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MRV Alba na Mara

Survey 1312A

## REPORT

28 July – 11 August 2012

### Ports

**Loading:** Fraserburgh, 25 July 2012

**Sailing:** Fraserburgh, 28 July 2012

**Unloading:** Leith, 11 August 2012

### Personnel

A Weetman (SIC)

C Shand

M Inglis

**Out-turn days by project:** 15 days RV1208, 20092

### Gear

50 mm prawn trawl BT 201.

2 x Day grabs and 1 x sieving table

Towed TV sledge, 600m umbilical towing cable and cameras (plus backup)

TV drop frame (large version)

### Objectives

- To obtain estimates of the distribution and abundance of *Nephrops* burrows in the Firth of Forth, Moray Firth and, if time allows, off Arbroath using underwater cameras.
- To use the TV footage to record the occurrence of other benthic fauna and evidence of commercial trawling activity.
- To collect trawl caught samples of *Nephrops* for comparison of reproductive condition and morphometrics in each of the different survey areas.
- To collect samples of *Nephrops* stomachs for evidence of the parasite *Stichocotyle nephropis*.

### Narrative

Scientific staff joined MRV *Alba-na-Mara* on 28 July and after fitting some additional equipment to the sledge, the vessel sailed for the first station at the Southern Trench in the Moray Firth. This site was used to pay out the majority of the cable and re-spool it back on to the winch under tension, to avoid loose coils of cable developing later in the survey. With calm seas the more offshore stations were surveyed first before going to anchor in New Aberdour Bay. The vessel worked west over the next two days, anchoring at Cullen and Lossiemouth on successive nights. On 31 July further TV sites were surveyed through the

day and in the evening a trawl was carried out before anchoring in Burghead Bay. On 1 August, in fresh conditions, the sites off Tarbat Ness were surveyed as well as those off Forres, which completed all the Moray Firth TV stations. The vessel then returned to the anchorage at Burghead Bay.

On the return journey to Fraserburgh on 2 August, a trawl was carried out around midday, and the catch was worked up en route to port, arriving there in the evening. After taking on water the vessel sailed for St Andrews Bay on the morning of 3 August. Thick fog accompanied the vessel over the following two days; TV sites off Eyemouth and in the outer Firth of Forth were surveyed, anchoring at Pease Bay and at the Isle of May on consecutive nights.

TV operations continued throughout 6 August before returning to the Isle of May after a trawl. Work continued westward during the next two days in sometimes difficult conditions due to fresh winds and deteriorating visibility on the seabed. Another trawl was completed on 8 August and the catch was worked up whilst at anchor in Largo Bay.

The trawl was cleaned on the morning of 9 August before continuing with the TV survey throughout the rest of the day. The last few stations off Leith were surveyed on the morning of 10 August before going in to port, where all working areas were cleaned and scientific equipment was packed away.

A debrief was held on 11 August after which all scientific staff departed from the vessel.

## Results

All original and subsequent additional, TV stations were created in accordance with the protocols agreed by the Study Group on *Nephrops* Surveys (SGNEPS). The sites were chosen using a stratified random approach, using muddy sediment as defined by the British Geological Survey (BGS) as the strata to work within. This sediment has been proved to be the substrate that *Nephrops* inhabit. To avoid clustering of the random points both the Moray Firth and the Firth of Forth were sectioned off in to east, west and central areas, and the number of stations per area were allocated proportionally by the surface area of the muddy sediment in each area. The original stations were generated in advance of the survey, however, due to good weather conditions additional stations were generated during the survey. A summary of the number of stations, trawls and sediment samples by survey area is illustrated in Table 1 below.

In addition to the survey design, all the video footage was collected and reviewed as directed by SGNEPS. Training was carried out ahead of the survey with further assistance whilst at sea provided by an experienced member of staff. All the Moray Firth footage and 50% of the Firth of Forth video footage gathered on this survey was reviewed by two members of staff whilst at sea. This data will be analysed and where significant differences between the two reviewer's values are observed, on returning to Aberdeen the footage will be reviewed a third time. The final results will be used in ICES assessments to help provide management advice.

Trawling was carried out in both survey areas with a high degree of success with the new trawl and doors. Measurements of length frequency by sex were taken, as well as maturity stages, morphometric and weight data. In addition a number of males and females were sampled for morphometric data from each trawl with eight parameters measured per animal. This data is summarised in Table 2 below. Maturity data and length frequency information is required by the Data Collection Framework. Morphometric and weight data will be used at Marine Scotland Science to improve standard historical *Nephrops* relationships within the Fisheries Management Database. The net was cleaned before docking in Leith at the end of

the survey. Records of all marine litter collected during each trawl were made and the data passed on to the MSS coordinator in Aberdeen at the end of the survey.

No digital photographs were taken during this survey. However, still images can be obtained from the video footage if required, using Squared 5 software.

In total 118 sediment samples were taken during the survey, all of which were gathered using the sledge mounted mini van Veen grab. On returning to the Laboratory the samples will be analysed using the Mastersizer 2000 particle size analysis machine (PSA) based at the Marine Laboratory. The results will be used to improve survey design and BGS data.

Whilst at sea all available generated data was entered on various spread sheets in a format suitable to be uploaded directly in to the Inshore Ecosystem's TV survey database. This included: cruise summary; PSA records; haul data; *Nephrops* LFDs; morphometric data; station information for each TV site; video observations for each run and burrow counts. The final burrow count data for the remaining Firth of Forth footage will be entered once the footage has been reviewed.

Just prior to sailing the request for *Nephrops* stomach samples to analyse for the presence of the parasite *Stichocotyle nephropis* was rescinded.

A Weetman  
14 September 2012

**Table 1**

A summary showing the number of TV stations surveyed, the number of fishing tows and sediment samples taken, by survey area on 1312A.

<b>Area</b>	<b>Number of Original TV Stations</b>	<b>Number of Additional TV Stations</b>	<b>Number of Fishing Trawls</b>	<b>Number of Sediment Samples</b>
Moray Firth	47	0	2	46
Firth of Forth	51	24	2	72

**Table 2**

A summary of the trawl data collected on 1312A.

<b>Area</b>	<b>a) Number of <i>Nephrops</i> sampled for length frequency distribution</b>	<b>b) Number of <i>Nephrops</i> sampled for morphometric measurements</b>	<b>Total number of <i>Nephrops</i> measured (a+b)</b>
Moray Firth	434	95	529
Firth of Forth	496	100	596

# Firth of Forth

Completed TV Stations and trav



