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Not to be cited any prior reference to the Marine Laboratory, Aberdeen

Charter Report - Gairloch (EC Contract on Fishing Mortality)

Charter Vessel MV *Salar*

**REPORT**

1996H Part II(2)

8-20 September 1996

**Personnel**

G I Sangster	HSO (in charge)
R J Kynoch	SO
M Breen	SO
D J Bova	SO

**Objectives**

1. To complete the fish and *Nephrops* survival experiment and remove all equipment from the seabed at the Longa Island site.
2. To clear the shore base site at Gairloch harbour.

**Out-turn days to project:** 13 days C544

**Narrative**

Staff travelled to the Gairloch shore site on 8 September. The diving team worked on a daily basis from Gairloch harbour to the Longa Island cage site. All captive fish were removed from the seabed cages into a hoop-supported small mesh cover attachment. The fish were then raised to the surface raft for further investigation, then transferred to the Aultbea site holding tanks. Haddock and whiting were moved to the Marine Laboratory aquarium during the first week in October for further experimental purposes. The *Nephrops* survival experiment was terminated and all animals were collected by divers from their respective holding pens. All survivors from each treatment category were sexed and measured. All fish cages and *Nephrops* pens were raised to the raft and returned by sea to Gairloch harbour. The raft was towed into the inner harbour at high water and dismantled during the next low tide. The shore base site was cleared on 19 September. Staff returned to Aberdeen on 20 September. All hired portakabins and steel storage containers were returned to Aberdeen during the period between 24-27 September.

## Results

There were inadequate numbers of whitefish target species on the *Nephrops* grounds to undertake a survival experiment. Survival of *Nephrops* was assessed both after a) escape through 60 mm square and 100 mm diamond mesh cod-ends and, b) after being retained in a 70 mm diamond mesh cod-end, then discarded on deck. Insufficient numbers of *Nephrops* escaped from the 70 mm diamond mesh cod-end, even although numerous hauls were carried out to try to obtain enough animals for the survival work. This may have been because of the fishing gear "mudding up" on occasion, or merely the openness of the 70 mm diamond meshes. However, to make full use of a) the remaining charter time and b) the available *Nephrops* pens, a second triplicated experiment on 60 mm square mesh cod-end escapees was undertaken. All control *Nephrops*, obtained from a commercial creel boat operating in the fishery, survived. Furthermore, body damage data was also collected from all *Nephrops* mortalities. The data from this joint SOAEFD/DIFTA/IMR/SEIMT EU project will be analysed by all four institutes according to the tasks laid down in the agreed workplan and included in the mandatory first Interim Report of FAIR Project C544 due by 31 January 1997. Some very preliminary numerical results from the *Nephrops* survival experiments are presented in Tables 1 and 2.

*Nephrops* escapee survival from a 60 mm square mesh cod-end may not now be studied again in the project. The second year's *Nephrops* survival work will concentrate on deck discards, and escapes from at least 70 mm and 100 mm diamond mesh cod-ends as well as a complete fish bycatch survival/damage experiment. The final decision may depend on the 1996 results, after a fuller analysis is completed which will consider survival and damage as a function of length, age and mesh size. Objectives and contingencies will be discussed at the next project coordination meeting in January 1997.

G I Sangster  
30 December 1996

TABLE 1

Preliminary *Nephrops* survival data

Experimental category	Cage (no)	<i>Nephrops</i> in Expt (no)	Mortalities (no)	Survival (%)
60 mm escapes I	1	96	22	77.1
	3	95	10	89.5
	11	96	10	89.5
60 mm escapes II	5	58	3	94.8
	9	96	13	86.4
	14	83	23	72.3
70 mm deck discards	7	94	74	23.4
	13	96	63	34.3
	15	96	60	37.5
100 mm escapes	4	96	26	72.9
	6	96	21	78.1
	8	95	12	87.3
Control	2	96	0	100
	10	95	0	100
	12	93	0	100

TABLE 2

Range of *Nephrops* survival (%) for each experiment category (from Table 1)

Category	Range of survival %		
60 mm escapes I (cages 1, 3, 11)	77.1	89.4	89.5
60 mm escapes II (cages 5, 9, 14)	94.8	86.4	72.3
100 mm escapes (cages 4, 6, 8)	72.9	78.1	87.3
70 mm discards (cages 7, 13, 15)	23.4	34.3	37.5
Controls (cages 2, 10, 12)	100	100	100