NERC Centre for Coastal and Marine Science
Scottish Association for Marine Science

Dunstaffnage Marine Laboratory

Cruise Report
RV Pelagia

7 May – 18 May 1998

Benthic and water column sampling on behalf of Statoil (UK) Ltd NW of Lewis

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Dunstaffnage Marine Laboratory

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1 Personnel

CCMS and SAMS

Dr Kenneth D Black
Dr Paula Pereira
Mr Jim Watson
Mr Martyn Harvey
Mr Ivan Ezzi
Dr Tracy Shimmield
Dr Paul Provost
Ms Jane Foster
Mr Colin Griffiths

Statoil (UK) Ltd, Representative

Mr Bob Aldred

NIOZ

Hans Groot	Captain
Paul de Heus	Chief officer
Marco van Duyn	Second officer
Jan Pieterse	Chief engineer
Jan Kalf	Second engineer
Piet Wim Saalmink	Bosun
Cor Stevens	Sailor
Roelof van der Heide	Sailor
Dirk Hartman	Sailor
Gerrit Struik	Sailor
Edwin Weuring	Sailor
Hei de Vries	Cook
Ruud Groenewegen	Electronics technician

2 The Statoil sampling

2.1 Introduction and Objectives

RV Pelagia arrived in Oban at 0800 on 7/5/98 (NB all times are GMT, Z). Embarkation was prompt and the vessel departed Oban at 1100, arriving at the Statoil block at around 1000 the following day. Our original objectives were to sample approximately 10-12 stations in 3 transects within the Statoil block taking into account the 2 known well positions. To this end 3 transects (X, Y and Z) were constructed to examine depth related biological and chemical gradients between 1300 and 1500m. The central transect was oriented down the slope passing through both well positions (Stations X1 and X3) with a station between these (X2) and a further station (X4) as close to 1500 m as possible. As no appropriate bathymetric information was available prior to the cruise these stations were established by following the transect line to the desired depth. Towards the end of the sampling an additional station was established between X3 and X4 called X3a. This was as a consequence of the very long distance between X3 and X4 over a relatively small depth difference. The Z transect line followed the same bearing as the X line but was referenced to the B1 Enterprise station. This line consisted of 3 stations aligned with the X line stations according to depth. As it transpired the transect lines were not perpendicular to the observed bathymetry which lead to the stations not aligning precisely perpendicular to the transect line. These stations were named Z1, Z3 and Z4. Z2 was not sampled as it was named prior to a proper understanding of local bathymetry and was later found to be redundant. The Y line was established North of the X line on the same bearing and at the same distance apart from the X line as used for the Z line. This consisted of 4 stations Y1-4. The positions of these benthic stations are given in Figure 1. In general, the Officers of Pelagia were instructed to maintain position with 180 m of the designated station location.

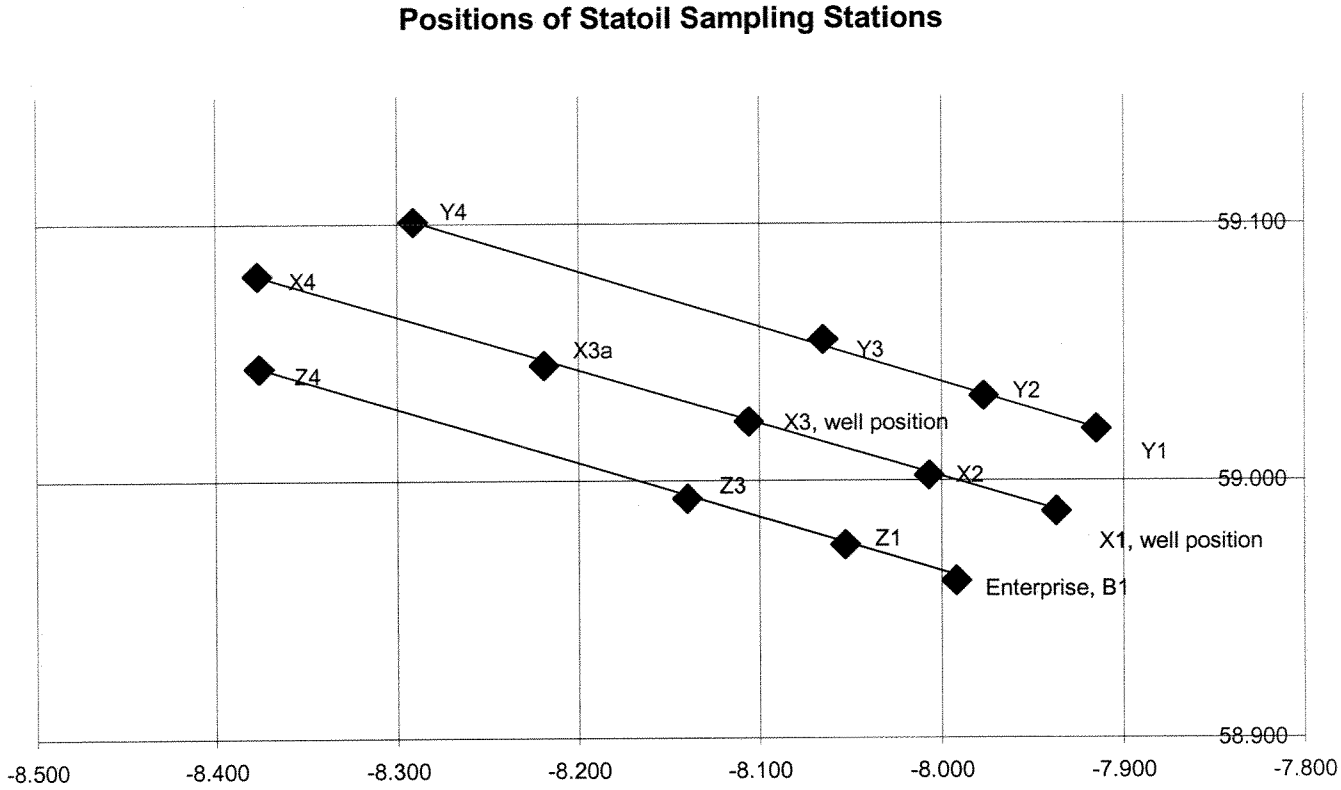

Figure 1. Statoil benthic sampling locations

The exact positions and chronology of each activity are recorded in the cruise log appended. In addition to this benthic work, additional stations were added to the X line for a CTD section and for water-column geochemical sampling. These stations are shown in figure 2.

2.2 Methods

2.2.1 Box cores

A NIOZ box corer (500 x 500 mm surface area) was used when sampling for macrobenthos. The supernatant water from each box core was siphoned onto a 300 micron sieve and the exposed sediment photographed with a high resolution digital camera. These images will be stored on a CDROM along with all the other cruise data. The top 2-3 cm of each core was carefully removed using a small trowel after the removal and preservation of any major epi-benthic organism. This top layer, likely to contain the majority of the benthos in terms of abundance, was immediately preserved in borax buffered 10% formalin containing Rose Bengal vital stain for later sieving over a 300 micron sieve after the cruise. The section below 2-3 cm to approximately 10 cm depth was then removed and sieved carefully through a 300 micron sieve partially manually and partially using a Wilson auto-siever (Gardline) and preserved as before. The siever had the advantage of spraying the sample from below the sieve which had the dual effect of protecting the sample and clearing the sieve mesh of particulate material. For the first 2 stations sampled, X1 and X3 (the well positions), the material remaining in the box core, i.e. from 10 to approximately 25 cm depth, was sieved through a 1 mm mesh and preserved as before. This

procedure was very time consuming and, since there was no evidence of significant macrofaunal abundance, and since there was apparently no desire for this material from Statoil, it was decided to discontinue this process for further stations. In the remaining stations the lower section of the box core, i.e. below 10cm, was discarded except that where any very large animal was observed this was preserved separately.

2.2.2 Multi-cores

At each of the benthic stations the multi-corer was successfully deployed. In general 2 x 10cm diameter cores were sliced using clean plastic slices and collars at 0.5 cm intervals to 18cm depth and thereafter at 1cm intervals and these were combined for particle size analysis. Occasionally due to a partial failure to retrieve a good core from each of the four 10 cm diameter cores on the multi-core, a 6 cm diameter core was used along with a 10 cm core for particle size measurements. A further 10 cm core, or occasionally a 6 cm core, was sliced as above for measurement of metals and lead-210. Thus for each benthic station there are two sets of sediment sample: one large set for particle size and one set containing less sample for trace metals analysis. Each sample was stored frozen in a self sealing plastic bag labelled as to station, date and analysis type. In addition a sub-sample was taken of the top 2cm from a separate core (usually 10 cm diameter but occasionally 6 cm) for hydrocarbons using a metal slicer and collar and stored frozen in a metal tin.

2.2.3 Bed Hop camera

The camera was deployed at each benthic station. In general 25 frames were exposed over a 30-40 minute period while the ship was allowed to drift around the station. The black and white films were developed, generally within 24h. On two occasions, at X1 and X2 the images appeared to be obscured by suspended material and there was some debate as to whether this had been caused by a natural phenomenon or whether it was the result of trawling disturbance. There was considerable trawling activity during the cruise and also evidence of trawl marks on the sediment from several negatives. These stations were repeated, as they are near the Statoil well locations, but the images still showed evidence of turbity which partially obscured the bed. The same phenomenon was observed at Z1 which was not repeated. It cannot be ruled out that the observed turbity was natural but it is more likely to be caused by trawling. A more detailed examination of the CTD profiles may help answer this.

2.2.4 CTD samples

At each CTD station measurements were made of salinity, depth, transmission and temperature. The transmissometer was calibrated by filtering measured volumes of water from 4 known depths onto pre-wieghed GFF filter papers followed by drying and reweighing. The sampling depths were determined from the CTD profiles recorded by the instrument on the way to the bottom and were designed to sample representative section of the water column. The salinity sensor was calibrated from water samples using a DML based salinometer.

At stations X1, 2, 3 and 4, water-column samples were also taken from 8 depths for the analysis of metals in the suspended particulate materials. These water samples were passed through membrane filters directly from the CTD bottles under pressure.

2.2.5 Agassiz trawls

Trawls were conducted using the NIOZ Agassiz trawl. Each of the 4 trawls were made to follow the depth contour passing over station positions X2, X3, X3a and X4. The first trawl at X3 brought up a very large quantity of mud along with fish and invertebrates. This had to be sorted crudely as it was not feasible to accurately sub-sample. Nevertheless a variety of fish and large invertebrates were recovered. The remaining three trawls were much more successful with very clean catches of fish and invertebrates recovered. The invertebrates were preserved as above and all the fish were frozen for later identification. Plots are appended both of the ships position during the trawls and of the approximate gear position.

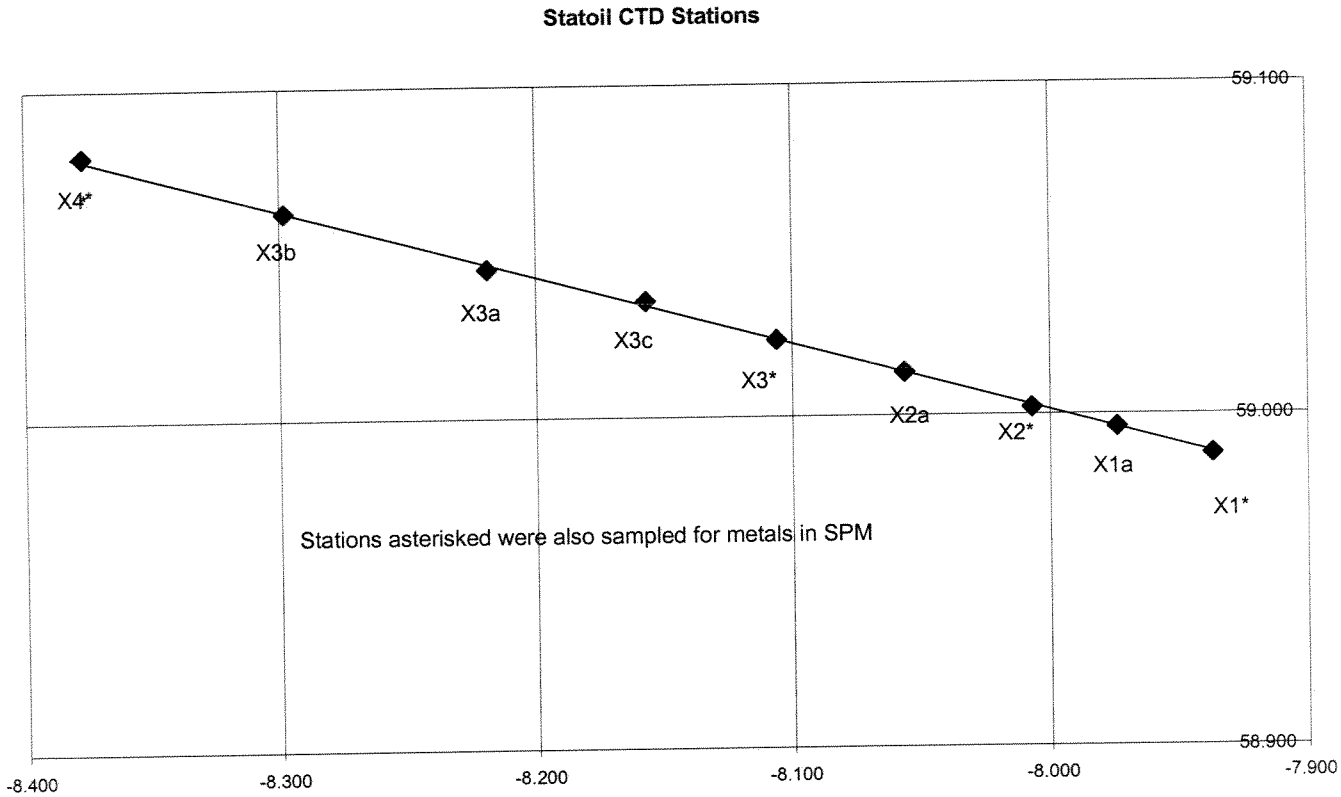

Figure 2. Statoil water-column sampling stations

2.3 Statoil sample locations

The sampling locations are given in table 1. The depth recorded is where instruments hit bottom. The positions of each bed-hop photograph is given in the log but table 1 gives the position of the first frame.

Table 1 Positions and depths of the Statoil samples (B = box core, M = multi-core, C = Camera, first frame, CTDs = CTD with SPM samples and CTDm = CTD with metal samples taken))

Station	N	W	D	Gear
X1	58 59.26	7 56.21	1291	B
	58 59.29	7 56.19	1292	M
	58 59.30	7 56.35	1293	C

Station	N	W	D	Gear
	58 59.31	7 56.27	1293*	C2
	58 59.36	7 56.26		CTDs
	58 59.36	7 56.26	1293	CTDm
X1a	58 59.74	7 58.28	1347	CTDs
X2	59 00.18	8 00.54	1378	B
	59 00.17	8 00.55	1379	M
	59 00.17	8 00.52	1379	C
	59 00.14	8 00.58	1379*	C2
	59 0018	8 00.31	1376*	CTDs
	59 0015	8 00.51	1376*	CTDm
X2a	59 00.77	8 03.38	1425	CTDs
X3	59 01.22	8 06.41	1456	B
	59 01.40	8 06.37	1456	M
	59 01.36	8 06.37	1455	C
	59 01.42	8 06.32	1454*	CTDs
	59 01.44	8 06.27	1464*	CTDm
X3a	59 02.73	8 12.92	1457	B
	59 02.72	8 12.93	1456	M
	59 02.73	8 12.96	1456	C
	59 02.78	8 13.11	1455*	CTDs
X3b	59 03.78	8 17.88	~1465	CTDs
X3c	59 02.10	8 09.42	~1470	CTDs
X4	59 04.80	8 22.60	1477	B
	59 04.80	8 22.60	1477	M metals + h/c
	59 04.80	8 22.63	1477	C
	59.04.82	8 22.60	1476	CTDs
	59 04.87	8 22.59	1478	CTDm
Y1	59 01.24	7 54.90	1302	B
	59 01.23	7 54.90	1302	M
	59 01.21	7 54.85	1300	C
Y2	59 02.06	7 58.65	1377	B
	59 02.04	7 58.61	1377	M
	59 02.02	7 58.59	1376	C
Y3	59 03.19	8 03.74	1427	B
	59 03.26	8 03.73	1427	M
	59 03.21	8 03.70	1429	C
Y4	59 06.03	8 17.70	1452	B
	59 06.03	8 17.70	1451	M
	59 05.99	8 17.77	1451	C
Z1	58 58.56	8 03.22	1377	B
	58 58.52	8 03.23	1376	M
	58 58.50	8 03.24	1377	C
Z3	58 59.55	8 08.16	1453	B
	58 59.55	8 08.22	1453	M
	58 59.55	8 08.19	1453	C
Z4	59 02.62	8 22.61	1491	B
	59 02.58	8 22.67	1492	M
	59 02.66	8 22.24	1492	C

3 The Agip Sampling

3.1 Background to the Agip sampling work

During the course of the Statoil sampling it became apparent that progress was being made much more rapidly than had been planned through a combination of hard work, good weather, high winch speeds and an efficient crew. Further sampling work was requested from Statoil who negotiated with Agip such that immediately on completion of the Statoil contracted work at 0300 on 15/5/98, further sampling was conducted according to their instructions. Initially 13 stations were intimated to the Principal Scientist by Fax. These appeared to be very close together compared to the recently completed Statoil sampling. Because of this and the fact that by this point of the cruise supplies of consumables were very low, it was decided to reduce this to 7 stations which are shown in figure 3. The co-ordinate systems used in determining the station positions were somewhat difficult to translate to WGS 84 as used on research vessels but as none of the indicated station positions were identified as well sites it was not thought that the precise locations were of great importance as long as those chosen were accurately known. In general, the Officers of Pelagia were instructed to maintain position within 180 m of the designated station location. On the completion of this work at 1900 on 16/5/98, Pelagia sailed for Oban where it docked at around 1000 on 18/5/98. This berth had been reserved by prior arrangement with the Oban harbourmaster on the 15th, ie. before the weekend. The time between leaving the Agip block and docking in Oban was occupied by the passage ~24h, some survey work for DML undertaken near Muck, and some delay near Oban until the berth was available.

3.2 Methods

3.2.1 Box cores

A NIOZ box corer (500 x 500 mm surface area) was used when sampling for macrobenthos. The supernatant water from each box core was siphoned onto a 300 micron sieve and the exposed sediment photographed with a high resolution digital camera. These images will be stored on a CDROM along with all the other cruise data. The top 2-3 cm of each core was carefully removed using a small trowel after the removal and preservation of any major epi-benthic organism. This top layer, likely to contain the majority of the benthos in terms of abundance, was then sieved carefully through a 300 micron sieve partially manually and partially mechanically using a Wilson auto-siever (Gardline), then preserved in borax buffered 10% formalin containing Rose Bengal vital stain. The auto-siever had the advantage of spraying the sample from below the sieve which had the dual effect of protecting the sample and clearing the sieve mesh of particulate material. The section below 2-3 cm to approximately 10 cm depth was treated similarly. Several of the samples had a large quantity of sandy material with a particle size slightly larger than the mesh size which resulted in the sieves becoming clogged and the eventual production of a sample containing a large amount of particulates which will be tedious to sort. The lower section of the box core, i.e. below 10cm, was discarded except that where any very large animal was observed this was preserved separately.

3.2.2 Multi-cores

At each of the benthic stations the multi-corer was successfully deployed. In general 2 x 10cm diameter cores were sliced using clean plastic slices and collars at 0.5 cm intervals to 18cm depth and thereafter at 1cm intervals and these were combined for particle size analysis. Occasionally due to a partial failure to retrieve a good core from each of the four 10 cm diameter cores on the multi-core, a 6 cm diameter core was used along with a 10 cm core for particle size measurements. A further 10 cm core,

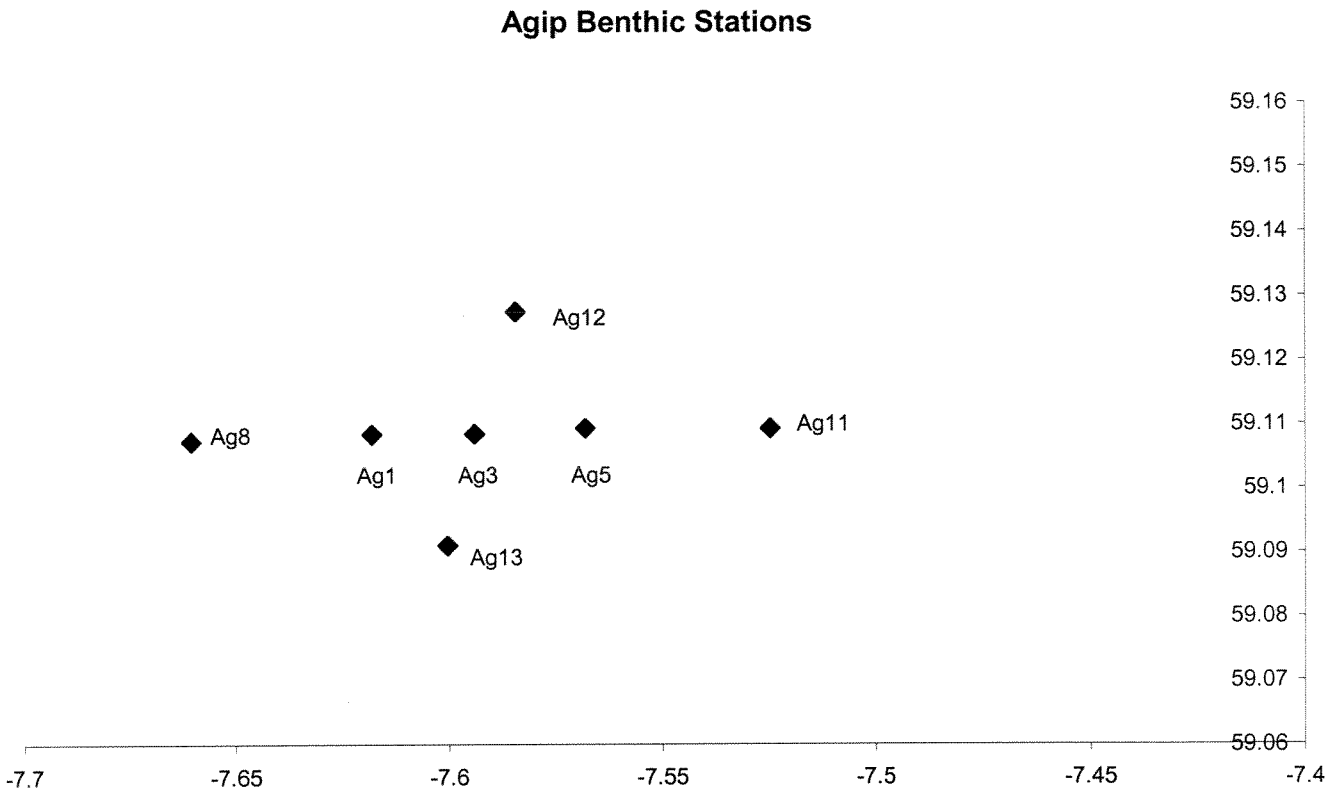

Figure 3 The Agip benthic stations

or occasionally a 6 cm core, was sliced as above for measurement of metals and lead-210. Thus for each benthic station there are two sets of sediment sample: one large set for particle size and one set containing less sample for trace metals analysis. Each sample was stored frozen in a self sealing plastic bag labelled as to station, date and analysis type. In addition a sub-sample was taken of the top 2cm from a separate core (usually 10 cm diameter but occasionally 6 cm) for hydrocarbons using a metal slicer and collar and stored frozen in a metal tin.

3.2.3 Bed-hop camera

The camera was deployed at each benthic station. In general 25 frames were exposed over a 30-40 minute period while the ship was allowed to drift around the station. The black and white films were developed, generally within 24h.

3.3 Agip sampling positions

Positions for each of the Agip samples are given in table 2

Table 2 Positions and depths of the Agip samples (B = box core, M = multicore, C = Camera, first frame)

Station	N	W	D	Gear
Ag1	59 06.50	7 37.08	898	B
	59 06.49	7 37.13	898	M
	59 06.53	7 37.02	898	C
Ag3	59 06.51	7 35.64	854	B
	59 06.51	7 35.58	854	M
	59 06.52	7 35.58	854	C
Ag5	59 06.56	7 34.08	797	B
	59 06.55	7 34.16	797	M
	59 06.41	7 33.81	794	C
Ag8	59 06.44	7 39.62	992	B
	59 06.41	7 39.56	993	M
	59 06.47	7 39.55	992	C
Ag11	59 06.55	7 31.50	701	B
	59 06.53	7 31.35	696	M
	59 06.55	7 31.55	707	C
Ag12	59 07.65	7 35.06	854	B
	59 07.56	7 35.19	854	M
	59 07.62	7 34.91	847	C
Ag13	59 05.34	7 35.71	833	B
	59 05.50	7 35.89	844	M
	59 05.47	7 35.95	843	C

4 Cruise Plots

Plots of the cruise are appended. Plots are given for activities on each block and for each day of the Statoil sampling work. In addition plots of the ship's position during the 4 Agassiz trawls are given.

5 Reports of accidents and incidents

There were no significant accidents and incidents. Similarly there were no events which could be described as major.

6 Recommendations on improvements to equipment and procedures.

All of the equipment functioned well apart from the normal adjustments required to cope with different substrate types. Failure were few and these could mostly be attributed to the large swell occasionally encountered. Some of the more day-to-day matters are covered in the Observer's report and will not be repeated here. In general, there were far fewer equipment failures than would have been predicted on such an intensive survey.

It would have been very helpful if the main Simrad EK500 which was used to log depth was connected to the ship's computer. The fact that it was meant that scientists had to go upstairs to the electronics lab to ascertain the depth, an inefficient

procedure. The Furuno system connected to the computer had lower resolution due to a wide beam angle and was not used.

7 Sample descriptions

Photographs of the box cores, and occasionally of multi-cores, are included in the CD which will follow this report. The CD will also include the CTD data, this report, the cruise log, the Statoil benthic photographs and any other data and images thought to be of potential use to Statoil including some photos of the trawl catches.

Statoil / Agip sediment sample inventory

Station	Particle size		Metals		Hydrocarbons		Water column	
	Max depth (cm)	Number of samples	Max depth (cm)	Number of samples	Max depth (cm)	Number of samples	Depths (m)	Number of samples
X1	9	18	17.5	35	2	1	1, 30, 60, 100, 500, 750, 1000, 1297	8
X2	22	40	21	39	2	1	1, 30, 60, 100, 500, 750, 900, 1380	8
X3	19	37	26	44	2	1	1, 30, 60, 100, 500, 1000, 1420, 1456	8
X3a	25	43	25	43	2	1		
X4	16	33	13.5	27	2	1	1, 30, 60, 100, 500, 750, 1000, 1481	8
Y1	18	36	22	40	2	1		
Y2	22	40	17	33	2	1		
Y3	25	43	25	43	2	1		
Y4	23	41	25	43	2	1		
Z1	20	38	22	40	2	1		
Z3	22	40	24	42	2	1		
Z4	21.5	39	25	43	2	1		
Ag1	17	34	18	36	2	1		
Ag3	20	38	20	38	2	1		
Ag5	18	36	18	36	2	1		
Ag8	20	38	20	38	2	1		
Ag11	19	37	19	37	2	1		
Ag12	13	26	18	36	2	1		
Ag13	18	36	16.5	33	2	1		

Summary of seabed photographs

Film #	Station	Start Depth (m)	Date	No. Images	No. Useable	Appearance	Notes
1	X3	1453	8/5	25	25	Mud, old trawl marks, infauna, starfish, eels.	
2	X4	1475	9/5	24	23	Similar to X3, no trawl marks.	Bed disturbed in 1 frame.
3	X2	1377	9/5	26	22?	Some turbidity, recent trawl marks, sandy mud.	Bed partially obscured.
4	Y1	1298	9/5	25	25	Trawl marks.	
5	X1	1291	10/5	25	NIL	Disturbed, turbid no features visible.	Bed completely obscured.
6	Y2	1374	10/5	21	21	Infauna, anemones, one trawl mark.	
7	Y4	1449	10/5	25	20	No trawling, infauna, polychaetes, eel.	Bed disturbed in 5 frames.
8	Y3	1427	11/5	25	19	Many trawl marks.	Bed disturbed in 6 frames.
9	Z1	1375	11/5	25	NIL	Disturbed, turbid, no features visible.	Bed completely obscured.
10	Z3	1457	11/5	25	24	Similar to Y4.	Bed disturbed in 1 frame.
11	X2	1383	12/5	25	14?	Equal/more turbid than before.	Few features visible.
12	X1	1297	12/5	25	25?	Less turbid than before.	Few features visible.
13	Z4	1496	13/5	24	24?	Similar to Y4	Bad reflection in corner of some frames
14	X3A	1460	13/5	4	4?	Muddy, infauna.	Compass arm broken. Compass misaligned in frame. Bad reflection.
15	AG8	996	15/5	26	26	Ripples, many brittlestars, other epifauna.	

Film #	Station	Start Depth (m)	Date	No. Images	No. Useable	Appearance	Notes
16	AG1	902	15/5	25	25	Sand, ripples.	
17	AG3	858	15/5	25	25	Ripples, stones, brittlestars.	
18	AG5	798	16/5	27	27	Sandy, stones, fewer brittlestars, eels.	
19	AG11	711	16/5	25	25	Many small stones, sea urchin, hermit crab etc.	
20	AG12	851	16/5	11	11	Many small stones, brittlestars.	Camera weight lost mid deployment.
21	AG13	847	16/5	25	25	Ripples, stones, some brittlestars.	

1 Assessment made by viewing negatives with magnifier on a lightbox. Some negatives assessed as useable may show defects which render them less suitable, such as slight disturbance of the sea bed by the compass. Relatively few frames have been affected in this way.

2 Negatives assessed as useable on the films where quality was affected by water turbidity are only marginally so. They show extremely low contrast and definition, and prints made from them are likely to be of poor quality.

3 It is unlikely that the amount of turbidity found is a natural phenomenon. The high level of trawling in this area, as evidenced by the degree of trawl scouring of the sea bed shown on the photographs, is believed to be the cause.

Martyn Harvey
27/5/98

Statoil NIOZ box-core and Agassiz trawl samples

Sampling date	Station	Sample no.	Bucket volume (l)	Depth (cm)	Sieving status	Preservation status
08/05/98	X1	1	1	0-2	300	70% alcohol
		2	1	2-10	300	Formalin/RB
		3	1	0-10		Formalin/RB
		4	2.5	10-25	1000	Formalin/RB
08/05/98	X3	5	1	0-2	300	70% alcohol
		6	2.5	2-10	300	Formalin/RB
		7	1	10-25	1000	Formalin/RB
		8	1	10-25		Formalin/RB
09/05/98	X4	9	0.5	0-2	300	70% alcohol
		10	1	2-10	300	Formalin/RB
10/05/98	X2	11	1	0-2	300	70% alcohol
		12	2.5	2-10	300	Formalin/RB
		13	flask	2-10		Formalin/RB
13/05/98	X3a	14	0.5	0-2	300	70% alcohol
		15	2.5	2-10	300	Formalin/RB
09/05/98	Y1	16	10	0-2	NS	Formalin/RB
		17	1	2-10	300	Formalin/RB
10/05/98	Y2	18	10	0-2	NS	Formalin/RB
		19	1	2-10	300	Formalin/RB
10/05/98	Y4	20	10	0-2	NS	Formalin/RB
		21	2.5	2-10	300	Formalin/RB
		22	flask	10-25		Formalin/RB
11/05/98	Y3	23	10	0-2	NS	Formalin/RB
		24	2.5	2-10	300	Formalin/RB
11/05/98	Z1	25	1	0-2	300	Formalin/RB
		26	1	2-10	300	Formalin/RB
		27	1	2-10		Formalin/RB

Sampling date	Station	Sample no.	Bucket volume (l)	Depth (cm)	Sieving status	Preservation status
11/05/98	Z3	28	10	0-2	NS	Formalin/RB
		29	10	2-10	300	Formalin/RB
13/05/98	Z4	30	10	0-2	NS	Formalin/RB
		31	2.5	2-10	300	Formalin/RB
		32	1	2-10		Formalin/RB
12/05/98	X3	agassiz 1	10			Formalin/RB
			bag			Frozen
12/05/98	X2	agassiz 2	10			Formalin/RB
			bag			Frozen
13/05/98	X3a	agassiz 3	15			Formalin/RB
			bag			Frozen
14/05/98	X4	agassiz 4	5			Formalin/RB
			bag			Frozen

NS = not seived
RB = Rose Bengal

Agip NIOZ box-core samples,
all sieved at 300 microns and preserved in buffered 10% formalin with Rose Bengal

Sampling date	Station	Sample no.	Bucket volume (l)	Depth (cm)
15/05/98	AG 8	33	5	0-2
		34	10	2-10
15/05/98	AG 1	35	10	0-2
		36	5	2-10
15/05/98	AG 3	37	2.5	0-2
		38	5	2-10
		39	flask	0-2
15/05/98	AG 5	40	5	0-2
		41	25	2-10
16/05/98	AG 11	42	5	0-2
		43	10	2-10
16/05/98	AG 12	44	5	0-2
		45	5	2-10
16/05/98	AG 13	46	2.5	0-2
		47	10	2-10

Cruise Log, Positions in degrees, decimal minutes.

Date	Time Z	N	W	D, m	Activity
08/05/98	10:15:00	N58°59.19'	W07°56.32'	1291	X1 Box corer o/b
08/05/98	10:41:03	N58°59.26'	W07°56.21'	1291	Box corer out of sediment and on it's way up
08/05/98	10:59:17	N58°59.25'	W07°56.22'		- Box corer o/w, fairly fine mud, 30-35cm deep
08/05/98	11:50:39	N58°59.27'	W07°56.21'	1292	X1 multicorer o/b
08/05/98	12:24:17	N58°59.29'	W07°56.19'		- on bottom, 1339m wire out, 1353m paid out
08/05/98	12:26:17	N58°59.28'	W07°56.19'	1291	off bottom
08/05/98	12:52:24	N58°59.30'	W07°56.18'		- i/b, all ok, see log book for full description
					-
08/05/98	13:56:08	N59°01.40'	W08°06.36'	1454	X3 multicorer o/b
08/05/98	14:27:44	N59°01.39'	W08°06.40'		- on bottom, 1507m wire out
08/05/98	14:29:25	N59°01.40'	W08°06.38'	1455	off bottom
08/05/98	14:53:40	N59°01.43'	W08°06.26'		- i/b failed, suspect bounced on bottom and triggered valves
08/05/98	15:01:13	N59°01.39'	W08°06.33'		- X3 multicorer o/b
08/05/98	15:30:10	N59°01.40'	W08°06.33'	1454	multicorer on bottom 1508m of wire out
08/05/98	15:54:36	N59°01.40'	W08°06.42'		- multicorer i/b failed
08/05/98	16:11:30	N59°01.41'	W08°06.30'	1456	X3 boxcorer o/b
08/05/98	16:39:06	N59°01.22'	W08°06.41'		- boxcorer on bottom (check position) 1512 m wire out
08/05/98	16:40:07	N59°01.38'	W08°06.40'		- boxcorer off bottom 1510m wire out
08/05/98	17:03:12	N59°01.37'	W08°06.18'		- boxcorer i/b
08/05/98	17:42:51	N59°01.34'	W08°06.29'	1456	X3 multicorer o/b
08/05/98	18:08:37	N59°01.38'	W08°06.36'		- multicorer on bottom 1512m wire out
08/05/98	18:35:00	N00°00.00'	W00°00.00'		- multicorer i/b failed
08/05/98	18:37:13	N59°01.38'	W08°06.32'		- X3 multicorer o/b
08/05/98	19:00:58	N59°01.39'	W08°06.39'	1455	multicorer on bottom 1510m wire out
08/05/98	00:00:00	N00°00.00'	W00°00.00'		- multicorer i/b failed
08/05/98	17:42:51	N59°01.34'	W08°06.29'	1456	X3 multicorer o/b
08/05/98	18:08:37	N59°01.38'	W08°06.36'		- multicorer on bottom 1512m wire out
08/05/98	18:35:00	N00°00.00'	W00°00.00'		- multicorer i/b failed
08/05/98	17:42:51	N59°01.34'	W08°06.29'	1456	X3 multicorer o/b
08/05/98	18:08:37	N59°01.38'	W08°06.36'		- multicorer on bottom 1512m wire out
08/05/98	18:35:00	N00°00.00'	W00°00.00'		- multicorer i/b failed
08/05/98	19:30:00	N59°01.36'	W08°06.33'		- X3 multicorer o/b
08/05/98	19:53:00	N59°01.40'	W08°06.37'		- multicorer on bottom 1518m wire out
08/05/98	18:35:00	N00°00.00'	W00°00.00'		- multicorer i/b, no large cores, for sample info see log book
08/05/98	23:24:21	N59°01.35'	W08°06.42'	1455	X3 bedhop o/b, lowered at 60m/min to 20m above bottom, then 5m/min.
08/05/98	23:57:08	N59°01.36'	W08°06.37'		- frame #1
08/05/98	23:58:29	N59°01.37'	W08°06.36'		- frame #2
09/05/98	00:00:29	N59°01.38'	W08°06.35'		- frame #3
09/05/98	00:02:20	N59°01.39'	W08°06.35'		- frame #4
09/05/98	00:03:50	N59°01.38'	W08°06.34'		- frame #5
09/05/98	00:05:50	N59°01.38'	W08°06.33'		- frame #6
09/05/98	00:08:01	N59°01.38'	W08°06.32'		- frame #7
09/05/98	00:10:42	N59°01.39'	W08°06.32'		- frame #8
09/05/98	00:13:12	N59°01.40'	W08°06.32'		- frame #9
09/05/98	00:16:03	N59°01.41'	W08°06.32'		- frame #10
09/05/98	00:18:13	N59°01.42'	W08°06.32'		- frame #11
09/05/98	00:20:44	N59°01.41'	W08°06.32'		- frame #12
09/05/98	00:22:54	N59°01.40'	W08°06.32'		- frame #13
09/05/98	00:25:05	N59°01.38'	W08°06.32'		- frame #14
09/05/98	00:28:06	N59°01.37'	W08°06.33'		- frame #15
09/05/98	00:31:16	N59°01.36'	W08°06.30'		- frame #16

Date	Time Z	N	W	D, m	Activity
09/05/98	00:34:47	N59°01.35'	W08°06.22'	1455	frame #17
09/05/98	00:37:58	N59°01.34'	W08°06.19'	-	frame #18
09/05/98	00:40:28	N59°01.35'	W08°06.19'	-	frame #19
09/05/98	00:42:59	N59°01.36'	W08°06.22'	-	frame #20
09/05/98	00:45:29	N59°01.37'	W08°06.24'	-	frame #21
09/05/98	00:48:20	N59°01.38'	W08°06.26'	-	frame #22
09/05/98	00:50:30	N59°01.38'	W08°06.24'	-	frame #23
09/05/98	00:53:21	N59°01.39'	W08°06.23'	-	frame #24
09/05/98	00:56:02	N59°01.40'	W08°06.23'	1454	frame #25
09/05/98	01:22:48	N59°01.44'	W08°06.25'	-	bedhop i/b
				-	
09/05/98	03:04:12	N59°04.82'	W08°22.64'	1477	X4 multicorer o/b
09/05/98	03:33:09	N59°04.80'	W08°22.60'	-	multicorer on bottom 1534m wire out
09/05/98	04:00:45	N59°04.80'	W08°22.47'	-	multicorer i/b, metals and hydrocarbons
09/05/98	04:15:00	N59°04.84'	W08°22.63'	1477	X4 multicorer o/b
09/05/98	04:48:35	N59°04.80'	W08°22.60'	-	multicorer on bottom, 1534m wire out
09/05/98	05:11:21	N59°04.86'	W08°22.49'	-	multicorer i/b, particle size
09/05/98	05:33:00	N59°04.81'	W08°22.59'	1477	X4 box corer o/b
09/05/98	05:58:32	N59°04.80'	W08°22.60'	-	box corer on bottom
09/05/98	06:19:48	N59°04.84'	W08°22.49'	-	box corer i/b
09/05/98	07:29:00	N59°04.87'	W08°22.55'	1477	Test multicorer o/b
09/05/98	07:53:00	N59°04.81'	W08°22.62'	-	multicorer on bottom, 1534m wire out
09/05/98	08:33:29	N59°04.80'	W08°22.62'	1477	X4 bephop o/b
09/05/98	09:02:45	N59°04.80'	W08°22.63'	-	frame #1
09/05/98	09:03:45	N59°04.79'	W08°22.63'	-	frame #2
09/05/98	09:04:35	N59°04.78'	W08°22.63'	-	frame #3
09/05/98	09:05:16	N59°04.79'	W08°22.63'	-	frame #4
09/05/98	09:06:16	N59°04.79'	W08°22.63'	-	frame #5
09/05/98	09:07:06	N59°04.79'	W08°22.63'	-	frame #6
09/05/98	09:07:46	N59°04.80'	W08°22.63'	-	frame #7
09/05/98	09:08:46	N59°04.80'	W08°22.64'	-	frame #8
09/05/98	09:09:47	N59°04.80'	W08°22.65'	-	frame #9
09/05/98	09:10:47	N59°04.80'	W08°22.66'	-	frame #10
09/05/98	09:11:37	N59°04.80'	W08°22.66'	-	frame #11
09/05/98	09:12:17	N59°04.81'	W08°22.66'	-	frame #12
09/05/98	09:13:17	N59°04.81'	W08°22.66'	-	frame #13
09/05/98	09:14:18	N59°04.81'	W08°22.65'	-	frame #14
09/05/98	09:15:08	N59°04.81'	W08°22.64'	-	frame #15
09/05/98	09:15:58	N59°04.81'	W08°22.63'	-	frame #16
09/05/98	09:17:18	N59°04.82'	W08°22.62'	-	frame #17
09/05/98	09:18:08	N59°04.82'	W08°22.62'	-	frame #18
09/05/98	09:19:09	N59°04.82'	W08°22.62'	-	frame #19
09/05/98	09:19:59	N59°04.82'	W08°22.62'	-	frame #20
09/05/98	09:20:39	N59°04.82'	W08°22.62'	-	frame #21
09/05/98	09:21:49	N59°04.82'	W08°22.62'	-	frame #22
09/05/98	09:22:50	N59°04.82'	W08°22.62'	-	frame #23
09/05/98	09:24:00	N59°04.81'	W08°22.62'	-	frame #24
09/05/98	09:25:00	N59°04.80'	W08°22.61'	-	frame #25
09/05/98	09:41:14	N59°04.80'	W08°22.57'	-	bedhop i/b
				-	
09/05/98	12:31:53	N59°00.19'	W08°00.60'	1380	X2 multicorer o/b
09/05/98	12:57:59	N59°00.17'	W08°00.55'	1379	multicorer on bottom, 1430m wire out
09/05/98	13:23:36	N59°00.16'	W08°00.55'	1379	multicorer i/b
09/05/98	13:52:43	N59°00.18'	W08°00.52'	1379	X2 bedhop o/b
09/05/98	14:19:09	N59°00.17'	W08°00.52'	-	frame #1

Date	Time Z	N	W	D, m	Activity
09/05/98	14:20:29	N59°00.18'	W08°00.52'		- frame #2
09/05/98	14:22:20	N59°00.18'	W08°00.52'		- frame #3
09/05/98	14:24:10	N59°00.18'	W08°00.55'		- frame #4
09/05/98	14:26:01	N59°00.18'	W08°00.55'		- frame #5
09/05/98	14:27:31	N59°00.18'	W08°00.54'		- frame #6
09/05/98	14:29:42	N59°00.17'	W08°00.51'		- frame #7
09/05/98	14:31:32	N59°00.17'	W08°00.51'		- frame #8
09/05/98	14:33:13	N59°00.17'	W08°00.53'		- frame #9
09/05/98	14:35:23	N59°00.16'	W08°00.54'		- frame #10
09/05/98	14:37:23	N59°00.16'	W08°00.54'		- frame #11
09/05/98	14:39:44	N59°00.18'	W08°00.55'		- frame #12
09/05/98	14:41:55	N59°00.18'	W08°00.55'		- frame #13
09/05/98	14:44:15	N59°00.17'	W08°00.49'		- frame #14
09/05/98	14:46:36	N59°00.17'	W08°00.49'		- frame #15
09/05/98	14:48:36	N59°00.17'	W08°00.52'		- frame #16
09/05/98	14:50:47	N59°00.16'	W08°00.54'		- frame #17
09/05/98	14:53:07	N59°00.17'	W08°00.55'		- frame #18
09/05/98	14:55:18	N59°00.17'	W08°00.52'		- frame #19
09/05/98	14:57:28	N59°00.17'	W08°00.49'		- frame #20
09/05/98	14:59:29	N59°00.18'	W08°00.49'		- frame #21
09/05/98	15:00:59	N59°00.18'	W08°00.50'		- frame #22
09/05/98	15:02:39	N59°00.18'	W08°00.51'		- frame #23
09/05/98	15:04:20	N59°00.18'	W08°00.52'		- frame #24
09/05/98	15:05:50	N59°00.17'	W08°00.54'	1379	frame #25
09/05/98	15:28:00	N00°00.00'	W00°00.00'		- bedhop i/b
09/05/98	15:42:03	N59°00.16'	W08°00.48'		- X2 boxcorer o/b
09/05/98	16:06:00	N59°00.17'	W08°00.51'		- boxcorer on bottom, 1438m wire out
09/05/98	16:28:00	N59°00.22'	W08°00.57'		- boxcorer i/b, core disturbed, discard (0-2cm kept, see log)
					-
09/05/98	18:16:02	N59°01.22'	W07°54.90'	1302	Y1 boxcorer o/b
09/05/98	18:35:16	N59°01.24'	W07°54.90'		- boxcorer on bottom, 1350m wire out
09/05/98	18:52:39	N59°01.24'	W07°54.91'		- boxcorer i/b
09/05/98	19:17:04	N59°01.20'	W07°54.97'	1302	Y1 multicorer o/b
09/05/98	19:37:17	N59°01.23'	W07°54.90'		- multicorer on bottom
09/05/98	19:56:27	N59°01.24'	W07°54.92'		- multicorer i/b, see log book for sample details
09/05/98	23:09:57	N59°01.22'	W07°54.69'	1300	Y1 bedhop o/b
09/05/98	23:38:53	N59°01.21'	W07°54.85'		- frame #1
09/05/98	23:40:44	N59°01.21'	W07°54.88'		- frame #2
09/05/98	23:43:24	N59°01.23'	W07°54.90'		- frame #3
09/05/98	23:46:05	N59°01.23'	W07°54.91'		- frame #4
09/05/98	23:48:16	N59°01.23'	W07°54.91'		- frame #5
09/05/98	23:50:26	N59°01.21'	W07°54.91'		- frame #6
09/05/98	23:54:37	N59°01.14'	W07°54.89'		- frame #7
09/05/98	23:57:38	N59°01.11'	W07°54.87'		- frame #8
09/05/98	23:59:08	N59°01.11'	W07°54.86'		- frame #9
10/05/98	00:00:38	N59°01.13'	W07°54.87'		- frame #10
10/05/98	00:03:09	N59°01.17'	W07°54.91'		- frame #11
10/05/98	00:06:10	N59°01.20'	W07°54.94'		- frame #12
10/05/98	00:08:30	N59°01.20'	W07°54.**'		- frame #13
10/05/98	00:10:41	N59°01.20'	W07°54.**'		- frame #14
10/05/98	00:13:12	N59°01.20'	W07°54.98'		- frame #15
10/05/98	00:15:32	N59°01.19'	W07°54.94'		- frame #16
10/05/98	00:19:13	N59°01.21'	W07°54.96'		- frame #17
10/05/98	00:23:54	N59°01.22'	W07°54.90'		- frame #18
10/05/98	00:29:55	N59°01.23'	W07°54.79'		- frame #19

Date	Time Z	N	W	D, m	Activity
10/05/98	00:31:45	N59°01.21'	W07°54.80'	1300	frame #20
10/05/98	00:33:36	N59°01.20'	W07°54.82'		- frame #21
10/05/98	00:35:56	N59°01.20'	W07°54.86'		- frame #22
10/05/98	00:40:27	N59°01.24'	W07°54.86'		- frame #23
10/05/98	00:45:18	N59°01.25'	W07°54.81'		- frame #24
10/05/98	00:46:58	N59°01.23'	W07°54.79'		- frame 25
10/05/98	01:05:00	N00°00.00'	W00°00.00'		- bedhop i/b
					-
10/05/98	01:51:20	N59°02.01'	W07°58.64'	1378	Y2 multicorer o/b
10/05/98	02:20:06	N59°02.04'	W07°58.61'	1377	multicorer on bottom, 1446m wire out
10/05/98	02:45:31	N59°02.05'	W07°58.57'	1377	multicorer i/b, see log book fo sample details
					-
10/05/98	03:18:17	N59°00.18'	W08°00.45'	1378	X2 boxcore o/b
10/05/98	03:45:13	N59°00.18'	W08°00.54'		- boxcore on bottom, 1443m wire out
10/05/98	04:06:57	N59°00.22'	W08°00.22'		- boxcore i/b
					-
10/05/98	07:19:19	N58°59.35'	W07°56.14'	1293	X1 bedhop o/b
10/05/98	07:46:54	N58°59.30'	W07°56.35'		- frame #1
10/05/98	07:48:05	N58°59.30'	W07°56.40'		- frame #2
10/05/98	07:49:15	N58°59.30'	W07°56.32'		- frame #3
10/05/98	07:50:35	N58°59.30'	W07°56.30'		- frame #4
10/05/98	07:51:45	N58°59.30'	W07°56.28'		- frame #5
10/05/98	07:52:56	N58°59.30'	W07°56.27'		- frame #6
10/05/98	07:54:16	N58°59.30'	W07°56.26'		- frame #7
10/05/98	07:55:26	N58°59.31'	W07°56.26'		- frame #8
10/05/98	07:56:36	N58°59.30'	W07°56.26'		- frame #9
10/05/98	07:57:56	N58°59.31'	W07°56.26'		- frame #10
10/05/98	07:59:07	N58°59.30'	W07°56.25'		- frame #11
10/05/98	08:00:47	N58°59.29'	W07°56.25'		- frame #12
10/05/98	08:02:17	N58°59.28'	W07°56.27'		- frame #13
10/05/98	08:03:38	N58°59.33'	W07°56.28'		- frame #14
10/05/98	08:04:58	N58°59.34'	W07°56.28'		- frame #15
10/05/98	08:06:18	N58°59.29'	W07°56.28'		- frame #16
10/05/98	08:07:38	N58°59.30'	W07°56.28'		- frame #17
10/05/98	08:08:59	N58°59.31'	W07°56.28'		- frame #18
10/05/98	08:09:59	N58°59.31'	W07°56.27'		- frame #19
10/05/98	08:11:09	N58°59.31'	W07°56.26'		- frame #20
10/05/98	08:12:19	N58°59.31'	W07°56.26'		- frame #21
10/05/98	08:14:00	N58°59.29'	W07°56.25'		- frame #22
10/05/98	08:15:20	N58°59.28'	W07°56.25'		- frame #23
10/05/98	08:16:50	N58°59.28'	W07°56.26'		- frame #24
10/05/98	08:18:20	N58°59.27'	W07°56.28'	1294	frame #25
10/05/98	08:33:53	N58°59.23'	W07°56.28'		- bedhop i/b
					-
10/05/98	09:27:55	N59°02.03'	W07°58.58'	1377	Y2 boxcorer o/b
10/05/98	09:47:50	N59°02.06'	W07°58.65'		- boxcorer on bottom
10/05/98	10:06:54	N59°02.12'	W07°58.54'		- boxcorer i/b
10/05/98	12:36:48	N59°02.02'	W07°58.57'	1376	Y2 bedhop o/b
10/05/98	13:07:34	N59°02.02'	W07°58.59'		- frame #1
10/05/98	13:09:04	N59°02.01'	W07°58.60'		- frame #2
10/05/98	13:11:18	N59°02.03'	W07°58.62'		- frame #3
10/05/98	13:14:40	N59°02.07'	W07°58.65'		- frame #4
10/05/98	13:17:00	N59°02.03'	W07°58.64'		- frame #5
10/05/98	13:19:11	N59°02.02'	W07°58.60'		- frame #6
10/05/98	13:23:32	N59°02.02'	W07°58.54'		- frame #7

Date	Time Z	N	W	D, m	Activity
10/05/98	13:25:43	N59°02.03'	W07°58.55'		- frame #8
10/05/98	13:28:13	N59°02.04'	W07°58.59'		- frame #9
10/05/98	13:30:34	N59°02.02'	W07°58.63'		- frame #10
10/05/98	13:34:35	N59°02.04'	W07°58.58'		- frame #11
10/05/98	13:37:35	N59°02.03'	W07°58.60'		- frame #12
10/05/98	13:39:46	N59°02.04'	W07°58.63'		- frame #13
10/05/98	13:42:47	N59°02.05'	W07°58.58'		- frame #14
10/05/98	13:45:47	N59°02.03'	W07°58.56'		- frame #15
10/05/98	13:47:48	N59°02.02'	W07°58.59'		- frame #16
10/05/98	13:51:09	N59°02.03'	W07°58.63'		- frame #17
10/05/98	13:53:59	N59°01.**'	W07°58.69'		- frame #18
10/05/98	13:56:30	N59°01.99'	W07°58.67'		- frame #19
10/05/98	13:59:41	N59°01.99'	W07°58.67'		- frame #20
10/05/98	14:05:42	N59°02.02'	W07°58.58'		- frame #21
10/05/98	14:08:13	N59°02.02'	W07°58.62'		- frame #22
10/05/98	14:10:23	N59°02.02'	W07°58.67'		- frame #23
10/05/98	14:13:44	N59°02.02'	W07°58.64'		- frame #24
10/05/98	14:16:55	N59°02.03'	W07°58.62'	1377	frame #25
10/05/98	14:39:51	N59°02.03'	W07°58.62'		- bedhop i/b
					-
10/05/98	16:18:00	N59°06.08'	W08°17.45'	1452	Y4 boxcorer o/b
10/05/98	16:38:44	N59°06.03'	W08°17.70'		- boxcorer on bottom, 1514m wire out
10/05/98	17:04:09	N59°05.98'	W08°17.62'		- boxcorer i/b
10/05/98	18:00:00	N59°06.01'	W08°17.72'	1451	Y4 multicorer o/b
10/05/98	18:25:00	N59°06.03'	W08°17.70'		- multicorer on bottom, 1512m wire out
10/05/98	18:53:00	N00°00.00'	W00°00.00'		- boxcorer i/b, see log book for sample details
10/05/98	21:57:00	N59°05.98'	W08°17.77'	1451	Y4 bedhop o/b
10/05/98	22:24:34	N59°05.99'	W08°17.76'		- frame #1
10/05/98	22:25:14	N59°05.98'	W08°17.76'		- frame #2
10/05/98	22:26:14	N59°05.98'	W08°17.75'		- frame #3
10/05/98	22:27:25	N59°05.99'	W08°17.75'		- frame #4
10/05/98	22:28:15	N59°05.99'	W08°17.74'		- frame #5
10/05/98	22:29:15	N59°05.99'	W08°17.73'		- frame #6
10/05/98	22:30:15	N59°05.99'	W08°17.73'		- frame #7
10/05/98	22:31:15	N59°05.99'	W08°17.73'		- frame #8
10/05/98	22:31:55	N59°05.99'	W08°17.73'		- frame #9
10/05/98	22:33:06	N59°05.99'	W08°17.73'		- frame #10
10/05/98	22:33:56	N59°05.99'	W08°17.73'		- frame #11
10/05/98	22:35:06	N59°05.98'	W08°17.73'		- frame #12
10/05/98	22:36:16	N59°05.98'	W08°17.74'		- frame #13
10/05/98	22:37:06	N59°05.99'	W08°17.74'		- frame #14
10/05/98	22:37:57	N59°05.99'	W08°17.74'		- frame #15
10/05/98	22:39:07	N59°06.00'	W08°17.73'		- frame #16
10/05/98	22:40:07	N59°06.00'	W08°17.73'		- frame #17
10/05/98	22:41:07	N59°06.01'	W08°17.72'		- frame #18
10/05/98	22:42:07	N59°06.01'	W08°17.72'		- frame #19
10/05/98	22:42:58	N59°06.02'	W08°17.71'		- frame #20
10/05/98	22:43:58	N59°06.02'	W08°17.71'		- frame #21
10/05/98	22:45:08	N59°06.01'	W08°17.70'		- frame #22
10/05/98	22:46:08	N59°06.01'	W08°17.69'		- frame #23
10/05/98	22:46:58	N59°06.00'	W08°17.70'		- frame #24
10/05/98	22:47:59	N59°06.00'	W08°17.70'		- frame #25
10/05/98	23:07:00	N00°00.00'	W00°00.00'		- bedhop i/b
					-
11/05/98	01:18:00	N59°03.21'	W08°03.87'	1427	Y3 multicorer o/b

Date	Time Z	N	W	D, m	Activity
11/05/98	01:48:00	N59°03.26'	W08°03.73'		- multicorer on bottom
11/05/98	02:15:00	N59°03.23'	W08°03.67'		- multicorer i/b, see log book for sample details
11/05/98	03:59:48	N59°03.19'	W08°03.67'	1427	Y3 boxcorer o/b
11/05/98	04:28:24	N59°03.19'	W08°03.74'		- boxcorer on bottom, 1490m wire out
11/05/98	04:58:39	N59°03.25'	W08°03.56'		- boxcorer i/b, see log book for sample details
11/05/98	07:10:00	N59°03.19'	W08°03.72'	1429	Y3 bedhop o/b
11/05/98	07:35:10	N59°03.21'	W08°03.70'		- frame #1
11/05/98	07:36:00	N59°03.21'	W08°03.70'		- frame #2
11/05/98	07:36:50	N59°03.21'	W08°03.71'		- frame #3
11/05/98	07:37:51	N59°03.21'	W08°03.72'		- frame #4
11/05/98	07:38:41	N59°03.21'	W08°03.73'		- frame #5
11/05/98	07:39:41	N59°03.21'	W08°03.74'		- frame #6
11/05/98	07:40:41	N59°03.21'	W08°03.74'		- frame #7
11/05/98	07:41:31	N59°03.20'	W08°03.75'		- frame #8
11/05/98	07:42:41	N59°03.20'	W08°03.75'		- frame #9
11/05/98	07:43:42	N59°03.21'	W08°03.75'		- frame #10
11/05/98	07:44:32	N59°03.21'	W08°03.74'		- frame #11
11/05/98	07:45:22	N59°03.20'	W08°03.73'		- frame #12
11/05/98	07:46:22	N59°03.21'	W08°03.72'		- frame #13
11/05/98	07:47:12	N59°03.21'	W08°03.72'		- frame #14
11/05/98	07:48:13	N59°03.21'	W08°03.72'		- frame #15
11/05/98	07:49:13	N59°03.21'	W08°03.72'		- frame #16
11/05/98	07:50:13	N59°03.21'	W08°03.74'		- frame #17
11/05/98	07:51:13	N59°03.21'	W08°03.75'		- frame #18
11/05/98	07:52:33	N59°03.20'	W08°03.75'		- frame #19
11/05/98	07:53:34	N59°03.20'	W08°03.75'		- frame #20
11/05/98	07:54:34	N59°03.21'	W08°03.75'		- frame #21
11/05/98	07:55:24	N59°03.21'	W08°03.75'		- frame #22
11/05/98	07:56:14	N59°03.21'	W08°03.75'		- frame #23
11/05/98	07:57:24	N59°03.21'	W08°03.74'		- frame #24
11/05/98	07:58:15	N59°03.21'	W08°03.72'		- frame #25
					-
11/05/98	09:27:00	N58°58.53'	W08°03.19'	1377	Z1 boxcorer o/b
11/05/98	09:48:00	N58°58.56'	W08°03.22'		- boxcorer on bottom, 1404m wire out
11/05/98	10:07:00	N58°58.52'	W08°03.18'		- boxcorer i/b (highly bioturbated, 2 worms collected)
11/05/98	11:05:00	N58°58.53'	W08°03.21'	1377	Z1 bedhop o/b
11/05/98	11:38:17	N58°58.50'	W08°03.24'		- frame #1
11/05/98	11:40:07	N58°58.49'	W08°03.23'		- frame #2
11/05/98	11:42:18	N58°58.50'	W08°03.19'		- frame #3
11/05/98	11:44:28	N58°58.51'	W08°03.19'		- frame #4
11/05/98	11:47:09	N58°58.52'	W08°03.19'		- frame #5
11/05/98	11:49:19	N58°58.50'	W08°03.21'		- frame #6
11/05/98	11:51:50	N58°58.49'	W08°03.24'		- frame #7
11/05/98	11:54:30	N58°58.54'	W08°03.25'		- frame #8
11/05/98	11:58:51	N58°58.52'	W08°03.23'		- frame #9
11/05/98	12:03:42	N58°58.53'	W08°03.20'		- frame #10
11/05/98	12:04:42	N58°58.52'	W08°03.21'		- frame #11
11/05/98	12:06:22	N58°58.50'	W08°03.23'		- frame #12
11/05/98	12:09:53	N58°58.49'	W08°03.24'		- frame #13
11/05/98	12:11:53	N58°58.48'	W08°03.23'		- frame #14
11/05/98	12:16:34	N58°58.50'	W08°03.18'		- frame #15
11/05/98	12:20:05	N58°58.50'	W08°03.23'		- frame #16
11/05/98	12:23:16	N58°58.50'	W08°03.22'		- frame #17
11/05/98	12:30:27	N58°58.55'	W08°03.21'		- frame #18
11/05/98	12:32:57	N58°58.54'	W08°03.19'		- frame #19

Date	Time Z	N	W	D, m	Activity
11/05/98	12:34:48	N58°58.51'	W08°03.22'		- frame #20
11/05/98	12:37:58	N58°58.49'	W08°03.25'		- frame #21
11/05/98	12:41:49	N58°58.51'	W08°03.26'		- frame #22
11/05/98	12:46:00	N58°58.53'	W08°03.23'		- frame #23
11/05/98	12:48:40	N58°58.51'	W08°03.25'		- frame #24
11/05/98	12:53:11	N58°58.46'	W08°03.32'		- frame #25
11/05/98	13:16:36	N58°58.54'	W08°03.34'		- bedhop i/b
11/05/98	14:01:42	N58°58.53'	W08°03.19'	1376	Z1 multicorer o/b
11/05/98	14:23:57	N58°58.52'	W08°03.23'		- multicorer on bottom
11/05/98	14:46:23	N58°58.52'	W08°03.18'	1376	multicorer i/b, see log book for sample details
					-
11/05/98	17:02:30	N58°59.55'	W08°08.30'		- Z3 boxcorer o/b
11/05/98	17:21:00	N58°59.55'	W08°08.16'	1453	boxcorer on bottom, 1457m wire out
11/05/98	17:44:18	N58°59.51'	W08°08.12'		- boxcorer i/b
11/05/98	18:45:00	N58°59.55'	W08°08.21'	1453	Z3 multicorer o/b
11/05/98	19:07:00	N58°59.55'	W08°08.22'		- multicorer on bottom, 1530m wire out
11/05/98	19:29:00	N58°59.57'	W08°08.09'		- multicorer i/b, see log book for sample details
11/05/98	22:00:00	N58°59.54'	W08°08.27'	1453	Z3 bedhop o/b
11/05/98	22:29:05	N58°59.55'	W08°08.19'		- frame #1
11/05/98	22:29:56	N58°59.55'	W08°08.19'		- frame #2
11/05/98	22:30:56	N58°59.55'	W08°08.20'		- frame #3
11/05/98	22:31:56	N58°59.55'	W08°08.21'		- frame #4
11/05/98	22:32:56	N58°59.54'	W08°08.21'		- frame #5
11/05/98	22:33:56	N58°59.54'	W08°08.20'		- frame #6
11/05/98	22:34:57	N58°59.54'	W08°08.20'		- frame #7
11/05/98	22:35:57	N58°59.53'	W08°08.19'		- frame #8
11/05/98	22:37:07	N58°59.54'	W08°08.18'		- frame #9
11/05/98	22:38:07	N58°59.53'	W08°08.17'		- frame #10
11/05/98	22:38:57	N58°59.54'	W08°08.17'		- frame #11
11/05/98	22:39:58	N58°59.54'	W08°08.16'		- frame #12
11/05/98	22:40:48	N58°59.54'	W08°08.17'		- frame #13
11/05/98	22:41:48	N58°59.54'	W08°08.17'		- frame #14
11/05/98	22:42:28	N58°59.55'	W08°08.17'		- frame #15
11/05/98	22:43:08	N58°59.55'	W08°08.17'		- frame #16
11/05/98	22:43:48	N58°59.55'	W08°08.17'		- frame #17
11/05/98	22:44:39	N58°59.55'	W08°08.19'		- frame #18
11/05/98	22:45:29	N58°59.54'	W08°08.19'		- frame #19
11/05/98	22:46:19	N58°59.54'	W08°08.20'		- frame #20
11/05/98	22:47:19	N58°59.54'	W08°08.21'		- frame #21
11/05/98	22:48:19	N58°59.54'	W08°08.23'		- frame #22
11/05/98	22:49:09	N58°59.55'	W08°08.23'		- frame #23
11/05/98	22:50:10	N58°59.56'	W08°08.24'		- frame #24
11/05/98	22:51:20	N58°59.56'	W08°08.25'		- frame #25
11/05/98	23:11:00	N00°00.00'	W00°00.00'	1456	bedhop i/b
					-
12/05/98	00:07:20	N59°02.69'	W08°13.12'	1456	X3A multicorer o/b
12/05/98	00:40:48	N59°02.72'	W08°12.93'		- multicorer on bottom
12/05/98	01:04:43	N59°02.70'	W08°13.15'		- multicorer i/b
					-
12/05/98	07:12:00	N59°00.00'	W08°07.61'	1446	Z3-X3-Y3 agassiz trawl
12/05/98	09:46:00	N59°02.86'	W08°05.51'		- a bag load of mud, fishes, starfish and rocks
					-
12/05/98	13:07:48	N59°00.18'	W08°00.63'	1379	X2 bedhop camera o/b
12/05/98	13:40:26	N59°00.14'	W08°00.58'		- frame #1
12/05/98	13:42:06	N59°00.15'	W08°00.60'		- frame #2

Date	Time Z	N	W	D, m	Activity
12/05/98	13:44:27	N59°00.16'	W08°00.61'		- frame #3
12/05/98	13:47:37	N59°00.14'	W08°00.57'		- frame #4
12/05/98	13:51:08	N59°00.13'	W08°00.51'		- frame #5
12/05/98	13:53:29	N59°00.14'	W08°00.55'		- frame #6
12/05/98	13:55:50	N59°00.14'	W08°00.55'		- frame #7
12/05/98	13:57:40	N59°00.12'	W08°00.53'		- frame #8
12/05/98	14:00:21	N59°00.13'	W08°00.59'		- frame #9
12/05/98	14:03:01	N59°00.15'	W08°00.62'		- frame #10
12/05/98	14:07:02	N59°00.16'	W08°00.52'		- frame #11
12/05/98	14:09:33	N59°00.16'	W08°00.55'		- frame #12
12/05/98	14:12:33	N59°00.17'	W08°00.57'		- frame #13
12/05/98	14:15:04	N59°00.15'	W08°00.55'		- frame #14
12/05/98	14:18:24	N59°00.16'	W08°00.54'		- frame #15
12/05/98	14:22:26	N59°00.19'	W08°00.57'		- frame #16
12/05/98	14:25:57	N59°00.18'	W08°00.54'		- frame #17
12/05/98	14:29:07	N59°00.15'	W08°00.53'		- frame #18
12/05/98	14:31:48	N59°00.15'	W08°00.54'		- frame #19
12/05/98	14:34:59	N59°00.15'	W08°00.48'		- frame #20
12/05/98	14:37:09	N59°00.14'	W08°00.50'		- frame #21
12/05/98	14:39:40	N59°00.14'	W08°00.52'		- frame #22
12/05/98	14:42:51	N59°00.15'	W08°00.48'		- frame #23
12/05/98	14:46:01	N59°00.16'	W08°00.53'		- frame #24
12/05/98	14:49:22	N59°00.15'	W08°00.56'		- frame #25
					-
12/05/98	16:21:26	N58°58.50'	W08°03.16'	1375	Z1-X2-Y2 agassiz trawl o/b, 2391m wire out
12/05/98	19:10:00	N00°00.00'	W00°00.00'		- agissez trawl i/b
					-
12/05/98	20:41:00	N58°59.36'	W07°56.26'	1293	X1 bedhop o/b
12/05/98	21:10:31	N58°59.31'	W07°56.27'		- frame #1
12/05/98	21:11:31	N58°59.31'	W07°56.26'		- frame #2
12/05/98	21:12:31	N58°59.30'	W07°56.27'		- frame #3
12/05/98	21:13:21	N58°59.30'	W07°58.78'		- frame #4
12/05/98	21:14:11	N58°59.29'	W07°56.27'		- frame #5
12/05/98	21:14:51	N58°59.29'	W07°56.28'		- frame #6
12/05/98	21:15:32	N58°59.29'	W07°56.28'		- frame #7
12/05/98	21:16:42	N58°59.28'	W07°56.30'		- frame #8
12/05/98	21:17:42	N58°59.28'	W07°56.29'		- frame #9
12/05/98	21:18:33	N58°59.28'	W07°56.28'		- frame #10
12/05/98	21:19:13	N58°59.29'	W07°56.27'		- frame #11
12/05/98	21:20:14	N58°59.29'	W07°56.27'		- frame #12
12/05/98	21:21:04	N58°59.29'	W07°56.28'		- frame #13
12/05/98	21:21:54	N58°59.29'	W07°56.28'		- frame #14
12/05/98	21:23:04	N58°59.29'	W07°56.27'		- frame #15
12/05/98	21:23:54	N58°59.29'	W07°56.27'		- frame #16
12/05/98	21:25:05	N58°59.28'	W07°56.28'		- frame #17
12/05/98	21:26:05	N58°59.28'	W07°56.30'		- frame #18
12/05/98	21:27:05	N58°59.27'	W07°56.30'		- frame #19
12/05/98	21:28:15	N58°59.27'	W07°56.29'		- frame #20
12/05/98	21:29:06	N58°59.27'	W07°56.28'		- frame #21
12/05/98	21:29:56	N58°59.27'	W07°56.29'		- frame #22
12/05/98	21:30:56	N58°59.27'	W07°56.28'		- frame #23
12/05/98	21:32:06	N58°59.27'	W07°56.28'		- frame #24
12/05/98	21:32:57	N58°59.28'	W07°56.28'		- frame #25
12/05/98	21:50:00	N58°59.45'	W07°56.28'		- bedhop i/b
					-

Date	Time Z	N	W	D, m	Activity
12/05/98	23:38:09	N59°02.62'	W08°22.53'	1491	Z4 boxcore o/b
13/05/98	00:06:18	N59°02.62'	W08°22.61'		- Z4 boxcore on bottom, 1553m wire out
13/05/98	00:35:37	N59°02.74'	W08°22.81'		- Z4 boxcore i/b
13/05/98	01:43:12	N59°02.61'	W08°22.64'	1492	Z4 bedhop o/b
13/05/98	02:13:42	N59°02.66'	W08°22.24'		- frame #1
13/05/98	02:16:29	N59°02.64'	W08°22.62'		- frame #2
13/05/98	02:20:00	N59°02.66'	W08°22.63'		- frame #3
13/05/98	02:23:50	N59°02.65'	W08°22.62'		- frame #4
13/05/98	02:26:31	N59°02.64'	W08°22.62'		- frame #5
13/05/98	02:29:32	N59°02.65'	W08°22.62'		- frame #6
13/05/98	02:34:02	N59°02.64'	W08°22.62'		- frame #7
13/05/98	02:36:43	N59°02.63'	W08°22.68'		- frame #8
13/05/98	02:40:54	N59°02.64'	W08°22.71'		- frame #9
13/05/98	02:45:15	N59°02.63'	W08°22.68'		- frame #10
13/05/98	02:51:06	N59°02.62'	W08°22.64'		- frame #11
13/05/98	02:55:16	N59°02.61'	W08°22.63'		- frame #12
13/05/98	02:59:17	N59°02.62'	W08°22.63'		- frame #13
13/05/98	03:02:48	N59°02.63'	W08°22.66'		- frame #14
13/05/98	03:05:49	N59°02.63'	W08°22.66'		- frame #15
13/05/98	03:09:19	N59°02.64'	W08°22.64'		- frame #16
13/05/98	03:14:20	N59°02.67'	W08°22.61'		- frame #17
13/05/98	03:17:21	N59°02.67'	W08°22.60'		- frame #18
13/05/98	03:20:21	N59°02.67'	W08°22.59'		- frame #19
13/05/98	03:23:52	N59°02.68'	W08°22.58'		- frame #20
13/05/98	03:25:42	N59°02.67'	W08°22.58'		- frame #21
13/05/98	03:28:03	N59°02.66'	W08°22.58'		- frame #22
13/05/98	03:30:23	N59°02.64'	W08°22.60'		- frame #23
13/05/98	03:32:14	N59°02.63'	W08°22.61'		- frame #24
13/05/98	03:34:54	N59°02.62'	W08°22.64'		- frame #25
13/05/98	03:52:18	N59°02.69'	W08°22.74'		- bedhop i/b
13/05/98	04:01:00	N58°02.69'	W08°22.91'	1492	Z4 multicorer o/b
13/05/98	04:31:48	N59°02.58'	W08°22.67'		- multicorer on bottom, 1566m wire out
13/05/98	05:03:00	N59°02.91'	W08°21.96'		- multicorer i/b
					-
13/05/98	07:01:47	N59°02.76'	W08°12.81'	1457	X3a boxcorer o/b
13/05/98	07:27:00	N59°02.73'	W08°12.92'		- boxcorer on bottom
13/05/98	07:50:00	N59°02.91'	W08°12.94'		- boxcorer i/b
13/05/98	09:58:09	N59°02.72'	W08°12.94'	1456	X3a bedhop o/b
13/05/98	10:24:05	N59°02.73'	W08°12.96'		- frame #1
13/05/98	10:24:55	N59°02.73'	W08°12.97'		- frame #2
13/05/98	10:25:55	N59°02.72'	W08°12.98'		- frame #3
13/05/98	10:26:56	N59°02.72'	W08°12.99'		- frame #4
13/05/98	10:28:06	N59°02.72'	W08°12.98'		- frame #5
13/05/98	10:29:16	N59°02.74'	W08°12.97'		- frame #6
13/05/98	10:30:37	N59°02.74'	W08°12.97'		- frame #7
13/05/98	10:31:57	N59°02.74'	W08°12.96'		- frame #8
13/05/98	10:33:07	N59°02.74'	W08°12.95'		- frame #9
13/05/98	10:34:17	N59°02.73'	W08°12.93'		- frame #10
13/05/98	10:35:28	N59°02.72'	W08°12.92'		- frame #11
13/05/98	10:36:08	N59°02.73'	W08°12.92'		- frame #12
13/05/98	10:37:18	N59°02.73'	W08°12.91'		- frame #13
13/05/98	10:38:08	N59°02.73'	W08°12.90'		- frame #14
13/05/98	10:38:59	N59°02.73'	W08°12.90'		- frame #15
13/05/98	10:40:19	N59°02.74'	W08°12.89'		- frame #16
13/05/98	10:41:29	N59°02.74'	W08°12.90'		- frame #17

Date	Time Z	N	W	D, m	Activity
13/05/98	10:42:39	N59°02.74'	W08°12.91'		- frame #18
13/05/98	10:43:40	N59°02.74'	W08°12.90'		- frame #19
13/05/98	10:45:00	N59°02.74'	W08°12.90'		- frame #20
13/05/98	10:46:30	N59°02.75'	W08°12.89'		- frame #21
13/05/98	10:47:51	N59°02.76'	W08°12.92'		- frame #22
13/05/98	10:49:11	N59°02.78'	W08°12.94'		- frame #23
13/05/98	10:50:11	N59°02.77'	W08°12.94'		- frame #24
13/05/98	10:51:12	N59°02.77'	W08°12.96'		- frame #25
13/05/98	11:12:00	N00°00.00'	W00°00.00'		- bedhop i/b, compass arm broken
					-
13/05/98	12:25:33	N59°04.82'	W08°22.60'	1476	X4 CTD o/b
13/05/98	13:23:36	N59°04.83'	W08°22.68'		- CTD i/b, H1 1480m, H2 surface.
13/05/98	15:06:06	N59°03.72'	W08°12.04'		- X3a agassiz trawl o/b then abandoned shortly aferwards
13/05/98	16:19:19	N59°05.61'	W08°11.09'		- X3a agassiz trawl o/b then abandoned shortly aferwards
					-
13/05/98	16:29:11	N59°05.35'	W08°10.98'	1462	X3a Agassiz trawl o/b
13/05/98	18:31:02	N59°02.11'	W08°13.41'		- Agassiz trawl heaving
					-
13/05/98	20:09:00	N59°04.87'	W08°22.59'	1478	X4 CTD o/b
13/05/98	21:03:00	N59°04.89'	W08°22.64'		- CTD i/b, H4 1481m, H3 surface.
					-
13/05/98	23:00:00	N59°03.78'	W08°17.88'	~1465	X3b CTD o/b (nb. Position and time by interpolation)
13/05/98	23:00:00				- CTD i/b, H5 1465m, H6 surface.
14/05/98	00:24:28	N59°02.78'	W08°13.11'	1455	X3a CTD o/b
14/05/98	00:00:00				- CTD i/b, H7 1458m, H8 surface.
					-
14/05/98	03:11:19	N59°06.16'	W08°21.44'	1466	X4 agassiz trawl o/b
14/05/98	04:10:03	N59°04.69'	W08°22.69'	1476	agassiz trawl on bottom
14/05/98	04:32:48	N59°04.36'	W08°22.93'		- agassiz heaving
14/05/98	05:17:38	N59°03.87'	W08°21.83'		- agassiz trawl i/b
					-
14/05/98	07:16:00	N59°02.10'	W08°09.42'	~1468	X3c CTD o/b
14/05/98	08:11:42	N59°02.11'	W08°09.65'		- CTD i/b,H9 1468m, H10 surface.
					-
14/05/98	08:56:51	N59°01.44'	W08°06.27'	1464	X3 CTD o/b, X30001.DAT
14/05/98	09:49:11	N59°01.37'	W08°06.39'		- CTD i/b,H11 1456m, H12 surface.
14/05/98	11:37:32	N59°01.42'	W08°06.32'	1454	X3 CTD o/b, X30003.DAT SPM
14/05/98	12:36:52	N59°01.41'	W08°06.18'		- CTD i/b,H13 1458m, H14 surface.
					-
14/05/98	13:24:43	N59°00.77'	W08°03.38'	1425	X2a CTD o/b, SPM
14/05/98	14:19:08	N59°00.79'	W08°03.40'		- CTD i/b,H15 1428m, H16 surface.
					-
14/05/98	15:23:24	N59°00.15'	W08°00.51'	1376	X2 CTD o/b metals
14/05/98	16:18:00	N00°00.00'	W00°00.00'		- CTD i/b
14/05/98	18:39:25	N59°00.18'	W08°00.31'	1376	X2 CTD o/b spm
14/05/98	19:22:05	N59°00.17'	W08°00.44'		- CTD i/b,H17 1381m, H18 surface.
					-
14/05/98	20:06:00	N58°59.36'	W07°56.26'	1293	X1 CTD o/b, metals
14/05/98	20:48:00	N58°59.27'	W07°56.27'		- CTD i/b,H19 1297m, H20 surface.
14/05/98	23:06:05	N58°59.33'	W07°56.24'		- 2 25l substandard salinity samples taken for Gordon
14/05/98	23:12:57	N58°59.36'	W07°56.26'	1293	X1 CTD o/b, spm
15/05/98	00:06:41	N58°59.32'	W07°56.24'		- CTD i/b,H21 1329m?, H22 surface.
					-
15/05/98	00:38:20	N58°59.74'	W07°58.28'	1347	X1a CTD o/b, spm
15/05/98	01:25:31	N58°59.77'	W07°58.47'		- CTD i/b,H21 1350m, H22 surface.

Date	Time Z	N	W	D, m	Activity
15/05/98	03:11:38	N59°06.46'	W07°39.61'	992	AG8 boxcorer o/b
15/05/98	03:32:00	N59°06.44'	W07°39.62'		- boxcorer on bottom, 1040m wire out
15/05/98	03:54:00	N59°06.49'	W07°39.58'		- boxcorer i/b
15/05/98	04:57:03	N59°06.35'	W07°39.66'	993	AG8 multicorer o/b
15/05/98	05:12:00	N59°06.41'	W07°39.56'		- multicorer on bottom, 1040m wire out
15/05/98	05:28:48	N59°06.41'	W07°36.04'		- multicorer i/b, see log book for sample details
15/05/98	07:26:00	N59°06.43'	W07°39.48'	992	AG8 bedhop o/b
15/05/98	07:48:55	N59°06.47'	W07°39.55'		- frame #1
15/05/98	07:50:26	N59°06.47'	W07°39.55'		- frame #2
15/05/98	07:51:46	N59°06.48'	W07°39.52'		- frame #3
15/05/98	07:53:16	N59°06.48'	W07°39.48'		- frame #4
15/05/98	07:54:47	N59°06.47'	W07°39.46'		- frame #5
15/05/98	07:56:17	N59°06.47'	W07°39.44'		- frame #6
15/05/98	07:57:27	N59°06.47'	W07°39.44'		- frame #7
15/05/98	07:58:48	N59°06.47'	W07°39.44'		- frame #8
15/05/98	07:59:48	N59°06.46'	W07°39.45'		- frame #9
15/05/98	08:00:49	N59°06.46'	W07°39.46'		- frame #10
15/05/98	08:01:59	N59°06.46'	W07°39.48'		- frame #11
15/05/98	08:02:59	N59°06.46'	W07°39.50'		- frame #12
15/05/98	08:04:19	N59°06.46'	W07°39.52'		- frame #13
15/05/98	08:05:40	N59°06.46'	W07°39.55'		- frame #14
15/05/98	08:07:40	N59°06.45'	W07°39.57'		- frame #15
15/05/98	08:09:00	N59°06.45'	W07°39.58'		- frame #16
15/05/98	08:10:01	N59°06.46'	W07°39.58'		- frame #17
15/05/98	08:11:11	N59°06.45'	W07°39.57'		- frame #18
15/05/98	08:12:21	N59°06.45'	W07°39.56'		- frame #19
15/05/98	08:13:51	N59°06.45'	W07°39.57'		- frame #20
15/05/98	08:15:32	N59°06.44'	W07°39.59'		- frame #21
15/05/98	08:16:32	N59°06.44'	W07°39.60'		- frame #22
15/05/98	08:17:43	N59°06.44'	W07°39.61'		- frame #23
15/05/98	08:18:53	N59°06.44'	W07°39.60'		- frame #24
					-
15/05/98	09:17:36	N59°06.49'	W07°37.08'		- AG1 multcorer o/b
15/05/98	09:34:00	N59°06.49'	W07°37.13'	898	multcorer on bottom
15/05/98	09:50:00	N59°06.52'	W07°37.04'		- multcorer i/b, see log book for details on sampling
15/05/98	11:20:18	N59°06.48'	W07°37.08'	898	AG1 bedhop o/b
15/05/98	11:42:54	N59°06.53'	W07°37.02'		- frame #1
15/05/98	11:44:55	N59°06.53'	W07°37.03'		- frame #2
15/05/98	11:47:15	N59°06.53'	W07°37.07'		- frame #3
15/05/98	11:50:05	N59°06.52'	W07°37.09'		- frame #4
15/05/98	11:52:26	N59°06.52'	W07°37.09'		- frame #5
15/05/98	11:55:47	N59°06.51'	W07°37.09'		- frame #6
15/05/98	11:59:38	N59°06.49'	W07°37.08'		- frame #7
15/05/98	12:02:08	N59°06.50'	W07°37.08'		- frame #8
15/05/98	12:05:19	N59°06.50'	W07°37.05'		- frame #9
15/05/98	12:07:10	N59°06.50'	W07°37.05'		- frame #10
15/05/98	12:09:20	N59°06.49'	W07°37.07'		- frame #11
15/05/98	12:11:51	N59°06.48'	W07°37.08'		- frame #12
15/05/98	12:14:11	N59°06.48'	W07°37.05'		- frame #13
15/05/98	12:16:12	N59°06.48'	W07°37.05'		- frame #14
15/05/98	12:18:12	N59°06.48'	W07°37.08'		- frame #15
15/05/98	12:20:53	N59°06.48'	W07°37.09'		- frame #16
15/05/98	12:23:24	N59°06.49'	W07°37.05'		- frame #17
15/05/98	12:25:24	N59°06.50'	W07°37.03'		- frame #18

Date	Time Z	N	W	D, m	Activity
15/05/98	12:27:54	N59°06.49'	W07°37.02'		- frame #19
15/05/98	12:30:55	N59°06.48'	W07°37.00'		- frame #20
15/05/98	12:33:26	N59°06.48'	W07°36.99'		- frame #21
15/05/98	12:35:56	N59°06.48'	W07°37.03'		- frame #22
15/05/98	12:38:47	N59°06.48'	W07°37.07'		- frame #23
15/05/98	12:41:08	N59°06.48'	W07°37.08'		- frame #24
15/05/98	12:43:29	N59°06.49'	W07°37.05'	896	frame #25
15/05/98	12:58:00	N00°00.00'	W00°00.00'		- bedhop i/b
15/05/98	13:22:48	N59°06.48'	W07°37.11'	898	AG1 boxcorer o/b
15/05/98	13:42:04	N59°06.50'	W07°37.08'		- boxcorer on bottom, 580m wire out
15/05/98	13:54:36	N59°06.51'	W07°37.03'		- boxcorer i/b
					-
15/05/98	15:09:54	N59°06.53'	W07°35.63'	854	AG3 boxcorer o/b
15/05/98	15:09:54	N59°06.51'	W07°35.64'		- boxcorer on bottom
15/05/98	15:09:54	N59°06.52'	W07°35.64'		- boxcorer i/b
15/05/98	17:23:00	N59°06.51'	W07°35.93'	854	AG3 multicorer o/b
15/05/98	17:37:00	N59°06.51'	W07°35.58'		- multicorer on bottom, 903m wire out
15/05/98	00:00:00	N00°00.00'	W00°00.00'		- multiboxcorer i/b, see log book for sample details
15/05/98	19:10:00	N59°06.57'	W07°35.77'	854	AG3 bedhop o/b
15/05/98	19:30:09	N59°06.52'	W07°35.58'		- frame #1
15/05/98	19:31:19	N59°06.52'	W07°35.58'		- frame #2
15/05/98	19:32:30	N59°06.53'	W07°35.59'		- frame #3
15/05/98	19:34:10	N59°06.53'	W07°35.62'		- frame #4
15/05/98	19:35:30	N59°06.52'	W07°35.64'		- frame #5
15/05/98	19:37:11	N59°06.51'	W07°35.67'		- frame #6
15/05/98	19:38:11	N59°06.50'	W07°35.68'		- frame #7
15/05/98	19:39:01	N59°06.50'	W07°35.70'		- frame #8
15/05/98	19:39:51	N59°06.51'	W07°35.71'		- frame #9
15/05/98	19:40:51	N59°06.51'	W07°35.72'		- frame #10
15/05/98	19:41:52	N59°06.52'	W07°35.71'		- frame #11
15/05/98	19:42:52	N59°06.53'	W07°35.70'		- frame #12
15/05/98	19:43:42	N59°06.54'	W07°35.68'		- frame #13
15/05/98	19:44:52	N59°06.55'	W07°35.68'		- frame #14
15/05/98	19:45:43	N59°06.55'	W07°35.67'		- frame #15
15/05/98	19:46:53	N59°06.54'	W07°35.66'		- frame #16
15/05/98	19:47:53	N59°06.54'	W07°35.67'		- frame #17
15/05/98	19:49:03	N59°06.53'	W07°35.70'		- frame #18
15/05/98	19:50:04	N59°06.51'	W07°35.71'		- frame #19
15/05/98	19:51:14	N59°06.49'	W07°35.73'		- frame #20
15/05/98	19:52:14	N59°06.48'	W07°35.73'		- frame #21
15/05/98	19:53:04	N59°06.49'	W07°35.73'		- frame #22
15/05/98	19:53:54	N59°06.50'	W07°35.73'		- frame #23
15/05/98	19:54:45	N59°06.51'	W07°35.73'		- frame #24
15/05/98	19:55:55	N59°06.52'	W07°35.74'		- frame #25
15/05/98	20:07:00	N59°06.65'	W07°35.91'		- bedhop i/b
					-
15/05/98	20:32:43			797	AG5 Boxcorer o/b
15/05/98	20:49:27	N59°06.56'	W07°34.08'		- Boxcorer on bottom
15/05/98	20:57:59	N59°06.62'	W07°34.01'		- Boxcorer i/b
15/05/98	22:05:15	N59°06.57'	W07°34.00'		- AG5 multicorer o/b
15/05/98	22:19:18	N59°06.53'	W07°34.13'	802	Multicorer on bottom
15/05/98	22:33:53	N59°06.54'	W07°34.30'		- Multicorer i/b, slight problems, cores discarded
15/05/98	23:12:32	N59°06.55'	W07°34.03'	797	AG5 multicorer o/b
15/05/98	23:49:30	N59°06.55'	W07°34.16'		- Multicorer i/b
16/05/98	00:09:15	N59°06.57'	W07°33.92'	794	AG5 bedhop o/b

Date	Time Z	N	W	D, m	Activity
16/05/98	00:36:21	N59°06.41'	W07°33.81'		- frame #1
16/05/98	00:37:41	N59°06.42'	W07°33.84'		- frame #2
16/05/98	00:39:02	N59°06.43'	W07°33.87'		- frame #3
16/05/98	00:40:42	N59°06.44'	W07°33.91'		- frame #4
16/05/98	00:43:03	N59°06.46'	W07°33.93'		- frame #5
16/05/98	00:45:03	N59°06.49'	W07°33.92'		- frame #6
16/05/98	00:48:44	N59°06.53'	W07°33.89'		- frame #7
16/05/98	00:52:04	N59°06.54'	W07°33.95'		- frame #8
16/05/98	00:55:45	N59°06.52'	W07°34.02'		- frame #9
16/05/98	00:58:36	N59°06.53'	W07°34.04'		- frame #10
16/05/98	01:02:27	N59°06.54'	W07°34.02'		- frame #11
16/05/98	01:05:48	N59°06.54'	W07°34.04'		- frame #12
16/05/98	01:10:19	N59°06.53'	W07°34.06'		- frame #13
16/05/98	01:12:49	N59°06.52'	W07°34.04'		- frame #14
16/05/98	01:15:10	N59°06.52'	W07°34.04'		- frame #15
16/05/98	01:18:41	N59°06.54'	W07°34.06'		- frame #16
16/05/98	01:23:12	N59°06.54'	W07°34.06'		- frame #17
16/05/98	01:27:23	N59°06.52'	W07°34.06'		- frame #18
16/05/98	01:30:13	N59°06.52'	W07°34.04'		- frame #19
16/05/98	01:32:44	N59°06.54'	W07°34.05'		- frame #20
16/05/98	01:35:54	N59°06.53'	W07°34.06'		- frame #21
16/05/98	01:39:35	N59°06.52'	W07°34.08'		- frame #22
16/05/98	01:43:06	N59°06.52'	W07°34.10'		- frame #23
16/05/98	01:46:07	N59°06.52'	W07°34.08'		- frame #24
16/05/98	01:50:28	N59°06.54'	W07°34.01'		- frame #25
					-
16/05/98	02:41:31	N59°06.54'	W07°31.32'	695	AG11 mutlicorer o/b
16/05/98	02:53:24	N59°06.53'	W07°31.35'	696	AG11 mutlicorer on bottom
16/05/98	04:18:23	N59°06.48'	W07°31.49'		- AG11 boxcorer o/b
16/05/98	04:27:45	N59°06.53'	W07°31.56'	704	AG11 boxcorer on bottom
16/05/98	04:39:00	N00°00.00'	W00°00.00'		- boxcorer i/b, didn't work
16/05/98	04:50:01	N59°06.56'	W07°31.48'		- AG11 boxcorer o/b
16/05/98	05:04:00	N59°06.55'	W07°31.50'	701	boxcorer on bottom
16/05/98	05:13:46	N59°06.57'	W07°31.46'		- boxcorer i/b
16/05/98	07:13:25	N59°06.58'	W07°31.60'	707	AG11 bedhop o/b
16/05/98	07:31:59	N59°06.55'	W07°31.51'		- frame #1
16/05/98	07:32:49	N59°06.55'	W07°31.52'		- frame #2
16/05/98	07:33:39	N59°06.55'	W07°31.52'		- frame #3
16/05/98	07:34:40	N59°06.55'	W07°31.52'		- frame #4
16/05/98	07:36:00	N59°06.56'	W07°31.51'		- frame #5
16/05/98	07:38:01	N59°06.58'	W07°31.50'		- frame #6
16/05/98	07:38:51	N59°06.58'	W07°31.49'		- frame #7
16/05/98	07:40:11	N59°06.58'	W07°31.48'		- frame #8
16/05/98	07:41:32	N59°06.58'	W07°31.47'		- frame #9
16/05/98	07:43:12	N59°06.58'	W07°31.48'		- frame #10
16/05/98	07:44:22	N59°06.56'	W07°31.48'		- frame #11
16/05/98	07:46:43	N59°06.53'	W07°31.45'		- frame #12
16/05/98	07:47:43	N59°06.53'	W07°31.46'		- frame #13
16/05/98	07:48:33	N59°06.54'	W07°31.47'		- frame #14
16/05/98	07:49:44	N59°06.56'	W07°31.48'		- frame #15
16/05/98	07:50:54	N59°06.58'	W07°31.48'		- frame #16
16/05/98	07:51:54	N59°06.59'	W07°31.48'		- frame #17
16/05/98	07:52:55	N59°06.60'	W07°31.48'		- frame #18
16/05/98	07:54:05	N59°06.60'	W07°31.47'		- frame #19
16/05/98	07:54:55	N59°06.60'	W07°31.47'		- frame #20

Date	Time Z	N	W	D, m	Activity
16/05/98	07:55:55	N59°06.60'	W07°31.47'		- frame #21
16/05/98	07:56:55	N59°06.59'	W07°31.48'		- frame #22
16/05/98	07:57:56	N59°06.58'	W07°31.48'		- frame #23
16/05/98	07:58:46	N59°06.58'	W07°31.49'		- frame #24
16/05/98	08:00:06	N59°06.57'	W07°31.50'		- frame #25
16/05/98	08:10:08	N59°06.70'	W07°31.66'		- bedhop i/b
					-
16/05/98	09:04:01	N59°07.70'	W07°34.95'	854	AG12 boxcorer o/b
16/05/98	09:17:04	N59°07.65'	W07°35.06'	854	boxcorer on bottom
16/05/98	09:29:17	N59°07.79'	W07°34.99'		- boxcorer i/b, large swell.
16/05/98	10:16:38	N59°07.64'	W07°35.16'		- AG12 multicorer o/b (+300m)
16/05/98	10:26:31	N59°07.65'	W07°35.19'	854	multicorer on bottom
16/05/98	10:40:14	N59°07.63'	W07°35.14'		- multicorer i/b
16/05/98	11:28:05	N59°07.62'	W07°34.91'	847	AG12 behop o/b
16/05/98	11:54:01	N59°07.67'	W07°35.02'		- frame #1
16/05/98	11:56:21	N59°07.67'	W07°35.03'		- frame #2
16/05/98	11:58:52	N59°07.67'	W07°35.01'		- frame #3
16/05/98	12:02:42	N59°07.64'	W07°34.95'		- frame #4
16/05/98	12:04:43	N59°07.67'	W07°34.**'		- frame #5
16/05/98	12:08:54	N59°07.62'	W07°35.04'		- frame #6
16/05/98	12:13:45	N59°07.62'	W07°34.96'		- frame #7
16/05/98	12:16:46	N59°07.62'	W07°35.00'		- frame #8
16/05/98	12:18:26	N59°07.63'	W07°35.03'		- frame #9
16/05/98	12:20:56	N59°07.64'	W07°35.05'		- frame #10
16/05/98	12:23:27	N59°07.66'	W07°35.04'		- frame #11, then alarm sounded continuously, weight ?
16/05/98	12:44:02	N59°07.64'	W07°34.98'	853	bedhop i/b
					-
16/05/98	13:30:03	N59°05.47'	W07°36.03'	844	AG13 multicorer o/b
16/05/98	13:49:08	N59°05.50'	W07°35.89'		- multicorer on bottom
16/05/98	14:07:32	N59°05.44'	W07°35.95'		- multicorer i/b
16/05/98	14:27:27	N59°05.47'	W07°35.92'	842	AG13 boxcorer o/b
16/05/98	14:23:20	N59°05.47'	W07°36.03'		- boxcorer on bottom
16/05/98	15:01:00	N59°05.44'	W07°35.98'		- boxcorer i/b, core too deep, discarded.
16/05/98	15:38:00	N59°05.34'	W07°35.71'	833	AG13 boxcorer o/b
16/05/98	15:56:00	N59°05.46'	W07°36.02'		- boxcorer on bottom
16/05/98	16:16:00	N59°05.46'	W07°36.04'		- boxcorer i/b
16/05/98	16:47:40	N59°05.48'	W07°36.03'	843	AG13 bedhop o/b
16/05/98	17:07:55	N59°05.47'	W07°35.95'		- frame #1
16/05/98	17:08:46	N59°05.46'	W07°35.95'		- frame #2
16/05/98	17:09:56	N59°05.46'	W07°35.97'		- frame #3
16/05/98	17:10:46	N59°05.47'	W07°35.98'		- frame #4
16/05/98	17:11:46	N59°05.47'	W07°35.**'		- frame #5
16/05/98	17:12:57	N59°05.47'	W07°36.02'		- frame #6
16/05/98	17:13:57	N59°05.48'	W07°36.03'		- frame #7
16/05/98	17:14:57	N59°05.48'	W07°36.03'		- frame #8
16/05/98	17:15:57	N59°05.48'	W07°36.03'		- frame #9
16/05/98	17:16:47	N59°05.48'	W07°36.02'		- frame #10
16/05/98	17:17:58	N59°05.48'	W07°36.01'		- frame #11
16/05/98	17:18:58	N59°05.48'	W07°36.00'		- frame #12
16/05/98	17:19:59	N59°05.48'	W07°36.01'		- frame #13
16/05/98	17:20:59	N59°05.49'	W07°36.02'		- frame #14
16/05/98	17:21:59	N59°05.49'	W07°36.02'		- frame #15
16/05/98	17:22:59	N59°05.50'	W07°36.01'		- frame #16
16/05/98	17:23:59	N59°05.50'	W07°35.99'		- frame #17
16/05/98	17:24:49	N59°05.50'	W07°35.99'		- frame #18

Date	Time Z	N	W	D, m	Activity
16/05/98	17:26:00	N59°05.50'	W07°35.98'		- frame #19
16/05/98	17:27:00	N59°05.50'	W07°35.97'		- frame #20
16/05/98	17:27:50	N59°05.50'	W07°35.96'		- frame #21
16/05/98	17:28:40	N59°05.50'	W07°35.95'		- frame #22
16/05/98	17:29:51	N59°05.50'	W07°35.94'		- frame #23
16/05/98	17:30:51	N59°05.50'	W07°35.95'		- frame #24
16/05/98	17:31:51	N59°05.50'	W07°35.97'		- frame #25
16/05/98	17:46:14	N00°00.00'	W00°00.00'		- bedhop i/b, finished with AGIP sampling returning to Oban
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