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FRV Scotia

Cruise 0606S

REPORT

11-20 April 2006

Personnel

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Gear

BT 137 (Gov trawl) fitted with ground gear B and scanmar
FRS baited camera frame
Fish traps
2m beam trawl
CTD
Day Grab and sieving table

Out-turn days – 9 MF06s

Objectives

1. To conduct a trawl and baited camera survey around the Buzzard platform site.
2. To carry out further baited camera and trawl sampling at other selected locations away from the Buzzard platform and/or at the Scott and Telford platform sites.
3. To collect sediments for organic carbon, particle size, polycyclic aromatic hydrocarbon (PAH), chlorobiphenyl (CB) and brominated flame retardants (BFR) chemistry within the Buzzard survey area and from selected locations away from the Buzzard site.
4. To sample flatfish species from trawls in the survey area and other locations for biological effects (hepatic mixed function oxidase by EROD determination and PAH bile metabolites) and chemical analyses (PAH and CB).

5. To test fish traps tested as a method for collecting samples around the platform in the future.

Narrative

Scotia sailed from Aberdeen at 1000 on Tuesday 11 April and made passage to the Buchan Deeps to carry out winch tests and shakedown deployments of the baited camera mooring. However, problems with one of the propulsion motors forced a return to Aberdeen where the vessel remained until 1500 the following day. Once performance tests were complete, Scotia made way towards the Buchan Deeps, arriving at 1800. An un-instrumented familiarization deployment of the frame and mooring line was carried out. Once this had been recovered, and winch tests were complete, Scotia continued to the Buzzard control site, arriving on station at 2225. The first baited camera deployment was made shortly afterwards. A second deployment was made 1200m to the south of the platform in the early hours of Thursday morning. During retrieval of this deployment, later that morning, marginal weather conditions resulted in the vessel running over the mooring line as it was brought onboard and the line parted approximately 15m above the floatation package. As a result, the camera frame was left on the sea-floor without a line to the surface. Whilst clearance to recover the frame by trawling was being agreed, a fishing tow to the east of Buzzard was carried out to obtain flatfish for biological effects and chemical analysis. Following this, Scotia headed to Peterhead to collect a recovery trawl, returning to the Buzzard site that evening. A series of 14 sediment grabs were made overnight around the platform perimeter and at the control site.

Recovery trawling began at 0800 on Friday 14 April. On the third attempt, the readings from the scanmar units mounted on the camera frame indicated that it had been snagged by the trawl. The frame was brought to the surface, but sunk before it could be brought onboard. Following a fourth attempt, the frame was successfully recovered undamaged. Whilst checks to the equipment were made, a second tow for flatfish was carried out to the south of Buzzard. Once checks were complete, the baited camera was deployed that evening. Over the following two days, baited camera deployments and beam trawl tows were carried out at the Buzzard site; along with fish trap deployments and GOV trawling at various other locations within the region. Weather deteriorated on the morning of Monday 17 April, preventing the scheduled recovery of the baited camera or any other work. Once weather subsided, around midday, fishing and beam trawl work was resumed with a series of CTD deployments also being made around the perimeter of the platform. At 1930 the baited camera was recovered and redeployed. Camera, beam trawl and trap work continued through Tuesday. On the final day of the cruise, in between camera and trap deployments, a series of three fishing tows were made, two at the control site and one to the west of the platform. Biological data was collected for gadoids on all three tows. The final camera deployment was recovered at 2100, after which Scotia headed for Aberdeen, arriving in harbour on the morning of Thursday 20 April.

Results

A total of 20 deployments of the baited camera were made, of which 17 were successful. An initial deployment was unsuccessful due to unexpected frame orientation affecting the camera view. Re-positioning of the scanmar units appeared to solve this. On two other occasions water ingress into one of the camera connectors resulted in failure to take any photos. Recovery of a number of deployments was delayed due to the poor weather. With the larger memory card now installed (1GB), up to 900 photos were taken over 15h. However, this larger card also took longer to download photos (approximately 2 hrs for 900 photos). A similar mix of species as previously observed were attracted to the bait; haddock, whiting, hagfish and flatfish spp, with cod photographed for the first time. The fish traps were deployed 7 times at a variety of locations. Soak times and bait were varied at those

deployments outwith the Buzzard locality, with each deployment in association with a 30min GOV tow. The two deployments made in association with baited camera deployments used the same standard bait as the camera. The traps caught small numbers of whiting and haddock in very good condition, with common dab and Norway pout in one deployment. They also caught hagfish, sometimes in large numbers. The camera and trap data will be analysed as part of an MSc project.

A total of eight beam trawls were carried out in the region, during both daylight and darkness. Nine GOV tows were completed; six at locations around Buzzard, two at the control site to the east of Buzzard and one tow as close as was possible to the Buzzard platform. The catch was fully worked up for all hauls, with additional biological data collected for haddock (154), whiting (132) and cod (15) for the three tows within the Buzzard area. These data along with previous year's are building a baseline / control time series against which changes in fish and invertebrate abundance closer to the platform, sampled using baited camera and ROV, can be compared.

Representative male flatfish from all hauls were collected for hepatic mixed function oxidase activity (by kinetic EROD determination normalised to protein concentration), PAH bile metabolites, liver and muscle PAH and CB analyses. A total of 54 lemon sole, 51 common dab and 15 plaice (all male) were processed with the hepatic protein concentrations determined on board in all samples. Concentrations of PAH metabolites, determined as 1-OH-pyrene equivalents, were also measured in bile samples. The hepatic S9 fractions were cryo-preserved and stored in liquid nitrogen for subsequent EROD analysis.

Sediment was collected by Day grab from 500m and 1000m east, south, west and north of the platform and from the control site. These will be analysed for organic carbon, particle size, polycyclic aromatic hydrocarbons (PAH), chlorinated biphenyls (CB) and brominated flame retardants.

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14 November 2006