Appendix B - JCR75 Cruise Report
RV LANCE - LSF April 2002 - Mooring report

A single point sub surface mooring was deployed from RV Lance on 16th April 2002 at 1825Z. Final position N79 03.25' E011 17.96 in 200m water.
The mooring was placed off the main axis of the Fjord, this area is trawled for prawns during the summer. The mooring has no surface pellets because of the ice, the sub surface sphere is 15m below the surface.

The mooring has a number of objectives:-

To measure the onset of the Spring bloom

To collect this material as it sinks

To study the incursion of Atlantic water

To measure the currents and temperature through the water column
(Do internal waves exist?)

To study the vertical migration of Zooplankton (If any?)

The first deployment attempt on 14th April 2002 was aborted due to the weather. There was a high chance of the instruments being damaged. The first attempt had been by S/S first, on consultation with the Captain and the PS it was decided to opt for an anchor first deployment. This is the usual technique employed by the Lance from the Std foredeck using the main winch and one of the cargo cranes. The mooring is stopped off using a hook attached to the Std rail. My only concern was the size of the deck block.

By the evening of the 16th April conditions had improved considerably, there was no ice and the deployment went smoothly with the exception of the occasional shackle jamming in the block, these were eased through using a crowbar. There was no problem with loose turns on the drum but one loop had dug in to the layer below, no major problems though.

The S/S sphere had an Argos beacon attached s/n 098/24333. The S/S sphere was moored at a depth of ~15m. A 10m pickup line was attached with 2 orange pellets attached. This sphere has no top pickup point so line attached to the link below the sphere. Wire used was 3 core plastic coated wires supplied by SOC, SWL 1T. One 10m section of 14mm 6x19FC was used directly below the chain under the sub-surface sphere, SWL 2T. Two BOSS 5T swivels were used, one below the S/S, one above the A/R.

10 VEMCO temperature miniloggers were distributed through the mooring at depths of 17m, 21m, 41m, 53m, 56.5m, 81.5m, 106.5m, 137m, 139.5m, 159.5m, Ser No's 4793, 3956, 5230, 8545(T+P), 5231, 8947, 8953, 9046(T+P), 8962 & 4792. All loggers were started in delay mode, start time
23:00Z 14/4/2002, all 12 bit loggers on 12 minute sampling enabling 90 days of data. The 8 bit loggers 4793,4792,9046 & 8545 were on 16 minute sampling enabling 89 days of data to be recorded. Loggers were attached to the mooring line via a single cable tie and electrical tape.

An 300KHz ADCP was deployed at a depth of 137m, set for 30 x 4m bins, interval 4 minutes, 33 pings per ensemble (error 0.5 cm/s), batteries good for 72 days (398.6Wh@0.0degC) . Clock set @ 020414171112Z and instrument
powered up @ 17:19Z 14/4/2002. Unit beeping away happily.

1 McLeans 21 bottle sediment trap was deployed at a depth of 52m, the schedule was set to line up the first bottle @ 00:00Z Thursday 18th April 2002, the interval was set to 3.5 days. Bottles were filled to the top with filtered sea water with 5 ppt extra salt and 2% w/v formadehyde which was buffered with sodium tetraborate. Volume of bottles was 520ml. Status message received from unit following setup was:-

15 April 2002 09:15:17 Vb 19 1 deg C aligned

Care was taken to ensure bottles did not freeze whilst unit was on deck prior to deployment. Event 22 i.e. all bottles full is timed for Sunday 30th June 2002 @12:00Z, we are due to pick up mooring on the 20/21st June on our way into Ny Alesund first time round.

2 SeaBird Microcats 37IM were deployed at 31m and 189m, Ser Nos 1124 and 1125 respectively. Both units were rebatteried prior to deployment. Unit 1124 had a 197m pressure sensor and unit 1125 was rated to 335m. Units will sample every 4 minutes, start up time 20:52Z 14/4/2002 & 20:40Z 14/4/2002 for units 1124 and 1125 respectively.

2 WS ESM1 loggers with SeaPoint fluorometers were deployed at depths of 17m and 55m respectively, Ser Nos 2338/2352 and 2341/2354 respectively. Four units were available but there was concern over 2 of the battery packs supplied. Units were set to burst every 6 secs for 3 minutes every hour. SeaPoint Fluorometers were set with 3X gain, this is software controlled. These units also record temperature and pressure.

Units were setup using the ESM software with the file LSF12002.ESM which contained the following script:-

```
set|1
set|11
wai|100
dev|Ch0
dev|Ch7
dev|Ch5
bur|600|30
wai|100
rst|1
rst|11
```

this script was then run every hour using

```
exe|0|3600|0
```

Unit 2341/2354 was powered up at 13:58:10Z 14/4/2002, light on @ 59:50Z, light off 02:52Z. Unit 2338/2352 first sample was centred on 14:00Z 16/4/2002. Both units were logging prior to deployment for the mooring. CTD's were deployed alongside the mooring to enable the calibration of the fluorometers. Paul Tett will supply calibrations at a later time. Loggers were attached to ½" L/L galvanised chain below the S/S and below the sediment trap.

An Acoustic Release was deployed at 190m depth, unit used was an OCEANO RT661 B1S, Ser No 226. Unit fitted with a full set of Lithium batteries. Unit had been fully tested from RV Calanus down to 200m prior to shipment to Tromso. Lab test was performed aboard RV Lance prior to deployment ON/OFF/RELEASE. Quick ON/OFF test was performed after deployment. TT301 set to MODE B, Window command B271(Wait 15s,Active 60s), ON B272, OFF B273, RELEASE 1 B274(W), DIAGNOSTIC B275(W), PINGER B294 (W).

Colin R. Griffiths 20/4/2002