

In confidence: Not to be quoted without reference to the Laboratory.

5GR78

FRV "GOLDSEEKER"

CRUISE 5/78

REPORT

5-29 JUNE, 1978

Objectives

- 1) To study
- 2) To release
- 3) To study

Narrative

Scientific equipment and creels were loaded at Invergordon on the evening of 5 June. The RN Oil Fuel Depot kindly provided storage for diving gear. All the work was carried out 3 miles off Balintore (57° 43'N, 03° 51'W) at a depth of 30 m. Diving studies were carried out during the first two weeks. Unfortunately, two divers were unfit to dive for most of the time so that obj. 3) had to be cancelled. The new Eventon pot-hauler worked well after initial teething problems were put right by the manufacturers. The cruise ended at Buckie on 29 June, "Goldseeker" having to be towed into harbour by FRV "Mara" because of a steering fault.

Results

Survival of Nephrops in cages

The following categories of Nephrops were placed in cages on the sea bed and their survival recorded over several days:

- a) 30 creel-caught (32-64 mm CL) tagged with plastic toggle tags inserted through the junction between carapace and abdomen.
- b) 14 creel-caught (31-55 mm CL) tagged with plastic streamer tags.
- c) 30 creel-caught (35-62 mm CL) untagged (control group).
- d) 58 trawl-caught (22-52 mm CL) obtained from commercial vessel.

All the creel caught animals were brought up in daylight and quickly transferred to light-proof bins. The trawl-caught animals were obtained at night. On deck the Nephrops were maintained in cold sea water (9°C) pumped from close to the sea bed. Tagging was carried out under dim red light to prevent damage to the eyes. Divers visited the cages periodically to record numbers surviving. The results are summarised in Table I.

Table I Survival of Nephrops in cages as percentage of original number after different times (to nearest $\frac{1}{2}$ day)

Category	DAYS							
	$\frac{1}{2}$	1	$1\frac{1}{2}$	2	3	7	$8\frac{1}{2}$	10
tagged a)		53		53	50			10
tagged b)						36		
control c)		87		83	80			50
trawl d)	91		67				50	

for the duration of the experiment,

The results show that 50% of trawl and creel-caught non-tagged Nephrops survived which represents a higher mortality than last year. The survival of tagged Nephrops released into the wild was almost certainly better than indicated in Table I. Some of the tagged animals may have escaped from the cage (since one has been returned by a fisherman recently).

Creel catches

Up to four fleets of 25 creels were fished for periods of 1-5 days using salt herring bait. Good catches were obtained; combining all hauls the average catch was 4 Nephrops/creel. The size and sex compositions are given in Table II. Females accounted for 37% of the catch and 24% of them were berried.

Table II Length and sex composition of creel catches.

Carapace length mm	25/29	30/34	35/39	40/44	45/49	50/54	55/59	60/64	65/69	Total
Males	4	161	342	317	334	366	281	133	19	1957
Females	18	199	356	309	191	58	9	-	-	1140

Tagging

1964 toggle-tagged Nephrops (1285 males, 679 females) were released in the area during the cruise. The carapace lengths of these animals were measured to the nearest 0.1 mm. At the time of write up 68 tagged Nephrops have been recaptured by commercial trawlers. All of these were caught in the area where they were released and none of them had moulted.

G J Chapman
12 September 1978

Seen in draft: W B Reid