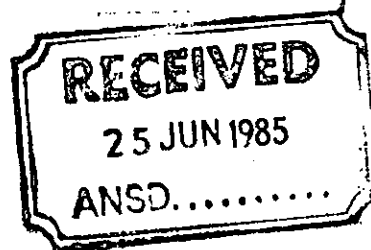


Indexed



R1/6

4GB85

In Confidence: Not to be quoted without prior reference to the Laboratory

LD

FRV "Clupea"

Cruise 4/85

Report

Part 2 6-16 April 1985

Personnel

F G Howard  
C J Chapman  
K A Ballantyne  
K MacKenzie (Jnr)  
T McInnes

Objectives

1. To determine catch rates, size composition and maturity of Nephrops in the South and North Minches.
2. To determine catch rates and species composition of fish by-catches in these areas.
3. To study growth of Nephrops in different parts of the South and North Minches.
4. To study the incidence of the Nephrops gut parasite Stichocotyle nephropis in these areas.
5. To obtain mud samples for particle size, shear stress, organic carbon and faunal analysis.
6. To test a 20fm Nephrops trawl fitted with a separator panel.

Narrative

The scientific staff joined "Clupea" on 5 April 1985 at Troon. Gear from the previous cruise (4/85 Part 1) was off loaded, and equipment for Part 2 loaded. "Clupea" sailed from Troon at 1100 hours and proceeded to the South Minch. Trawl and grab survey work started on 6 April, 2 one-hour trawl hauls and 4 grab samples were made in Three Passage.

Trawl hauls and grab sampling were carried out at 4 other stations in the South Minch, before proceeding to Stornoway for the half landing on 9 April.

The trawl and grab programme restarted on 10 April, and 7 stations in the North Minch were sampled.

T McInnes joined the ship at Gairloch on 11 April to make a photographic record of the sampling procedures. He was landed again at Gairloch on 12 April. Because

of northerly gales "Clupea" proceeded to Stornoway and remained there on 13 April. The scientific staff left the ship and the gear was unloaded at Ullapool on 15 April. After loading equipment for the next cruise (5/85) "Clupea" proceeded to Stornoway, where she remained during the crews' leave.

### Results

All trawling was conducted using the 20 fathom small mesh trawl (BT 118A). Catch rates of Nephrops in the South Minch averaged 32.8 kg/hr (range 6.5 to 111.7) and in the North Minch 13.8 kg/hr (range 5.3 to 41.4). Length and sex composition of the catches from each fishing ground are given in Table 1. Pleopods from a sample of Nephrops taken from each haul were examined microscopically for evidence of moulting. The proportions of Nephrops in pre-moult stages are shown in Table 2. Female Nephrops were further examined to determine ovary stages, the proportions at each ovary stage are shown in Table 3.

Nephrops from each haul were examined for the gut parasite Stichocotyle nephropis, no evidence of the parasite was found.

Juvenile fish were taken in moderate quantities in most hauls, whiting and Norway pout predominated. Samples from each haul were examined, the proportions of species by weight of those sampled are given in Table 4.

Grab samples were taken from 2 stations along the line of each trawl haul for particle size, organic carbon and faunal analysis.

F G Howard

12 June 1985

Seen in draft: W Smith

Table 1Size and sex composition of Nephrops catches. (Raised totals)

| Carapace length<br>mm | 10-14 | 15-19 | 20-24 | 25-29 | 30-34 | 35-39 | 40-44 | 45-49 | 50-54 | 55-59 | Total |
|-----------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Three Passage         |       |       |       |       |       |       |       |       |       |       |       |
| Males                 |       | 803   | 1899  | 2332  | 1317  | 314   | 58    | 12    |       |       | 6735  |
| Females               |       | 1036  | 2337  | 1194  | 73    | 24    |       |       |       |       | 4664  |
| Hawes Bank            |       |       |       |       |       |       |       |       |       |       |       |
| Males                 |       | 1     | 4     | 6     | 19    | 41    | 46    | 16    | 6     | 2     | 141   |
| Females               | 1     | 2     | 5     | 4     | 0     | 1     | 0     | 1     |       |       | 14    |
| Muldoanich            |       |       |       |       |       |       |       |       |       |       |       |
| Males                 |       | 1     | 5     | 26    | 76    | 62    | 37    | 4     |       |       | 211   |
| Females               |       |       | 3     | 25    | 4     |       |       |       |       |       | 32    |
| Boisdale              |       |       |       |       |       |       |       |       |       |       |       |
| Males                 |       | 3     | 15    | 258   | 489   | 246   | 123   | 51    | 3     |       | 1188  |
| Females               |       | 3     | 17    | 158   | 45    | 13    | 1     |       |       |       | 237   |
| NW Canna              |       |       |       |       |       |       |       |       |       |       |       |
| Males                 |       | 30    | 116   | 262   | 414   | 248   | 54    | 4     | 2     |       | 1130  |
| Females               | 2     | 35    | 91    | 133   | 21    | 5     |       |       |       |       | 287   |
| Mona-on-Tuimpan       |       |       |       |       |       |       |       |       |       |       |       |
| Males                 |       |       | 3     | 39    | 426   | 405   | 183   | 63    |       |       | 1119  |
| Females               |       |       | 6     | 56    | 156   | 13    | 3     |       |       |       | 234   |
| Coigach               |       |       |       |       |       |       |       |       |       |       |       |
| Males                 |       | 15    | 80    | 160   | 149   | 59    | 15    | 6     | 1     |       | 485   |
| Females               |       | 12    | 67    | 11    | 7     | 1     |       |       |       |       | 98    |
| Rhu Re                |       |       |       |       |       |       |       |       |       |       |       |
| Males                 |       | 2     | 22    | 45    | 65    | 56    | 20    | 9     | 1     |       | 220   |
| Females               |       | 1     | 12    | 34    | 6     | 1     |       |       |       |       | 54    |
| Homer                 |       |       |       |       |       |       |       |       |       |       |       |
| Males                 |       | 1     | 19    | 75    | 70    | 31    | 17    | 15    | 3     |       | 231   |
| Females               |       | 1     | 33    | 62    | 12    | 2     |       |       |       |       | 110   |
| Rassay Sound          |       |       |       |       |       |       |       |       |       |       |       |
| Males                 |       |       | 4     | 8     | 49    | 28    | 20    | 12    | 7     | 1     | 129   |
| Females               | 1     | 0     | 2     | 14    | 36    | 3     |       |       |       |       | 56    |
| Burna                 |       |       |       |       |       |       |       |       |       |       |       |
| Males                 |       |       |       | 17    | 57    | 36    | 24    | 10    | 2     | 1     | 147   |
| Females               |       |       | 3     | 24    | 2     | 1     |       |       |       |       | 30    |
| N Homer               |       |       |       |       |       |       |       |       |       |       |       |
| Males                 | 3     | 6     | 189   | 294   | 192   | 96    | 24    | 15    | 3     |       | 822   |
| Females               |       | 20    | 280   | 280   | 20    | 2     |       |       |       |       | 602   |

Table 2

Proportions of Nephrops in pre-moult stages

South Minch:

|          |                  |                  |               |            |          |             |
|----------|------------------|------------------|---------------|------------|----------|-------------|
| Haul No: | C85/40           | /41              | /42           | /43        | /44      | /45         |
| Grounds: | Tiree<br>Passage | Tiree<br>Passage | Hawes<br>Bank | Muldoanich | Boisdale | NW<br>Canna |
| Males:   | 16.9%            | 18.6%            | 15.5%         | 8.5%       | 5.7%     | 12.2%       |
| Females: | 30.8%            | 41.3%            | 50.0%         | 12.5%      | 11.4%    | 25.3%       |

North Minch:

|          |                     |         |        |       |                 |       |         |
|----------|---------------------|---------|--------|-------|-----------------|-------|---------|
| Haul No: | C85/46              | /47     | /48    | /49   | /50             | /51   | /52     |
| Grounds: | Mona-on-<br>Tuimpan | Coigach | Rhu Re | Homer | Raasay<br>Sound | Burma | N Homer |
| Males:   | 15.8%               | 12.1%   | 21.5%  | 19.3% | 15.8%           | 8.2%  | 18.5%   |
| Females: | 10.1%               | 21.7%   | 14.8%  | 25.9% | 9.8%            | 10.0% | 22.0%   |

Table 3

Female Nephrops: proportions at different ovary stages

| South Minch: | Ovary Stage |     |     |     |      |      | No<br>examined |
|--------------|-------------|-----|-----|-----|------|------|----------------|
|              | 0           | 1   | 2   | 3   | 4    | D    |                |
|              | 45%         | 16% | 18% | 20% | 0.1% | 1.0% | 819            |
| North Minch: | 37%         | 15% | 24% | 22% | 1.5% | 0.3% | 668            |

Table 4

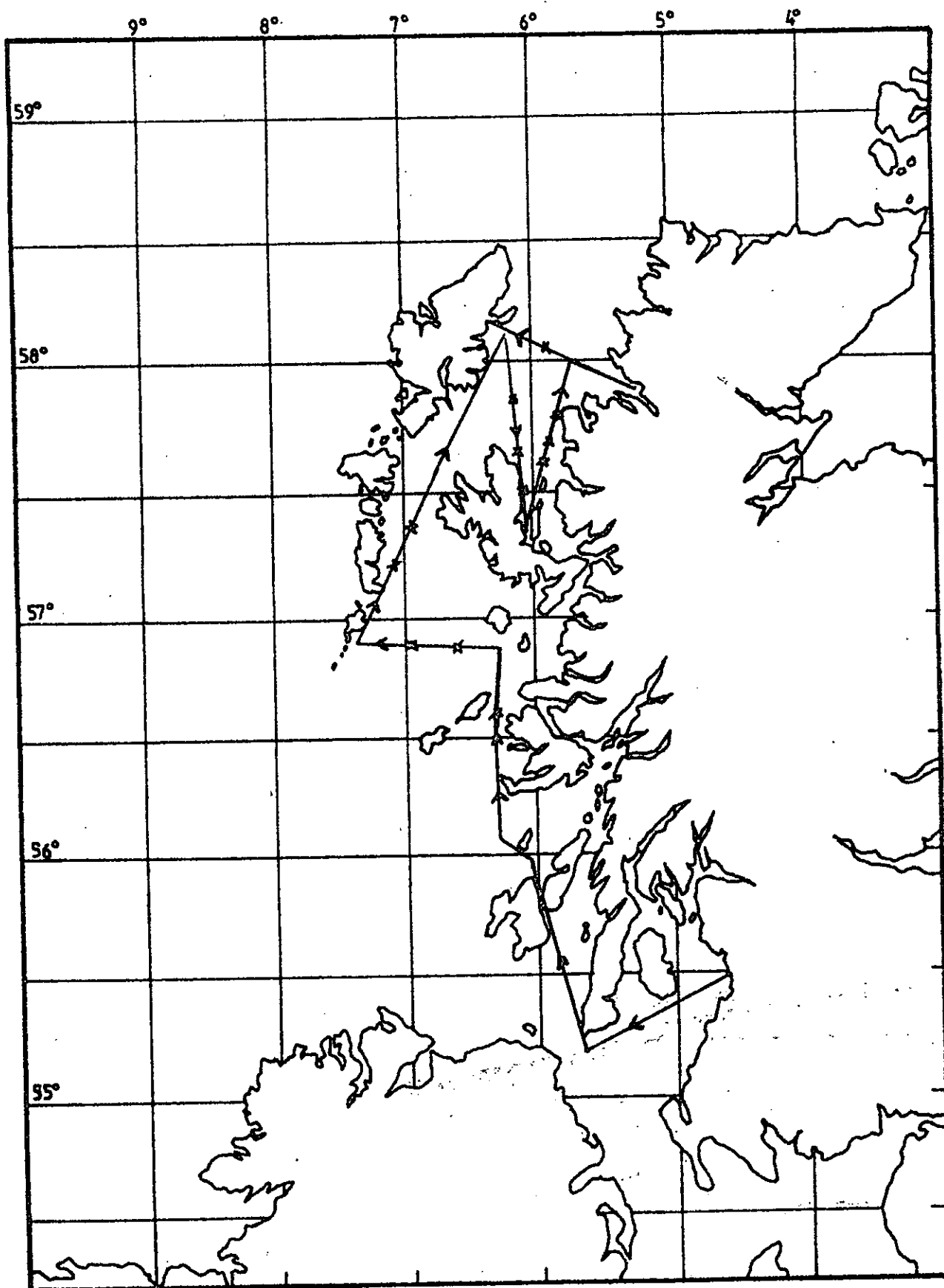
Species compositions of fish by-catches

South Minch: percentage catch by weight

|                   |      |
|-------------------|------|
| Haddock           | 5.6  |
| Whiting           | 19.0 |
| T. esmarki        | 36.6 |
| T. minutus        | 5.1  |
| Hake              | 2.2  |
| Lemon sole        | 1.8  |
| Witch             | 1.3  |
| Long Rough Dab    | 11.6 |
| Herring and Sprat | 6.0  |
| Dogfish sp        | 1.3  |
| Others            | 0.9  |
| Pandalus          | 8.2  |
| Cephalopods       | 0.4  |

North Minch

|                             |      |
|-----------------------------|------|
| Haddock                     | 7.5  |
| Whiting                     | 22.1 |
| T. esmarki                  | 36.7 |
| Hake                        | 1.4  |
| Four bearded rockling       | 3.5  |
| Lemon sole                  | 3.1  |
| Witch                       | 4.4  |
| Long Rough Dab              | 1.5  |
| Herring and Sprat           | 1.4  |
| Dogfish sp                  | 2.5  |
| Others                      | 0.7  |
| Pandalus                    | 13.4 |
| Cephalopods                 | 0.2  |
| Funiculina and<br>Asteronyx | 1.6  |



'CLOPEA'

6-16 April 1985

X. TRAWL AND  
BRAB STATION.