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FRV *Clupea*

Cruise 1007C

REPORT

11-25 July 2007

Ports

Sailing: Fraserburgh

Unloading: Fraserburgh

Personnel

A Weetman (SIC)

C Shand

N Campbell

Objectives

- To obtain estimates of the distribution and abundance of *Nephrops* in the Firth of Forth and Moray Firth using underwater cameras.
- To collect sediment samples at each station.
- To use trawl caught samples of *Nephrops* to examine biological features at different sites throughout the survey areas.
- To record benthic fauna interactions with a creel whilst *in-situ*.
- The TV survey will also be used to collect data on other benthic fauna.

Estimated Project Time:

Out-turn days per project - 15 Days RV0710

Gear

50 mm prawn trawl BT 149B.

Day grab and table

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

TV drop frame

Creel frame and associated equipment

Narrative

The scientific complement joined RV *Clupea* at 1000 on Wednesday 11 July at Fraserburgh. However, due to a mechanical problem with the anchor's operating system, sailing was delayed until 2015, and by 2330 an anchorage was reached off Aberdeen.

Following a night in Aberdeen Bay, the vessel arrived at the first station off Fife Ness on the morning of the 12 July, and completed eight TV stations for the day, before anchoring in Pease Bay. The sea remained calm throughout the 13 July allowing the twelve more exposed stations off St Abb's Head to be successfully surveyed, before heading to St Andrews Bay to shelter from predicted bad weather. The weather did not effect TV operations until 1400 on the 14 July, by which time seven stations had been surveyed in the far east of the Firth. With the weather not improving, the trawl was deployed for a 1.25 hour tow, before *Clupea* headed for the anchorage at Scougall Road off Dunbar. Conditions were favourable on 15 July, permitting fourteen stations to be completed. These stations were mainly located along the south side of the firth and *Clupea* subsequently anchored at Largo for the night.

With a strong easterly gale on 16 July, sailing was delayed till 1045 by which time conditions had improved slightly. One site was surveyed before *Clupea* made a lengthy steam to the most westerly station. To comply with WTD rules, the vessel then returned to Largo Bay, to drop anchor at 1530, where the vessel lay until 2000. At this time, *Clupea* headed for a known *Nephrops* trawl site, and shot the net at 2100. Following an hour long tow, the vessel returned to the anchorage whilst the catch was worked up.

At 0800 on 17 July, the vessel left the anchorage, and completed eight sites in perfect conditions before going to anchor off the Isle of May at 1445. Sailing again at 2000, the trawl was shot soon after for an hour long tow on *Nephrops* grounds to the south of the May, providing an excellent catch of *Nephrops*, which was worked up whilst steaming to the anchorage at St Andrews Bay.

In uncomfortable conditions, *Clupea* headed north on 18 July, having completed the TV survey in the Firth of Forth, arriving in Fraserburgh at 1930.

On Thursday 19 July, work was carried out in the east of the Moray Firth, and *Clupea* managed to survey nine TV sites. With such strong winds from the North, anchoring in the Firth was not an option, and accordingly *Clupea* returned to Fraserburgh.

Weather conditions had much improved by the morning of 20 July, which allowed five stations to the North East of Fraserburgh to be surveyed before heading west towards Burghead, picking up two further stations en route. However, two further stations had to be abandoned due to poor water visibility caused by localized fishing activity. Before anchoring off Burghead for the night, the baited creel cam was successfully deployed.

After recovering the creel cam, the vessel continued working west, in good sea conditions, covering nine TV sites for the day. TV operations were then halted to head for Invergordon, where Adrian Tait joined the vessel for the remainder of the trip.

A heavy northerly swell and heavy rain continued throughout most of Sunday 22 July, which hampered the survey the further east from Tarbat Ness the vessel ventured. Once the sledge began lifting from the seabed, the vessel headed back north west towards Helmsdale to try and cover some of the stations that might be sheltered by the land. This proved a success and work

continued until all available stations in that area were completed. The vessel then revisited some of the sites previously abandoned in the morning. In total eight stations were completed that day, before anchoring off Lossiemouth for the night.

Although ten stations were surveyed the following day in ideal weather conditions, the large number of fishing vessels towing in the vicinity reduced the water visibility. Anchoring in Cullen Bay, over night the weather deteriorated, creating unworkable conditions for the sledge the following day. As a result, a lengthy daytime fishing tow was carried out before heading for Fraserburgh. Once in port the catch was worked up, the work areas were cleaned and all scientific equipment was washed and stored, ready for unloading on the 26 July.

Once the debrief was concluded, the scientific staff disembarked at 1030 on 25 July 2007.

Results

In total, this survey completed fifty-one TV stations in the Firth of Forth and forty two stations in the Moray Firth. These results provide sufficient data to perform the assessments for which the survey was designed. In addition to these sites, several successful deployments of the TV sledge were achieved but due to poor visibility on the sea bed or detrimental sea conditions, no useable footage was gathered.

Footage from all ninety-three TV stations was reviewed and verified whilst at sea.

Observations of the variety and abundance of fauna and anthropogenic activity on the seabed was recorded throughout.

Suitable sediment samples were collected at ninety one of the ninety-three TV stations surveyed, which will be subjected to Particle Size Analysis. Unsuitable substrate and mechanical problems resulted in two sites not being sampled. Once the samples have been analysed at the Marine Laboratory, the results will go towards improving future surveys.

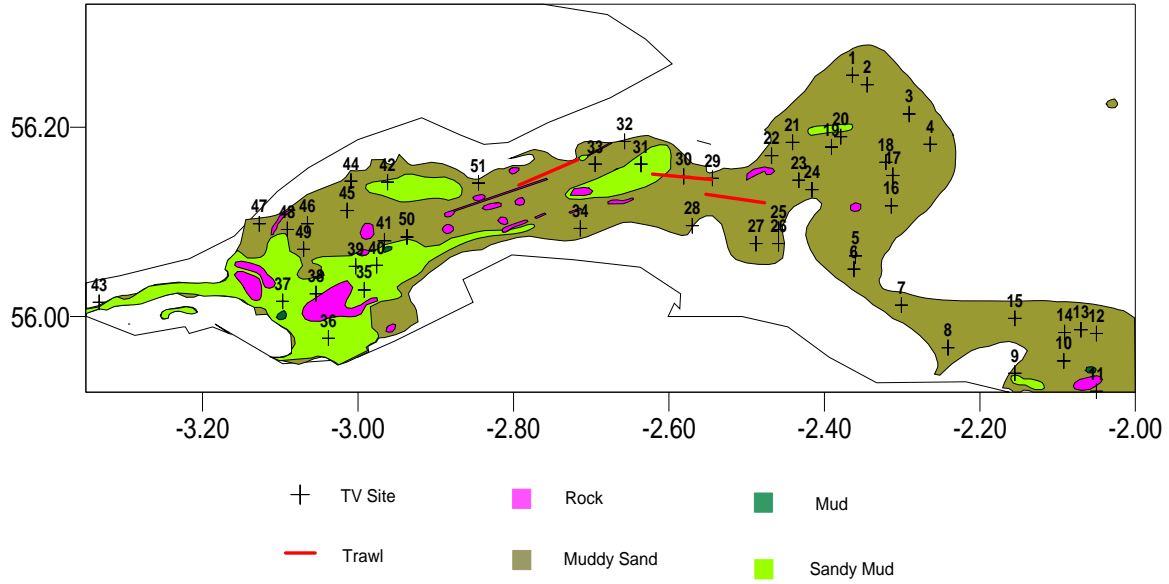
Four trawl tows were completed, one in the Moray Firth and three in the Firth of Forth. The measurements taken for recorded *Nephrops* were: sex, carapace length, tail width, total weight and tail weight. In addition, the females' ovaries were staged and the males' appendix masculina were measured.

Trawl data from the TV Survey aboard Scotia (0907S) carried out in the Moray Firth (S07/219) will be merged with data gathered on this trip to improve this surveys results.

The creel cam was deployed once during the trip, and provided clear, interesting footage of benthic activity surrounding a baited creel. This experience will help further develop the system.

A Weetman.
25 September 2007

Firth of Forth TV Survey July 2007



Moray Firth TV Survey July 2007

