 0°
55° 54° 53° 52° 51° 50° 49° 48° 47° 46° 45° 44° 43°
1 Dec.
29 Nov.
START 24 Nov.
17 Dec.
FINISH
6 Dec.
LORIENT 8/9 Dec.
14 Dec.
CIROLANA CRUISE 11/83
Approximate cruise track & station positions.
A = Agassiz trawl
B = Boothbay net
C = Young flatfish beamtrawl
K = Isaac-Kidd trawl
N = Neuston net
P = Engel 1600 pelagic trawl
T = Portuguese high headline trawl
801587

TABLE 1: Summary of otoliths collected during CIROLANA Cruise 11/83

DEMERSAL SPECIES	ICES DIVISIONS				
	107 e	107 f+g	107 h	107 j	108a-c
Cod	1	16	7	--	--
Whiting	30	18	--	--	1
Pollack	2	1	--	--	1
Ling	--	9	2	--	9
Hake	12	45	11	33	100
Plaice	13	6	2	1	--
Sole	4	2	1	--	6
Lemon sole	3	30	12	10	4
Turbot	1	1	--	--	--
Witch	--	--	--	3	--
Megrim	--	29	4	66	105
Four spot megrim	--	--	--	15	8
Monks					
Lophius piscatorius	1	27	--	23	50
Lophius budagassa	--	2	2	5	23
Red sea bream	--	--	--	2	9

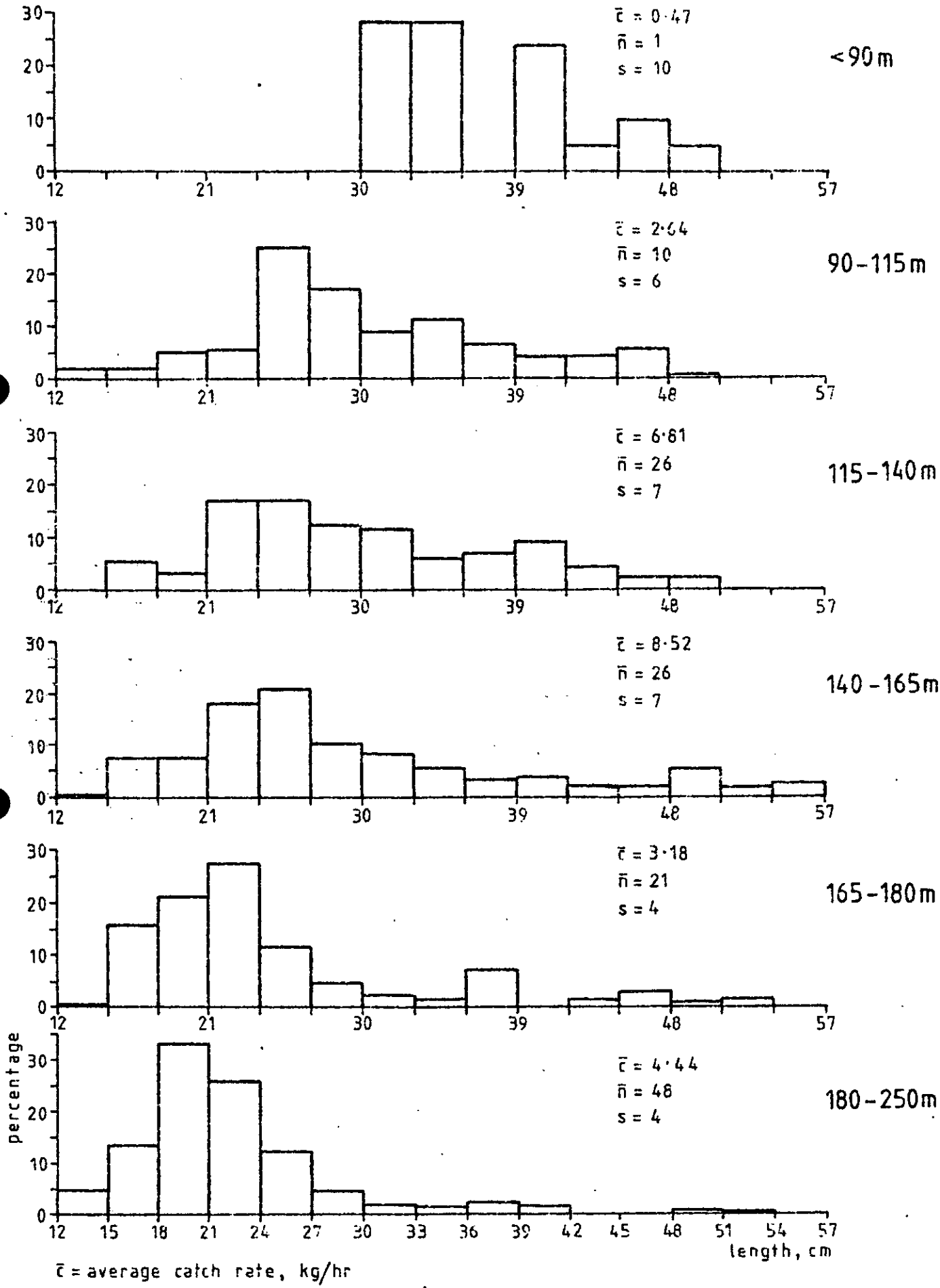
PELAGIC SPECIES	SAMPLING AREAS			
	Celtic Sea	South west	B. of Biscay	Spanish coast
Mackerel	--	157	50	140
Pilchard	--	121	50	82
Scad	123	170	297	188
Blue whiting	------ 82 ------		-------- 88 --------	

Fig 2.

Length frequency distributions of eight of the more abundant species caught during CIROLANA Cr 11/83.

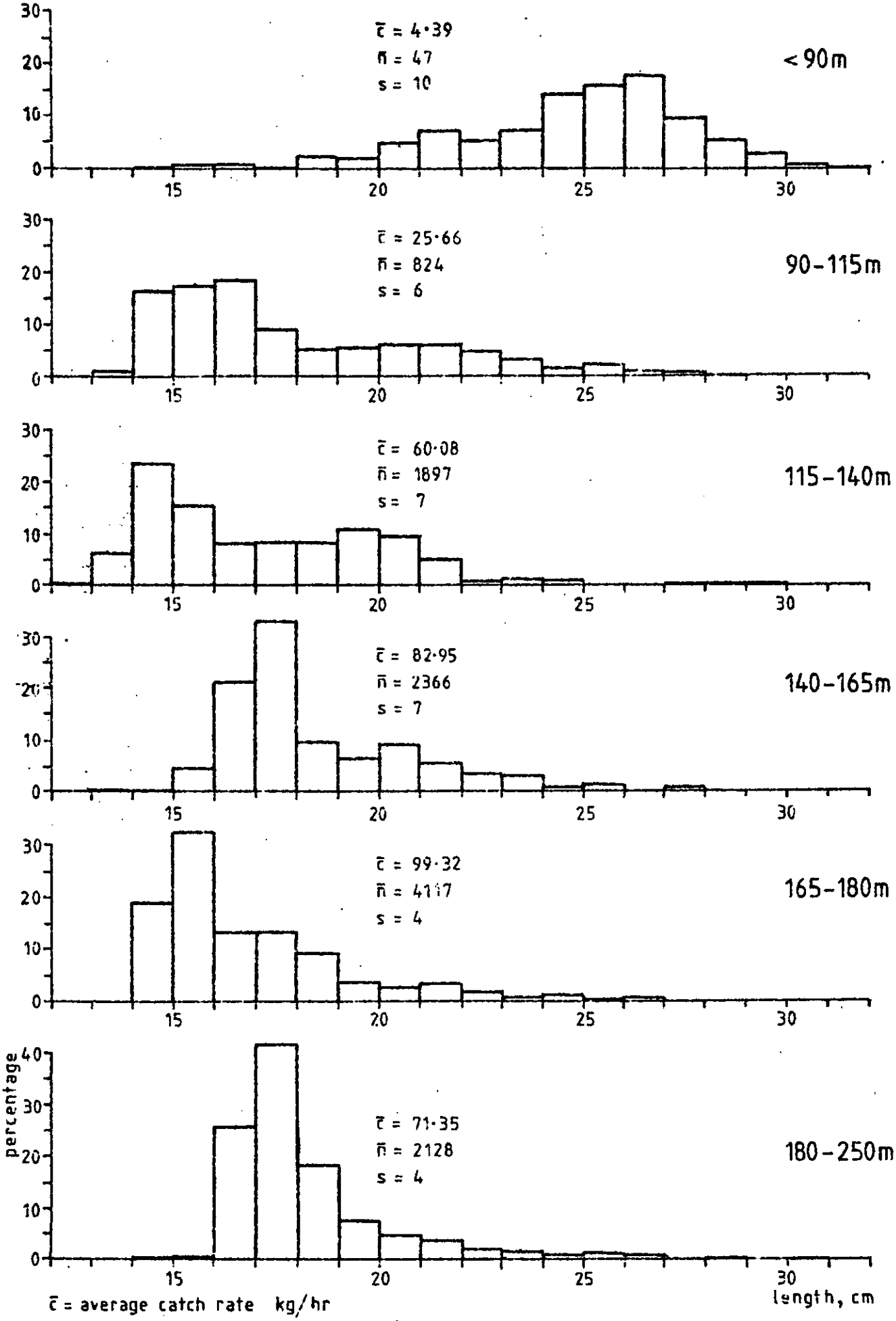
Lepidothombus whiffiagonis - megrim
Micromesistius poutassou - blue whiting
Trisopterus esmarkii - Norway pout
Trisopterus minutus - poor cod
Merluccius merluccius - hake
Scomber scombrus - mackerel
Trachurus trachurus - scad
Scyliorhinus caniculus - lesser spotted dogfish

L. whiffiagonis



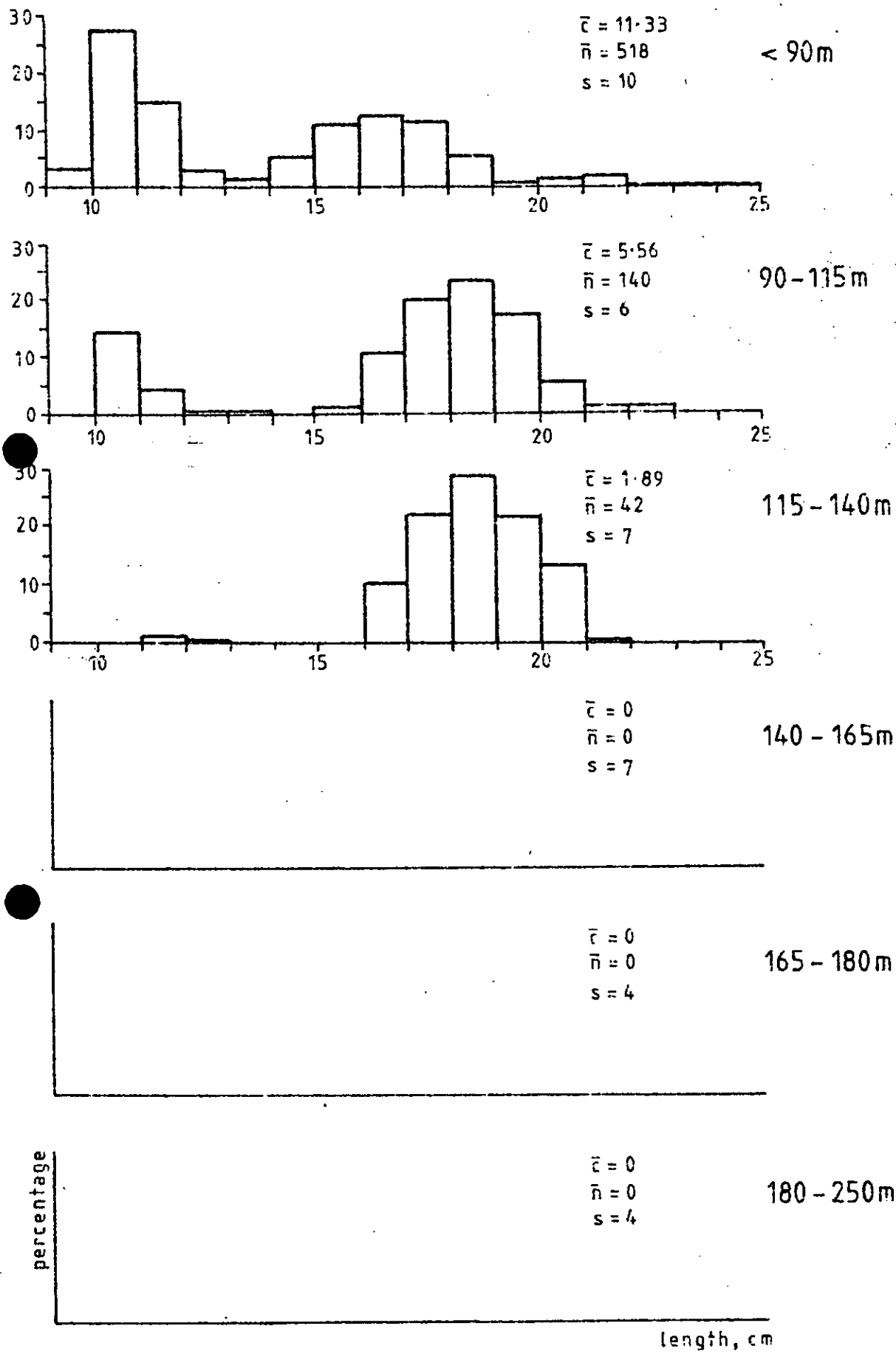
c̄ = average catch rate, kg/hr
n̄ = " " " , nos of fish/hr
s = total number of stations

M. poutassou



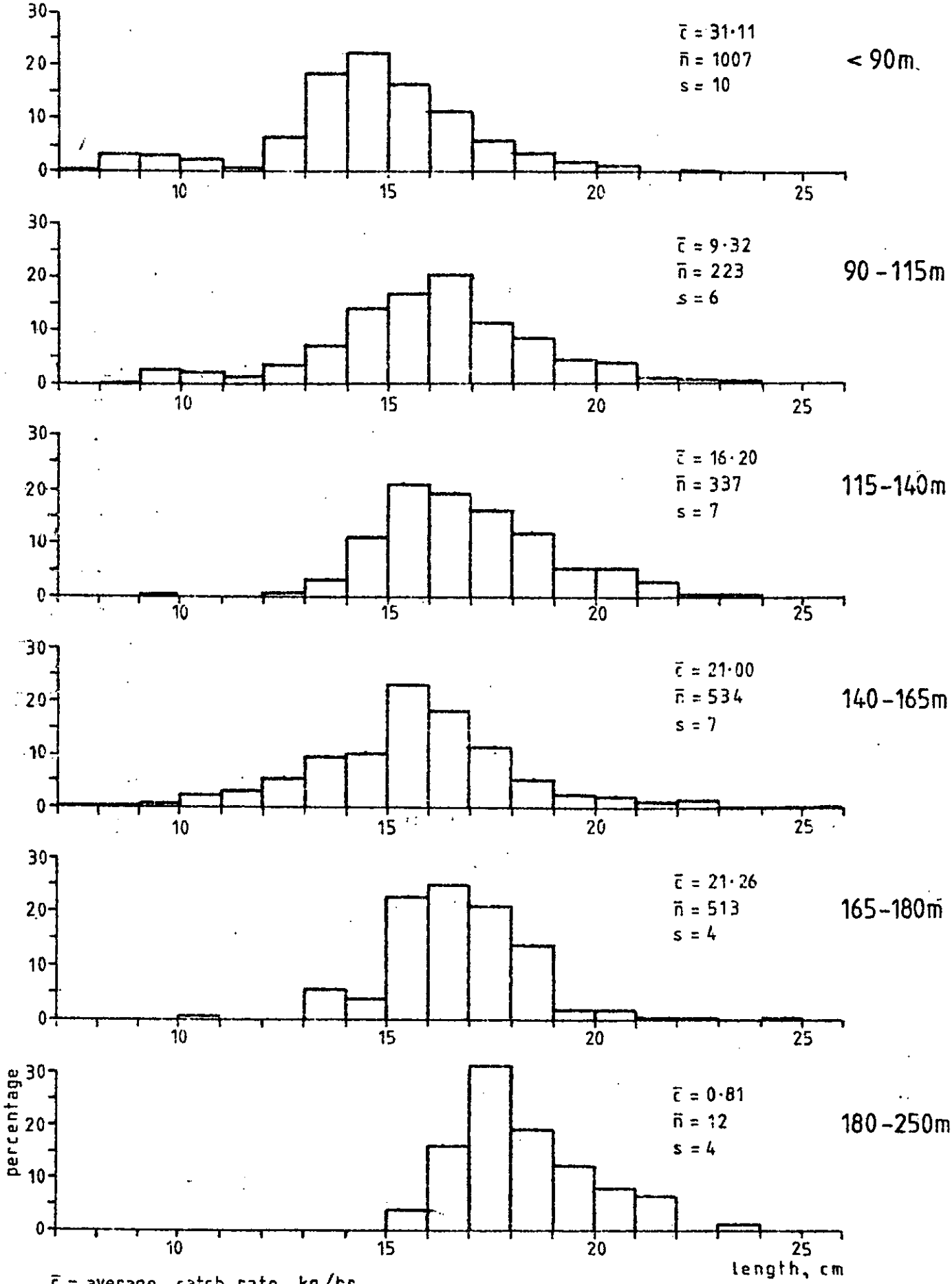
c̄ = average catch rate kg/hr
n̄ = " " " nos of fish/ hr
s = total number of stations

T. esmarkii



$\bar{c}$ = average catch rate, kg/hr
$\bar{n}$ = " " " , nos of fish/hr
s = total number of stations

T. minutus

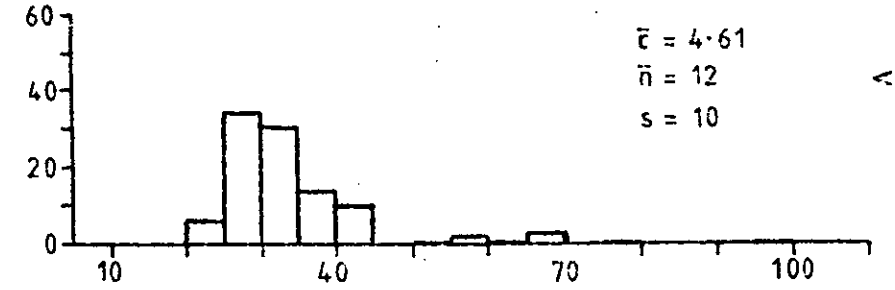


c̄ = average catch rate, kg/hr

n̄ = " " " , nos of fish/hr

s = total number of stations

M. merluccius

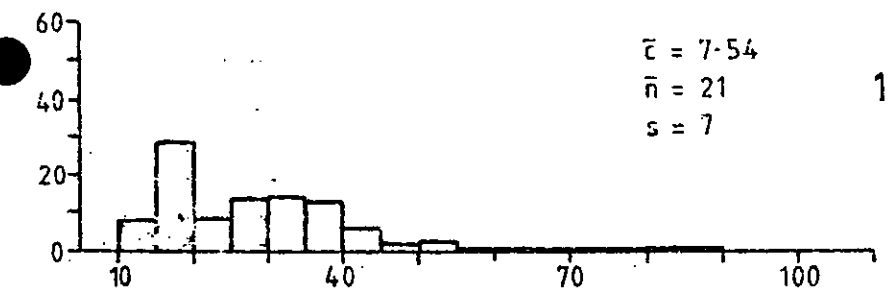


$\bar{c}$ = 4·61
$\bar{n}$ = 12
s = 10

< 90 m

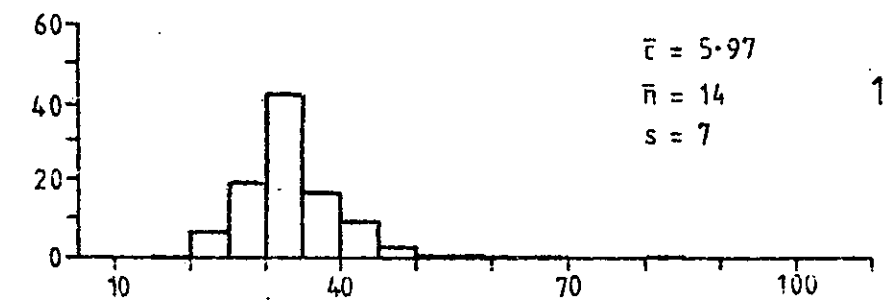
$\bar{c}$ = 14·64
$\bar{n}$ = 99
s = 6

90 – 115 m



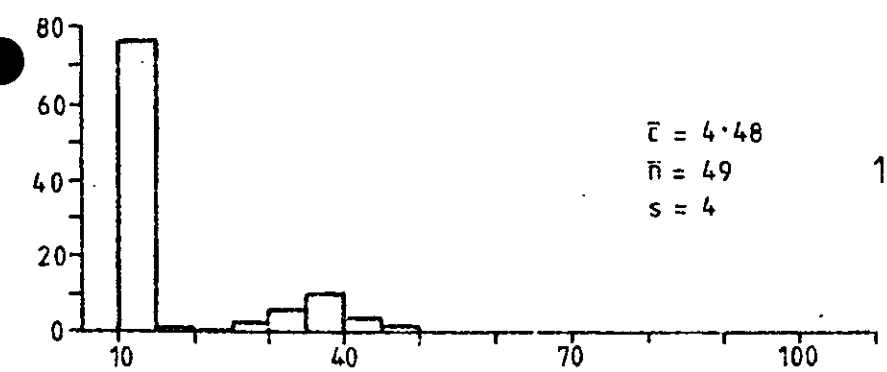
$\bar{c}$ = 7·54
$\bar{n}$ = 21
s = 7

115 – 140 m



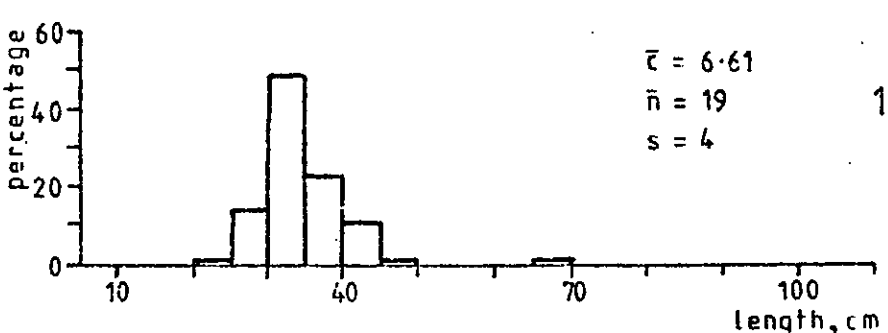
$\bar{c}$ = 5·97
$\bar{n}$ = 14
s = 7

140 – 165 m



$\bar{c}$ = 4·48
$\bar{n}$ = 49
s = 4

165 – 180 m

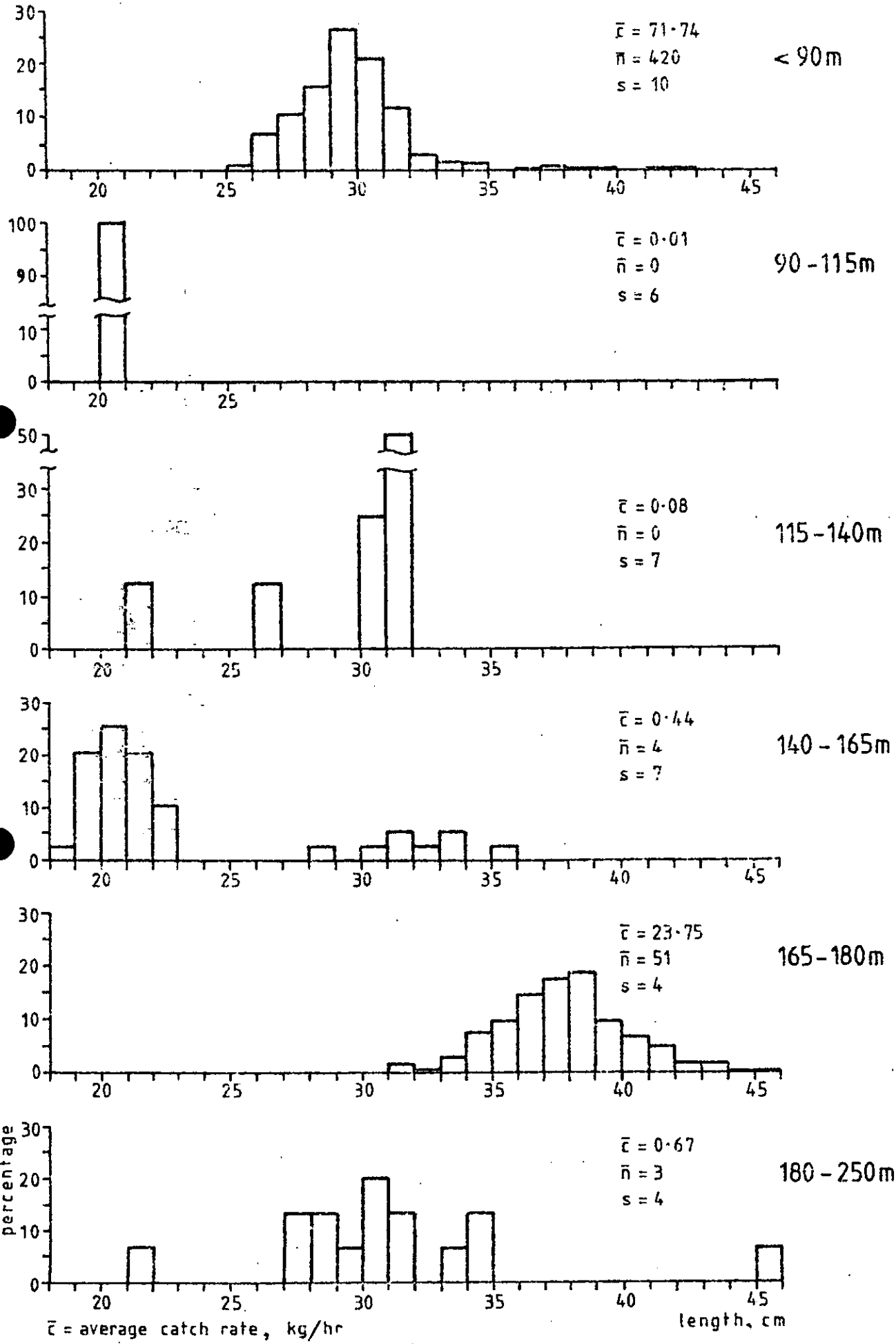


$\bar{c}$ = 6·61
$\bar{n}$ = 19
s = 4

180 – 250 m

$\bar{c}$ = average catch rate, kg/hr
$\bar{n}$ = " " " , nos of fish / hr
s = total number of stations

S. scombrus

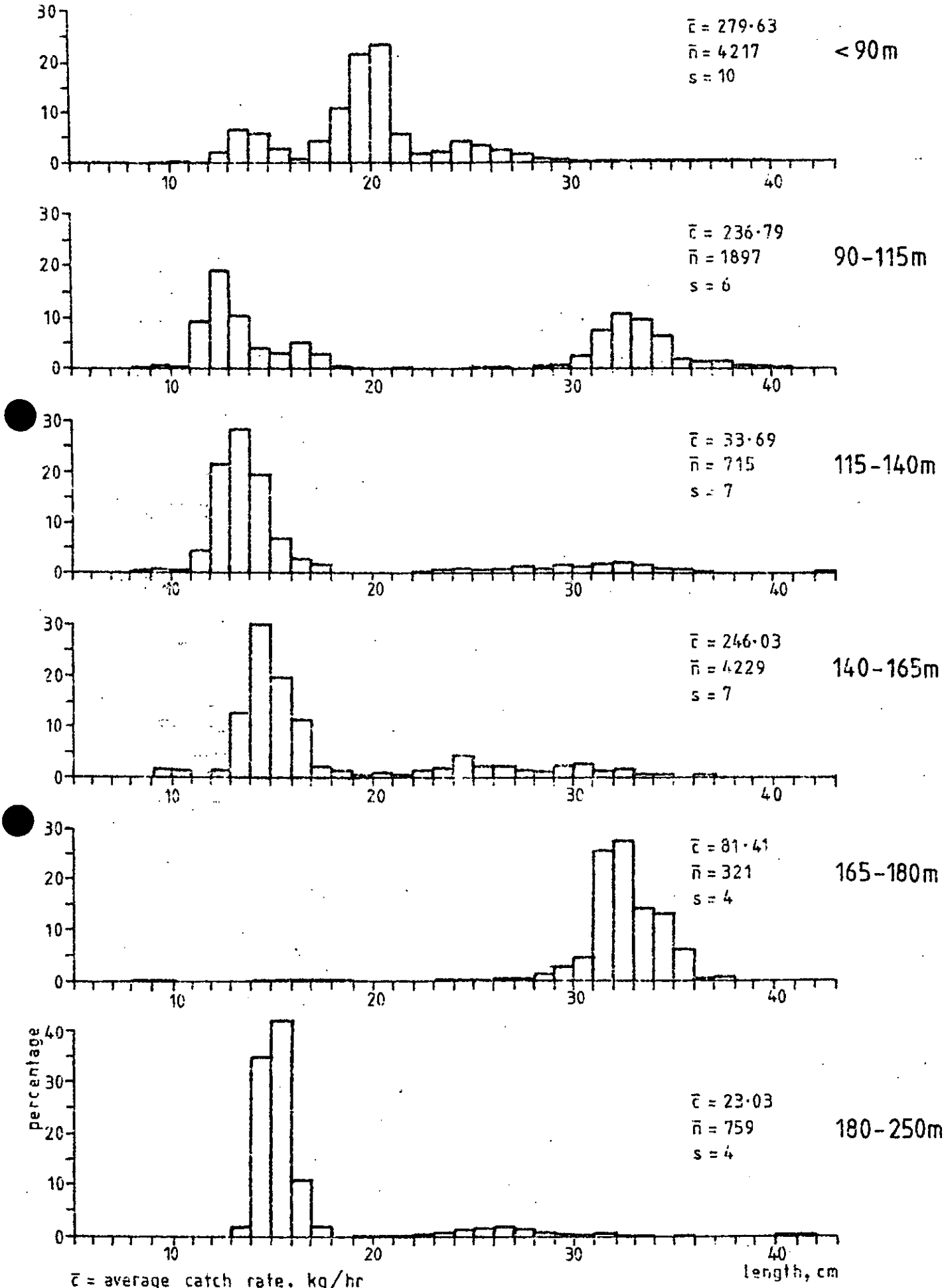


c̄ = average catch rate, kg/hr

n̄ = " " " , nos of fish/hr

s = total number of stations

T. trachurus

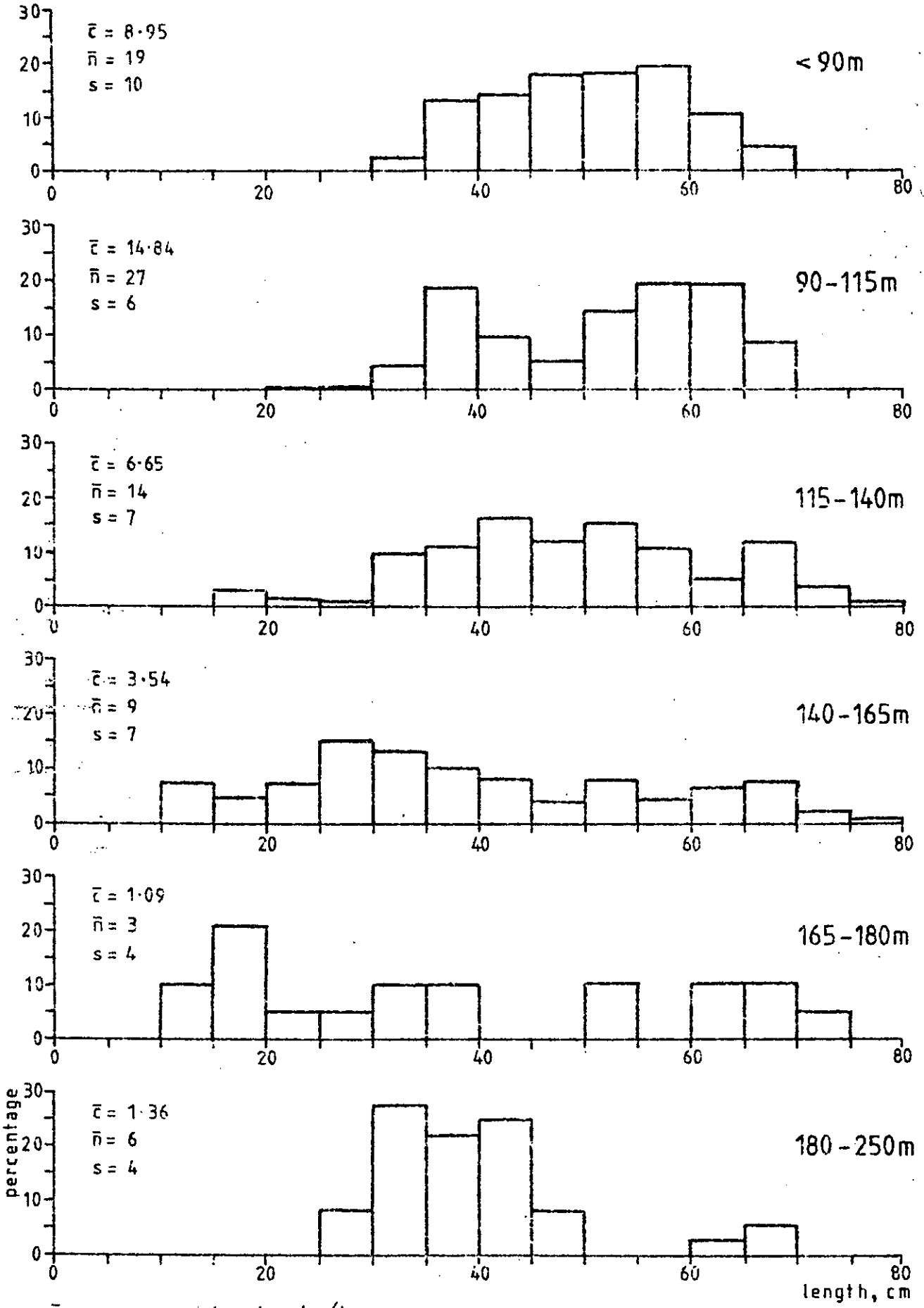


c̄ = average catch rate, kg/hr

n̄ = " " " , nos of fish/hr

s = total number of stations

S. caniculus



c̄ = average catch rate, kg/hr
n̄ = " " " , nos of fish/hr
s = total number of stations