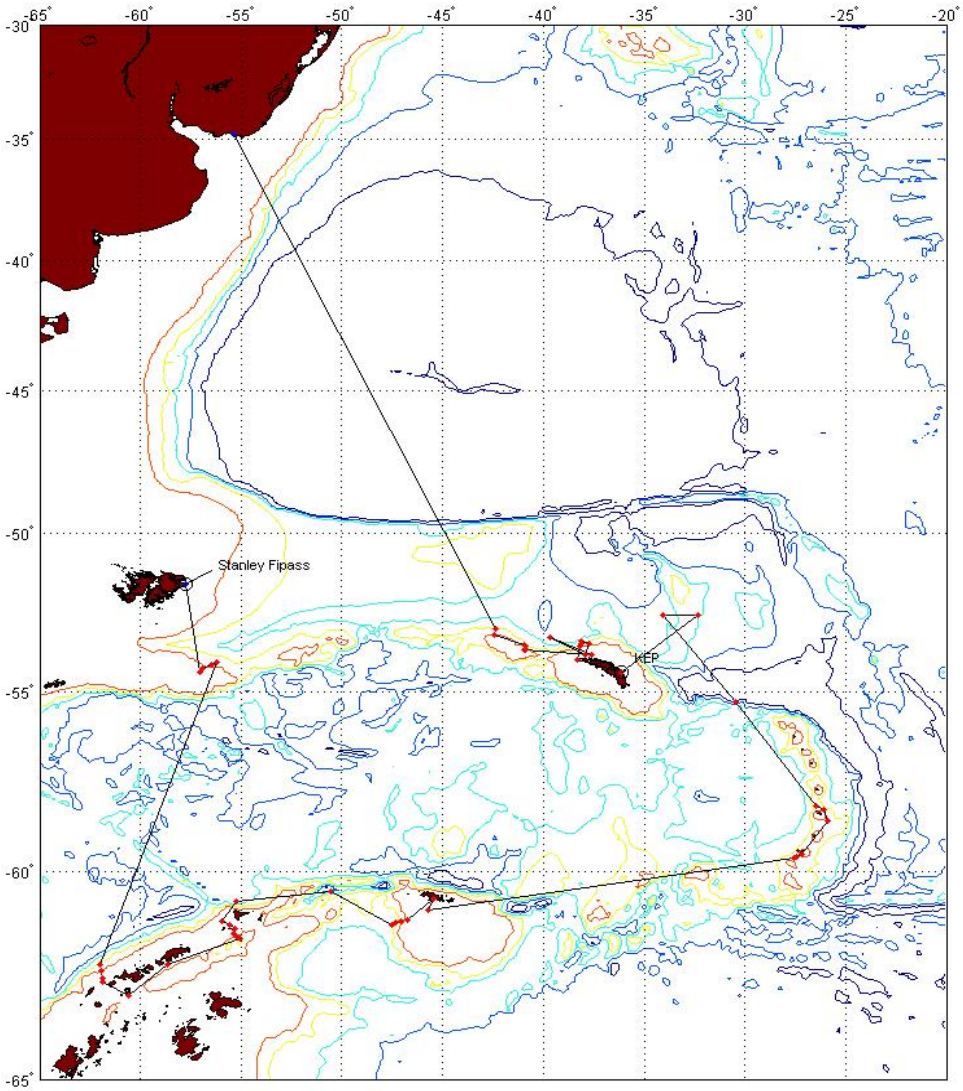
Cruise report: JR 144, 145, 146, 147 and 149

Stanley 26.02.2006 – Montevideo 17.04.2006

PSO: Dr. Katrin Linse, BAS



British Antarctic Survey
NATURAL ENVIRONMENT RESEARCH COUNCIL

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Cruise report: JR 144, 145, 146, 147 and 149
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1. Introduction

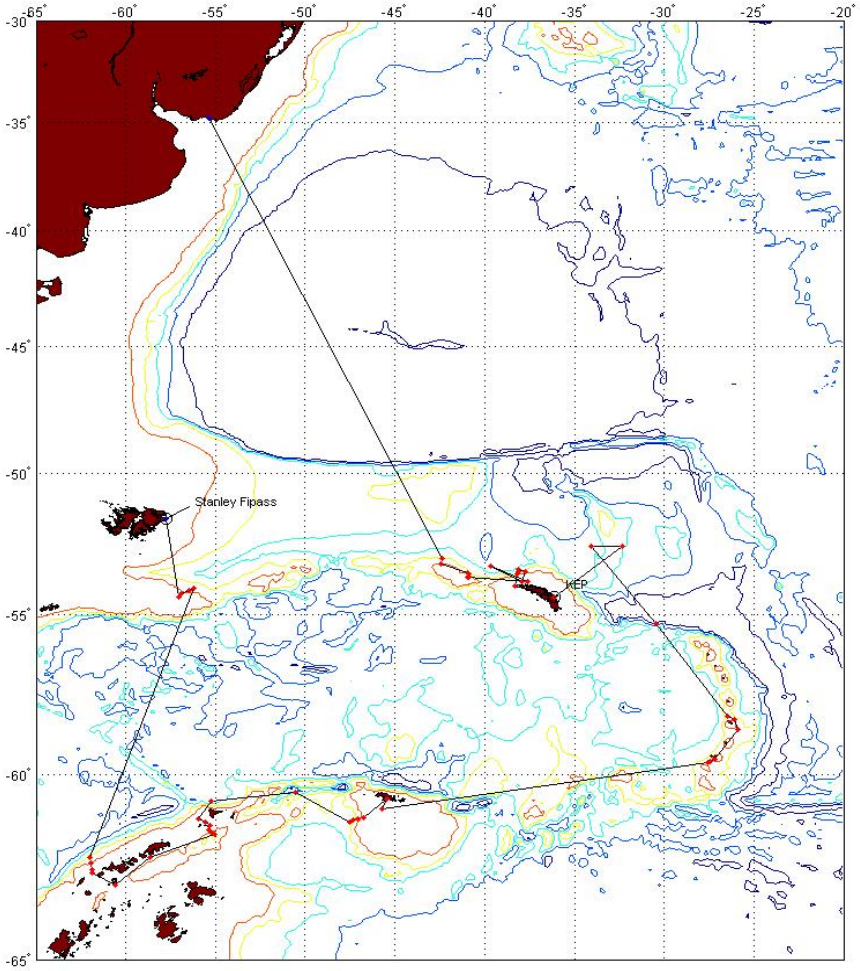
1.1. Objectives of the cruise (Linse, K.)

Special relationships exist between the waters around the southern part of South America, the Magellan Province, and the waters around the Subantarctic islands and the Antarctic continent. They have their origin in the common past of these regions as part of the Gondwana continent and in their close vicinity up to the present day as compared to the distances between Antarctica and the other surrounding continents. Both factors, as well as the actual isolation of Antarctica by deep water and the current system, and periods of interchange, radiation and extinction in the past, are reflected in the present-day marine biota on either side of the Drake Passage. This context represents a singular case of ecosystem change and evolution on our planet, and a great challenge to research.

Biological work was to concentrate on seven areas along the Scotia Arc where a whole range of trawling equipment (AGT, EBS, RBOT) was to be employed, supported by CTDs. At a number of additional stations, only CTDs were to be taken to provide more material for answering bacterial and microbial biodiversity issues. Hydrosweep was to be used to better recognize small-scale topographic patterns at the seafloor and avoid losses of gear. At four areas diving took place to collect selected target species for studies on heat introduces changes in gene expression. In the Western Core Box, part of the BAS LTMS program, the abundance of zooplankton in the water column was measures by acoustic means on six of eight planned transects and two moorings for year-round zooplankton measurements were recovered and redeployed.

Geological work concentrated on piston coring at two selected deep-sea sites (NW of South Orkney Islands, NE of South Georgia), under-way water sampling to assess the recent diatom communities for comparison with past ones form the piston cores and under-way swath bathymetry.

1.2. Cruise plot



1.3. Cruise participants

Overall PSO: Dr. Katrin Linse, British Antarctic Survey

JR 144

PSO:	Dr. Katrin Linse, British Antarctic Survey
	Dr. David K.A. Barnes, British Antarctic Survey
	Mr. Matthew Brown, British Antarctic Survey
	Dr. Peter Enderlein, British Antarctic Survey
	Dr. Keiron P.P. Fraser, British Antarctic Survey
	Mr. Huw J. Griffiths, British Antarctic Survey
	Ms. Stefanie Kaiser, Zoological Institute and Museum, Hamburg
	Ms. Rachel Malinowska, British Antarctic Survey
	Dr. David Pearce, British Antarctic Survey
	Mr. Daniel Smale, British Antarctic Survey

JR 145

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JR 146

PSO:	Dr. Peter Enderlein, British Antarctic Survey

JR 147

PSO:	Dr. Jan M. Strugnall, QUB, Belfast/ British Antarctic Survey

JR 149

PSO:	Dr. Claire S. Allen, British Antarctic Survey
	Ms. Anna Hey, University of Wales, Cardiff
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	Mr. Richard Phipps, UCORS, Southampton

ITS

Mr. Johnny Edmonston

AED

Mr. Vsevolod Afanasyev

2. JR 144 (Linse, K. et al.)

2.1. Vertical transects

2.1.1. AGT (Linse, K., Griffiths, H., Barnes, D.K.A.)

Objectives

Our main aim was to sample macro-and mega- size fractions of seabed dwelling (benthic) animals along a latitudinal and bathymetric gradient in the Scotia arc. The sampling regime was designed to investigate patterns of biodiversity and biogeography of benthos in this key region of the Southern Ocean. One site was north of the Polar Front (Burdwood Bank) whilst the others lay to the south of this important boundary oceanographic feature. We trawled at four discrete depth horizons (approximately 200, 500, 1000 and 1500 m) to investigate variability of taxa presence from continental shelf to continental slope depths (thereby gaining insight into historical recolonisation after glacial maxima).

As well as being the location at which several major biogeographic zones intersect the Scotia arc can be considered of vital importance at regional and global levels. It is the only link between 'oceanographically and geographically-isolated' Antarctica and other continents and shelves. It includes some of the best and least studied areas, the oldest and youngest islands, some of the fastest warming (land) sites, the most heavily impacted by man and includes the sites of the only known marine invasive species travelling to the Southern Ocean. It is truly a fundamental region of the world to have good baseline data for and to understand the dynamics of a most sensitive component of its fauna, the benthos.

Our results will be compared with data collected in the Scotia arc, especially with those obtained during German and Spanish expeditions (e.g. Arntz et al. 1999, 2005, Ramos 1999).

Work at sea

An Agassiz trawl (AGT) was used to sample benthic mega- and macrofauna at seven depths transects (200m, 500m, 1000m and 1500m) in different regions of the Scotia arc (Fig. 2.1). The geographic areas chosen for the transects were the Falkland Trough, South Shetland Islands (Livingston and Elephant islands), South Orkney Islands (Powell Basin), South Sandwich Islands (Southern Thule), South Georgia and Shag Rocks.

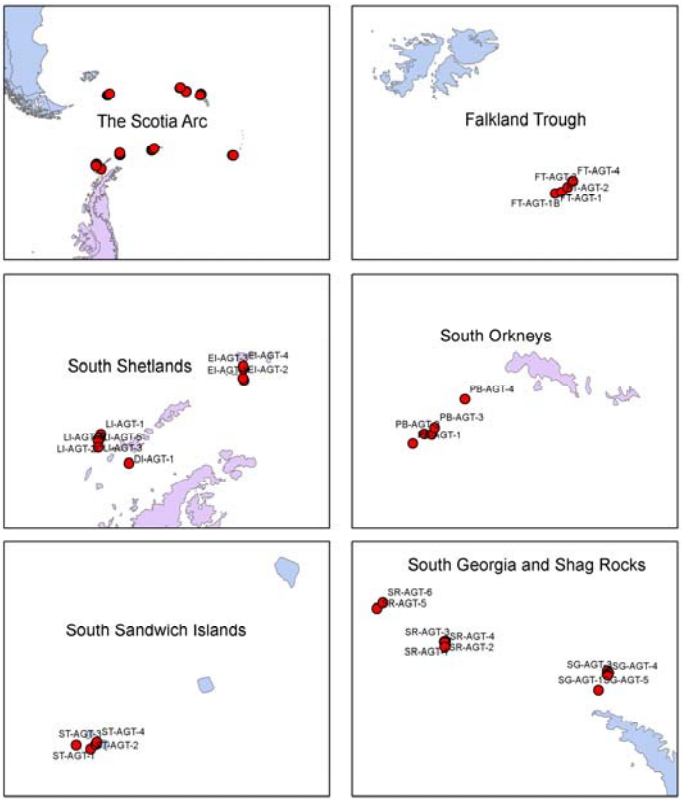

Figure 2.1. Scotia arc and AGT sample locations.

Samples were collected using a 2 m wide Agassiz trawl. At most stations the seabed topography was examined prior to trawl deployment using multibeam sonar (SWATH). The deployment protocol was standardised. While the AGT was lowered, the ship had to compensate for the wire lowering speed of 45 $mmin^{-1}$ by steaming with 0.3 knots until the AGT reached the seabed and with 0.5 knots until the full trawling wire length was put out. The full trawling cable length was 1.5 times the water depth. The net was then trawled at 1 knot for 10 min at 200m and 500m water depth and for 15 min at 1000m and 1500m water depth. With the ship stationary the AGT was hauled with 20 $mmin^{-1}$ in order to avoid damaging the gear. When the EBS had left the seafloor, the hauling speed was increased to 45 $mmin^{-1}$ and the ship speed to 0.3 knots.

Once on board the samples were photographed as total catch and then hand-sorted into groups varying from Phylum to species level collections. Representatives of certain taxa were photographed in detail. The weight/biomass of the different taxa was assessed by using calibrated scales (0.000kg). Depending on the taxon, animals were either preserved in 96% ethanol, 4% buffered formalin or frozen at –20ºC.

The following abbreviations are used in the text: DI – Deception Island, EI – Elephant Island, FT – Falkland Trough, LI – Livingston Island, PB – Powell Basin, SG – South Georgia, SR - Shag Rocks, ST – Southern Thule.

Preliminary results

One of the first analyses done after the AGT catches were sorted and fixed was to count the number of phyla present in the catch, to assess the phylum richness of the trawled area (Table 2.1). The presence of phyla varied between 2 (SR-AGT-5, 200m) and 12 (FT-AGT-1B, 200m); FT-AGT-1 is not counted, as the cod end opened in the water column and most of the catch was lost. With the exception of the Falkland Trough, where the most phyla were caught at 200m, the most phyla per transect were collected at either 1000m (twice) or 500m (4 times).

Table 2.1. Absence and presence of Phyla in AGT catches

STATION_ID	Annelida	Brachiopoda	Bryozoa	Chelicerata	Chordata	Cnidaria	Crustacea	Echinodermata	Mollusca	Nemertea	Porifera	Priapula	Sipuncula	Symplasma	Grand Total
DI-AGT-1	1			1	1	1	1	1	1	1					8
EI-AGT-1	1		1			1	1	1							5
EI-AGT-2	1	1	1	1	1	1	1	1		1					10
EI-AGT-3	1		1	1		1	1	1				1	1		9
EI-AGT-4	1		1	1	1	1	1	1	1				1		10
FT-AGT-1						1									1
FT-AGT-1B	1	1	1	1	1	1	1	1	1	1			1		12
FT-AGT-2	1		1	1	1	1	1	1		1					9
FT-AGT-3	1		1	1	1	1	1	1		1			1		10
FT-AGT-4B		1			1		1			1					4
LI-AGT-1	1				1	1		1							4
LI-AGT-2C	1			1		1	1	1	1		1	1	1		9
LI-AGT-3	1		1	1		1	1	1	1	1	1	1	1		11
LI-AGT-4	1			1	1	1	1	1	1	1	1				9
LI-AGT-5	1		1	1		1	1	1	1		1	1			9
PB-AGT-1	1		1	1	1	1	1	1			1				8
PB-AGT-1B	1			1	1	1	1	1							6
PB-AGT-2	1			1	1	1	1	1	1				1		8
PB-AGT-3	1	1	1	1		1	1	1	1		1			1	10
PB-AGT-4	1		1	1	1	1	1	1	1		1				9
SG-AGT-1	1				1		1								3
SG-AGT-2	1				1	1	1				1				5
SG-AGT-3	1				1	1	1	1	1		1				7
SG-AGT-4	1		1	1	1	1	1	1	1		1			1	10
SG-AGT-5	1					1	1	1	1			1			6
SR-AGT-1						1	1				1				3
SR-AGT-3	1	1	1			1	1	1	1		1			1	9
SR-AGT-4	1	1	1	1	1	1	1	1	1		1				10
SR-AGT-5						1	1								2
SR-AGT-6	1		1		1	1	1		1		1				7
ST-AGT-1	1			1			1	1	1						5
ST-AGT-2	1		1	1	1	1	1	1	1	1	1		1		11
ST-AGT-3	1			1	1	1	1	1	1	1	1	1			10
ST-AGT-4	1		1	1	1	1	1	1	1	1					9

Afterwards the number of Phyla, the dominant phylum by numbers of collected specimens and dominant phylum by biomass was evaluated (Table 2.2). Dominant phylum by count (numbers of collected specimens) is not always the same as dominant phylum by weight (biomass), for example the large numbers of pycnogonids found at S. Thule at 200m (ST-AGT-3) weigh only a fraction of the weight of the ascidians.

Table 2.2. Dominant taxon in numbers of individuals and biomass per AGT

Station	Depth (m)	Number of Phyla	Dominat by count	Dominant by weight
FT-AGT-1	200	12	Stelleroidea	Echinoidea
FT-AGT-2	500	9	Hydrozoa	Stelleroidea
FT-AGT-3	1000	10	Demospongiae	Demospongiae
FT-AGT-4	1500	5	Demospongiae	Demospongiae
LI-AGT-1	1500	4	Anthozoa	Stelleroidea
LI-AGT-2	1000	9	Polychaeta	Polychaeta
LI-AGT-3	500	11	Polychaeta	Polychaeta
LI-AGT-4	200	9	Pycnogona	Polychaeta
LI-AGT-5	200	9	Malacostraca	Polychaeta
DI-AGT-1	150	8	Stelleroidea	Ascidiacea
EI-AGT-1	1500	6	Malacostraca	Sagittoidea
EI-AGT-2	1000	10	Bivalvia	Bivalvia
EI-AGT-3	500	9	Polychaeta	Polychaeta
EI-AGT-4	200	10	Stelleroidea	Hexactinellidae
PB-AGT-1	1500	8	Polychaeta	Anthozoa
PB-AGT-1B	1500	6	Malacostraca	Anthozoa
PB-AGT-2	1000	8	Pycnogona	Holothuroidea
PB-AGT-3	500	10	Stelleroidea	Anthozoa
PB-AGT-4	200	9	Polychaeta	Demospongiae
ST-AGT-1	1500	5	Decapoda	Holothuroidea
ST-AGT-2	1000	12	Holothuroidea	Holothuroidea
ST-AGT-3	500	10	Stelleroidea	Ascidiacea
ST-AGT-4	200	9	Pycnogona	Ascidiacea
SG-AGT-1	1500	3	Malacostraca	Malacostraca
SG-AGT-2	1000	5	Malacostraca	Malacostraca
SG-AGT-3	500	7	Echinoidea	Echinoidea
SG-AGT-4	200	10	Malacostraca	Ascidiacea
SG-AGT-5	300	6	Stelleroidea	Decapoda
SR-AGT-1	1500	3	Decapoda	Demospongiae
SR-AGT-3	500	9	Stelleroidea	Echinoidea
SR-AGT-4	200	10	Stelleroidea	Stelleroidea
SR-AGT-5	500	2	Malacostraca	Malacostraca
SR-AGT-6	1000	7	Malacostraca	Malacostraca

The analysis of the total number of specimens per AGT trawl per area and depth showed the Falkland Trough and Elephant Island showed far higher numbers of animals than the other regions, especially in the shallower sites (Figure 2.2). On counts the Malacostraca and Stelleroidea both dominated 8 stations each with the Stelleroidea tending to dominate the shallower sites and the Malacostraca dominating the deeper sites.

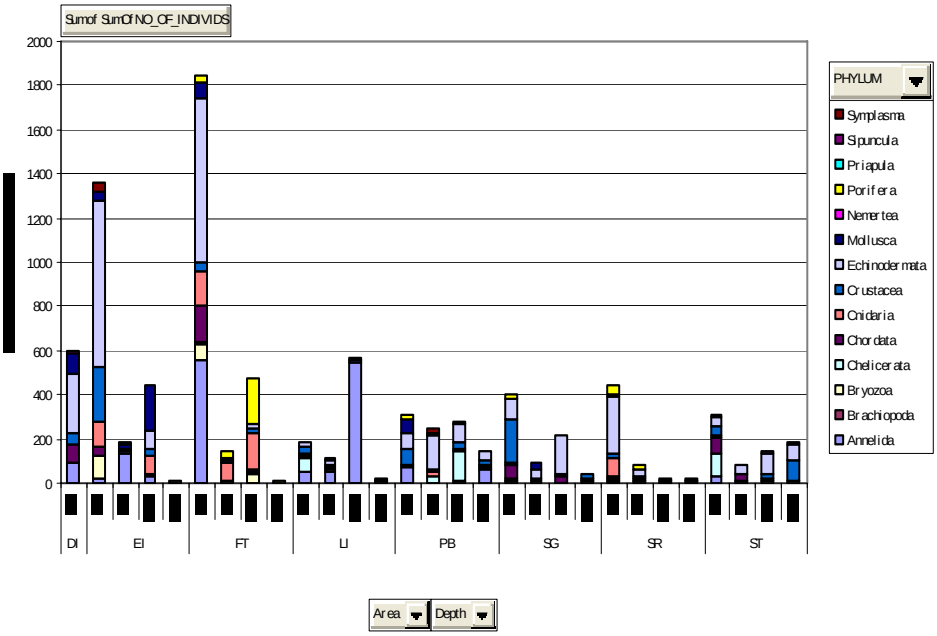

Figure 2.2. Number of collected specimens per AGT trawl (colour-coded by phylum).

The analysis of biomass AGT trawl per area and depth showed that Elephant Island had a significantly higher total but mainly caused by a large catch of one group, the glass sponges, accounting for over 50% of the total (Fig. 2.3). Livingston Island produced the smallest weights of catches. Weight trends were less clear on depth but seemed to be more influenced by the geographic location. Polychaeta dominated the Livingston Island fauna. The shallow sites at Deception Island and S. Thule were dominated by ascidians. The Powell Basin was largely dominated by Anthozoa. sponges, echinoids, Stelleroidea all dominated several sites but showed no obvious geographic patterns.

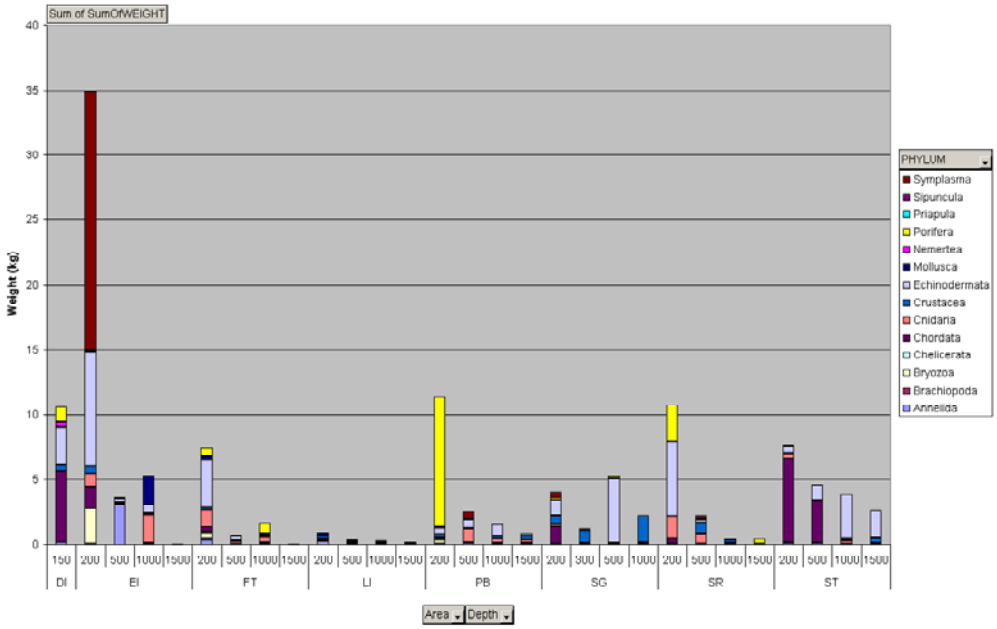

Figure 2.3. Biomass per AGT trawl (colour-coded by phylum).

Summarizing it can be stated that numbers of specimens and weights tend to decrease at each location with increasing depth.

Further analyses in Cambridge will be done on species level to reveal more insights to bathymetric and biogeographic trends in species diversity and distribution.

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2.1.2. EBS (Kaiser, S., Linse, K., Griffiths, H., Barnes, D.K.A)

Objectives

The main aim of this study was to sample meio-and macrobenthic animals along latitudinal and bathymetric gradients in the Scotia arc. The purpose behind such a sampling regime was to gain insight into the biodiversity and distribution of benthic taxa in a key region of the Southern Ocean. As well as an overreaching investigation across higher taxa, particular focus was given to the samples of isopod crustaceans. Benthic material was collected using a modified epibenthic sledge (Brenke, 2005) to sample a vertical transect at eight sites. Of these sites, one was to the north of the Polar Front (Burdwood Bank) and the others to the south. The four discrete depth horizons sampled were approximately 200, 500, 1000 and 1500 m, that is from shallow continental shelf depths to the continental slope.

The Scotia arc is highly relevant for evolutionary studies as it is at the junction of several major biogeographic zones, constitutes the only ‘shallow’ link between northern shelves and Antarctic ones and comprises both very young and old archipelagos. By investigating patterns of occurrence of animal types we can gain better understanding of current and historical dispersal, colonisation and radiations of life in the Southern Ocean. Isopods are a particularly appropriate taxon to study because they have limited migration potential. Like all other peracarid crustaceans (amphipods, cumaceans, mysids and tanaids) isopods bear a marsupium because they are brooders and they develop directly (so have limited dispersal possibilities).

For the Southern Ocean it is hypothesized that some isopod families have evolved on the shelf of former Gondwana continents (e.g. Serolidae, Antarcturidae) and migrated into the deep sea (*polar submergence*, see Kussakin, 1973; Brandt, 1991). It is postulated that the Antarctic shelf species were derived from species of the deep sea. This form of migration (*polar emergence*) is represented for example in the asellote families Desmosomatidae and Nannoniscidae. A further aim of the study is to find out, if there is evidence for both hypotheses, or rather, if there are other possibilities of how the isopods colonized both, the deep Southern Ocean and the Antarctic shelf.

We will determine biodiversity of taxa (and especially the peracarid crustaceans and molluscs as comparable data are available from the EASIZ II, III and ANDEEP I-III cruises) should be assessed at multiple (spatial and systematic) scales

to investigate the levels of patchiness across geographic and bathymetric scales. Furthermore the data obtained should enable investigation of the phylogenetic relationships of selected isopod taxa, particularly Nannoniscidae and Desmosomatidae on the bases of morphological and molecular genetic analysis.

Work at sea

Samples were collected by means of a modified epibenthic sledge (Brandt & Barthel, 1995; Brenke, 2005, Fig. 2.4) (EBS on loan to BAS from DZMB, Wilhelmshaven, Germany).

The epibenthic sledge (EBS) is a proven gear for sampling small benthic macrofauna. The sledge is equipped with an epinet (below) and a supranet (above). The mesh size of the nets is 500µm. The cod ends are equipped with net-buckets containing a 300µm mesh window (Brenke, 2005). The deployment protocol was standardised. While the EBS was lowered, the ship had to compensate for the wire lowering speed of 45 $mmin^{-1}$ by steaming with 0.3 knots until the full trawling wire length was put out. The full trawling cable length was 1.5 times the water depth. The net was then trawled at 1 knot for 10 min. With the ship stationary the EBS was hauled with 20 $mmin^{-1}$ in order to avoid damaging the gear. When the EBS had left the seafloor, the hauling speed was increased to 45 $mmin^{-1}$ and the ship speed to 0.3 knots.

Sampling consisted of a total of 29 deployments in 8 different areas: Falkland Trough, Livingston Island, Deception Island, Elephant Island, Powell Basin, South Thule, South Georgia and Shag Rocks. The operation time ranged between 0.5 to 2.5 hours.

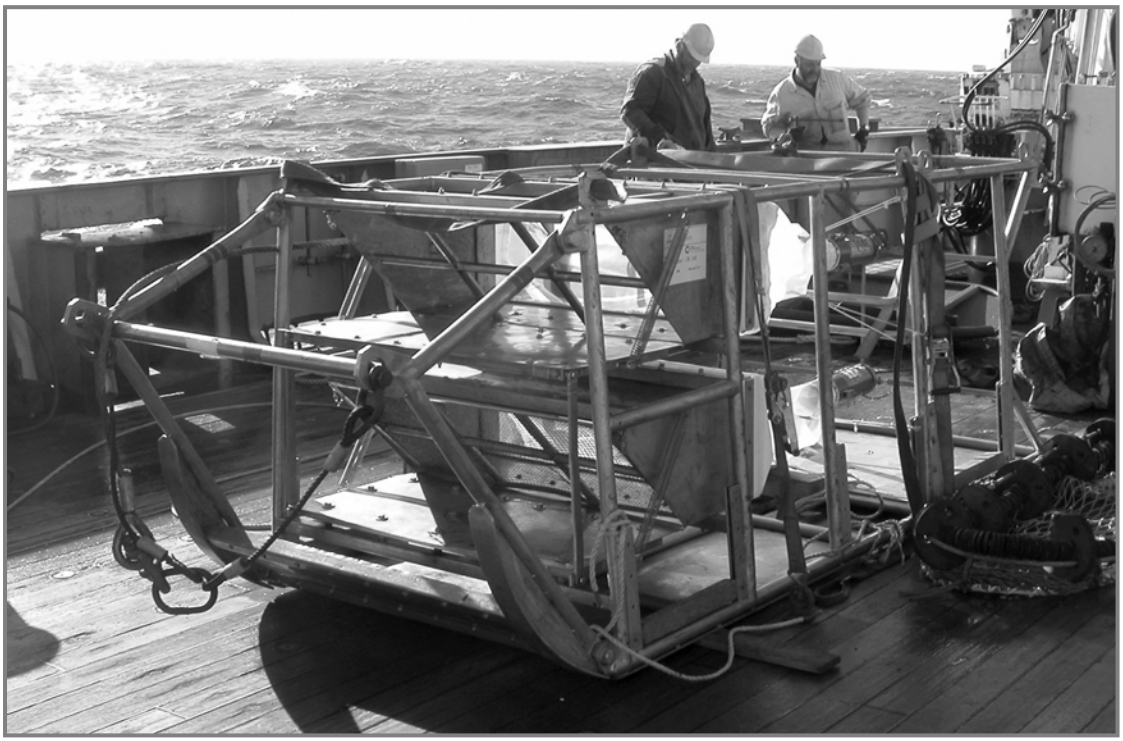

Fig. 2.4 Epibenthic sledge (EBS) “META” on board of JCR.

On board the samples were immediately fixed in 96% pre-cooled ethanol and kept there for 48 hours in -20 °C for later DNA extraction.

The material was sorted using a *Wild* microscope, isopods were identified to family level and, where known, to genus level. DNA was extracted from selected isopod taxa.

Preliminary results

Our preliminary examinations of the material reveal that overall 19 different classes are represented in the samples. Remarkably all 19 classes occured at one of the stations, EI-EBS-4. However, typically only half these were present at most site-depth combinations and as few as one class was represented at one site-depth.

A few specific classes of animals were commonly super-abundant and dominated the fauna at many site-depths (Table 2.3). Polychaetes were the dominant taxon at 5 stations, amphipods were at three and bivalves at two of the samples so far processed. Of particular note was the dominance of Scaphopoda at station EI-EBS-2.

Among the peracarid crustaceans (Table 2.4) amphipods were the most dominant group at almost all stations. Only at station EI-EBS-1 were isopods more dominant. At station EI-EBS-2 amphipods and isopods comprised almost the same number of individuals.

Within the isopods the asellote family Munnopsididae represented the most abundant group, followed by the Desmosomatidae/ Nannoniscidae and the Jaeropsididae. The latter family only occurred at one station, EI-EBS-4, but did so with a high number of individuals. The Desmosomatidae/ Nannoniscidae were the most ubiquitous family, occurring in numbers > 1 at four stations.

Tab. 2.3	Total number of classes, dominant taxa and its proportion (%) of fauna found in the epibenthic sledge samples. * To be completed

Station	**Number of classes**	**Dominant taxa**	**Dominant taxa proportion of fauna (%)**
FT-EBS-1	7	Ophiuroidea, Gastropoda	50
FT-EBS-2	n/a	n/a	n/a
LI-EBS-1	4	Polychaeta	60
LI-EBS-2	1	Polychaeta	100
LI-EBS-3	9*	Polychaeta, “Nematoda”	76
LI-EBS-4	n/a	n/a	n/a
DI-EBS-1	9	Mysidacea, Amphipoda	77
EI-EBS-1	11	Polychaeta, “Nematoda”	45
EI-EBS-2	14	Polychaeta, Scaphopoda	33
EI-EBS-3	7	Amphipoda, Bivalvia	71
EI-EBS-4	19	Amphipoda, Bivalvia	60

Tab. 2.4	Total numbers of peracarids (isopods from order to family level) sampled with the EBS at 7 different stations.

Station / Taxon	FT-EBS-1	LI-EBS-1	DI-EBS-1	EI-EBS-1	EI-EBS-2	EI-EBS-3	EI-EBS-4
Peracarida total	14	2	3201	387	588	90	3148
Ord. Amphipoda	9	-	1473	100	216	80	2475
Ord. Cumacea	-	-	3	21	98	-	155
Ord. Mysidacea	-	-	1644	10	12	2	108
Ord. Tanaidacea	-	-	-	93	43	-	9
Ord. Isopoda	4	2	81	161	219	8	401
Subord. Valvifera							
Antarcturidae	-	-	-	-	-	1	15
Idoteidae	-	-	-	-	-	2	20
Subord. Scuticoxifera							
Anthuridae	-	-	1	4	1	3	17
Sphaeromatidae	2	-	-	5	-	-	-
Serolidae	-	1	-	-	-	-	21
Gnathiidae	-	-	-	-	2	-	4
Cymotheidae	2	-	-	-	-	-	-
Cirolanidae	-	-	-	-	-	1	1
Subord. Asellota				-			
Desmosomatidae/ Nannoniscidae	-	-	77	24	23	-	9
Ischnomesidae	-	1	-	-	12	-	-
Haploniscidae	-	-	-	9	1	-	-
Munnopsididae	1	-	-	104	176	-	186
Munnidae	-	-	3	-	3	-	28
Paramunnidae	-	-	-	15			
Janiridae	-	-	-	-	-	-	4
Jaeropsididae	-	-	-	-	-	-	82
Acanthaspididae	-	-	-	-	-	1	-
others	-	-	-	-	1	-	-
Indet.	-	-	-	-	-	-	16

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2.1.3. RBOT (Linse, K., Griffiths, H.J., Enderlein, P.)

Objectives

The use of a rough bottom otter trawl through the AFI projects (AFI 6/16 and AFI 6/33) enabled us to opportunistically collected marine invertebrates. These specimens will be used for phylogenetic and ecological work under the BIOFLAME programm and BIOPEARL project. Target taxa were pycnogonids, molluscs, crustaceans, echinoderms (especially sea urchins and starfish).

Work at sea

From eleven RBOTs (1x Livingston Island, 1x King George Island, 5x Elephnat Island, 3x Signy Island) a total of 160 marine invertebrate samples were taken. Depending on the planned further analysis, the marine invertebrates were either fixed in 96% ethanol or frozen at -20ºC.

2.2. Diving report (Brown, M.)

Introduction

The following is a brief summery of the diving project in support of the JR144 cruise. The purpose of the diving programme was to collect eighteen individual specimens of five species, *Nacella*, *Harpagifer*, *Odontaster*, *Ophionotus* and *Paraceradocus* from sites around South Georgia, Signy, Deception and King George Island. For a more detailed summary please refer to the Cruise Report compiled by Dr. Katrin Linse.

Overall, the cruise was successful with the required specimens being collected from most locations. However, given the limited amount of time at some sites and the lack of detailed local knowledge, it proved impossible to collect all the samples required. Hopefully, this will not impact negatively on the science program.

The diving was conducted safely, professionally and in accordance with BAS protocols. The entire dive team proved to be exceptionally competent in all aspects of the diving operation and worked well together. The crew and officers of the James Clark Ross were extremely helpful at all times, providing the maximum amount of time available at each planned location and were also able to offer additional time at alternate locations. The success of the operation is entirely down to the professionalism and the cooperation of these two teams.

Diving

The diving was conducted as far as practical along the same lines as those employed at Rothera. Divers were linked together using a buddy-line, with one member of the pair attached to a lifeline and SMB. Divers utilised the AGA full-face masks and BuddyPhone through water communications system brought from Rothera. This system proved to be reliable, allowing the supervisor to communicate with the divers and to know their exact location. All divers expressed a preference for this system over standard half-mask and DV. Communications again proved beneficial to diver safety and productivity. Dives were conducted in pairs, one working diver collecting specimens, one diver on “seal watch”.

The dives were conducted from JCR’s two Humber inflatable boats. These proved to be a flexible and satisfactory option. They allowed the divers enough room to kit-up and proved safe and reliable. Having two boats in the water allowed one boat with the supervisor onboard to remain close to the SMB while the other boat patrolled the area observing seal behaviour. Diving was also conducted from JCR’s cargo tender. The large amount of deck space and the shelter of a heated cabin allowed two dives to be conducted at a site without the need to return to the JCR. The boat crews provided by JCR were exceptionally helpful and handled the diving well.

Dive Sites

Deception Island

A total of four dives were conducted at Deception, two inside Whalers Bay, one beneath Wensleydale Beacon and one inside Neptune’s Bellows. The dives at Whalers Bay and Wensleydale yielded little in the way of specimens, the substrate consisting of black volcanic sand with occasional cobbles or pebbles (although limpits, *Odontaster* and brittle stars were collected in limited numbers). The final dive just inside and to the north of Neptune’s Bellows proved to be the most productive. This area showed a mixture of larger rocks and cobbles and proved to be home to *Paraceradocus* and *Harpagifer*. Care must be taken when diving this site due to the

tidal currents, up to 1 hour after slack proved acceptable. Divers also encountered many inquisitive juvenile fur seals in this area. Depths dived ranged from 6 to 12 m, with an average bottom time of around 35 minutes.

King George Island

A total of eight dives were made over two days. Two sites were dived, one inside Potter Cove directly opposite Jubany Base, the other outside the cove on Emm Rock, a large exposed rock some 250m offshore. Local divers at Jubany who proved to be very helpful suggested both of the dive sites. The first site inside Potter Cove was quite diverse, with large rocks covered in weed and kelp, a high number of species including many sponges, but with few of the specimens sought. Further around the cove the bottom became sandy with pebbles close to the shore and a distinct slope down to a shelf at 27 - 32m. *Odontaster* were found on the upper part of the slope. The second site, Emm Rock consisted of large kelp covered tabular rock formations rising from the seabed at around 14m up to 2 or 3 m below the surface. Between the rocks were areas of pebbles and sand where *Paraceradocus* and *Harpagifer* were found. Dive depths ranged from 11 to 21m, most being around 12 m. Average dive time was around 30 minutes.

Signy Island

Poor weather severely hampered the diving at Signy. High winds and poor sea conditions made diving impossible for a couple of days. Even when the weather abated diving was still difficult and could only take place in sheltered locations.

Once again the relatively dense population of leopard seals at Signy required modification of the current guidelines on diving with seals. Given the finite length of time available for the diving operation it was impractical that any sighting of a leopard seal resulted in diving being abandoned for that day. In consultation with the Institute Diving Officer it was decided that diving was safe to continue if no seal was observed in the vicinity of the dive site within a two-hour period prior to diving. The normal thirty-minute on-site seal watch was conducted in addition to this. The procedures implemented proved to be a reasonable compromise and allowed the diving to be successfully completed.

Leopard seals were observed on two occasions. The first was spotted on the first day of diving by divers on route to the site. On the second occasion, a seal was observed whilst two divers were in the water. The divers were informed of the presence of a seal via comms and due to their location and shallow depth decided to head for the shore rather than swim to the boat. Both divers exited the water safely and were picked up from the shore by boat. Neither diver saw the seal while underwater.

Only three dives were possible at Signy, two on Bernstein Point and one in Starfish Bay. Bernstein Point proved disappointing for recovery of the desired specimens despite them being found there on previous occasions. Divers also encountered many adult and juvenile fur seals, some of which exhibited aggressive behaviour towards them. Starfish Bay proved to be a more rewarding site with *Harpagifer* being collected in high numbers. Unfortunately this dive was curtailed by the appearance of a Leopard seal. Average depth at Signy was 8 m and dive time was around 30 minutes.

South Georgia

A total of five dives were made around King Edward Point, at Hobart Rock and in Moraine Fjord. The pebble beach below Hope Point proved valuable for collection of *Harpagifer*, especially in extremely shallow depths - between 0.5 and 1.0 m. Moraine Fjord yielded little apart from occasional brittle stars. The substrate on this dive proving very different from that encountered on the JR109 cruise, lacking the diversity noted previously. This could be due to location of the dive site or the shallower depth. Previous dives were made further into the Fjord, along the western edge. Hobart Rock proved to be difficult to dive due to the lifelines tangling in the kelp and yielded few samples. Dive depths ranged from 1 to 19 m and dive times between 45 and 20 minutes. Visibility was poor on all dives. KEP staff informed us that it had rained extensively for the previous two weeks.

A total of 20 dives were conducted for the project, giving a total of 40 divers in the water (Table 2.5).

Table 2.5. Number of dives conducted.

Name	**Diver**	**Supervisor**	**Surface Support**
Dave Barnes	**10**		**5**
Matt Brown	**5**	**15**	
Peter Enderlein	**8**		**8**
Keiron Fraser	**4**	**1**	
Katrin Linse	**6**		**1**
Dan Smale	**7**	**4**	**8**

Equipment

The project was well supported with sufficient equipment available to allow diving operations to take place safely. With the exception of a few minor items, the vast majority of the equipment was of a good standard and any defects experienced were minor and would be expected in the day-to-day running of any diving operation. The JCR Medical Officer and crew provided items of specialist equipment such as medical supplies and rescue equipment.

The AGA masks once again proved to be reliable and fit for Antarctic diving, with only one problem experienced with the unit. This was a broken faceplate that rendered the mask unserviceable. The damage may have been caused during a particularly rough ride to a dive site. Unfortunately, the damage was not discovered until the divers were kitting up for the dive. The dive was aborted and the broken mask replaced with a spare.

The use of full-face masks and through water communications undoubtedly increases both diver comfort and safety. I would recommend that all future diving be conducted using this equipment.

Two of the UWATEC dive timers supplied from Rothera failed after only one dive. These units are usually exceptionally reliable and have been successfully employed at Rothera for many years without a problem. To have two brand new units fail without being damaged is unacceptable and the units should be returned to the manufacturer for replacement.

Unfortunately, once again problems were experienced with the Deck Decompression Chamber unit. The problems identified are almost exactly the same as those identified on the last cruise:

1. Electrical supply to the chamber container was incorrect necessitating complete rewiring by the JCR electrician
2. Failure to connect the secondary banks to the chamber resulting in the banks being of little value
3. Contamination of the gas within the secondary banks. This could have been a major problem if the gas had entered the divers breathing gas supply or been used to compress the chamber
4. Connections and pipe-work bleeding air. These had to be replaced by the dive team prior to the chamber being serviceable
5. Faulty oxygen and carbon dioxide sensing equipment
6. No air test certificates

None of the above problems proved to be insurmountable. However, given the recent investment in the system one would not expect such problems to occur.

If the unit is to be kept for future ship based dive projects I would suggest the container is returned to the UK for the banks to be thoroughly cleaned, the certification to be sorted out and for all the existing pipe-work to be replaced.

If sufficient funds are available it would be beneficial that both compressors (Table 2.6) be plumbed into a suitable supply panel giving the option of supplying HP air to either of the banks or to SCUBA cylinders, the HP air from both banks and the HP oxygen from the cylinders be routed through a suitable gas selection panel via pressure reducing regulators then onto the chamber and that both the oxygen and carbon dioxide monitoring be serviced or replaced. An additional couple of sets of BIBS would provide emergency breathing apparatus for the entry-lock and a spare set for emergencies. Dedicated chamber clothing in the form of cotton tracksuits and sweatshirts were provided by the project.

With this work completed the chamber unit would prove to be a valuable asset to support all future ship based diving operations.

Table 2.6. Compressors - both Bauer compressors performed well with no problems to report.

Compressor	**Previous Hours Run**	**Additional Hours Run**
Bauer #1	18.25	4.5
Bauer #2	18.75	5

2.3. Temperature induced changes in gene expression (Fraser, K.)

Objectives

The aim of this experimental work was to investigate the effect of temperature on gene expression in animals from several phylogenetic groups, at a range of latitudes. It is well known that Antarctic marine ectotherms are very sensitive to even small increases in water temperature. With many species losing critical functions at water temperatures even a few degrees above their normal thermal range. Recent research suggests that seawater temperatures are now showing significant increases along the Antarctic Peninsula, presumably associated with warming air temperatures. Many climate models have predicted warming of the Antarctic, and if predictions are correct, this may lead to the loss of some species over the medium term. This study aimed firstly, to use cutting edge genomic techniques to examine why these animals are intolerant of small increases in temperature, by examining which genes were upregulated under thermal stress. Secondly, to examine whether the same species living at a range of temperatures along the peninsula, have evolved to cope better with higher temperatures at more Northerly warmer locations. Lastly, to ascertain whether it may be possible to use gene expression as an extremely sensitive measure of temperature stress in animals as Antarctic waters warm.

Work at sea

SCUBA divers collected the following species;

Harpagifer antarcticus or *H. georgianus*, fish
Odontaster validus, starfish
Nacella concinna, mollusc
Ophionotus victoriae, brittlestar
Paracerodocus gibber, amphipod

Where possible these animals were collected at the following locations;

Deception Island, within Caldera; Collins Point, Fildes Point, Whalers Bay.
King George Island, Potter cove; Winship Point, Potter Cove SW of Three Brothers Hill (Em Rock).
Signy Island, adjacent to BAS base; Berntsen Point, Small Rocks
South Georgia, King Edward Point area; Moraine Fjord, Hope Point, Hobart Rocks.

The animals were collected by hand and transferred back to the JCR where they were placed in a seawater tank maintained at the same water temperature as the ambient sea temperature. After a days diving was finished experimental tanks were set up as follows.

Control tank – Water temperature set at the ambient seawater temperature
+3^{o}C – Water temperature 3^{o}C higher than control tank.
+6^{o}C – Water temperature 6^{o}C higher than control tank.

Six individuals of each species were placed in each of the three tanks. After 6h, the *N. concinna*, *O. victoriae* and the *O. validus* were turned over. This was done to assess the animal's ability to right itself as a measure of stress. After 12h the animals were killed, tissues collected and placed in RNA Later and frozen for analysis back in the UK. It was noted at the 12h time point, which individuals of the animals that had been

inverted had righted themselves. Samples collected on this cruise will be analysed in the ANGEL laboratory.

2.4. Microbial water sampling

2.4.1. META-genomic CTDs (Pearce, D.)

Objectives

To collect Southern Ocean water from six stations for metagenomic library construction, to reduce the water content of these samples using tangential flow ultrafiltration and to take background sea water samples for community analysis (LTMS-B Task 7). To collect terrestrial samples from Deception Island, Signy Island, the South Sandwich Islands and South Georgia for 1) Environmental survey (Kevin Hughes), 2) BIOPEARL (Pete Convey), 3) LTMS-B Task-7 (Kevin Newsham), 4) *Bacillus subtilis* (Anna Dinsdale, Caledonian University Glasgow)

Work at sea

2nd March: sample 1 shallow (MEGA-CTD-1, 2 & 3) & sample 2 deep (MEGA-CTD-4, 5 & 6); 300L at 30 m (Chlorophyll Maximum) & 300L at 500 m (Mesopelagic zone) in transit from Burdwood Bank to Livingston Island.

30th March: sample 3 shallow (MEGA-CTD-10_11_12) & sample 4 deep (MEGA-CTD-7_8_9); 300L at 30 m (Chlorophyll Maximum) & 300L at 450 m (Mesopelagic zone) in transit from South Sandwich – South Georgia.

5th April: sample 5 shallow (SG-CTD-5, 6 & 7) & 6 deep (Peter Shallow, Peter Deep, SG-CTD-4); 300L at 30 m (Chlorophyll Maximum) & 300L at 500 m (Mesopelagic zone) in the South Georgia core box.

Between each site, containers were rinsed briefly with ethanol, this was then rinsed out and the containers filled three times with standard water and twice with Millipore water. This procedure resulted in a high demand for Milli-Q water (1200L) and the ships system coped well with this.

Associated support activity; construction and testing of tangential flow ultrafiltration system including sterilization techniques, trial runs with laboratory supply sea water, methods for phytoplankton removal and size fractionation, pressure testing and membrane integrity tests, membrane function and verification with microscopy (DAPI) / centrifugation.

Preliminary results

Water samples were collected successfully and the microbial component concentrated. Further details will not be available for at least six months, due to the lengthy molecular biology required back at the ANGEL laboratory in Cambridge. This will involve further concentration (centrifugal concentrators), size fractionation (pulse-field gel electrophoresis), DNA shearing, Fosmid library construction and sequencing. All terrestrial samples collected as requested.

2.4.2. Microbial CTDs (Malinowska, R.)

Objectives

Use of molecular techniques to determine microbial abundance, community composition and structure in surface water from CTD deployments at 8 stations around the Scotia Arc.

Work at sea

Surface sea-water samples were taken directly from 27 CTD deployments for analysis (Table 2.7). CTD deployments occurred at positions where sea-floor depth was 1500m (CTD-1), 1000m (CTD-2), 500m (CTD-3 and 200m (CTD-4).

Table 2.7. Station data for CTD deployments

Date	Latitude °S	Longitude °W	Station
11/04/2006	-53.57508	-40.93153	Shag Rocks – CTD-3
11/04/2006	-53.58893	-40.90104	Shag Rocks – CTD-2
11/04/2006	-53.63013	-40.90143	Shag Rocks – CTD-1
06/04/2006	-53.61112	-39.87663	South Georgia-CTD-4
06/04/2006	-53.55115	-37.9197	South Georgia-CTD-1
06/04/2006	-53.57651	-37.8636	South Georgia-CTD-2
05/04/2006	-53.61109	-37.88464	South Georgia -CTD-3
29/03/2006	-58.33942	-26.4001	Montague Island-CTD-3
29/03/2006	-58.38711	-26.17952	Montague Island -CTD-2
29/03/2006	-58.53267	-26.06589	Montague Island -CTD-1
27/03/2006	-59.50764	-27.30055	South Thule-CTD-2
27/03/2006	-59.48077	-27.28644	South Thule -CTD-3
27/03/2006	-59.46995	-27.2767	South Thule CTD-4
27/03/2006	-59.43003	-27.28905	Thule Caldera-CTD-5
18/03/2006	-60.99556	-46.83178	Powell Basin-CTD-3
18/03/2006	-61.02735	-46.86516	Powell Basin -CTD-2
17/03/2006	-60.98191	-47.03242	Powell Basin -CTD-1
13/03/2006	-61.38799	-55.20239	Elephant Island-CTD-3
12/03/2006	-61.33938	-55.19175	Elephant Island-CTD-4
12/03/2006	-61.56782	-55.21166	Elephant Island -CTD-2
11/03/2006	-61.61639	-55.22553	Elephant Island-CTD-1
06/03/2006	-62.95378	-60.64614	Deception Island-CTD-1
04/03/2006	-62.52525	-61.82972	Livingston Island-CTD-4
04/03/2006	-62.39584	-61.76791	Livingston Island -CTD-3
03/03/2006	-62.33611	-61.64741	Livingston Island -CTD-2
03/03/2006	-62.2787	-61.59231	Livingston Island -CTD-1

Method

Three litres of surface sea-water in total from each deployment was vacuum filtered through Whatman 3M nitrocellulose membrane filters to concentrate bacteria.

Figure 2.5. Side-arm flask filtering apparatus and Sartorius filtering unit.

Molecular Sequencing

Two litres of sea-water were filtered for molecular sequencing work to be carried out at BAS headquarters. Cells from the filter paper were resuspended in 10 ml uncontaminated sea-water, aliquoted into 10 eppendorfs and centrifuged for 30 minutes at 15 rpm to pellet the cells for storage. Samples frozen at -20°C.

Microbial counts

One litre of sea-water was filtered and cells resuspended in 10 ml uncontaminated sea-water for immediate determination of bacterial density and community composition (methods described below). 1 ml of cell suspension was filtered for each subsequent application onto a 0.2 micron polycarbonate filter through a side-arm flask (Fig. 2.5).

Determination of microbial abundance
4'-6-Diamidino-2-phenylindole (DAPI) Epifluorescent Microscopy

Procedure – Microbial cells were harvested by filtration (0.2 micron polycarbonate filter) from a known volume and stained with DAPI at a concentration of 2-5 $\mu ml^{-1,}$ washed and placed on a glass slide with coverslip for counting. DAPI (4'-6-Diamidino-2-phenylindole forms fluorescent complexes with natural double-stranded DNA of both active and apoptotic cells, showing fluorescence specificity for AT, AU and IC clusters. Cells fluoresce under the fluorescence microscope at an excitation wavelength of 350 nm and are counted.

Determination of Community Composition and Structure
Fluorescence in situ hybridization (FISH)

The FISH method was used in order to determine the presence of specific groups of micro-organisms in the surface sea-water and to provide molecular information on the community composition and structure. Twelve fluorescent probes were employed each binding to a different group-specific bacterial or archaeal RNA sequence within the ribosomal gene (Table 2.8.).

Table 2.8. FISH probes

Probe	**Target Group**	**Reference**
EUB338	Eubacterial 16S rRNA (338-355)	Amann *et al.* (1990)
ARCH915	Archaeal 16S rRNA (915–934)	Stahl and Amann (1991)
ALF968	alpha-proteobacteria 16S rRNA (968–986)	Neef (1997)
BET42a	beta-Proteobacterial 23S rRNA	Manz *et al.* (1992)
CF319a	Cytophaga*Flavobacterium* cluster of the *Bacteroidetes*phylum 16S rRNA (319–336)	Manz *et al.* (1996)
GAM42a	Gamma-Proteobacteria 23S rRNA	Manz *et al.* (1992)
HGC236	*Actinobacteria* 16S, 235–253	Glockner *et al.* (2000)
LGC354b	*Firmicutes*16S rRNA (354–371)	Meier *et al.* (1999)

PLA46	*Planctomycetal* 16S rRNA (46–63)	Neef *et al.* (1998)
SRB385	Sulphate-reducing proteobacterial	Amman *et al.* (1992)
NON338	Negative Control	Wallner *et al.* (1993)
ANME-1-350	ANME-1 Euryarchaeota	Knittel *et al.* (2005)

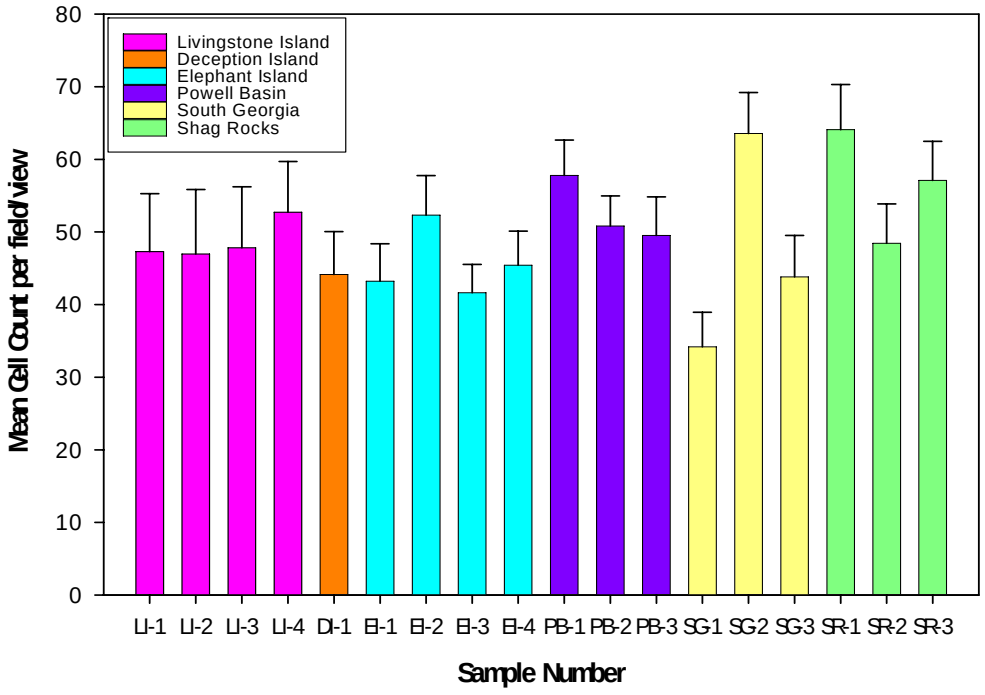
Procedure – Cells filtered from sea-water samples onto a 0.2 micron polycarbonate filter were fixed immediately with 2 ml of 4% paraformaldehyde for 30 minutes. Cells were washed and air dried on a glass slide. 20µl of a hybridisation solution (containing hybridization buffer and probe in 16:1 ratio per sample) was added to the cells and the slide incubated in hybridization chamber at 46°C for 90 minutes. Cells were washed and allowed to air dry ready for counting by epifluorescence microscopy.

Preliminary results

Microbial Abundance

Total cell counts were obtained for 16 samples out of 24. A minimum of 1000 DAPI stained cells were counted per sample.

Preliminary counts show little variation in cell number between samples (Figure 2.6)



Microbial community composition

FISH results were obtained for 12 samples out of 24. Results were obtained for stations at Livingston Island, Deception Island, Elephant Island and Powell Basin.

Gamma-proteobacteria, alpha-proteobacteria and cytophaga-flavobacteria Bacteriodetes cluster were the three dominant groups in each sample.

A greater abundance of methanogenic archaea and sulphur-reducing bacteria was seen at Deception Island compared with other stations.

In conclusion, preliminary results indicate significant differences in bacterial community composition at different sites in the Southern Ocean. Samples will be taken back to BAS where this work will be continued.

Observations

- Epifluorescence microscope worked satisfactorily throughout the cruise. Thirty-nine hours of microscope time used in total.
- Laminar Flow hood with clean filters (in radioactivity lab) worked effectively.
- 5 litres of hazardous waste (PFA) resulted from this work.
- A successful cruise, all required samples obtained and scientific work undertaken successfully without interruption.

2.5. Terrestrial collections
(Linse, K., Griffiths H.J., Malinowska, R., Pearce D.)

Objectives

Understanding the evolution of global biodiversity is essential to detecting and predicting the long-term effects of global climate change on the biosphere. Because Antarctica is isolated by great distances from other landmasses and has an extreme environment typified by marked seasonality and low temperatures it has developed a unique biota including cold-adapted animals and plants that occur nowhere else on the planet. Parts of the terrestrial fauna may be ancient and highly isolated suggesting that ice-free refuges must have existed throughout the last 40 million years on the Antarctic continent. The long-term existence of terrestrial biota, requires the availability of appropriate seasonally ice free habitats. In order to understand the history of contemporary Antarctic terrestrial biogeography, the terrestrial component of BAS' BIOPEARL project will target detailed biodiversity surveys (using classical and molecular techniques) at previously unstudied sections of the Antarctic Peninsula and the boundary region between maritime and continental Antarctica, in order to add to the existing data. In parallel we will match these with new geological data measuring exposure and uplift dates across the West Antarctic and islands of the Scotia Arc. Data from these areas can be used to develop glaciological models reconstructing ice sheet extent and depth, with implications for modelling ice flow and mass balance of the Antarctic continent. Biological data can validate these models at various timescales from the recent to the Gondwanan, through the existence of different ancient faunal elements and, hence, seasonally ice-free environments. The cruise JR 144 gives us the possibility to collect terrestrial samples from several islands on the Antarctic Peninsula and along the Scotia arc. Based on BAS data collected over the last years we will focus on tradigrades, springtails, mites and nematodes.

Work at sea

During JR 144 a terrestrial collection party consisting of David Pearce, Huw Griffiths and Rachel Malinowska went ashore at Deception Island (permit in place for visit to ASPA 140 sub-sites A, D, F and K), Jubany Base/King George Island, Signy Island and Southern Thule/South Sandwich Islands. They collected moss and substrate samples at different locations on the islands and photographed the habitats.

Onboard dry Tullgren extractions were carried out. In dry extractors (Fig. 2.7) a light bulb is used as a heat source. This sets up a temperature gradient and slowly dries the substrate. Extraction is carried out with the light on for at least 24 hours. The animals try to escape the light and heat and fall through the funnel into 10 ml glass vials with 96% ethanol as fixation medium. The samples will then be stored at +4ºC for the way through the tropics.

Preliminary results

In total 22 dry extractions from moss samples of Deception Island, Jubany Base and Signy Island were done (Table 2.9). In the extracts, springtails and mites were identifiable. The samples from Deception Island were lowest in terms of springtail abundance but contained three different morphotypes while abundance was much higher in all samples from Jubany and Signy Island but there seemed to be less morphotypes.

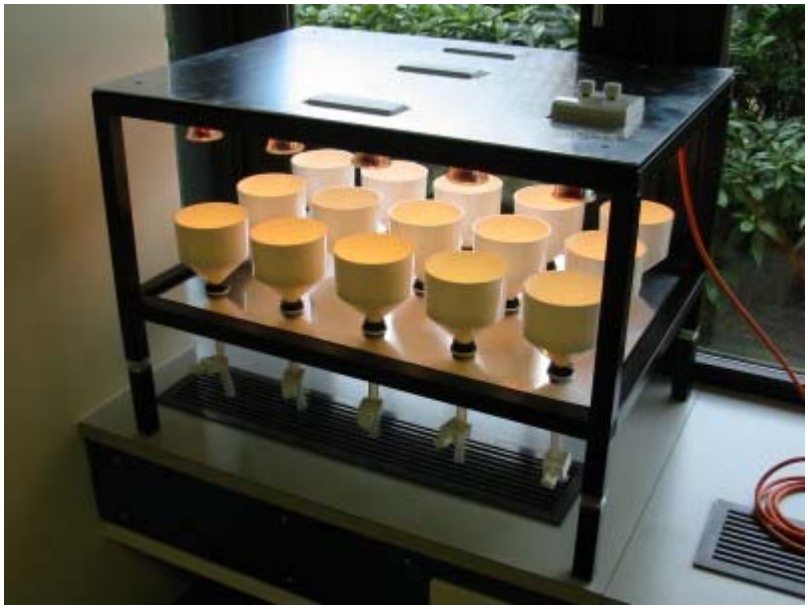


Fig. 2.7. Tullgren extractor.

Table 2.8. Dry extractions of moss samples

Area	Location	Date	Fauna	Abundance
Deception Is.	ASPA 140, Pristine 1	05.03.2006	-	-
	ASPA 140, Pristine 2	05.03.2006	-	-
	ASPA 140, Pristine 3	05.03.2006	purple springtails	few
	Whalers Bay	05.03.2006	black springtails	
	Roland Hill	05.03.2006	-	-
	Pristine	05.03.2006	-	-
	Fumarole Hill 1	05.03.2006	white springtails	few
	Fumarole Hill 2	05.03.2006	-	-
	Fumarole Hill 3	05.03.2006	white springtails	many
Jubany Base	Site 1	09.03.2006	black springtails	many
	Site 2	09.03.2006	black springtails	many
	Site 3	09.03.2006	black springtails	many
	Site 4	09.03.2006	-	-
	Site 5	09.03.2006	purple springtails	few
Signy Island	Sombre Lake	22.03.2006	black springtails	
	Sombre Lake 2	22.03.2006	black springtails	
	Heywood Lake	22.03.2006	black springtails	
	Mosslake	22.03.2006	black springtails	
	Knob Lake	22.03.2006	black springtails	
	Pump House Lake	22.03.2006	black springtails	
	Top of Hill	22.03.2006	black springtails	
	Changing Lake	22.03.2006	black springtails	

Further extractions and identifications for taxonomic, diversity and molecular work will be done in Cambridge.

3. JR 145 - Gene Flow in Antarctic Fishes (AFI 6/16 Jennifer Rock, Tony North, Alastair Newton)

This research examines the influence of oceanographic processes, bathymetry and life history variation on dispersal and gene flow in two Antarctic fishes (*Champsocephalus gunnari, Notothenia rossii*) that differ in the distribution of eggs and larvae and longevity. Molecular markers (microsatellites and mtDNA) will be used to characterise population structure at both circumpolar and regional geographic scales, which will then be compared with predictions from oceanographic models.

Objectives

To acquire adequate sample sizes for genetic analysis, 60-100 adult individuals of each species were required from each of several locations including: Elephant Island, Deception Island and the South Orkney Islands. Sampling from these regions allows us to test the influence of local hydrology/currents around Antarctic Peninsula as well as that of larger systems within the Scotia Sea (via comparisons with samples already collected from Shag Rocks and South Georgia (Groundfish Survey 2006)). Ideally, sampling would also occur at the South Sandwich Islands to further comparisons within the Antarctic Circumpolar Current and Northern Weddell Sea gyre.

Work at sea

To collect adult fish of both species, two types of fishing gear were used, trammel nets and a rough ground otter trawl.

3.1. Trammel nets

To target *N. rossii*, we deployed trammel nets in shallow inshore waters of three islands including Deception (inner caldera), King George (Potter Cove) and Signy (Borge Bay). Trammel nets were typically left to fish over night, with an average fishing time of 16 hours (range of 4-6 deployments at each site). These nets are fitted with a lead line and anchored to the bottom, and catch fish during times of benthic activity. Our target species of *N. rossii* was collected in this manner as well a substantial bycatch of *Notothenia coriiceps* (additional bycatch species were occasionally caught; Table 3.1). Other benthic fauna including echinoderms and pycnogonids formed insignificant but occasional invertebrate bycatch.

Table 3.1. Species composition and numbers of fish caught in trammel nets at three different sites in the Scotia Sea.

Site / **Species**[1]	Deception	King George	Signy
N. rossii	37	83	31
N. coriiceps	25	103	95
T. bernacchii	4	1	
P. charcoti		4	
G. gibberifrons	1		
C. aceratus		1	1

[1]Species not previously mentioned include: *Trematomus bernacchii, Parachaenichthys charcoti, Gobionothen gibberifrons,* and *Chaenocephalus aceratus.*

3.2. Otter trawls

To target *C. gunnari* we deployed a rough ground otter trawl at four sites including Deception, King George, South Orkney Islands and Elephant Islands. Trawling sites were selected based on several factors including previous record of successful *C. gunnari* bottom trawling; in those sites without record of previous fishing, suitable bottom topography (assessed by swath bathymetry) and depth; and the density of icebergs. A total of 12 successful trawls were completed, in waters of approximately 90-330 m depth (typically in range of 100-200m). These included 1 NW of Deception, 1 E of King George, 8 W of Elephant, and 3 S of Signy. *C. gunnari* was caught at Elephant and Signy Islands (Table 3.2).

Invertebrate and vertebrate bycatch generally comprised at least 90% of all trawls. Vertebrate bycatch included an additional 23 species of fish. These included: at Deception *C. aceratus, G. gibberifrons, Lepidonotothen larseni, T. bernacchii, P. charcoti, L. nudifrons, Pseudochaenichthys georgianus, T. bernacchii, T. hansoni, T. scotti;* at King George *C. aceratus, L. larseni, G. gibberifrons, L. nudifrons, Paraliparis* spp*, T. newnesi, N. coriiceps;* at Elephant Island *C. aceratus, G. gibberifrons, L. larseni, Bathyraja* spp*, Dissostichus mawsoni, Electrona carlsbergi, N. coriiceps, Gymnoscopelus nicholsi, L. nudifrons, N. coriiceps, Parachaenichthys charcoti, P. georgianus;* and; at Signy *C. aceratus, G. gibberifrons, L. larseni, Artedidraco lepidorhinus, Chionodraco rastrospinosus, G. nicholsi, L. nudifrons, L. squamifrons, Muraenolepis marmoratus, N. coriiceps, P. charcoti, Pogonophryne* spp*, Prionodraco evansi, P. georgianus, T. bernacchii, T. eulepidotus, T. hansoni, T. newnesi, T. pennelli, T. scotti.*

Table 3.2. Numbers of dominant fish species sampled in the rough ground otter trawl at four different sites in the Scotia Sea.

Site Deception	King George	Elephant	S. Orkneys
Species[1]			
C. gunnari		28	117
N. rossii	1	14	
G. gibberifrons	2	3	37	1834
C. aceratus	2	2	56	123
L. larseni[1]	165	140	117	424

[1]*Lepidonotothen larseni*

Preliminary results

For all target species, morphometric data was recorded including body length, mass, sex and reproductive condition. A tissue sample (either fin or muscle) was preserved in 95% ethanol, and otoliths were collected from each individual. Morphometric data will be analysed at the University of Wales, Bangor (UWB), as will otolith data once structural and compositional analyses are complete (via collaborators at University of Hull). DNA will be extracted from tissues, and molecular analyses using mitochondrial and microsatellite markers will be conducted at the UWB. Life history and phylo-genetic/geographic data will be combined with oceanographic data over the next two years to test models of population structuring by oceanographic processes.

4. WCB and mooring cruise report JR 146 (Enderlein, P.)

4.1. Western Core Box acoustic survey

Background, Aims and Methodology

The background, aims and methodology of the Western Core Box acoustic survey is described in detail in the JR 82 cruise report

General

This acoustic survey was run in the normal west to east direction. We started at the southwest end at W 2.1 S and worked eastwards. Due to bad weather at the first day, the first transect pair W 1.1 and W 1.2 could not be covered. All other transects were covered fully, in good weather conditions. We had no problems with either the EK60 or the XBTs. During the night times instead of CTDs, 8 RMT 8 nets were deployed during 2 nights within the vicinity of the shallow mooring position to allow ground truth the acoustic data of the mooring instruments.

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EK60/ER60 operations

- The EK60 was run with 1 sec. ping interval which varied over time - the reason was not obvious
- Parallel to the EK60 raw data Ecolog ek6 data were saved. Again the .raw data were picked up from the EK60 Workstation 2 and then processed and stored locally. Together with the Ecoview live viewing these settings worked fine, but no processing was done on the Workstation 2, which could reduce the performance of the machine.
- The SSU was working fine, we had no problems with the synchronisation of the ER 60 together with the ER 600 apart the variation of the ping interval – but there was no time to investigate this any further.

XBT operations

- During the survey the XBT system worked very well and we had only 3 or 4 failures, mainly due to birds catching the thin copper wire.

4.2 Mooring recovery and redeployment

Background, Aims and Methodology

The background, aims and methodology of the mooring project is described in detail in the JR 82 cruise report.

Recovery and redeployment during JR 146

In order to avoid the problem experienced during the 2003 winter when the deep mooring was snagged by a longline set for Toothfish, both moorings were deployed at the shallow site for the coming Antarctic winter period. The ‘Deep Mooring’ being placed ½ mile south of the ‘Shallow’.

The recovery process started with the “Shallow Mooring” at 12:53 GMT of April 5th with a CTD to 200m. The weather was ok, (force 4-5), moderate sea, and good visibility. The releases were activated at 13:32 and just a minute later the mooring was sighted and at 13:56 the whole shallow mooring was successful recovered.

After steaming to the deep site at 15:46 we started with the CTD to 200m. The releases were activated at 16:08 and the buoy was sighted 6 minutes later at 16:16. At 17:16 the whole deep mooring was successful recovered.

After data download, the required battery replacements and a check and maintenance of the mooring rigs the shallow water mooring was successfully redeployed **at 53.7949'S & 37.9385'W on 10.04.2005, 19:55 GMT.**

Immediately afterwards the deep mooring was redeployed just ½ a mile south of the shallow mooring position at **53.80288'S & 37.9380'W, on 10.04.2005, at 20:34 GMT.**

Both deployment took place as described in the second deployment report in JR96 with the changes described in the JR100 mooring cruise report: To control the release of the weights, they were lowered over the stern with the starboard Effer crane on a strop and a sacrificial rope attached to the weights was threaded through two deck eyes. The weights were then lowered down until the sacrificial rope took up the weight. Then the strop was taken of. At the release point the rope was cut on top of a piece of wood between the eyebolts using a knife.

Data verification

This time, for the second time ever in the last 3 ½ years, all 6 instruments have worked perfectly fine. The CTD data indicate that we see for the 4th time an increase in water temperature with the Antarctic autumn coming. Both ADCP data as well as the WCP data are showing a clear vertical migration of zooplankton and krill swarms over the last deployment. All instruments have worked all the time, without any problems. Overall, this was the best performance so far by the instruments resulting in a very nice dataset.

Work carried out

WCP:

- Data download
- both instruments NOT redeployed due to heavy corrosion to both main housings!!

CTD:

- Data download
- Main O-Ring replaced
- Batteries replaced

ADCP:

- Data download
- Batteries replaced

NOVATEC beacons

- Batteries replaced

ARGOS beacons

- Batteries replaced

Releases

- Batteries in all 4 releases replaced

PopUp's

- 2 new Cornell PopUp's were taken out of their original mooring rigging and where place in their own stainless steel frames, which were put inline with the moorings just beneath the main buoy.
- the two units needed a new code which was loaded on the 07.04.:
    - unit 76: old file: V9.2 from 1.2.05 replaced with new file: V9.0 from 14.10.04
    - unit 26: old file: V9.2 from 1.2.05 replaced with new file: V9.0 from 14.10.04

- **setup of unit 26:**
    - DSM ID: 184
    - HDD serial no: 41YK4JTWH4H
    - pressure: 709.2 Mb
    - ID: ok
    - external piezo: ok
    - Hello command: ok
    - start recording: 18:02 GMT, 10.04.06

- **setup of unit 76:**
    - DSM ID: 70
    - HDD serial no: N5AT4214126
    - pressure: 705.1 Mb
    - ID: ok
    - external piezo: ok
    - Hello command: ok
    - start recording: 18:09 GMT, 10.04.06

WCP problems

Initial assessment of the WCP unit 1004 (06.04.06):

- massive corrosion to the bottom edges of the main housing
- minor corrosion to the faceplate
- no corrosion on serial plug and pins visible
- unit had the correct date and time, only 5 sec. offset to ships GMT time
- unit contained full data set, download was no problem

Initial assessment of the WCP unit 1005 (06.04.06):

- less corrosion to the bottom edges of the main housing compared to unit 1004
- heavy corrosion to the faceplate
- corrosion on bottom of serial plug, pins showed no corrosion
- corrosion around the purge screw
- unit had the correct date and time, with less than 2 min offset to ships GMT time
- unit contained full data set, download was no problem

After initial assessment and phone conversation with Eugene Murphy, decision was made not to redeploy the two units because of the massive corrosion to both housings. It seems that by now we managed to solve the electronics problems and the units are working fine. The massive corrosion to both units is now the final thing to sort out. We had massive corrosion problems, since the first deployment and throughout further deployments. I recommend getting two new housings with new faceplates build (either by ASL or BAS).

New Instrument settings (general)

CTD

shallow:
start time: 10.04.05
sample interval: 240 sec.

deep:
start time: 10.04.05
sample interval: 240 sec.

ADCP

Shallow:
Start time: 10.04.05
Duration: 210 days
Sample interval: 4 min
Pings in interval: 7

Deep:
Start time: 10.04.05
Duration: 210 days
Sample interval: 4 min
Pings in interval: 7

Table 4.1. RMT 8 nets during JR 146

deployment/net	depth (m)	weight (kg)	fish	content
RMT 1 – net 1 (828)	300 – 200	0.206	4* L. larseni	mostly krill
RMT 1 – net 2 (829)	200 – 100	0.516	6* L. larseni	mostly krill
RMT 2 – net 1 (830)	100- 50	3.020	-	mostly Themisto, 1 kg subsample
RMT 2 – net 2 (831)	50 - 0	35 kg (l)	-	mostly small krill, 1 kg subsample
RMT 3 – net 1 (832)	300 - 200	9 kg	-	mostly adult krill, 1 kg subsample
RMT 3 – net 2 (833)	200 - 100	35 kg (l)	-	mostly adult krill, 1 kg

				subsample
RMT 4 – net 1 (834)	100 - 50	42 kg (l)	-	mostly small krill, 1 kg subsample
RMT 4 – net 2 (835)	50 - 0	40 kg (l)	-	mostly small krill, 1 kg subsample
RMT 5 – net 1 (848)	300 – 200	5.87 kg	2* L. larseni 1* T. larseni	mostly adult krill, 1 kg subsample
RMT 5 – net 2 (849)	200 - 100	6.34 kg	2* L. larseni 1* myctofid 1* larvae	mostly adult krill, 1 kg subsample
RMT 6 – net 1 (850)	100 - 50	0.663 kg	-	mostly adult krill
RMT 6 – net 2 (851)	50 - 0	0.175 kg	-	mostly adult krill
RMT 7 – net 1 (852)	300 - 200	2.257 kg	1* L. larseni	mostly adult krill, 3* Notocrangon
RMT 7 – net 2 (853)	200 - 0	0.494 kg	3* L. larseni	mostly adult krill
RMT 8 – net 1 (854)	100 - 50	0.490 kg	-	mostly adult krill
RMT 8 – net 2 (855)	50 - 0	0.029 kg	-	few themisto, krill

5. JR 147 - *Did Antarctic octopuses colonise the deep sea?* (AFI 6/33 Strugnell, J.)

Objectives

This project uses octopuses as model organisms to test the hypothesis that the Antarctic has acted as a centre for evolutionary innovation and radiation and as a source of taxa that have invaded the deep sea. It is likely that the deep-sea fauna was depauperate following extinction events associated with past global climate change causing, for example, deep-ocean oxygen minima. Such events have been recorded from the Late Cretaceous and Palaeocene/early Eocene, prior to the opening of the Drake Passage. The subsequent development of deep-water connections between the Southern Ocean and the major oceans which surround it would have facilitated the expansion of biogeographic boundaries. This study aims to characterise the micro- and macro-evolutionary processes of endemic Antarctic octopod fauna and the macro-evolutionary processes of the deep-sea octopod fauna using molecular methodologies. Bayesian analytical procedures incorporating fossil constraints will then be used to estimate the divergence times of these taxa thereby providing a means of testing the hypothesis that, in evolutionary history, Antarctic taxa invaded the deep sea.

Work at sea

A large collection of tissue samples of our target groups from the deep sea and Antarctica have already been collected in previous cruises. The specific objective of this cruise for our work was to target three species of octopus, *Pareledone charcoti* (peak abundance 100m depth), *Pareledone turqueti* (peak abundance 100-200m) and *Adelieledone polymorpha* (peak abundance 250-350m), for the micro-evolution (ie population genetics) component of this project. An otter trawl was used primarily to capture octopus due to its relatively large sampling area and the fact that it can be trawled quickly (4 knots) which prevents octopus from swimming out of the net. Some samples of these species were also captured by Agassiz trawling conducted by JCR 144. Two locations were targeted: Elephant Island and the South Orkney Islands.

Upon capture, octopus were placed immediately in ice cold fresh water to prevent their skin from detatching (which occurs quickly in warm water). A small tissue sample was taken from the mantle of each octopus and placed immediately in 70~80% ethanol for preservation for DNA extraction. Every octopus was then fixed in 5-6% formalin for 4 days, before being heat sealed in a plastic bag containing 4% formalin, and packed in UN approved barrels for transport back to Queen's University, Belfast for morphometric studies.

Preliminary results

295 cephalopods were caught during the cruise; 3 squid and 292 octopus. 260 individuals were caught using the otter trawl and a further 35 using the Agassiz trawl (Table 5.1). At least 10 species of octopus were caught.

Table 5.1. Octopus and squid caught on throughout the cruise.

date	station	event	trawl	depth	cephalopods caught*
28/2/06	Falkland trough	FT-AGT-1	Agassiz	~1000 m	1 x *Semirossia patagonica*
04/3/06	Livingston Island	LI-AGT-4B	Agassiz	~200 m	3 x *Pareledone* sp.
06/3/06	Deception Island	DI-RGBT-1	Otter	~200 m	7 x *P. turqueti* 2 x *P. cornuta* 10 x *P. charcoti*
11/3/06		DI-RGBT-2	Otter	~200 m	7 x *P. turqueti* 2 x *Benthoctopus* sp. 1 x *P. aurata* 3 x *P.* sp.
12/3/06	Elephant Island	EI-AGT-2	Agassiz	~1000 m	3 x *P. turqueti* 1 x *P. aequipapillae*
		EI-AGT-4	Agassiz	~200m	4 x *P. charcoti* complex 5 x *P. turqueti* 3 x *P. cornuta*
		EI-AGT-3	Agassiz	~500 m	1 x *P. turqueti* 1 x *A. polymorpha*
13/3/06		EI-RGBT-4	Otter	~100 m	1 x *Megaleledone* sp. 1 x *P. turqueti* 11 x *P. charcoti*
		EI-RGBT-3	Otter	~100 m	7 x *P. charcoti* complex 1 x *P. turqueti*
		EI-RGBT-5	Otter	~100 m	3 x *P. turqueti* 1 x *P.cornuta* 8 x *P. charcoti* complex
		EI-RGBT-6	Otter	~300 m	11 x *P. turqueti* 2 x *A. polymorpha* 3 x *P. charcoti* 2 x squid
14/3/06		EI-RGBT-7	Otter	~100m	2 x *P. charcoti* 4 x *P. turqueti*
		EI-RGBT-8	Otter	~100m	8 x *P. charcoti* complex
		EI-RGBT-9	Otter	~100m	14 x *P. charcoti* complex 2 x *P. turqueti*
		EI-RGBT-10	Otter	~100m	80 x *P charcoti* complex 1 x *A. polymorpha* 3 x *P. turqueti*
17/3/06	Powell Basin	PB-AGT-1	Agassiz	~1500m	1 x *Thaumeledone* sp.
18/3/06		PB-AGT-3	Agassiz	~500m	4 x *P. turqueti*
		PB-AGT-4	Agassiz	~200m	1 x *P. turqueti*
23/3/06	Signy	SG-RGBT-1	Otter	~250m	1 x *Megaleledone* sp. 5 x *P. turqueti* 11 x *P. charcoti*
24/3/06		SG-RGBT-2	Otter	~150m	12 x *P. charcoti* 1 x *P. turqueti*
		SG-RGBT-3	Otter	~150m	7 x *P. charcoti* 1 x *P. turqueti* 2 x *Megaleledone* sp.
27/3/06	Southern Thule	ST-AGT-4	Agassiz	~200m	2 x *P. turqueti*
28/3/06		ST-AGT-2	Agassiz	~1000m	1 x *Pareledone* (new species?)
5/4/06	South Georgia	SG-AGT-4	Agassiz	~200m	1 x *A. polymorpha* 3 x P. sp.

* Cephalopod species identifications to be confirmed/continued at Queen's University, Belfast.

Initial investigation suggests that *P. charcoti* was caught in good numbers at both Elephant (~130) and South Orkney islands (~30). *P. turqueti* were present in smaller numbers (34 and 7 respectively) and *A. polymorpha* were very rare, with only 4 individuals collected at Elephant Island and none from the South Orkney Islands.

Species within the genus *Pareledone* are very difficult to distinguish from one another and thus further microscopic identification and dissection of the individuals caught will continue at Queen's University in Belfast (morphometrics) and the British Antarctic Survey (molecular). Information from previous cruises suggests that that the final number of species will be closer to 20 after identification via microscopic examination and dissection.

The 3 octopus caught at Southern Thule, South Sandwich Islands are of particular interest due to the fact that no octopus have been caught there previously by the PI, Louise Allcock, despite extensive trawling. Initial observation of one of these individuals suggests that it may be a new species due to unusual characteristics, including chromatphores covering the ventral mantle, a character commonly used in species delineation.

The *Thaumeledone* individual caught at the Powell Basin from 1500 m is also of great interest. The distribution of the 2 known *Thaumeledone* species (*T. peninsulae* and *T. gunteri*) from this region of Antarctica is unknown and thus the identification and molecular sequencing of this individual will aid in determining the extent of these species.

6. JR 149 (Allen, C.S. et al.)

Cruise Objectives

The cruise objectives are included in the remit of the BAS core science project 'CACHE PEP'. CACHE PEP G (Geosciences) was allocated 5 days science time within the combined JR144/145/146/147 & 149 cruise[1]. These 5 days would be used to recover piston cores from deep-sea areas. The principal aim was to collect cores made up of sediments from the last 10,000 years (the Holocene) from the Northern Peninsula/South Orkney region and the Georgia Basin. The sediments from the cores will contain a fossil-record of oceanographic and hence climate changes over the last 10,000 years. We will use this record to reconstruct what conditions have been like in the past and assess how unique modern climate change is. This will help us to examine how well models replicate past changes and therefore how well models may (or may not!) forecast the future. With the focus on high sedimentation records it was intended that geophysical survey would be undertaken with the EM120 Swath bathymetry system to find sites with suitable topography for retaining sediments and the TOPAS sub-bottom profiler to identify the highest resolution sediment sequences. The coring areas in the Northern Peninsula/South Orkney region and the Georgia Basin were selected for their proximity to high productivity areas (providing the material to build up thick, therefore high-resolution sediment records) and also because these regions are unrepresented in the BAS core archive.

Further Geophysical survey and water sampling would be carried out on an opportunistic basis, recording the swath data and taking seawater samples along the cruise track to augment the GSD swath coverage and increase the collection of modern Scotia Sea diatom samples with autumn assemblages (spring and summer collections were collected in 2002 and 2004 respectively under two CGS awards).

6.1. Geophysical Survey (EM120 & TOPAS)

6.1.1. Objectives

The 'EM120' multi-beam swath bathymetry system and the 'TOPAS' single beam sub-bottom profiler were primarily used to select potential core sites. The EM120 was also run during transits to extend the GSD mapping dataset and to aid with site selection for other projects onboard.

6.1.2. Data Description:

- EM120

The EM120 system sends a synchronous ping with up to 191 beams in an arc from the ships hull (see Figure 6.1). The system then waits for the return signal to arrive back at the ships receiver and calculates the distance covered by each beam using two way travel time, from the time it takes to go and return. Thus successive pings build up a 3-dimensional image of the sea floor topography. To maintain an accurate profile under different water column conditions, sound velocity profiles are needed to allow correct interpretation of the return signals across the width of the arc.

[1] At the outset of cruise planning during 2004, ten days were allocated to CACHE-PEP G to cover both transit and science. Once the combined cruise schedule was resolved, 5 days of transit time were amalgamated into the cruise schedule.

Figure 6.1: Schematic of the multi-beam echosounder system (Modified from the Simrad operator manual).

- TOPAS

TOPAS employs a traditional single ping mode of transmission, which is designed to reflect the type of sea floor sediments (see Figure 6.2). The reflectors that are imaged in the system reflect the amount of penetration by sound into the sediment and therefore the structure and strength of the sea floor.

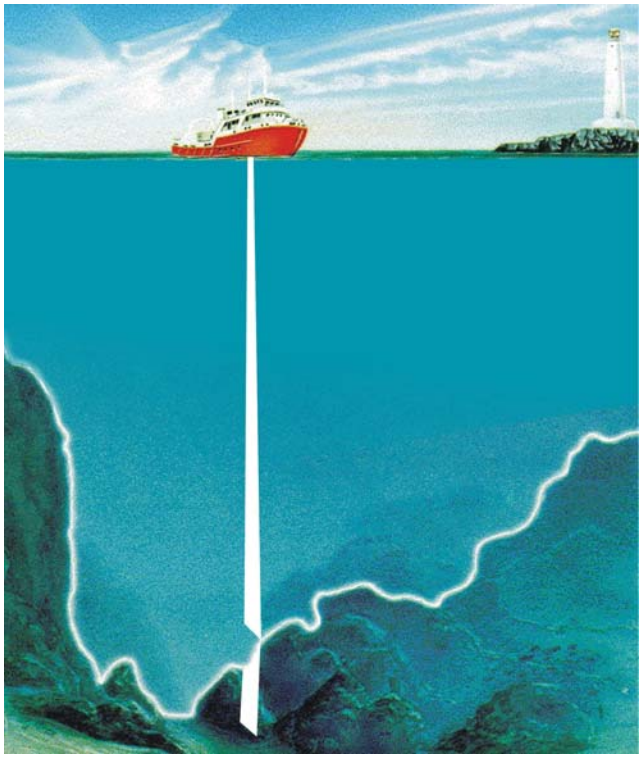


Figure 6.2: Schematic of the single beam sub-bottom profiler (Modified from the Simrad operator manual)

6.1.3. Data Coverage

- EM120

Figure 6.3 shows the data coverage for the logged EM120 swath bathymetry data. The track shows where data has been logged but the data quality and consistency is variable. Generally, for site location studies (see generic cruise plan in Chapter 1) the quality is good. Where any gaps in the data recovery occurred the area was normally resurveyed. Approximately 20 sound velocity profiles from the CTD's taken for the other projects and two XBT deployments in the coring locations were updated to maintain a good interpretation of the return signal. These will be available for future cruises on the BAS-wide sound velocity profile database.

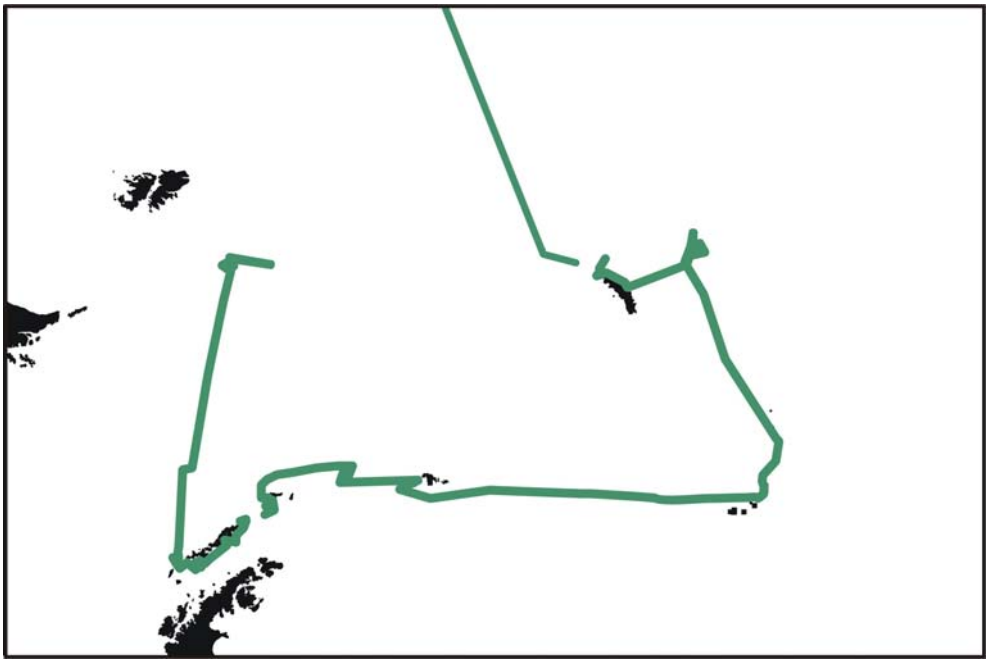


Figure 6.3: Map of Scotia Arc showing approximate coverage of logged EM120 swath bathymetry data. This coverage plot does not take into account the quality of the data.

- TOPAS

Figure 6.4 shows the data coverage for the TOPAS sub-bottom profiler. Problems with the TOPAS greatly reduced the area that we were able to survey (see section 6.1.4). The three regions where we have data are primarily the coring locations and the early part of the cruise prior to the ensuing problems. The data was usually only recorded or printed once a decent sea-floor sediment profile was obtained. This has ensured that the data for these areas is generally of good quality.

6.1.4. Performance and comments

- EM120

At the beginning of the cruise the EM120 system was working well with good data cover and quality. This was in part due to the permanent swath-watches covered by the geoscience team on board. Later in the cruise when TOPAS couldn't be run continuously the watch system was discontinued and the EM120 left to run un-attended overnight. For the most part this did not affect the data return but in shallow waters or rough seas this sometimes led to poor quality data.

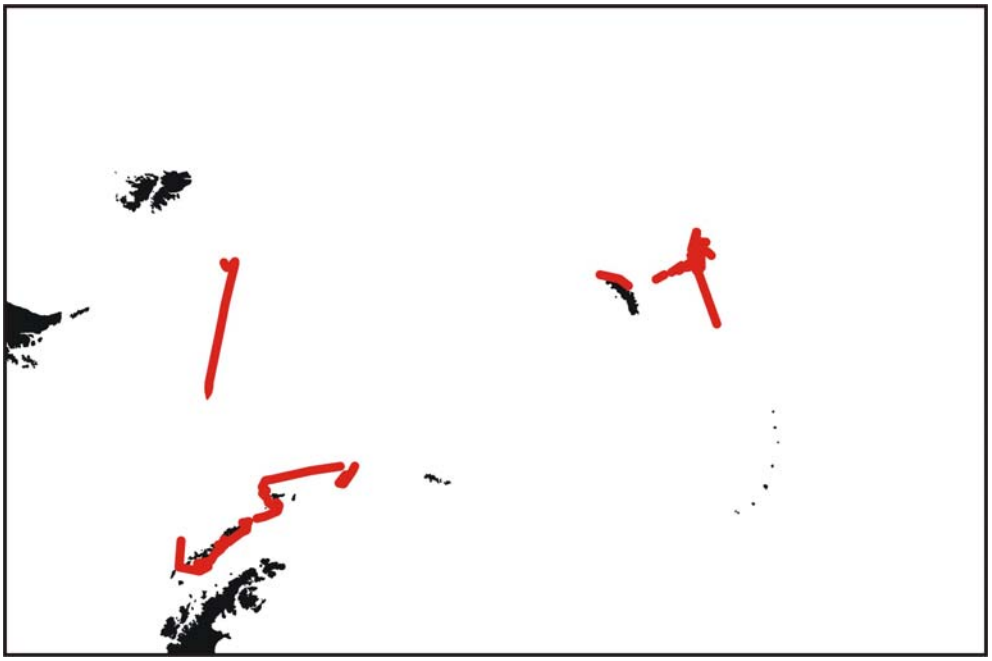


Figure 6.4: Map of Scotia Arc showing approximate coverage of TOPAS data (printed and/or recorded).

For the most part the swath bathymetry settings required much more tweaking during passage over shallow waters than over deep. Problems with shallow water data returns could usually be overcome by narrowing the depth windows to within a couple of hundred metres and using the force depth option to specify the approximate depth for the Swath to "look for". Rough weather data returns usually began with missing data at the extremities of the arc, a problem that was usually solved by reducing the angles of beams (Maximum 65/65; Minimum 35/35 in very rough weather; more usually 55/55). Adjusting the 'heading correction' was tried occasionally when the ships course was affected by leeway. In deep waters data was only lost when the maximum depth' value was set too low for the actual depth of water. This would result in a 'hole' where the actual depths greatly exceeded the setting.

Mid-way through the cruise a problem arose with pings not updating and the screen options not responding and the ping-data windows freezing. This problem led to gaps in the data, which varied in duration and left blanks in the swath track. Despite seeking specialist advice from colleagues at BAS the problem continued and became progressively worse throughout the cruise. Towards the end of the cruise it was noted that the gaps appeared to coincide with the Seatex "heave, roll, pitch, heading" indicators turning red and orange suggesting a failure in the Seatex system. This was possibly due to the discrepancy in the gyro repeater course path, when satellite coverage was inadequate. Usually the EM120 would return to normal performance by itself over a period of time (~15-30mins) or by rebooting the system. Occasionally on rebooting an error message saying, "the echo sounder could not be found" would appear. EP thinks that if the EM120 system was rebooted before the indicators turned back to green, the communication error message appeared. Without further investigation of the timing of the Seatex and EM120 failures the link is only speculative but a suggested line of enquiry for repair.

- TOPAS

TOPAS performance was highly variable, to the extent that it became unfeasible to run it continuously. Usually the TOPAS was synchronised using the Simrad Synchronisation Unit (SSU) to maintain an interference-free return. In deeper waters, the ping rate needed to be set at a higher frequency than the other echo sounders in order to maintain a constant bottom reflector. This was achieved by setting the ping rate manually, taking care that the outgoing pings would not coincide with returning signals. If this did occur there were difficulties with interference and confusing the outward signal with the return. Thus finding the seafloor signal was sometimes problematic, especially if it was undulating! The 'burst' ping mode was found to give a less clear signal, even in shallow waters, than the 'chirp' ping mode. For this reason chirp was used almost continuously. Power output was usually set at 85 %, the ping bandwidth between 1500 and 5000khz, and the length 10-15ms.

TOPAS tended to require more of the watch-keepers attention than the Swath system. This was particularly apparent when travelling over rapidly changing water depths, where the sea floor needed to be traced continuously through different time windows[2]. This was achieved by changing the 'Delay' settings. Another common adjustment made was the 'Gain'. This parameter sets the gain in the front-end amplifier and was used to reduce the background noise in the signal, ideally just showing the seafloor as the largest, most obvious feature on the profile. The Gain value was typically between 20 and 30 dB. The data windows were always set to the black and white scope view with the processed data scaled to 1500-2000%.

After an initial period (~3weeks) of TOPAS working well continuously we arrived at the first coring station and almost immediately lost the ping transducer. The error messages that appeared during the course of the problems varied between, "Comms", "50V" and "FUSE". JRED was unable to explain the faults and rebooting wasn't successful, so Sevy (EID) and Mike (Comms Officer) were called. After several hours of labouring with the transducers in the hold they manage to restore the TOPAS software and submitted an error sheet to BAS (attach in appendix - 1). After leaving the first coring site TOPAS was left idle and not restarted until the approach to the second coring site. TOPAS was still volatile and Sevy was required to reboot the system on a couple of occasions. After leaving the second site we left TOPAS running but within hours it suffered the same failure and was powered down for the remainder of the cruise.

[2] The TOPAS displays only the return signal within a 400ms window of time. Changes in depth that exceed the boundaries of the window require a "delay" change to shift the time window to the right interval for listening to the seafloor return.

6.2. Under-way water sampling

6.2.1. Objectives

The objectives of water sampling were to collect surface diatom assemblages (on filters) and bottled samples for isotope work from around the Scotia Arc and across the Polar Front.

6.2.2. Data Description:

- Filters

Water was taken from the ships internal sea water supply (intake at 6 mbss) and CTD water (at 2, 30, 200, 500, 1000, 1500 and 2000 mbss) filtered through Whatman 0.2 μm, and 0.02μm anodisc membrane filters. The filter equipment comprised three traditional fritted glass funnels draining into water reservoir using a vacuum pump system (see Figure 6.5). The amount of water filtered varied between 150ml and 1000ml, depending on the diatom concentration.

Figure 6.5: Filtering equipment

The diatom assemblage preserved on the filter papers will be analysed using a light microscope or Scanning Electron Microscope and provide unique information on the autumn diatom community in the Scotia Sea. The data will augment previous work done during spring and summer (under Collaborative Gearing Scheme grants) to determine seasonal variability and distribution of diatom assemblages and to assess taphonomic processes in the water column.

- Bottles

Samples were collected from the ship's sea water supply into clean 125ml plastic bottles. Care was taken to ensure that the least possible amount of air remained in the bottle to minimise the risk of changing the isotopic signature of the water. These

samples will be used to examine the degree of fractionation in the isotopic signal of Scotia Sea surface waters.

6.2.3. Coverage

- Filters

Waters were filtered fairly consistently through the cruise from the Livingston Island site onwards (see Figure 6.6). Filters were taken in higher concentrations at core and CTD sites. Between South Georgia and Shag Rocks, minimal samples were taken to save filters for crossing the Polar Front and because samples had already been collected to that latitude in the Georgia Basin. In total 172 filtered samples were accrued over the duration of the cruise.

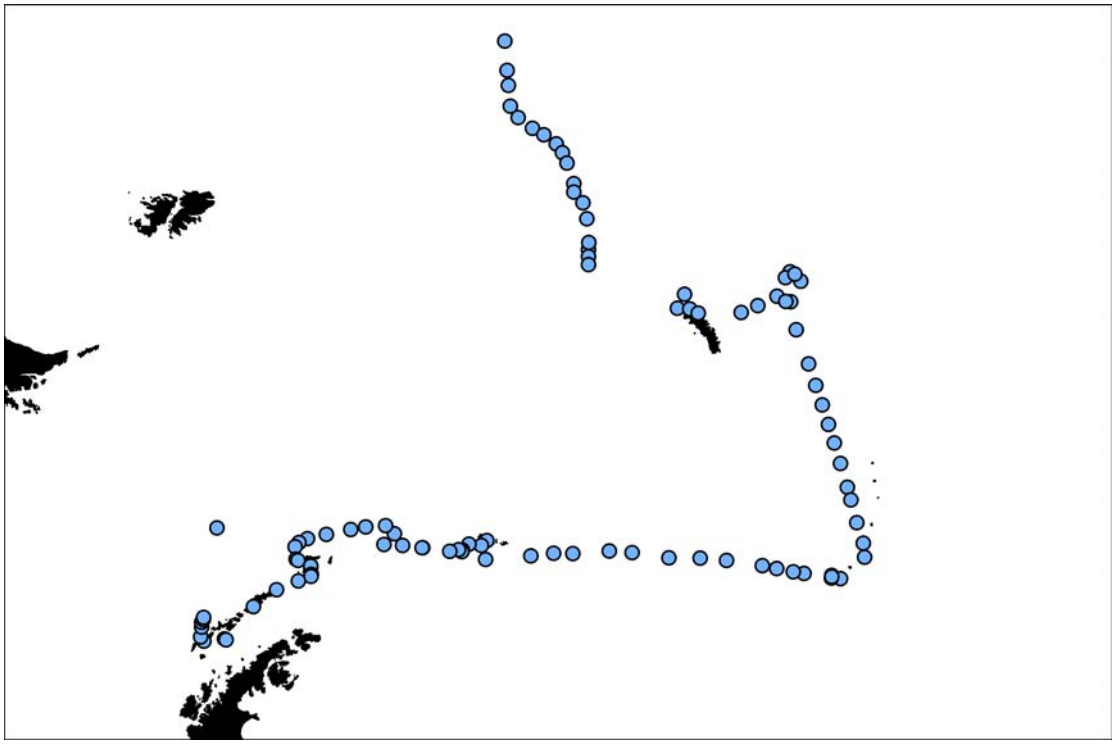


Figure 6.6: Map of Scotia Arc showing sites of filtered water samples.

- Bottles

71 bottled water samples were taken across the eastern Scotia Sea from Signy Island northwards (see Figure 6.7). Between South Georgia and Shag Rocks, minimal samples were taken because samples had already been collected to the same latitude in the Georgia Basin.

6.2.4. Comments

Generally water sampling was successful and could be carried out in all weather conditions. The only problem occurred when the ship's sea water supply failed due to trapped air in the pipes, in particularly choppy seas.

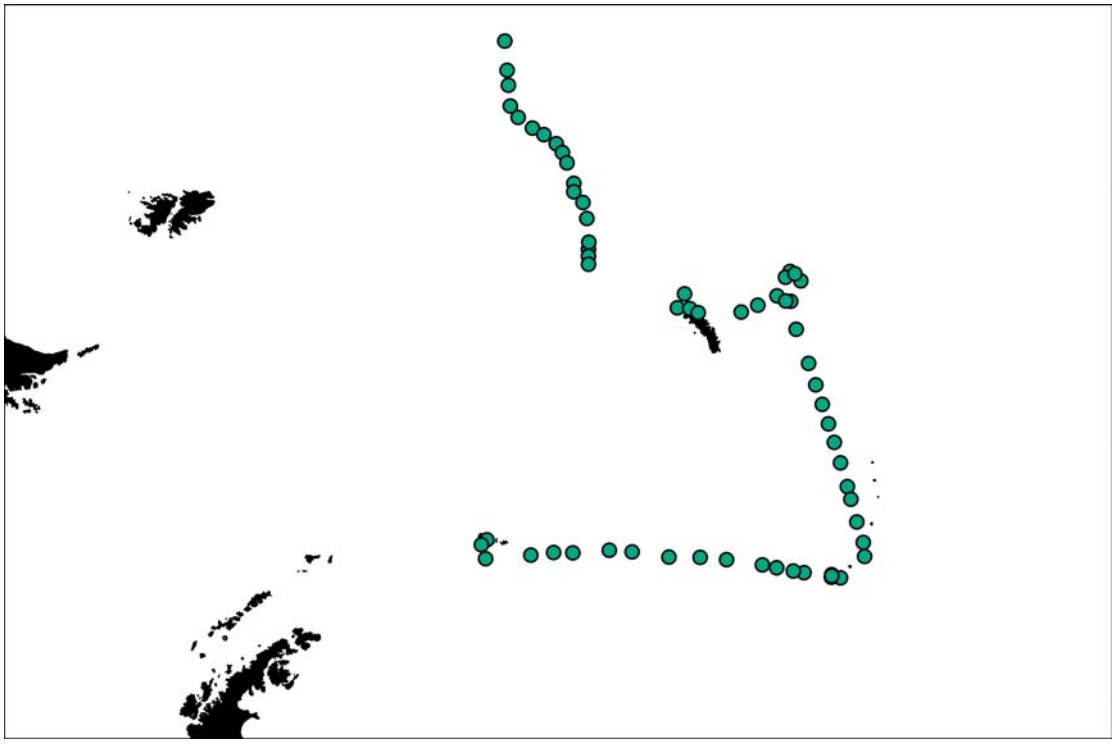


Figure 6.7: Map of Scotia Arc showing sites of bottled water samples.

6.3. Piston coring

6.3.1. Objectives

Collecting piston cores from the Northern Peninsula/South Orkney region and the Georgia Basin was the principal aim of the cruise. We were trying to find sites with sediments that would record the last 10,000 years at high-resolution. The maximum length of the piston corer was 15m so we were looking for sediments with approximately 15 m of transparent sediments above the first sub-surface reflector[3] (see Figure 6.8).

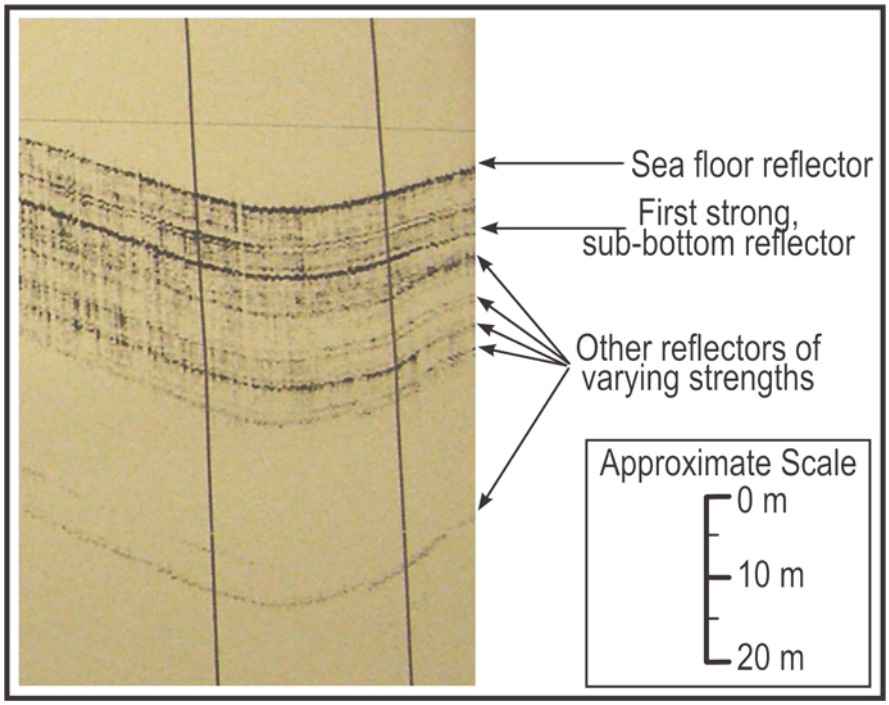


Figure 6.8: Extract of TOPAS record showing features of the sub-bottom profile.

Although our science days were used for both surveying and coring we hoped to recover at least 1 core from each of the two sites. The quality of the core material was of sufficient importance that re-deployment in the same location would be a priority if core recovery was not considered satisfactory. With this in mind a single, good quality core from each location would have been adequate for the success of the JR149 cruise.

6.3.2. Data Description and Site Locations

Cores contain sediments made up from terrigeous and biogenic material. The bulk of the biogenic and terrigenous material sinks through the water column to the sea floor, where it builds up over time into thick units of sediment. Although some of the original particles are dissolved, broken or transported away from the site, the preserved sediments have been shown to represent the surface water conditions. In the high productivity areas of the Southern Ocean the biogenic sediments are made up almost exclusively of diatoms (single celled algae with shells/frustules of hydrated silica - SiO_2). Diatoms are controlled by light, temperature, salinity, grazing etc and different species thrive in different water conditions. As such, down core changes in diatom

[3] It is generally considered that the first sub-surface reflector denotes the first layer of coarser-grained material indicative of the last deglaciation. Therefore in order to be confident that sediments are younger than last glacial age, they need to be above this reflective unit.

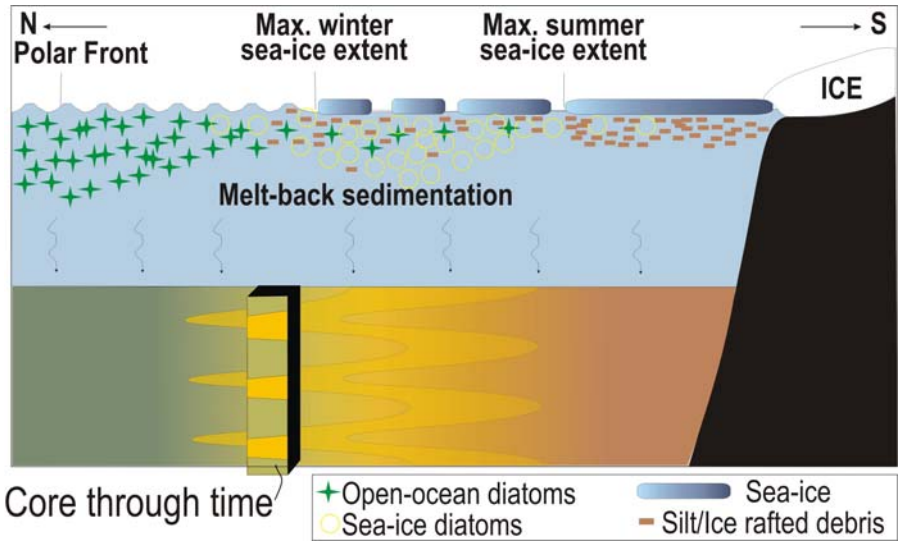


Figure 6.9: Schematic of sediment deposition and how sediments in a core reflect surface water conditions (Taken from Armand, 2000).

assemblage can be used to infer the ocean environment at the time of deposition (see Figure 6.9).

In the Scotia Basin most of the sea floor in the western portion is scoured by the Antarctic Circumpolar Current (ACC), which removes all but the coarsest grained material. Pockets of sediment are only found in isolated depressions within the basin or, more commonly, around the margins. In the eastern basin and the South Sandwich Trough, the sea floor is flooded, at least partially, with Weddell Sea Bottom Water (WSBW). WSBW can be corrosive to diatoms and dissolve the siliceous component of the sediments to varying degrees. Bearing this in mind, good site selection is imperative when trying to find well-preserved sediment sequences. During the cruise we focused on the following areas:

- The Northern Peninsula/South Orkney site (The Herspérides Trough area)

The Herspérides Trough area was chosen both for its uniqueness in the BAS core archive and its position within the South Scotia Ridge away from the abrasive path of the ACC and cut off by a shallow sill from the caustic Weddell Sea Bottom Waters.

- The Georgia Basin

The Georgia Basin is northeast of South Georgia and is considerably larger than the Hespérides Trough. Sedimentary conditions were harder to predict in this area although it was generally considered that sediments would be preserved in at least semi-continuous layers across the basin. The scarcity of previous survey information and the size of the region required a considerable survey area to be covered prior to deployment of the piston corer.

6.3.3. Core Recovery

- The Northern Peninsula/South Orkney site (Herspérides Trough area) (2 days)

After the problems with the TOPAS were resolved (see Section 6.1.4) we had already swathed the entire Hespérides Trough. The sewath data showed that the basin floors were not very flat or wide so unlikely to have retained good sedimentary sequences. It was therefore decided to survey along the axes of the shallower basins south of

Hespérides Trough. The TOPAS records showed continuous sediments of varying thickness across both basins. Good sites existed in both basins, but the southerly basin contained the thicker units. Although we were in the northerly basin at the time when we had to proceed to the first core location, it was decided to focus on the southern basin to ensure that the higher resolution sediments were recovered. Two cores were collected from the southern basin (see Figure 6.10). The coring procedure at both sites went smoothly and recovered approximately 11 m of sediment from the first site (PC 460) and approximately 10 m from the second (PC 461).

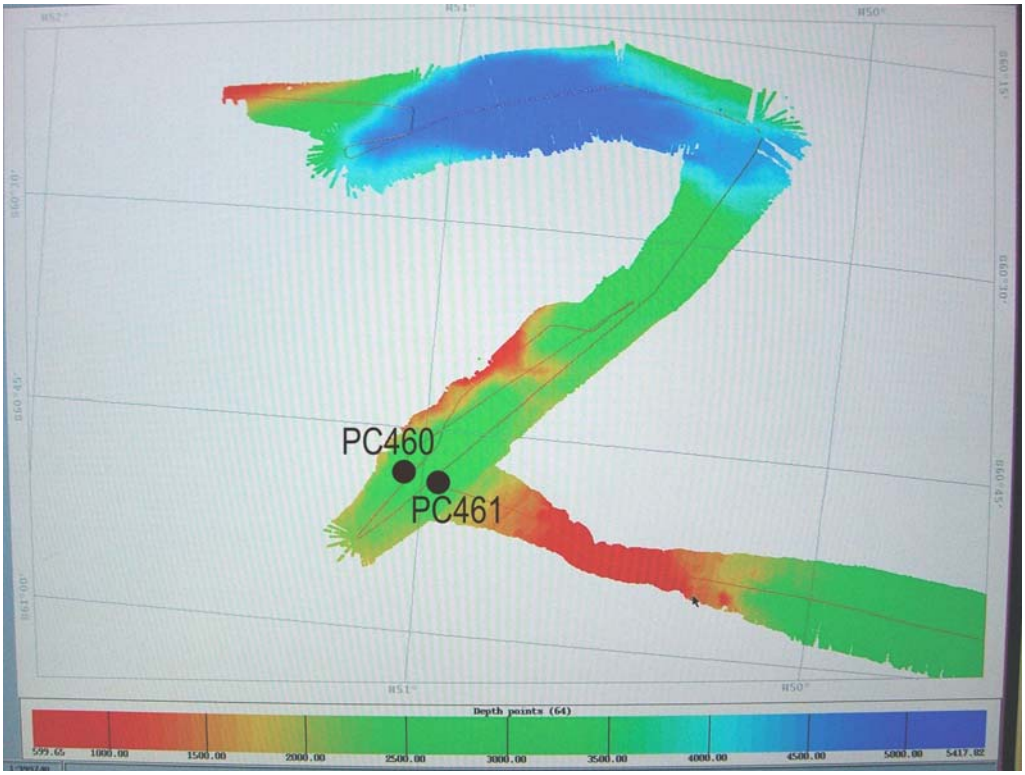


Figure 6.10: Approximate core locations shown on the Swath image of the Hespérides Trough.

- The Georgia Basin (3 days)

TOPAS worked with very few problems during the site survey and showed distinct areas of very different sediment character. The Swath images supported the TOPAS data and showed that the margin between the basin and the north east Georgia Rise was essentially a cliff separating the abyssal plain from the plateau. The sediments on the plateau were thin and mostly lacking structure, whereas the deeper sediments were generally thick and uniformly layered. After this preliminary survey, two sites were selected within the basin, one (PC 462 ~ 10 m) along the flanks of a small rise, the second (PC 463 ~ 10m) further north on the basin floor (see Figure 6.10).

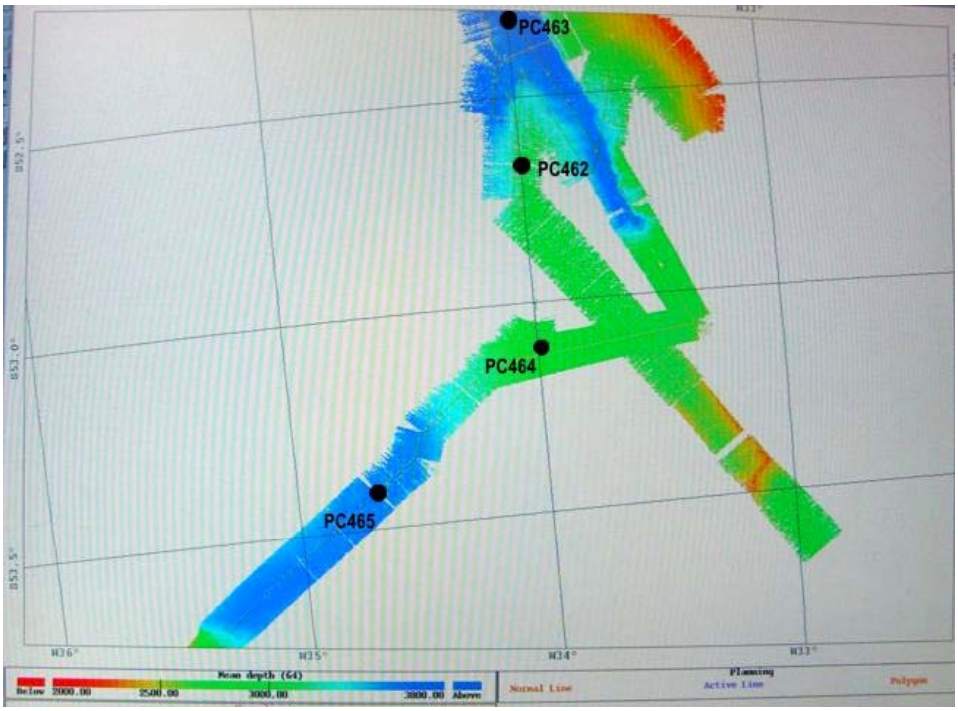


Figure 6.11: Approximate core locations shown on the Swath image of the Georgia Basin.

Overnight the survey was continued southwards along the axis of the trough to the east of site PC 462, onto the plateau to see if the sediment succession was continuous along the extension of the trough. A similar pattern to the previous night's survey was evident, with sparse sediment cover above ~ 3000 m. Once it was clear that suitable sediments would not be found on the rise, we turned westwards back over the basin and cored at the shallowest possible site with favourable sediments (PC 464 ~ 10 m). Following the recovery of PC 464, we headed towards South Georgia with the intention to core en-route, while a problem with the winch was resolved and coring was not possible. Sediment thickness reduced as we travelled west and as soon as the winch was declared fit for deployment, the decision was made to attempt core recovery. Despite the different reflector structures shown by TOPAS, RP made the decision to use the same piston core assembly. The winch worked without problem but RP commented on the tension spike on the release of the corer, which he suggested indicated poor recovery. He was proven right, when the corer returned to the surface with the lower two barrels significantly bent. Despite the damage to the corer, approximately 3 m of very sandy sediment were retained within the lower barrels (PC 465).

6.3.4. Problems

During the deployment of PC 464, problems occurred with the main winch system. It appeared that the problem lay within the winch housing and required intermittent attention during recovery, during which time hauling would be stopped.

6.4. Preliminary work and comments

Information of all datasets, cores, samples and preliminary analyses are included in the tables at the end of this section. These are summarised below.

6.4.1. Swath and TOPAS

All Swath data collected throughout the entire cruise has been processed to get rid of poor data and converted to a file format compatible with ArcGIS, so that it can be easily accessed all members of the cruise party. All data for Swath, TOPAS and the SVP's are saved under the normal IT data management and will be available for future reference.

6.4.2. Underway water sampling

Although no formal data analysis has been undertaken we were able to discern several notable features of the diatom assemblages from preliminary microscope work.

- Unexpectedly high productivity, with high abundance of *Chaetoceros* spp. within the South Sandwich Island group, possibly related to the recent volcanic activity
- High *Rhizosolenia* spp. abundances along the southern Scotia Ridge, which may support a hypothesis that *Rhizosolenia* spp. are indicative of Weddell Sea outflow
- Unusually common occurrence of *Coscinodiscus* spp. and *Odontella* spp. throughout the arc region
- Notable absence of sea-ice species, usually common throughout the southern Scotia Sea and Antarctic Peninsula
- Presence of organic clumps (faecal pellets?) containing compacted diatoms of various species on filters collected in the northern South Sandwich Islands and South Georgia region.

6.4.3. Piston coring

During the transit between the Hespérides Trough and the Georgia Basin, we succeeded in sectioning, splitting, logging, sub-sampling and preparing smear slides for both PC 460 and PC 461. Notable features of the core sediments include:

- Potential ash layer present in both cores
- Laminated units preserved in both cores, with PC 460 having almost continuous layering throughout (see Plate 6.1)

Plate 6.1

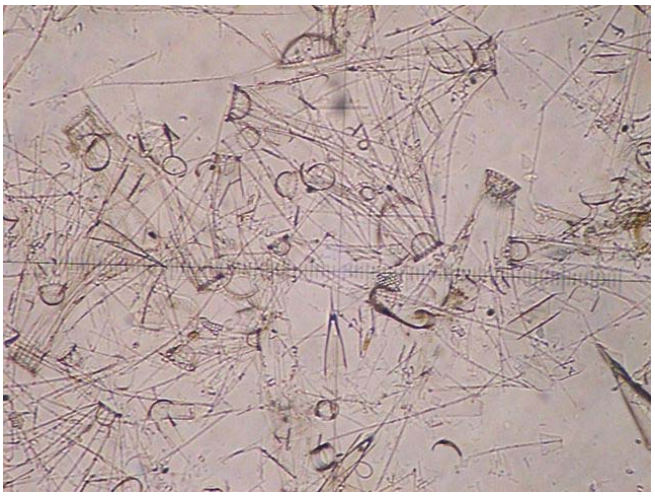


Plate 6.2

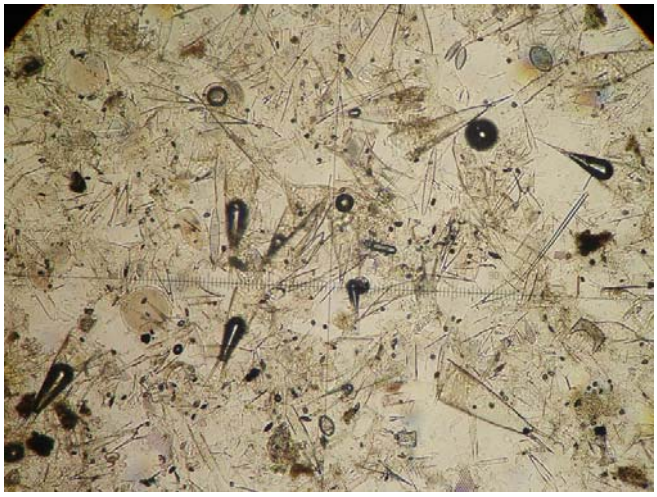


Plate 6.3

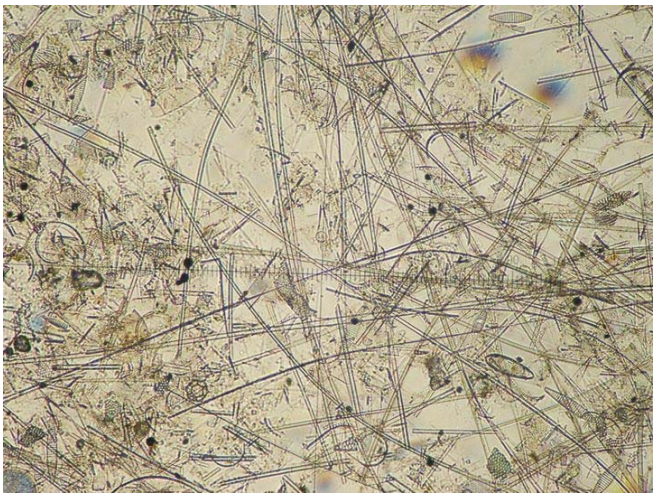


Plate6. 4

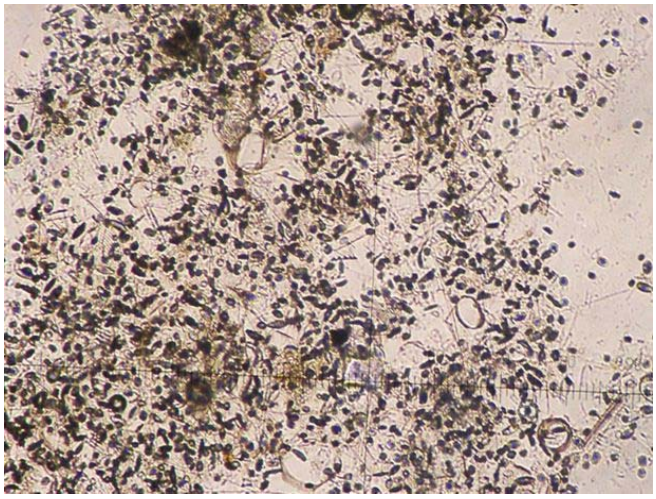


Plate 6.5

Plate 6.6

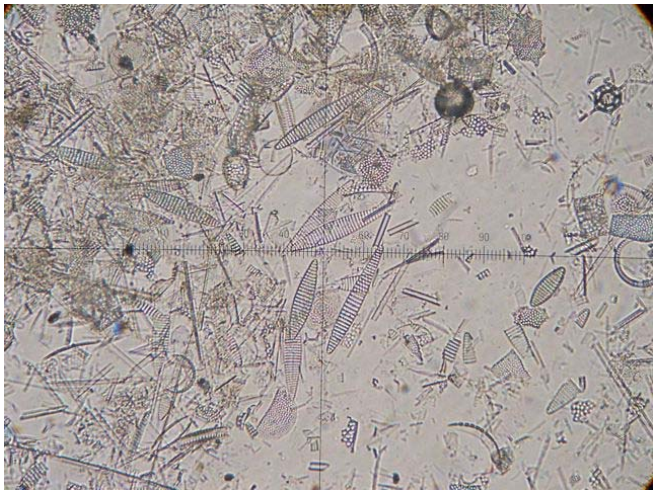


Plate 6.8

- Multiple mono-specific horizons in both cores, with considerably thicker, better preserved examples in PC 460, including: *Corethron* spp. (Plate 6.2); *Rhizosolenia* spp. (Plate 6.3); *Thalassiothrix* spp. (Plate 6.4); *Chaetoceros* spp. (Plate 6.5) and *Eucampia* spp. (Plate 6.6)
- Unusual black 'flecks' of very fine material preserved intermittently throughout both cores

It was not possible to split the cores from the Georgia Basin sites, as time was limited. However each core was sectioned, taped ready for transport and smear slides were prepared from the top of each core section. Notable features of PC 462 to PC 465 include:

- Presence of coarse grained material throughout, most obvious within PC 465 (see Plate 6.7)

Plate 6.7

- Preservation of potentially mono-specific diatom layers, including: *Chaetoceros* spp.; *Eucampia* spp.; *Fragilariopsis* spp. (Plate 6.8) and *Thalassiosira* spp.

All cores were recovered with a good surface preserved within the trigger core and/or piston core.

6.5. Summary

JR149 was a successful and productive cruise, with all objectives being achieved. The Geoscience team worked exceptionally well together to attain the goals, dealing with problems efficiently as they arose, and utilising each other's skills effectively. The team all enjoyed the opportunity to see other marine science in action and to experience the Antarctic environment first hand.

Table 6.1: SWATH and SVP files collected and their coverage.

Date/Time	Lat	Long	Comment
15/04/2006 02:35	-44.7111	-48.2133	EM120 stopped pinging. Previous few hours data very poor due to rough seas.
14/04/2006 13:39	-46.6743	-46.7631	Changed svp from jr86_0000012(EDIT).asvp to jr133_svp1.asvp. profile 1503m/s
13/04/2006 11:33	-50.4646	-43.7999	Changed svp to jr144_FTCTD4.asvp (sv 1482m/s).
04/04/2006 20:11	-54.157	-36.442	Started new survey jr149_l line 1
01/04/2006 09:32	-52.5544	-33.9919	JR149_XBT02 deployed and uploaded
30/03/2006 16:48	-55.3583	-30.6693	Updated svp to JR144_MEGACTD-7
29/03/2006 01:15	-59.3722	-26.7424	Started new survey - JR149_k between S.Thule and Survey area North East Georgia Rise
28/03/2006 21:52	-59.5256	-27.4773	Updated svp with jr144_ST-CTD-1
25/03/2006 16:37	-60.7423	-40.581	Changed svp to jr149_xbt01.asvp
25/03/2006 03:18	-61.2005	-45.4637	Started new survey jr149_i for transit to S. Sandwich Is
24/03/2006 17:17	-60.8806	-46.503	Survey jr149gh is portions of surveys g & h replayed so the data could be compared when looking for a trawl site.
23/03/2006 14:53	-60.796	-45.4924	Changed svp to JR144_EICTD-4.asvp
23/03/2006 14:48	-60.7788	-45.4944	Changed svp to jr149_xbt01.asvp
23/03/2006 14:22	-60.7003	-45.535	Start logging and recording jr149_h.
17/03/2006 04:32	-61.1045	-47.0859	Start new survey JR149_g
14/03/2006 23:50	-60.9128	-55.9934	Changed Sound profile to jr144_LICTD1.asvp
14/03/2006 23:28	-60.9619	-55.948	Start logging Survey JR149_f line 1
13/03/2006 12:06	-61.1424	-55.7819	Changed SVP profile jr144_EICTD1
13/03/2006 02:07	-61.363	-55.6585	Uploaded Sound profile jr144_EI-CTD-3.asvp
12/03/2006 01:36	-61.4054	-55.2981	Uploaded CTD svp profiles from jr144 EICTD1 & CTD2;
11/03/2006 14:07	-61.8492	-57.0981	Start logging jr149_e from King George Island to coring site
07/03/2006 13:28	-62.9965	-60.5223	change CTD to LI_CTD-4
07/03/2006 13:23	-62.9945	-60.5451	Start logging new survey - jr149_d line 1
04/03/2006 07:18	-62.3325	-61.6829	Start logging new survey JR149_c line 1
04/03/2006 00:20	-62.3325	-61.664	upload JR144_LICTD2.asvp
28/02/2006 21:02	-54.1281	-56.1124	Created new survey JC149_b for transit between Birdwood Bank and Livingston Island.
28/02/2006 15:04	-54.1305	-56.133	Uploaded CTD jr144_FTCTD4.asvp
28/02/2006 01:16	-54.2612	-56.6116	Changed SVP profile jr144_FTCTD2.asvp
28/02/2006 00:48	-54.2919	-56.5205	Swath survey JR149_a started

Table 6.2: TOPAS files collected and their coverage.

Roll	Start time	File	End time	File	Comments
1	28 Feb 2006 00:49	060228004914.raw	13 Mar 2006 08:23	060228004914.raw	
2	13 Mar 2006 16:18	060313161145.raw	15 Mar 2006 13:36		Elephant Island to Hesperides Trough. Lots of problems with TOPAS during this roll.
3	15 Mar 2006 20:14	060315201423.raw			
4	16 Mar 2006 08:49	060316063644.raw			Starts at core site PC460
5	01 Apr 2006 01:24		01 Apr 2006 23:16		
6	01 Apr 2006 23:16		05 Apr 2006 06:03	060405054651.raw	

Table 6.3: Filtered sea surface water samples and their locations

FILTER	Lat	Long
WS 620	-47.859500	-46.308550
WS 619	-48.586050	-46.148210
WS 618	-48.948890	-46.064550
WS 617	-49.466710	-45.942000
WS 616	-49.738180	-45.601260
WS 615	-49.979650	-45.021450
WS 614	-50.115790	-44.549790
WS 613	-50.313250	-44.032030
WS 612	-50.516380	-43.749950
WS 611	-50.758080	-43.534560
WS 610	-51.255620	-43.158170
WS 609	-51.465730	-43.125990
WS 608	-51.706870	-42.702980
WS 607	-52.095150	-42.456950
WS 606	-52.689650	-42.249370
WS 605	-52.874360	-42.211780
WS 604	-53.044770	-42.183250
WS 603	-53.253080	-42.136610
WS 602	-52.691510	-42.248770
WS 601	-53.576510	-37.863590
WS 600	-53.959240	-38.044390
WS 599	-53.959220	-38.044390
WS 598	-53.909570	-37.505830
WS 597	-53.971500	-37.104720
WS 596	-53.685890	-35.301050
WS 595	-53.411120	-34.686640
WS 594	-53.045030	-34.004700
WS 593	-53.084650	-33.393980
WS 592	-53.045030	-34.004700
WS 591	-52.351770	-33.765840
WS 590	-52.510370	-33.234080
WS 589	-52.376640	-33.552190
WS 588	-52.526620	-33.880710
WS 587	-53.108970	-33.597130
WS 586	-52.376640	-33.552190
WS 585	-53.728110	-32.807000
WS 584	-54.465330	-31.840080
WS 583	-54.933830	-31.236030
WS 582	-55.358250	-30.669280
WS 581	-55.780730	-30.100540
WS 580	-56.179380	-29.554210
WS 579	-56.620170	-28.950870
WS 578	-57.130480	-28.231560
WS 577	-57.130480	-28.231560
WS 576	-57.404760	-27.846860
WS 575	-57.898120	-27.146000
WS 574	-58.324530	-26.458520
WS 573	-59.430020	-27.289060
WS 572	-58.642070	-26.111710
WS 571	-59.414550	-26.802140
WS 570	-59.430020	-27.289060
WS 569	-59.430020	-27.289050
WS 568	-59.430020	-27.289040
WS 567	-59.430040	-27.289040
WS 566	-59.430040	-27.289040
WS 565	-59.414550	-26.802140
WS 564	-59.500560	-27.248000
WS 563	-59.458680	-27.264860
WS 562	-59.651950	-28.658830
WS 561	-59.720900	-29.210930
WS 560	-59.787630	-30.080810
WS 559	-59.846940	-30.846450
WS 558	-60.011450	-32.718420
WS 557	-60.011450	-32.718420
WS 556	-60.148880	-34.106400
WS 555	-60.359840	-35.712050
WS 554	-60.148880	-34.106400
WS 553	-60.444870	-37.702660
WS 552	-60.528440	-38.914190
WS 551	-60.761860	-40.822490
WS 550	-60.836660	-41.860570
WS 549	-60.985660	-43.074450
WS 548	-60.985660	-43.074450
WS 547	-61.195670	-45.521620
WS 546	-60.694090	-45.528540
WS 545	-60.832950	-45.817370
WS 544	-60.817500	-46.490180
WS 543	-60.817510	-46.490180
WS 542	-60.817510	-46.490190
WS 541	-60.817510	-46.490180
WS 540	-60.995550	-46.831790
WS 539	-60.995560	-46.831750
WS 538	-60.995560	-46.831770
WS 537	-60.995570	-46.831760
WS 536	-60.990090	-46.831760
WS 535	-61.027330	-46.865110
WS 534	-61.027340	-46.865150
WS 533	-61.027340	-46.865160
WS 532	-61.027340	-46.865160
WS 531	-61.027340	-46.865150
WS 530	-61.027360	-46.865160
WS 529	-60.981910	-47.032420
WS 528	-60.981900	-47.032420
WS 527	-60.981910	-47.032440
WS 526	-60.981930	-47.032450
WS 525	-60.981890	-47.032440
WS 524	-60.981910	-47.032420
WS 523	-61.035560	-47.522590
WS 522	-60.967310	-49.007140
WS 521	-60.965540	-49.039400
WS 520	-60.908380	-50.109500
WS 519	-60.874610	-51.107350
WS 518	-60.598720	-50.549670
WS 517	-60.373270	-51.005860
WS 516	-60.400790	-52.077310
WS 515	-60.451690	-52.878000
WS 514	-60.534290	-54.212260
WS 513	-60.611330	-55.236140
WS 512	-60.687970	-55.712790
WS 511	-60.792360	-55.956750
WS 510	-61.118620	-55.969530
WS 509	-61.164250	-55.862010
WS 508	-61.388630	-55.208410
WS 507	-61.387990	-55.202390
WS 506	-61.388000	-55.202400
WS 505	-61.388000	-55.202360
WS 504	-61.388000	-55.202390
WS 503	-61.334240	-55.196810
WS 502	-61.339380	-55.191750
WS 501	-61.339380	-55.191750
WS 500	-61.339360	-55.191740
WS 499	-61.566080	-55.213220
WS 498	-61.567820	-55.211660
WS 497	-61.567830	-55.211710
WS 496	-61.567810	-55.211630
WS 495	-61.567810	-55.211620
WS 494	-61.567820	-55.211630
WS 493	-61.567320	-55.219250
WS 492	-61.616390	-55.225530
WS 491	-61.616400	-55.225540
WS 490	-61.616390	-55.225530
WS 489	-61.616390	-55.225550
WS 488	-61.616390	-55.225530
WS 487	-61.616400	-55.225510
WS 486	-61.707910	-55.961430
WS 485	-61.867210	-57.245970
WS 484	-61.872750	-57.245590
WS 483	-62.231940	-58.677470
WS 482	-62.973840	-60.609130
WS 481	-62.973840	-60.609110
WS 480	-62.953780	-60.646110
WS 479	-62.986780	-60.570680
WS 478	-62.986770	-60.566560
WS 477	-62.905210	-61.853190
WS 476	-62.776850	-61.987260
WS 472	-62.525240	-61.829690
WS 473	-62.525260	-61.829730
WS 474	-62.525250	-61.829630
WS 475	-62.525250	-61.829630
WS 467	-62.395940	-61.766540
WS 468	-62.395860	-61.767840
WS 469	-62.395770	-61.767370
WS 470	-62.395820	-61.767790
WS 471	-62.395860	-61.767840
WS 462	-62.332680	-61.657600
WS 463	-62.336110	-61.647420
WS 464	-62.336110	-61.647420
WS 465	-62.336110	-61.647420
WS 466	-62.336120	-61.647410
WS 458(a)	-62.27835	-61.59215
WS 458(b)	-62.27824	-61.59234
WS 457	-62.278650	-61.592320
WS 456	-62.278720	-61.592350
WS 461	-62.278720	-61.592350
WS 460	-62.278720	-61.592330
WS 459	-62.278700	-61.592320
WS 455	-62.278710	-61.592310
WS 454	-60.012710	-59.948620
WS 453	-60.012730	-59.948590
WS 452	-60.012710	-59.948620

Table 6.4: Bottle sea surface water samples and their locations

Bottles	Lat	Long
WS620	-47.859500	-46.308550
WS619	-48.586050	-46.148210
WS 618	-48.948890	-46.064550
WS 617	-49.466710	-45.942000
WS 616	-49.738180	-45.601260
WS 615	-49.979650	-45.021450
WS 614	-50.115790	-44.549790
WS 613	-50.313250	-44.032030
WS 612	-50.516380	-43.749950
WS 611	-50.758080	-43.534560
WS 610	-51.255620	-43.158170
WS 609	-51.465730	-43.125990
WS 608	-51.706870	-42.702980
WS 607	-52.095150	-42.456950
WS 606	-52.689650	-42.249370
WS 605	-52.874360	-42.211780
WS 604	-53.044770	-42.183250
WS 603	-53.253080	-42.136610
WS 602	-52.691510	-42.248770
WS 601	-53.576510	-37.863590
WS 600	-53.959240	-38.044390
WS 599	-53.959220	-38.044390
WS 598	-53.909570	-37.505830
WS 597	-53.971500	-37.104720
WS 596	-53.685890	-35.301050
WS 595	-53.411120	-34.686640
WS 594	-53.045030	-34.004700
WS 593	-53.084650	-33.393980
WS 592	-53.045030	-34.004700
WS 591	-52.351770	-33.765840
WS 590	-52.510370	-33.234080
WS 589	-52.376640	-33.552190
WS 588	-52.526620	-33.880710
WS 587	-53.108970	-33.597130
WS 586	-52.376640	-33.552190
WS 585	-53.728110	-32.807000
WS 584	-54.465330	-31.840080
WS 583	-54.933830	-31.236030
WS 582	-55.358250	-30.669280
WS 581	-55.780730	-30.100540
WS 580	-56.179380	-29.554210
WS 579	-56.620170	-28.950870
WS 578	-57.130480	-28.231560
WS 577	-57.130480	-28.231560
WS 576	-57.404760	-27.846860
WS 575	-57.898120	-27.146000
WS 574	-58.324530	-26.458520
WS 573	-59.430020	-27.289060
WS 572	-58.642070	-26.111710
WS 571	-59.414550	-26.802140
WS 570	-59.430020	-27.289060
WS 565	-59.414550	-26.802140
WS 564	-59.500560	-27.248000
WS 563	-59.458680	-27.264860
WS 562	-59.651950	-28.658830
WS 561	-59.720900	-29.210930
WS 560	-59.787630	-30.080810
WS 559	-59.846940	-30.846450
WS 558	-60.011450	-32.718420
WS 557	-60.011450	-32.718420
WS 556	-60.148880	-34.106400
WS 555	-60.359840	-35.712050
WS 554	-60.148880	-34.106400
WS 553	-60.444870	-37.702660
WS 552	-60.528440	-38.914190
WS 551	-60.761860	-40.822490
WS 550	-60.836660	-41.860570
WS 549	-60.985660	-43.074450
WS 548	-60.985660	-43.074450
WS 547	-61.195670	-45.521620
WS 546	-60.694090	-45.528540
WS 545	-60.832950	-45.817370

Table 6.5: Core locations

Core name	Latitude	Longitude	Water Depth
PC 460	-60.81534	-50.9851	2594 m
PC 461	-60.81533	-50.98506	2519 m
PC 462	-52.55434	-33.99202	3322 m
PC 463	-52.15488	-34.09008	3719 m
PC 464	-53.0452	-34.0048	3032 m
PC 465	-53.51112	-34.68664	3517 m

Table 6.6: Description of sediment smear slides with details of diatom assemblage composition as seen at x20.

Core	Section	Depth (cm)	SS description (x20)
TC460	1 of 1	0	Moderate terrigenous, clay and few small quartz grains; Medium CRS; Mixed diatom assemblage (Corethron, Actinocyclus, Thalassirosira, Fragilariopsis, Eucampia, Ondontella, Coscinodiscus and Rhizosolenia all present)
TC460	1 of 1	10.5	Minor terrigenous, clay and few small quartz grains; Low CRS; Diatom assemblage dominated by Rhizosolenia valves and girdle bands; remainder of assemblage mixed (Corethron, Actinocyclus, Thalassirosira, Fragilariopsis, Ondontella and Coscinodiscus); "Fuzzy bubbles" present
TC460	1 of 1	12.5	Moderate terrigenous, clay and few small quartz grains; Low CRS; Mixed diatom assemblage (Corethron, Actinocyclus, Thalassirosira, Fragilariopsis, Ondontella and Coscinodiscus)
TC460	1 of 1	20	Moderate terrigenous, clay and few small quartz grains; Low CRS; Mixed diatom assemblage (Actinocyclus, Thalassirosira, Fragilariopsis, Eucampia, Rhizosolenia and Ondontella all present); Diatom assemblage reasonably fragmented
TC460	1 of 1	40	Minor terrigenous, clay and very few quartz grains; High CRS; Mixed diatom assemblage (Rhizosolenia, Fragilariopsis, Eucampia, Ondontella and Thalassirosira); "Fuzzy bubbles" present
TC460	1 of 1	60	Minor terrigenous, clay and very few quartz grains; High CRS; Mixed diatom assemblage (Actinocyclus, Rhizosolenia, Fragilariopsis, Eucampia, Ondontella and Thalassirosira); Few "Fuzzy bubbles" present
TC460	1 of 1	68	Minor terrigenous, clay and few quartz grains; Moderate CRS; Mixed diatom assemblage (Eucampia, Actinocyclus, Fragilariopsis, Rhizosolenia, Ondontella and Thalassirosira); Some diatoms fragmented
PC460	1 of 10	<0	Minor terrigenous, clay and mixed grains; Small clumps of organic material; Low CRS; Mixed diatom assemblage (Thalassiosira, Odontella and Eucampia, minor Fragilariopsis, Rhizosolenia and Actinocyclus, occasional Coscinodiscus); Minor fragmentation; "Fuzzy bubbles" present
PC460	1 of 10	0	Moderate terrigenous, clay and numerous small mixed grains; Clumps of organic material; Medium CRS; Mixed diatom assemblage (Thalassiosira, Fragilariopsis, minor Rhizosolenia, Eucampia, Odontella, Actinocyclus, occasional Corethron); Notable diatom fragmentation; Some "Fuzzy bubbles" present
PC460	1 of 10	20	Moderate terrigenous, clay and adundant small mixed grains; Medium CRS; Mixed diatom assemblage (Thalassiosira, Fragilariopsis, Rhizosolenia and Odontella, minor Actinocyclus); Notable diatom fragmentation, especially Thalassiothrix group and/or setae
PC460	1 of 10	29	Moderate terrigenous, clay and numerous small mixed grains; Low CRS; Mixed diatom assemblage and clumped (Fragilariopsis, Rhizosolenia, Odontella, Thalassiosira and Actinocyclus, minor Thalassiothrix, occasional Eucampia); Notable fragmentation
PC460	1 of 10	40	Moderate terrigenous, clay and numerous small mixed grains; Medium CRS; Mixed diatom assemblage (Fragilariopsis, Rhizosolenia, Odontella, minor Thalassiosira, Actinocyclus, occasional Corethron and Coscinodiscus valves and fragments); Notable diatom fragmentation
PC460	1 of 10	58	Moderate terrigenous, clay and small mixed grains; Notable clumps of organic material; Medium CRS; Mixed diatom assemblage (Girdlebands, Corethron, Odontella, Eucampia, Rhizosolenia, minor Thalassiosira, Fragilariopsis, Thalassiothrix, occasional Actinocyclus and Coscinodiscus); Silicoflagellates present
PC460	1 of 10	60	Moderate terrigenous, moderate clays and small grains; Medim CRS; Mixed diatom assemblage (Odontella, Fragilariopsis, Thalassiosira, Rhizosolenia, minor Eucampia, Actinocyclus and Coscinodiscus, occasional Chaetoceros Phaeoceros setae); Notable diatom fragmentation,
PC460	1 of 10	66	Moderate terrigenous, moderate clays and a few small mixed grains, High CRS; Mixed diatom assemblage (Fragilariopsis, Thalassiosira, Odontella, minor Rhizosolenia and Actinocyclus, occasional Eucampia and Coscinodiscus); Notable fragementation; "Fuzzy bubbles" present
PC460	1 of 10	70	Moderate terrigenous, clays and mixed small grains; Medium CRS; Mixed diatom assemblage (Girdlebands, Rhizosolenia, Odontella, Thalassiosira, Fragilariopsis, minor Corethron, Coscinodiscus, Eucampia, and Actinocyclus); Notable Thalassiothrix group and/or setae; Minor fragmentation
PC460	1 of 10	75	Moderate terrigenous, clays and mixed grains; High CRS, leading to clumping of material on slide; Minor clumps of organic material present; Mixed diatom assemblage (Fragilariopsis, Rhizosolenia, average Eucampia, Odontella and Thalassiosira, minor Actinocyclus, Coscinodiscus valves and fragments); Minor diatom fragmentation
PC460	1 of 10	77	Moderater terrigenous, clays and mixed grains; Medium CRS; Mixed diatom assemblage (Fragilariopsis, Rhizosolenia, Odontella, Thalassiosira, minor Eucampia, Actinocyclus, occasional Phaeoceros Chaetoceros and Coscinodiscus fragments); Notable diatom fragmentation
PC460	2 of 10	0	Minor terrigenous, clays with very few mixed grains; Low CRS; Mixed diatom assemblage (Thalassiothrix group and/or setae high, lots of girdle bands, Eucampia, Thalassirosira, Rhizosolenia, Ondontella and Fragilariopsis); Silicoflagellates common
PC460	2 of 10	20	Minor terrigenous, clay and few small grains; Medium CRS; Mixed diatom assemblage (Actinocyclus, Fragilariopsis, Odontella, Thalassiosira, Coscinodiscus, minor Corethron, Eucampia and Rhizosolenia); "Fuzzy bubbles" present
PC460	2 of 10	23	Minor terrigenous, clay and few very small grains; High CRS leading to clumping of material on slide; Mixed diatom assemblage (Corethron, plus girdle bands, major component, Fragilariopsis, Rhizosolenia, minor Actinocyclus, Eucampia, Thalassiosira and Phaeoceros chaetoceros)

PC460	2 of 10	40	Minor terrigenous, clay with small clasts, mostly quartz; High CRS leading to clumping of material on slide; Mixed diatom assemblage (Fragilariopsis, Actinocyclus, Thalassiosira, Odontella, and Coscinodiscus); Diatoms notably fragmented; Few "Fuzzy bubbles"
PC460	2 of 10	60	Minor terrigenous, clay with small grains; Medium CRS; Mixed assemblage (Odontella, Fragilariopsis, Rhizosolenia, Thalassiosira and minor Actinocyclus, Coscinodiscus and Eucampia); Some "Fuzzy bubbles" present
PC460	2 of 10	77	Minor terrigenous, clay with some small quartz; High CRS; Mixed diatom assemblage (Thalassiosira, Rhizosolenia, Fragilariopsis, minor Coscinodiscus and Odontella)
PC460	2 of 10	80	Minor terrigenous, clay with some very small grains; High CRS; Mixed diatom assemblage (Rhizosolenia, Thalassiosira, Actinocyclus, minor Corethron and Coscinodiscus); "Fuzzy bubbles" present
PC460	2 of 10	98	Minor terrigenous, clay and very small grains; Medium CRS; Mixed diatom assemblage (Corethron, plus girdle bands, major component, Odontella, Fragilariopsis, Thalassiosira, Rhizosolenia, with Thalassiothrix group and/or setae minor component); "Fuzzy bubbles" present
PC460	2 of 10	100	Moderate terrigenous, clay with mixed small grains; Medium CRS; Mixed diatom assemblage (Fragilariopsis, Rhizosolenia, minor Thalassiosira, Corethron, Coscinodiscus, Odontella and Actinocyclus); Diatoms fragmented
PC460	3 of 10	0	Minor terrigenous, clay with mixed small grains; High CRS; Mixed diatom assemblage (Rhizosolenia, Fragilariopsis, minor Actinocyclus, Odontella and Thalassiosira); Minor diatom fragmentation
PC460	3 of 10	20	Minor terrigenous, clay with small quartz grains; High CRS; Mixed diatom assemblage (Odontella, Rhizosolenia, Fragilariopsis, Thalassiosira, Actinocyclus, minor fragmented Coscinodiscus)
PC460	3 of 10	40	Minor terrigenous, clay with small quartz grains; High CRS; Mixed diatom assemblage (Actinocyclus, Thalassiosira, Odontella, Rhizosolenia, Fragilariopsis, minor Eucampia and fragmented Cosinodiscus); Notable girdle bands and silicoflagellates
PC460	3 of 10	60	Minor terrigenous, clay with small quartz grains; High CRS, leading to clumping of material on the slide; Mixed diatom assemblage (Rhizosolenia, Fragilariopsis, minor Eucampia, Actinocyclus, Odontella, Thalassiosira and Corethron)
PC460	3 of 10	80	Moderate terrigenous, clay with mixed small grains; High CRS, leading to clumping of material on slide; Mixed diatom assemblage (Rhizosolenia, Fragilariopsis, Thalassiosira, minor fragmented Coscinodiscus, Odontella, Actinocyclus and Eucampia)
PC460	3 of 10	100	Moderate terrigenous, with mixed grains; High CRS; Mixed diatom assemblage (Thalassiosira, Rhizosolenia, Fragilariopsis, minor Odontella, Actinocyclus, Eucampia and fragmented Coscinodiscus)
PC460	4 of 10	0	Moderate terrigenous, with mixed grains; High CRS, causing the material to clump badly on the slide; Mixed assemblage (Rhizosolenia, Fragilariopsis, Thalassiosira, Eucampia, Odontella, Actinocyclus)
PC460	4 of 10	20	Moderate terrigenous, with mixed grains; Medium CRS; Mixed diatom assemblage (Rhizosolenia, Fragilariopsis, Thalassiosira, fragmented Coscinodiscus, Odontella, Eucampia and Actinocyclus); Diatoms reasonably fragmented; "Fuzzy bubbles" present
PC460	4 of 10	40	Moderate terrigenous, clay with minor small grains; High CRS; Mixed diatom assemblage (Rhizosolenia, Fragilariopsis, Thalassiosira, Eucampia, Coscinodiscus fragments, Actinocyclus, minor Odontella)
PC460	4 of 10	60	Minor terrigenous, with mixed grains, minor clay; High CRS; Mixed assemblage (Fragilariopsis, Thalassiosira, Coscinodiscus and fragments, Eucampia, Actinocyclus, Odontella and minor Rhizosolenia); Notable girdle bands
PC460	4 of 10	66	Minimal terrigenous material; Very high CRS, dominant; Mixed diatom assemblage (Rhizosolenia, Thalassiosira, Fragilariopsis, Odontella, occasional Coscinodiscus and Actinocyclus)
PC460	4 of 10	80	Minor terrigenous, clay with small grains, mostly quartz; Medium CRS; Mixed diatom assemblage (Rhizosolenia, Thalassiosira, Odontella, Fragilariopsis, minor Eucampia and Actinocyclus); Notable fragments of Thalassiothrix group and/or setae
PC460	4 of 10	97	Minor terrigenous, small grains; Medium CRS; Mixed diatom assemblage (Notable girdle bands, Fragilariopsis, Thalassiosira, Rhizosolenia, Actinocyclus, minor Corethron and Odontella)
PC460	5 of 10	0	Minor terrigenous, small grains; Medium CRS; Mixed diatom assemblage (Rhizosolenia, Fragilariopsis, Actinocyclus, minor Odontella and Thalassiosira)
PC460	5 of 10	20	Moderate terrigenous, clays and mixed small grains; Low CRS; Mixed diatom assemblage (Rhizosolenia, Fragilariopsis, Thalassiosira, Actinocyclus, minor Odontella and Eucampia)
PC460	5 of 10	40	Minor terrigenous, clays and mixed small grains; Rare CRS; Mixed diatom assemblage (Fragilariopsis, Actinocyclus, Thalassiosira, minor Eucampia, Odontella and Coscinodisus fragments)
PC460	5 of 10	60	Minor terrigenous, clays plus mixed small grains; Medium CRS; Mixed diatom assemblage (Fragilariopsis, Rhizosolenia, Actinocyclus, minor Eucampia, Odontella and Corethron); Notable girdle bands
PC460	5 of 10	78.5	Moderate terrigenous, clays and mixed grains; Low CRS; Diatom assemblage dominated by Thalassiothrix group, with additional mixed assemblage (Thalassiosira, Odontella, Fragilariopsis, Actinocyclus, minor Eucampia); "Fuzzy bubbles" present
PC460	5 of 10	80	Moderate terrigenous, clays and mixed grains; Low CRS; Mixed diatom assemblage (Thalassiosira, Fragilariopsis, minor Actinocyclus, Eucampia, Odontella, Rhizosolenia and Coscinodiscus fragments); Minor diatom fragmentation
PC460	5 of 10	100	Moderate terrigenous, clays and mixed grains; Low CRS; Mixed diatom assemblage (Fragilariopsis, Thalassiosira, Eucampia, minor Actinocyclus, Odontella); Minor diatom fragmentation, fragments clumped together
PC460	6 of 10	0	Minor terrigenous, clays with mixed grains; High CRS; Mixed diatom assemblage (Fragilariopsis, Thalassiosira, Actinocyclus, Eucampia, minor Rhizosolenia and Odontella)
PC460	6 of 10	20	Moderate terrigenous, clays and mostly small grains; Low CRS; Mixed diatom assemblage (Fragilariopsis, Eucampia, Thalassiosira, Rhizosolenia, minor Odontella and Coscinodiscus fragments)
PC460	6 of 10	40	Minor terrigenous, clays and few small grains; Very high CRS; remainder of diatom assemblage mixed (Eucampia, Fragilariopsis, minor Odontella and Thalassiosira)
PC460	6 of 10	60	Minor terrigenous, clays and a few small grains; Medium CRS; Diatom assemblage dominated by Rhizosolenia; remainder of assemblage mixed (Thalassiosira, Fragilariopsis, minor Coscinodiscus fragments and Eucampia)
PC460	6 of 10	63	Minor terrigenous, clays and a few small grains; Medium CRS; Diatom assemblage dominated by Rhizosolenia (almost mono-specific); remainder of assemblage mixed (Fragilariopsis, minor Coscinodiscus fragments and Actinocyclus); Notable girdle bands
PC460	6 of 10	73	High terrigenous, dominated by mixed grains (dark flecks that remain opaque in crossed polars, plus quartz and olivine); Rare CRS; Mixed diatom assemblage, but heavily fragmented (Eucampia, Fragilariopsis, minor Odontella and Actinocyclus)
PC460	6 of 10	80	Minor terrigenous, clays and small grains; Low CRS; Mixed diatom assemblage (Eucampia, Fragilariopsis, Thalassiosira, minor Actinocyclus and Odontella); Notable fragmentation of Thalassiothrix group and/or setae
PC460	6 of 10	100	Minor terrigenous, clays and small grains; Low CRS; Mixed diatom assemblage (Eucampia, Fragilariopsis, minor Corethron and Thalassiosira); Notable fragmentation of Thalassiothrix group and/or setae
PC460	7 of 10	0	Minor terrigenous, clays and rare grains; Low CRS; Mixed diatom assemblage (Fragilariopsis, Corethron, Thalassiosira, Eucampia, Rhizosolenia and Coscinodiscus fragments); Notable girdle bands
PC460	7 of 10	6.5	Minor terrigenous, clays and mixed small grains; Very high CRS, leading to clumping of material on the slide; Mixed diatom assemblage beyond CRS (Rhizosolenia, Thalassiosira, Fragilariopsis, minor Eucampia, Actinocyclus and fragments of Coscinodiscus)
PC460	7 of 10	20	Moderate terrigenous, clays and mixed grains; Low CRS; Mixed diatom assemblage (Eucampia, Actinocyclus, Fragilariopsis, minor Thalassiosira); Notable diatom fragmentation

PC460	7 of 10	40	Moderate terrigenous, clays and mixed grains, mostly small; Low CRS; Mixed diatom assemblage (Fragilariopsis, Eucampia, Actinocyclus, Thalassiosira, minor Odontella and Corethron); Notable diatom fragmentation and girdle bands
PC460	7 of 10	52.5	Rare terrigenous, clay and a few grains; Rare CRS; Diatom assemblage dominated by Thalassiothrix group; remainder of diatom assemblage mixed (Fragilariopsis, Dactyliosolen, Eucampia, Odontella and Rhizosolenia)
PC460	7 of 10	60	Moderate terrigenous, clays and a few grains; Low CRS; Mixed diatom assemblage (Fragilariopsis, Odontella, Corethron, Rhizosolenia, Eucampia, Thalassiosira, Coscinodiscus fragments, rare Phaeoceros Chaetoceros); Notable girdle bands and Thalassiothrix group; Silicoflagellates common
PC460	7 of 10	61	Minor terrigenous, clay and small grains; Low CRS; Diatom assemblage dominated by Rhizosolenia and Corethron; remainder of diatom assemblage sparse (Phaeoceros Chaetoceros and setae, rare Eucampia, Fragilariopsis); Notable girdle bands; Silicoflagellates common
PC460	7 of 10	74.5	Very high terrigenous, dominated by fine grained (often clumped) dark material, which remains opaque in cross polars; Virtually barren of diatoms, rare fragments
PC460	7 of 10	80	High terrigenous, clays and numerous mixed grains; Rare CRS; Sparse diatom assemblage (Thalassiosira, Phaeoceros Chaetoceros setae, Fragilariopsis, occasional Phaeoceros Chaetoceros valves, Rhizosolenia and Actinocyclus)
PC460	7 of 10	98	Moderate terrigenous, clays and mixed small grains; Rare CRS; Mixed diatom assemblage (Eucampia, Thalassiosira, Fragilariopsis, minor Actinocyclus, Rhizosolenia, Odontella and Corethron); Diatoms reasonably fragmented
PC460	8 of 10	0	Moderate terrigenous, clays and numerous small grains; Rare CRS; Mixed diatom assemblage (Eucampia, Fragilariopsis, Rhizosolenia, minor Corethron, Actinocyclus, Thalassiosira and Odontella); Notable girdle bands
PC460	8 of 10	20	Minor terrigenous, with mixed grains; Rare CRS; Mixed diatom assemblage (Rhizosolenia, Corethron and girdle bands, minor Thalassiosira, Fragilariopsis, Eucampia and Actinocyclus); Notable setae fragments; Silicoflagellates present
PC460	8 of 10	40	Moderate terrigenous, clays and numerous mixed grains, mostly quartz; Rare CRS; Mixed diatom assemblage (Eucampia, Fragilariopsis, Rhizosolenia, Thalassiosira, minor Actinocyclus, Odontella, Corethron, Coscinodiscus fragments and occasional Phaeoceros Chaetoceros)
PC460	8 of 10	60	Minor terrigenous, clays and small grains; Low CRS; Mixed diatom assemblage (Thalassiosira, Eucampia, Fragilariopsis, minor Odontella, Rhizosolenia and Corethron); Noteable girdle bands; Silicoflagellates present
PC460	8 of 10	76	Rare terrigenous, occasional grains; Rare CRS; Diatom assemblage dominated by Rhizosolenia, Corethron and girdle bands; Remainder of diatom assemblage sparse (Eucampia and Fragilariopsis)
PC460	8 of 10	80	Moderate terrigenous, clay and small grains; Rare CRS; Mixed diatom assemblage (Corethron and girdle bands major, minor Eucampia, Rhizosolenia, Fragilariopsis, occasional Odontella and Actinocyclus); "Fuzzy bubbles" present
PC460	8 of 10	100	Moderate terrigenous, low clay and numerous grains; Rare CRS; Mixed diatom assemblage (Fragilariopsis, Rhizosolenia, Thalassiosira, Corethron, Eucampia, minor Dactyliosolen and Actinocyclus); Diatoms highly fragmented; Silicoflagellates present
PC460	9 of 10	0	Moderate terrigenous, clay and numerous mixed grains; Low CRS; Mixed diatom assemblage (Fragilariopsis, Thalassiosira, minor Eucampia, Actinocyclus and Corethron); Notable girdle bands
PC460	9 of 10	20	Minor terrigenous, clay and afew mixed grains; Very high CRS leading to clumping of material; remainder of diatom assemblage sparse (Thalassiosira, minor Fragilariopsis, occasional Actinocyclus)
PC460	9 of 10	20.5	Rare terrigenous, mixed grains; Low CRS; Diatom assemblage dominated by Corethron, Rhizosolenia and girdle bands; Remainder of diatom assemblage sparse (Phaeoceros Chaetoceros setae; occasional Thalassiosira and Eucampia); Silicoflagellates present
PC460	9 of 10	21	Rare terrigenous, a few small grains; Very high CRS leading to some clumping of material; Remainder of diatom assemblage sparse (Corethron, minor Fragilariopsis and Thalassiosira); "Fuzzy bubbles" present
PC460	9 of 10	35	Minor terrigenous, rare clay and mixed grains; Low CRS; Diatom assemblage dominated by Corethron and girdlebands (virtually monospecific); Remainder of diatoms assemblage sparse (rare Rhizosolenia, Thalassiosira, Odontella and Eucampia)
PC460	9 of 10	40	Moderate terrigenous, clay with numerous small grains; Medium CRS; Mixed diatom assemblage (Thalassiosira, Rhizosolenia, Fragilariopsis, minor Eucampia, Actinocyclus and Odontella)
PC460	9 of 10	47	High terrigenous, clay with numerous mixed grains; Rare CRS; Diatom assemblage sparse (occasional Rhizosolenia, Thalassiosira, Eucampia and Fragilariopsis); Notable fragmentation
PC460	9 of 10	60	Minor terrigenous, rare small grains; Medium CRS; Mixed diatom assemblage (Thalassiosira, Rhizosolenia, minor Corethron, Odontella, Fragilariopsis, Eucampia and Actinocyclus); Notable girdlebands
PC460	9 of 10	80	Rare terrigenous, occasional very small grains; Low CRS; Mixed diatom assemblage (Fragilariopsis, Thalassiosira, Eucampia, minor Odontella, Thalassiothrix group and/or setae; rare Phaeoceros Chaetoceros); Minor fragmentation
PC460	9 of 10	90	Minor terrigenous, clays and mixed grains; High CRS, possibly causing the clumping of material; Mixed diatom assemblage (Fragilariopsis, Thalassiosira, Eucampia, minor Odontella and Actinocyclus, occasional Rhizosolenia); Minor diatom fragmentation; Notable girdle bands
PC460	9 of 10	99	Minor terrigenous, clay and mixed small grains; Medium CRS; Mixed diatom assemblage (Thalassiosira, Fragilariopsis, Corethron, minor Eucampia, Rhizosolenia); Notable fragmented Thalassiothrix group and/or setae; Abundant girdle bands; Silicoflagellates present
PC460	9 of 10	100	Moderate terrigeneous, clay and some small grains; Low CRS; Mixed diatom assemblage, in clumps (Fragilariopsis, Thalassiosira, minor Corethron, Odontella and occasional Coscinodiscus valves and fragments); Notable girdle bands; Notable diatom fragmentation
PC460	10 of 10	0	Minor terrigenous, clay and small grains; Low CRS; Mixed diatom assemblage (Corethron and girdle bands, minor Fragilariopsis, Thalassiosira, Eucampia and Rhizosolenia, occasional Phaeoceros Chaetoceros); Notable fragmentation of Thalassiothrix group and/or setae
PC460	10 of 10	5	Minor terrigenous, clay and very small grains; Rare CRS; Diatom assemblage dominated by Corethron and girdle bands; Remainder of diatom assemblage mixed (Rhizosolenia, Eucampia, Fragilariopsis, minor Thalassiosira, Actinocyclus and Odontella); Notable fragmentation of Thalassiothrix group and/or setae
PC460	10 of 10	17	High terrigenous, few clay and numerous mixed grains; Rare CRS; Mixed diatom assemblage (Fragilariopsis, Eucampia, Thalassiosira, minor Odontella, Actinocyclus and Corethron); Notable diatom fragmentation
PC460	10 of 10	20	Minor terrigenous, rare clay and numerous small grains; High CRS, leading to slight clumping of material; Mixed diatom assemblage (Fragilariopsis, Rhizosolenia, minor Eucampia, Thalassiosira, Corethron and Actinocyclus); Silicoflagellates present
PC460	10 of 10	25.5	Rare terrigenous, rare clay and small grains; Very high CRS; Remainder of diatom assemblage mixed (Fragilariopsis, Thalassiosira, Rhizosolenia, minor Odontella)
PC460	10 of 10	40	Moderate terrigenous, clay and numerous mixed grains; Low CRS; Mixed diatom assemblage (Fragilariopsis, Thalassiosira, Eucampia, Corethron and Corethron girdle bands, minor Rhizosolenia, Actinocyclus, Odontella, Coscinodiscus valves and fragments); Notable Thalassiothrix group and/or setae fragmentation
PC460	10 of 10	51	Minor terrigenous, clay and a few small grains; Rare CRS; Diatom assemblage dominated by Rhizosolenia, Corethron and girdle bands; Remainder of assemblage sparse (Fragilariopsis, Thalassiosira, Odontella, occasional Eucampia and Phaeoceros Chaetoceros)

PC460	10 of 10	55.5	Rare terrigenous, rare clay and a few small grains; Low CRS; Diatom assemblage dominated by Corethron and girdle bands; Remainder of diatom assemblage mixed (Rhizosolenia, minor Fragilariopsis, Eucampia, Thalassiosira, occasional Coscinodiscus)
PC460	10 of 10	60	Minor terrigenous, clay and mixed grains; Very high CRS; Remainder of diatom assemblage mixed (Thalassiosira, Fragilariopsis, minor Eucampia, Rhizosolenia, occasional Coscinodiscus); Silicoflagellates present
PC460	10 of 10	62	Rare terrigenous, rare clay and a few small grains; Low CRS; Diatom assemblage dominated by Rhizosolenia and Corethron and girdle bands; Remainder of diatom assemblage sparse (Fragilariopsis and Proboscia, minor Thalassiosira, Eucampia, occasional Phaeoceros Chaetoceros); Silicoflagellates present
TC461	1 of 1	0	Moderate terrigenous, clays and mixed grains; Clumps of organic material; Medium CRS; Mixed diatom assemblage (Odontella, Eucampia, Thalassiosira, Fragilariopsis, minor Rhizosolenia, Actinocyclus, occasional Corethron and Coscinodiscus); Few girdle bands; Minor diatom fragmentation; "Fuzzy bubbles" present
TC461	1 of 1	20	Moderate terrigenous, clays and mixed grains; Clumps of organic material; Medium CRS; Mixed diatom assemblage (Rhizosolenia, Fragilariopsis, Thalassiosira, Odontella, minor Actinocyclus, Eucampia, occasional Coscinodiscus valves and fragments); Minor diatom fragmentation
TC461	1 of 1	40	Minor terrigenous, clay and a few mixed grains; Clumps of organic material - with or without diatoms; High CRS; Remainder of assemblage mixed (Fragilariopsis, Rhizosolenia, Odontella, minor Thalassiosira, Eucampia and Actinocyclus, occasional Coscinodiscus); Fragmentation of Thalassiothrix and/or setae
TC461	1 of 1	60	Moderate terrigenous, high clays or organics and mixed grains; Medium CRS; Mixed diatom assemblage (Fragilariopsis, Thalassiosira, Actinocyclus, minor Rhizosolenia, Odontella and Eucampia, occasional Corethron and Coscinodiscus valves and fragments); Fragmentation of Thalassiothrix and/or setae
TC461	1 of 1	80	Minor terrigenous, clays and mixed grains; Medium CRS; Mixed diatom assemblage (Fragilariopsis, Odontella, Rhizosolenia, Thalassiosira, Eucampia, minor Actinocyclus, occasional Coscinodiscus valves and fragments); Minor diatom fragmentation; "Fuzzy bubbles" present
TC461	1 of 1	97	Moderate terrigenous, clay with mixed grains; Minor clumps of organic material; Medium CRS; Mixed diatom assemblage (Fragilariopsis, Thalassiosira, minor Rhizosolenia, Actinocyclus, Odontella, occasional Eucampia and Coscinodiscus valves / fragments)
PC461	1 of 9	0	Moderate terrigenous, clays and mixed grains; Minor clumps of organic material; Medium CRS; Mixed diatom assemblage (Thalassiosira, Fragilariopsis, Rhizosolenia, minor Actinocyclus, Eucampia); Noticable diatom fragmentation; "Fuzzy bubbles" present
PC461	1 of 9	20	Moderate terrigenous, clay and mixed grains (some reasonably large); minor clumps of organic material; Medium CRS; Mixed diatom assemblage (Fragilariopsis, Thalassiosira, Actinocyclus, minor Odontella, Eucampia); Noticable diatom fragmentation; Silicoflagellates present
PC461	1 of 9	40	Moderate terrigenous, clay and numerous mixed grains; Clumps of organic material; Medium CRS; Mixed diatom assemblage (Fragilariopsis, Rhizosolenia, Thalassiosira, Eucampia minor Coscinodiscus, Actinocyclus, Odontella); Minor diatom fragmentation; "Fuzzy bubbles" present
PC461	1 of 9	60	Moderate terrigenous, clays and numerous mixed grains; Clumps of organic material; High CRS; Mixed diatom assemblage (Thalassiosira, Fragilariopsis, Rhizosolenia, minor Actinocyclus, Odontella, occasional Coscinodiscus valves and fragments, Eucampia); Minor diatom fragmentation
PC461	1 of 9	80	Moderate terrigenous, clays and a few mixed grains; Medium CRS; Mixed diatom assemblage (Thalassiosira, Rhizosolenia, minor Odentella, Actinocyclus, occasional Coscinodiscus valves and fragments, Eucampia); Minor diatom fragmentation
PC461	2 of 9	0	Minor terrigenous, low clay and numerous mixed grains; Minor clumping of organic material; Medium CRS; Mixed diatom assemblage (Thalassiosira, Fragilariopsis, Rhizosolenia, minor Eucampia, Odontella and Actinocyclus); Minor diatom fragmentation
PC461	2 of 9	20	Minor terrigenous, clay and small mixed grains; Occasional clumps of organic material; Medium CRS; Mixed diatom assemblage (Thalassiosira, Fragilariopsis, Rhizosolenia, minor Eucampia, Actinocyclus and Odontella); Minor diatom fragmentation
PC461	2 of 9	40	Minor terrigenous, clays and a few mixed grains; Occasional clumps of organic material; Low CRS; Mixed diatom assemblage (Fragilariopsis, Rhizosolenia, Thalassiosira, minor Actinocyclus and Odontella, occasional Eucampia and Coscinodiscus valves and fragments); Minor diatom fragmentation; Silicoflagellates present
PC461	2 of 9	60	Moderate terrigenous, clays and fewer mixed grains; Medium CRS, leading to minor clumping; Mixed diatom assemblage (Fragilariopsis, Odontella, Thalassiosira, Rhizosolenia, minor Actinocyclus and Eucampia, occasional Asteromphalus); Notable diatom fragmentation
PC461	2 of 9	80	Moderate terrigenous, clays and mixed grains; Low CRS; Mixed diatom assemblage, badly clumped (Fragilariopsis, Thalassiosira, Odontella, minor Actinocyclus, Eucampia and Rhizosolenia); Notable diatom fragmentation; Silicoflagellates present
PC461	2 of 9	100	Minor terrigenous, clays and mixed grains; Low CRS; Mixed diatom assemblage (Rhizosolenia, Fragilariopsis, minor Corethron, Actinocyclus, Odontella, Thalassiosira); Notable girdlebands; Minor diatom fragmentation
PC461	3 of 9	0	Moderate terrigenous, rare clays and mixed grains; Low CRS; Mixed diatom assemblage (Thalassiosira, Fragilariopsis minor Rhizosolenia, Actinocyclus, Odontella, occasional Eucampia); Notable fragmentation
PC461	3 of 9	20	Rare terrigenous, rare clay and a few mixed grains; Low CRS; Mixed diatom assemblage (Fragilariopsis, Rhizosolenia, Thalassiosira, minor Eucampia, Actinocyclus) Notable fragementation; girdlebands present
PC461	3 of 9	40	Minor terrigenous, clays and a few mixed grains; High CRS; remainder of assemblage mixed (Corethron and girdlebands, minor Thalassiosira, Fragilariopsis, Eucampia, Actinocyclus); Notable spines and setae; Silicoflagellates present
PC461	3 of 9	60	Moderate terrigenous, clay and numerous mixed grains; Low CRS; Mixed diatom assemblage (Thalassiosira, Fragilariopsis, minor Odontella, Actinocyclus, Rhizosolenia, occasional Eucampia); Notable fragmentation
PC461	3 of 9	80	Minor terrigenous, rare clay and few mixed grains; Rare CRS; Mixed diatom assemblage (Fragilariopsis, Thalassiosira, Eucampia, minor Rhizosolenia, Actinocyclus, occasional Corethron) Notable fragmentation
PC461	3 of 9	97	Minor terrigenous, rare clay with mixed grains; Low CRS; Mixed diatom assemblage (Thalassiosira, Fragilariopsis, Eucampia, minor Rhizosolenia and Actinocyclus) High fragmentation
PC461	4 of 9	0	Moderate terrigenous, clay and a few mixed grains; Rare CRS; Mixed diatom assemblage (Fragilariopsis, Odontella, Rhizosolenia, Thalassiosira, Actinocyclus, Eucampia, occasional Thalassiothrix and Corethron); Notable fragmentation
PC461	4 of 9	20	Moderate terrigenous, clay and mixed grains; Rare CRS; Mixed diatom assemblage (Eucampia, Fragilariopsis, minor Actinocyclus, Odontella); Minor fragmentation of mixed assemblage; Notable fragmentation of Thalassiothrix group and/or setae
PC461	4 of 9	40	Rare terrigenous, rare clays and a few mixed grains; High CRS; Remainder of assemblage mixed (Fragilariopsis, Odontella, Eucampia, minor Thalassiosira and Actinocyclus, occasional Coscinodiscus valves and fragments); Minor fragmentation
PC461	4 of 9	60	High terrigenous, minor clay, dominated by fine grained (often clumped) dark material, which remains opaque in cross polars, with mixed grains; Low diatom concentration (Eucampia, Fragilariopsis, minor Odontella and Thalassiosira); Notable fragmentation of mixed assemblage; Minor fragmentation of Thalassiothrix and/or setae
PC461	4 of 9	65	High terrigenous, dominated by mixed grains (dark flecks that remain opaque in crossed polars, plus quartz and olivine); Rare CRS; Very sparse diatom assemblage (Rare Thalassiosira and girdle bands)

PC461	4 of 9	80	Minor terrigenous, rare clay and mixed grains; Rare CRS; Mixed diatom assemblage (Corethron, girdle bands, Thalassiosira and Eucampia, minor Actinocyclus and Rhizosolenia, occasional Phaeoceros Chaetoceros); Notable fragmentation
PC461	4 of 9	100	High terrigenous, clays and numerous small grains; Rare CRS; Very sparse diatom assemblage (Fragilariopsis, Thalassiosira, Actinocyclus, Eucampia, Thalassiothrix group and/or setae); Notable fragmentation
PC461	5 of 9	0	High terrigenous, clays and numerous small grains; Rare CRS, Very sparse diatom assemblage (Fragilariopsis, Eucampia, Thalassiosira, Actinocyclus, Thalassiothrix group and/or setae); Notable fragmentation
PC461	5 of 9	20	Minor terrigenous, clay and a few small grains (many blobs); Low CRS; Mixed diatom assemblage (Thalassiosira, Fragilariopsis, Rhizosolenia, minor Eucampia, Actinocyclus, Odontella); Notable girdlebands and Thalassiothrix group and/or setae
PC461	5 of 9	40	Moderate terrigenous, clay and numerous mixed grains; Major clumpage!; Medium CRS; Mixed diatom assemblage (Thalassiosira, Fragilariopsis, Rhizosolenia, minor Actinocyclus, Eucampia, Dactyliosolen, occasional Corethron and girdlebands, Coscinodiscus); Notable Setae
PC461	5 of 9	41	Minor terrigenous, few small grains; Medium CRS; Mixed diatom assemblage (Rhizosolenia, Fragilariopsis, Thalassiosira, minor Corethron, Eucampia and Actinocyclus); Notable diatom fragmentation; Notable girdle bands and silicoflagellates
PC461	5 of 9	60	High terrigenous, clays and small mixed grains; Low CRS; Mixed diatom assemblage (Thalassiosira, Fragilariopsis, Rhizosolenia, minor Corethron, Eucampia, Actinocyclus, occasional Asteromphalus and Coscinodiscus valves and fragments); Minor diatom fragmentation; Notable girdle bands; Silicoflagellates present
PC461	5 of 9	80	High terrigenous, low clays, abundant mixed grains; Minor clumps of organic material; Low CRS; Mixed diatom assemblage (Thalassiosira, Fragilariopsis, minor Actinocyclus, Eucampia, Coscinodiscus, occasional Odontella); Minor diatom fragmentation
PC461	5 of 9	100	Moderate terrigenous, clays and numerous mixed grains; Minor clumps of organic material; Rare CRS; Mixed diatom assemblage (Fragilariopsis, minor Eucampia, Thalassiosira, Odontella and Actinocyclus, occasional Corethron); Notable diatom fragmentation
PC461	6 of 9	0	Moderate terrigenous, clays and numerous mixed grains; Minor clumps of organic material; Rare CRS; Mixed diatom assemblage (Eucampia, Fragilariopsis, minor Actinocyclus, Thalassiosira); Minor fragmentation;
PC461	6 of 9	20	High terrigenous, clays and numerous mixed grains (including Olivine); Minor clumps of organic material; Rare CRS; Very sparse diatom assemblage (occasional Fragilariopsis, Actinocyclus); Notable fragmentation
PC461	6 of 9	40	High terrigenous, clays and numerous mixed grains (including Olivine); Minor clumps of organic material; Rare CRS; Very sparse diatom assemblage (occasional Fragilariopsis, Actinocyclus, Eucampia); Notable fragmentation
PC461	6 of 9	60	High terrigenous, clays and numerous mixed grains (including Olivine); Minor clumps of organic material; Barren diatom assemblage;
PC461	6 of 9	80	High terrigenous, clays and numerous mixed grains (including Olivine); Minor clumps of organic material; Rare CRS; Very sparse diatom assemblage (occasional Eucampia, Actinocyclus, Thalassiosira); Notable fragmentation; Notable sponge spicules
PC461	6 of 9	96	High terrigenous, clays and numerous mixed grains; Minor clumps of organic material; Rare CRS; Sparse diatom assemblage (occasional Eucampia, Odontella, Fragilariopsis, Actinocyclus); Notable fragmentation;
PC461	7 of 9	0	High terrigenous, clays and numerous mixed grains (some reasonably large) (many olivine and Quartz) ; Minor clumps of organic material; Rare CRS; Sparse diatom assemblage (Fragilariopsis, Actinocyclus, occasional Eucampia, Thalassiosira); Notable fragmentation; Notable sponge spicules
PC461	7 of 9	20	High terrigenous, clays and numerous mixed grains; Minor clumps of organic material; Rare CRS; Mixed diatom assemblage (Eucampia, Fragilariopsis, minor Actinocyclus, occasional Coscinodiscus fragments); Notable fragmentation
PC461	7 of 9	40	Moderate terrigenous, clay and numerous mixed grains; Rare CRS; Clumps of organic material; Mixed diatom assemblage (major Eucampia, minor Actinocyclus, Fragilariopsis, Odontella, Thalassiosira); Notable diatom fragmentation; Notable "Fuzzy bubbles"
PC461	7 of 9	60	Minor terrigenous, clays and mixed grains; Rare CRS; Mixed diatom assemblage (major Eucampia, average Fragilariopsis and Odontella, minor Coscinodiscus valves and fragments, Thalassiosira and Actinocyclus); Notable diatom fragmentation; Notable broken Thalassiothrix group and/or setae and girdle bands
PC461	7 of 9	80	Moderate terrigenous, high clay and mixed grains; Rare CRS; Mixed diatom assemblage (Eucampia, Odontella, Fragilariopsis, minor Actinocyclus, Thalassiosira, Coscinodiscus valves and fragments); Minor diatom fragmentation
PC461	7 of 9	100	Moderate terrigenous, high clay and mixed grains; Minor clumping of organic material; Rare CRS; Mixed diatom assemblage (major Eucampia, average Odontella, Fragilariopsis, minor Actinocyclus, Thalassiosira); Notable diatom fragmentation
PC461	8 of 9	0	Moderate terrigenous, high clay and mixed grains; Minor clumping of organic material; Rare CRS; Mixed diatom assemblage (major Eucampia, average Odontella, Fragilariopsis, minor Actinocyclus, Thalassiosira); Notable diatom fragmentation
PC461	8 of 9	20	Minor terrigenous, rare clay and a few mixed grains; Rare CRS; Mixed diatom assemblage (Eucampia, Odontella, Fragilariopsis, minor Actinocyclus, occasional Thalassiosira); Minor fragmentation
PC461	8 of 9	40	Rare terrigenous, rare clay and a few small grains; Low CRS; Diatom assemblage dominated by Fragilariopsis and girdlebands; Remainder of assemblage mixed (Odontella, Corethron, minor Eucampia, Thalassiosira); Notable small spine-shaped fragments;
PC461	8 of 9	49.5	Moderate terrigenous, rare clay, numerous angular black grains which remain opaque in cross-polars, and numerous small mixed grains; Rare CRS; Diatom assemblage dominated by girdle bands and spines/setae (Choanoflagellates?), Remainder of assemblage mixed (Corethron, Fragilariopsis, Eucampia, minor Thalassiosira)
PC461	8 of 9	51	Minor terrigenous, clay and numerous small mixed grains; Rare CRS; Mixed diatom assemblage (Fragilariopsis, Eucampia, minor Actinocyclus, Thalassiosira, Odontella; occasional Corethron, Coscinodiscus valves); Notable Thalassiothrix group and/or setae; Minor fragmentation
PC461	8 of 9	63	Moderate terrigenous, clay and numerous mixed grains, occasional small flecks of angular black grains as found in SS PC461-8/49.5cm; Rare CRS; Mixed diatom assemblage, (Eucampia, Odontella, Fragilariopsis, minor Actinocyclus, Thalassiosira); Notable fragmentation; "Fuzzy Bubbles" present
PC461	8 of 9	80	Minor terrigenous, rare clay and numerous small mixed grains; Rare CRS; Mixed diatom assemblage (Girdle bands and Thalassiothrix group and/or setae, Fragilariopsis, minor Actinocyclus, Thalassiosira and Eucampia, occasional Corethron and Odontella); Notable fragmentation of girdle bands and Thalassiothrix group and/or setae; "Fuzzy bubbles" present
PC461	8 of 9	102	Minor terrigenous, rare clays, numerous mixed grains and very small black flecks; Rare CRS; Mixed diatom assemblage (Abundant girdle bands and spines, Major Fragilariopsis, Thalassiosira, Eucampia, Corethron, Odontella, Actinocyclus, occasional Phaeoceros Chaetoceros); Minor fragmentation of girdle bands and Thalassiothrix group and/or setae
PC461	9 of 9	0	Moderate terrigenous, clays, numerous mixed grains and very small black flecks; Rare CRS; Mixed diatom assemblage (Eucampia, Odontella, Fragilariopsis,Thalassiosira, Actinocyclus, Girdlebands and Thalassiothrix group and/or setae, occasional Coscinodiscus fragments); Notable diatom fragmentation
PC461	9 of 9	20	Minor terrigenous, clay and small mixed grains, very small black flecks; Rare CRS; Diatom assemblage dominated by girdlebands and Thalassiothrix group and/or setae, remainder of assemblage mixed (Fragiliopsis, Corethron, minor Thalassiosira, Actinocyclus and Odontella, occasional Eucampia); Notable fragementation
PC461	9 of 9	40	Moderate terrigenous, minor clays and small grains, very small flecks; Rare CRS; Mixed diatom assemblage, (Fragilariopsis, Eucampia, Odontella, Actinocyclus, minor Thalassiosira) Notable fragmentation; "fuzzy" bubbles present

PC461	9 of 9	60	Minor terrigenous, minor clay and numerous grains; Rare CRS; Mixed diatom assemblage (Fragilariopsis,Thalassiosira, Odontella, minor Eucampia, Actinocyclus, occasional Corethron); Notable fragmentation of Thalassiothirx group and /or setae.
TC462	1 of 1	CC	Rare terrigenous, minor clays and rare grains; Low CRS; mixed diatom assemblage (Fragilariopsis, Thalassiosira, Thalassiosthrix Group and/or setae, Minor Eucampia and occasional Rhizosolenia); Dactyliosolen girdle bands and silicoflagellates present; Minor diatom fragmentation
PC462	1 of 9	0	Minor terrigenous, minor clays and rare grains; Rare CRS; Mixed diatom assemblage (Fragilariopsis, Thalassiosira, Thalassiothrix group and/or setae, minor Eucampia, Odontella, occasional Coscinodiscus); Silicoflagellates and Dactyliosolen girdle bands present; Minor fragmentation
PC462	2 of 9	0	Rare terrigenous, minor clays and rare grains; Low CRS; Mixed diatom assemblage (Fragilariopsis, Thalassiosira, Eucampia, minor Thalassiothrix group and/or setae, minor girdle bands); Notable diatom fragmentation; Silicoflagellates present
PC462	3 of 9	0	Minor terrigenous, rare clays, with occasional large grains; Rare CRS; Mixed diatom assemblage (Fragilariopsis, Thalassiosira, Eucampia, minor Coscinodiscus valves and fragments, occasional Thalassiothrix group and/or setae); Notable girdle bands; Minor diatom fragmentation
PC462	4 of 9	0	Minor terrigenous, clays and a few small grains; Rare CRS; Mixed diatom assemblage, (Fragilariopsis, Thalassiosira, minor Eucampia, Actinocyclus, Thalassiothrix group and/or setae occasional Coscinodiscus valves and fragments); Dactyliosolen girdlebands
PC462	5 of 9	0	Rare terrigenous, rare clays and rare grains, Rare CRS; Mixed diatom assemblage (major Fragilariopsis, average Eucampia and Thalassiosira, minor Thalassiothrix group and/or setae, occasional Coscinodiscus, Actinocyclus); Minor diatom fragmentation
PC462	6 of 9	0	Minor terrigenous, clays and rare small grains; Rare CRS; Mixed diatom assemblage (major Eucampia, average Fragilariopsis, Thalassiosira, minor Thalassiothrix group and/or setae, occasional Actinocyclus and Coscinodiscus valves and fragments); Notable fragmentation, with high fragmentation of Thalassiothrix group and/or setae
PC462	7 of 9	0	Minor terrigenous, clays and rare grains; Rare CRS; Mixed diatom assemblage (Fragilariopsis, Thalassiothrix group and/or setae, minor Eucampia and Thalassiosira, occasional Coscinodiscus valves and fragments, Rhizosolenia); Notable fragmentation, with high fragmentation of Thalassiothrix group and/or setae
PC462	8 of 9	0	Minor terrigenous, clays and rare small grains; Rare CRS; Mixed diatom assemblage (Fragilariopsis, Thalassiosira, minor Eucampia, Thalassiothrix group and/or setae, occasional Odontella, Coscinodiscus valves and fragments); Notable diatom fragmentation; Girdle bands present
PC462	9 of 9	0	Minor terrigenous, clays and rare mixed grains; Rare CRS; Mixed diatom assemblage with obvious presence of Coscinodiscus valves and fragments (Fragilariopsis, Thalassiosira, Girdlebands, Thalassiothirx group and/or setae, minor Eucampia, Actinocyclus); Minor fragmentation
TCC463	1 of 1	0	Moderate terrigenous, clay and afew small grains; Rare CRS; Diatom assemblage dominated by Fragilariopsis, remainder of assemblage mixed (major Thalassiosira, Thalassiosthrix, average, Rhizosolenia, Eucampia, minor Odontella, occasional Coscinodiscus, Asteromphalus);
PC463	1 of 9	0	Moderate terrigenous, clay and a few small grains; Rare CRS; Diatom assemblage dominated by Fragilariopsis, remainder of assemblage mixed (major Thalassiosira, Thalassiosthrix, Eucampia, average Rhizosolenia, minor Odontella, occasional Coscinodiscus); Minor diatom fragmentation, mostly pennates; Silicoflagellates present
PC463	2 of 9	0	Moderate terrigenous, clay and a few small grains; Rare CRS; Mixed diatom assemblage (Fragilariopsis, Eucampia, Thalassiosira, Thalassiothrix, minor Rhizosolenia, Coscinodiscus, Odontella); Minor diatom fragmentation
PC463	3 of 9	0	Moderate terrigenous, clay and a few small grains; Rare CRS; Mixed diatom assemblage (Fragilariopsis, Thalassiosira, Eucampia, Thalassiothrix, minor Rhizosolenia, Coscinodiscus, Odontella); Minor diatom fragmentation
PC463	4 of 9	0	Minor terrigenous, clay and a few small grains; Rare CRS; Mixed diatom assemblage (Girdlebands, Fragilariopsis, Thalassiosira, minor Corethron, Odontella and Rhizosolenia); Silicoflagellates present
PC463	5 of 9	0	Minor terrigenous, clay and a few small grains; Rare CRS; Mixed diatom assemblage (Fragilariopsis, Thalassiosira, Thalassiothrix, minor Rhizosolenia and Eucampia, occasional Odontella); Minor fragmentation; Silicoflagellates common
PC463	6 of 9	0	Minor terrigenous, clay and a few small grains; Medium CRS; Mixed diatom assemblage (Fragilariopsis, Thalassiosira, Thalassiothrix, minor Eucampia occasional Actinocyclus and Asteromphalus); "Fuzzy bubbles" present
PC463	7 of 9	0	Minor terrigenous, clays and mixed small grains; Low CRS; Mixed diatom assemblage (Fragilariopsis, Thalassiosira, Thalassiothrix and Eucampia, minor Actinocyclus, Coscinodiscus fragments and valves)
PC463	8 of 9	0	Moderate terrigenous, clay and numerous small grains; Rare CRS; Diatom assemblage dominated by Eucampia; remainder of diatom assemblage mixed (Fragilariopsis, Thalassiosira, minor Coscinodiscus); Minor diatom fragmentation; "Fuzzy bubbles" present
PC463	9 of 9	0	Minor terrigenous, clay and a few small grains; Rare CRS; Mixed diatom assemblage (major Fragilariopsis, Eucampia, average Coscinodiscus valves and fragments and Thalassiosira, minor Rhizosolenia and Actinocyclus); Dactyliosolen girdle bands present
TC464	1 of 1	0	Minor terrigenous, clay and a few small grains; Rare CRS; Mixed diatom assemblage (major Fragilariopsis, Thalassiosira, average Thalassiothrix group and Eucampia, minor Rhizosolenia, occasional Odontella); Minor diatom fragmentation; Silicoflagellates present
PC464	1 of 10	0	Minor terrigenous, clay and very few small grains; Rare CRS; Mixed diatom assemblage (Fragilariopsis, minor Thalassiosira, Rhizosolenia, Thalassiothrix group and Eucampia); Highly fragmented diatom assemblage
PC464	2 of 10	0	Minor terrigenous, clay and a few small grains; Rare CRS; Mixed diatom assemblage (major Fragilariopsis, Thalassiosira, average Thalassiothrix group and Eucampia, minor Rhizosolenia, occasional Odontella); Minor diatom fragmentation; Silicoflagellates present
PC464	3 of 10	0	Minor terrigenous, clay and mixed grains; Rare CRS; Mixed diatom assemblage (Fragilariopsis, Thalassiosira, average Thalassiosthrix group, minor Rhizosolenia, Eucampia and occasional Corethron); Minor fragmentation; Notable Dactyliosolen girdlebands
PC464	4 of 10	0	Minor terrigenous, clay and very few small grains; Low CRS; Mixed diatom assemblage (Fragilariopsis, Thalassiosira, Eucampia, minor Thalassiothrix group, Rhizosolenia, occasional Coscinodiscus); Minor diatom fragmentation, mostly pennates; Silicoflagellates and Dactyliosolen girdle bands present
PC464	5 of 10	0	Minor terrigenous, clay and very few small grains; Low CRS; Mixed diatom assemblage (Fragilariopsis, Thalassiosira, Eucampia, minor Thalassiothrix group, Rhizosolenia, occasional Coscinodiscus); Minor diatom fragmentation, mostly pennates; Silicoflagellates and Dactyliosolen girdle bands present
PC464	6 of 10	0	Moderate terrigenous, clay and numerous small grains; Rare CRS; Diatom assemblage dominated by Eucampia; remainder of assemblage mixed (Fragilariopsis, Thalassiosira, minor Actinocyclus and Coscinodiscus valves and fragments)
PC464	7 of 10	0	Minor terrigenous, clay and a few small grains; Rare CRS; Mixed diatom assemblage (Eucampia, Fragilariopsis, Thalassiosira, minor Rhizosolenia, Coscinodiscus valve and fragments, minor Thalassiothrix group); Notable fragmentation
PC464	8 of 10	0	Minor terrigenous, clay and numerous grains; Rare CRS; Mixed diatom assemblage (Fragilariopsis, Thalassiosira, Coscinodiscus valves and fragments and Thalassiothrix group and/or setae, minor Rhizosolenia, occasional Corethron); Minor diatom fragmentation
PC464	9 of 10	0	Minor terrigenous, clay and numerous small grains; Rare CRS; Mixed diatom assemblage (Fragilariopsis, Eucampia, Thalassiosira, minor Coscinodiscus valves and fragments, occasional Actinocyclus); Minor diatom fragmentation
PC464	10 of 10	0	Minor terrigenous, clay and numerous small grains; Low CRS; Mixed diatom assemblage (Fragilariopsis, Thalassiosira, Eucampia, minor Coscinodiscus valves and fragments, Rhizosolenia and Thalassiothrix group); Minor diatom fragmentation

PC464	10 of 10	74	Minor terrigenous, clay and numerous small grains; Low CRS; Mixed diatom assemblage (Fragilariopsis, Thalassiosira, Eucampia, minor Coscinodiscus valves and fragments, Rhizosolenia and Thalassiothrix group); Minor diatom fragmentation
TC465	1 of 1	0	Moderate terrigenous, clay and numerous mixed grains; Clumps of organic material present; Rare CRS; Mixed diatom assemblage (Fragilariopsis, Thalassiosira, minor Eucampia, Rhizosolenia, occasional Odontella and Coscinodiscus valves and fragments); Minor diatom fragmentation
PC465	1 of 2	0	Moderate terrigenous, clay and numerous mixed grains; Minor clumps of organic material; Low CRS; Mixed diatom assemblage (Fragilariopsis, Thalassiosira, minor Eucampia, Corethron, Rhizosolenia and Thalassiothrix group); Notable diatom fragmentation
PC465	2 of 2	0	Very high terrigenous, very mixed sizes and compositions, sub-angular to sub-rounded; Rare CRS; Sparse diatom assemblage (Fragilariopsis, Thalassiosira, Actinocyclus and Eucampia); Diatom assemblage highly fragmented
PC465	2 of 2	101	High terrigenous, mixed grains, mid-sized; Rare CRS; Mixed diatom assemblage (major Eucampia, average Fragilariopsis, Thalassiosira, minor Actinocyclus, occasional Coscinodiscus valves and fragments); Notable diatom fragmentation

7. ITS & AED

British Antarctic Survey
NATURAL ENVIRONMENT RESEARCH COUNCIL

Information Communication Technology Section

7.1. ICT Report

Cruise : JR1144/145/146/147/149

Dates : from 25th Feb 2006 – 17th April 2006

PSO : Katrin Linse

Johnnie Edmonston, jred@bas.ac.uk v1.0 17/04/06

Contents:

1.0 Personal Computers

1.1 – Personal Computers

1.11 Personal computers brought on board by cruise scientists which were networked, and thereafter functioned without problem.

1.12 Personal computers brought on board by crew.
One crew laptop had 34 trojans on board, which were removed, the bulk of the time in the removal process was taken up by scans, which took up to 6 hours at a time.

1.13 Bitorrent was found on another crew laptop, this was discovered during a period of high bandwidth usage. Limewire was discovered on a ships machine some time afterward.
In both cases the users of the software were apparently unaware of the legality or the BAS standpoint regarding peer to peer file-sharing networks.

1.14 JCR-COMBINED-D2 was replaces after failing.
The machine would not start up at all, or report any BIOS beeps on start-up.
Upon investigation and reseating cables and memory, the machine is working again, and may be used as a spare though the memory may be unreliable.

1.15 One Apple I-Book on board, as ever no problems.

2.0 Netware

2.1. JRNA

No Problems with JRNA. Both Netware and GroupWise functioned without problem for the duration of the cruise.

3.0 Unix

3.1 JRUA

JRUA functioned without problem throughout.

Some housekeeping was done as disk usage was approaching 97% early on in the cruise.

/data/em120 and .data/topas were also cleared up as disk space is running low on the RAID array where that data resides.

3.2 EM120

The EM120 functioned normally throughout the cruise, during rough weather the operator noticed it had stopped pinging, as we were out of the core box and science had stopped some time before, this was considered unimportant. This has been observed before, and usually rebooting the workstation, or at the very worst, restarting the transducer via the power switch in the UIC.

The EM120 will no doubt be tested during the trip north.

4.0 SCS Logging System

Instruments logged were:

Number	Sensor name	levc credat names
001	Glonass	gps_glos
015	GPS-ADU	gps_ash
023	Trimble	gps_nmea
029	Anemometer	anemom
032	TSSHRP	tsshrp
038	Oceanlogger	oceanlog
058	Emlog	em_log
060	Dopperlog	dop_log
063	Simrad-ea500	sim500
065	Simrad-em120	em120
067	Winch	winch
075	Net-monitor	netmon
090	Truewind-spd	truewind
091	Truewind-dir	
092	Seatex	seatex
098	gyro-limited	
100	gyro	gyro
		bestnav
		bestdrf
		relmov

acquisition started	date: 26/12/6 time (gmt): 1615 jday: 057

SCS Crashed once on 8th March 2006, JCR was sat on DP while diving operations, fishing etc were being conducted so no serious data loss was experienced.

ACQ Started At 02/26/2006, 16:15:07
ACQ Stopped At 03/08/2006, 22:26:55

ACQ Started At 03/08/2006, 22:34:53
ACQ Stopped At 04/16/2006, 23:00:00

In addition, the SCS log volume ran out of space for a period of approx 3 hours on 14th April 2004, as detailed below.

2006 104 12:47:16
2006 104 15:52:01

It transpires that while the SCS system will flag up as error an instrument failure, or comms failure with an instrument, it does not flag disk space errors.
Space was cleared on the logging volume and normal collection was resumed.
The vessel was on passage to Monte and well out of the core box at the time, no vital data was lost.

5.0 Network

No network problems experienced during the cruise, no changes made.

5.1 network Switch

A 3Com Switch 1100 24 port (serial no: 0600 7ZLV5348EF8) was given to KEP.
Each Cabinet on board the ship has at least one spare switch, and barring a catastrophic of one or more switches in each cabinet, I considered there need to be greater than ours as KEP has 3 working switches in 3 separate locations and no spares whatsoever.

6.0 Other

7.0 Work to be done/Recommendations

7.1 Consider drawing up guidelines regarding use of the BASNET with regards to personal computers. Whilst it is understood by most people what constitutes inappropriate of BAS machines, many people are unaware of any implied limitations on using personal machines on the BASNet.

7.2 Thorough clean out of the ICT stock on board, removing obsolete hardware, software and consumables. The remaining stock to be counted, categorised, stowed and recored in a more efficient manner.

8. Annex - Eventlogs

8.1. Event logs

8.1.1. Bridge event log

Time	Event	Lat	Lon	Comment
12/04/2006 16:20		-53.25323	-42.15275	vsl off station proceeding to Montevideo
12/04/2006 16:06		-53.25316	-42.15261	EBS recovered
12/04/2006 15:37		-53.25314	-42.1489	Complete trawl
12/04/2006 15:06		-53.25308	-42.14415	commence trawl at 1 kn
12/04/2006 14:54		-53.25312	-42.14246	EBS on seabed
12/04/2006 14:30	SR-EBS-6	-53.25311	-42.1392	EBS Deployed
12/04/2006 14:15		-53.25314	-42.13921	AGT recovered
12/04/2006 13:14		-53.253	-42.14798	Complete trawl
12/04/2006 12:59		-53.25297	-42.14166	Commence trawl at 1kn
12/04/2006 12:23	SR-AGT-5	-53.25299	-42.13669	AGT deployed
12/04/2006 12:16		-53.25274	-42.13632	v/l on station (1000m)
12/04/2006 11:32		-53.25294	-42.1421	v/l moving off station
12/04/2006 11:21		-53.32117	-42.22682	EBS recovered
12/04/2006 10:54		-53.32113	-42.22925	Complete trawl
12/04/2006 10:43		-53.32116	-42.23403	Commence trawl at 1kn
12/04/2006 10:36		-53.32113	-42.23504	EBS on seabed
12/04/2006 10:20	SR-EBS-5	-53.3211	-42.237	EBS Deployed
12/04/2006 10:04		-53.3215	-42.22592	AGT recovered
12/04/2006 09:49		-53.32151	-42.22799	AGT off the seabed
12/04/2006 09:38		-53.32155	-42.22799	complete trawl
12/04/2006 09:27		-53.32151	-42.2327	commence trawl at 1kn
12/04/2006 09:20		-53.32148	-42.23371	AGT on the sea bed
12/04/2006 09:03	SR-AGT-5	-53.32153	-42.23486	AGT deployed
12/04/2006 08:21		-53.32208	-42.2357	v/l on station
11/04/2006 21:37		-53.56394	-40.91947	v/l moving off station
11/04/2006 21:28		-53.56424	-40.92004	AGT recovered
11/04/2006 20:53		-53.56561	-40.91597	AGT off the seabed
11/04/2006 20:33		-53.56556	-40.91586	Complete trawl
11/04/2006 20:18		-53.56773	-40.90969	Commence trawl at 1kn
11/04/2006 20:09		-53.56784	-40.90939	AGT on sea bed
11/04/2006 19:32	SR-AGT-1	-53.56961	-40.90425	AGT deployed
11/04/2006 19:23		-53.56959	-40.90426	ctd recovered
11/04/2006 18:55		-53.56961	-40.90424	CTD @ depth 1463m
11/04/2006 18:16	SR-CTD-1	-53.56959	-40.90424	ctd deployed
11/04/2006 18:12		-53.57009	-40.90341	vsl on station
11/04/2006 17:55		-53.57778	-40.91922	v/l moving off station TO 1500M
11/04/2006 17:51		-53.57778	-40.91917	AGT recovered
11/04/2006 17:00		-53.5778	-40.91914	Stopped for recovery
11/04/2006 16:45		-53.57636	-40.92574	Inc to 1kn for 10 mins – 1500m wire out
11/04/2006 16:07	SR-AGT-2	-53.57514	-40.93145	AGT deployed
11/04/2006 15:58		-53.57521	-40.93138	ctd recovered
11/04/2006 15:38		-53.57518	-40.93146	CTD @ depth 987m
11/04/2006 15:18	SR-CTD-2	-53.57518	-40.93149	CTD deployed

11/04/2006 15:10		-53.5752	-40.93152	vsl on station
11/04/2006 14:49		-53.58502	-40.92271	v/l off station
11/04/2006 14:45		-53.585	-40.92253	AGT recovered
11/04/2006 14:33		-53.58548	-40.92102	AGT off the seabed
11/04/2006 14:16		-53.58601	-40.91886	recommence hauling
11/04/2006 14:03		-53.58607	-40.91869	Manoeuver Ship 180* for recovery
11/04/2006 14:02		-53.5863	-40.91767	AGT caught on seabed
11/04/2006 13:42		-53.58623	-40.91789	Complete trawl
11/04/2006 13:33		-53.58532	-40.92205	Commence trawl at 1kn
11/04/2006 13:30		-53.58528	-40.92233	AGT on sea bed
11/04/2006 13:12	SR-AGT-3	-53.58474	-40.92474	AGT Deployed
11/04/2006 13:07		-53.58473	-40.92477	v/l on station (500m)
11/04/2006 12:55		-53.5847	-40.9248	v/l relocating for 500m AGT
11/04/2006 12:40		-53.58905	-40.9012	CTD recovered
11/04/2006 12:29		-53.58901	-40.9012	CTD @ depth 535m
11/04/2006 12:18	SR-CTD-3	-53.58903	-40.90107	CTD deployed
11/04/2006 12:13		-53.58902	-40.90108	v/l on station
11/04/2006 11:19		-53.62763	-40.91798	v/l moving off station
11/04/2006 11:05		-53.6273	-40.91298	EBS recovered
11/04/2006 10:55		-53.62669	-40.9122	EBS off the seabed
11/04/2006 10:51		-53.6265	-40.91205	Complete trawl
11/04/2006 10:40		-53.62802	-40.90793	Commence trawl at 1kn
11/04/2006 10:37		-53.62811	-40.90759	EBS on seabed
11/04/2006 10:31	SR-EBS-4	-53.62844	-40.90691	EBS Deployed
11/04/2006 10:13		-53.62841	-40.90689	AGT recovered
11/04/2006 10:06		-53.62839	-40.9069	AGT off the seabed
11/04/2006 10:02		-53.62844	-40.9068	Complete trawl
11/04/2006 09:52		-53.62985	-40.90274	Commence trawl at 1kn
11/04/2006 09:49		-53.62996	-40.90238	AGT on sea bed
11/04/2006 09:41	SR-AGT-4	-53.63018	-40.90167	AGT Deployed
11/04/2006 09:29		-53.63021	-40.90164	CTD recovered
11/04/2006 09:23		-53.63019	-40.90173	CTD @ depth 191m
11/04/2006 09:15	SR-CTD-4	-53.63018	-40.90169	CTD deployed
11/04/2006 09:12		-53.63018	-40.90166	v/l on station
11/04/2006 07:55		-53.63018	-40.90167	V/L at Shag Rocks site
10/04/2006 20:45		-53.75559	-38.65005	V/L off station on passage to Shag Rocks
10/04/2006 20:34		-53.75578	-38.64626	Mooring released
10/04/2006 20:26		-53.75582	-38.64527	Main buoy released and streaming astern
10/04/2006 20:24		-53.75592	-38.6434	Commence mooring deployment
10/04/2006 20:10	Deep mooring	-53.75606	-38.64012	V/L in position ready for mooring deployment
10/04/2006 19:55		-53.75617	-38.63778	Mooring released
10/04/2006 19:49		-53.7563	-38.63473	Main buoy released and streaming astern
10/04/2006 19:45		-53.75641	-38.6323	Commence mooring deployment
10/04/2006 19:43	Shallow mooring	-53.75654	-38.62934	V/L in position ready for mooring deployment
10/04/2006 18:17		-53.85471	-37.59088	XBT deployed - complete transect 4.2
10/04/2006 17:13		-53.68073	-37.65524	xbt deployed
10/04/2006 16:08		-53.50184	-37.71336	xbt deployed

10/04/2006	15:02		-53.32464	-37.77468	XBT deployed
10/04/2006	13:57		-53.14846	-37.83185	XBT deployed - commence transect 4.2
10/04/2006	13:19		-53.16433	-37.96404	XBT deployed - complete transect 4.1
10/04/2006	12:16		-53.33603	-37.90395	XBT deployed
10/04/2006	11:09		-53.51693	-37.84736	XBT deployed
10/04/2006	10:03		-53.69246	-37.78926	XBT deployed
10/04/2006	08:58	WCB 4.1	-53.86671	-37.72833	Commence transect 4.1
10/04/2006	08:58		-53.86529	-37.72876	XBT deployed
10/04/2006	05:25		-53.55113	-37.92082	All secure
10/04/2006	05:03		-53.5511	-37.92068	EBS recovered
10/04/2006	04:28		-53.55118	-37.91573	EBS off the seabed
10/04/2006	03:54		-53.55124	-37.91542	Stopped for recovery
10/04/2006	03:42		-53.55138	-37.91039	Inc to 1kn for 10 mins - 2200m wire out
10/04/2006	03:25		-53.55139	-37.90808	EBS on sea bed
10/04/2006	02:42	SG-EBS-1	-53.55152	-37.90254	EBS Deployed
10/04/2006	02:38		-53.5515	-37.90256	v/l on station for EBS (1500m)
10/04/2006	00:20		-53.77211	-38.03722	RMT recovered
10/04/2006	00:01		-53.77481	-38.0124	RMT at depth
09/04/2006	23:50	RMT 8	-53.77673	-37.99832	RMT deployed
09/04/2006	23:28		-53.77256	-38.02448	RMT recovered
09/04/2006	22:54		-53.78681	-37.98917	RMT at depth
09/04/2006	22:40	RMT 7	-53.79229	-37.97304	RMT deployed
09/04/2006	22:37		-53.79244	-37.97256	V/L in position ready for deployment
09/04/2006	22:28		-53.79266	-37.97198	V/L repositioning for next deployment
09/04/2006	22:27		-53.78332	-37.99232	RMT recovered
09/04/2006	22:03		-53.77478	-38.01626	RMT at depth
09/04/2006	21:58	RMT 6	-53.77155	-38.02505	RMT deployed
09/04/2006	21:49		-53.77137	-38.03119	RMT recovered
09/04/2006	21:17		-53.78276	-37.99391	RMT at depth
09/04/2006	21:02	RMT 5	-53.78888	-37.97705	RMT deployed
09/04/2006	18:56		-53.89088	-37.90522	XBT deployed - Complete transect at WP 3.2S
09/04/2006	17:56		-53.72213	-37.96251	XBT deployed
09/04/2006	17:53		-53.71321	-37.96575	XBT deployed - Failed
09/04/2006	16:50		-53.54054	-38.02535	XBT deployed
09/04/2006	15:45		-53.3625	-38.08452	XBT deployed
09/04/2006	14:41	WCB 3.2	-53.18689	-38.14252	Commence transect 3.2
09/04/2006	14:41		-53.18777	-38.14224	XBT deployed
09/04/2006	13:22		-53.22122	-38.4485	XBT deployed
09/04/2006	13:22	WCB 3.1	-53.2219	-38.44829	Complete transect 3.1
09/04/2006	12:16		-53.39743	-38.39066	XBT deployed
09/04/2006	11:11		-53.57377	-38.33544	XBT deployed
09/04/2006	10:03		-53.61984	-38.31958	XBT deployed
09/04/2006	08:58		-53.92486	-38.22086	XBT deployed
09/04/2006	08:57	WCB 3.1	-53.92576	-38.22051	Commence transect 3.1
09/04/2006	06:11		-53.94122	-38.21104	V/L on DP ready for 0600 start
09/04/2006	04:39		-53.78702	-37.98291	v/l moving off station to position nearer transect start
09/04/2006	04:24		-53.78703	-37.98289	Stn complete
09/04/2006	04:12		-53.78704	-37.98294	EBS recovered
09/04/2006	04:03		-53.7875	-37.982	EBS off seabed
09/04/2006	03:57		-53.78756	-37.98183	Stopped for recovery

09/04/2006 03:45		-53.78943	-37.97809	Inc to 1kn for 10 mins - 450m wire out
09/04/2006 03:42		-53.78962	-37.97774	EBS on sea bed
09/04/2006 03:32	ST-EBS-5	-53.79009	-37.97684	EBS Deployed
09/04/2006 02:44		-53.78655	-37.98427	AGT recovered
09/04/2006 02:27		-53.78732	-37.98239	AGT off the seabed
09/04/2006 02:20		-53.78748	-37.98211	complete trawl
09/04/2006 02:10		-53.78906	-37.97824	commence trawl at 1kn
09/04/2006 02:07		-53.78921	-37.97785	AGT on sea bed
09/04/2006 01:56	SG-AGT-5	-53.78962	-37.97677	AGT Deployed
09/04/2006 01:53		-53.78969	-37.97678	v/l on station
09/04/2006 01:00		-53.78971	-37.97681	RMT recovered
09/04/2006 00:28		-53.78722	-38.131	RMT at depth
09/04/2006 00:21	RMT 4	-53.78966	-38.12364	RMT deployed
09/04/2006 00:18		-53.79063	-38.12034	V/l in position ready to deploy RMT
09/04/2006 00:05		-53.77908	-38.14021	v/l moving off station
09/04/2006 00:01		-53.78052	-38.14099	RMT recovered
08/04/2006 23:28		-53.7925	-38.10496	RMT at depth
08/04/2006 23:10	RMT 3	-53.79841	-38.08581	RMT deployed
08/04/2006 23:04		-53.79997	-38.07996	On station for RMT
08/04/2006 22:43		-53.80018	-38.07927	Relocating 2.5miles to SE
08/04/2006 22:42		-53.80029	-38.07868	RMT recovered
08/04/2006 22:37		-53.76863	-38.13397	Commence recovering RMT
08/04/2006 22:20		-53.77413	-38.11603	RMT at depth
08/04/2006 22:13		-53.77657	-38.10844	RMT deployed
08/04/2006 22:10	RMT 2	-53.77751	-38.10514	Commence deploying RMT
08/04/2006 21:57		-53.76132	-38.08528	RMT recovered
08/04/2006 21:54		-53.76156	-38.084	Commence recovering RMT
08/04/2006 21:25		-53.7708	-38.04576	RMT at depth
08/04/2006 21:09		-53.77741	-38.02643	RMT deployed
08/04/2006 21:03	RMT 1	-53.78005	-38.01976	Commence deploying RMT
08/04/2006 20:52		-53.77981	-38.02038	V/l in position ready to deploy RMT
08/04/2006 18:47		-53.95402	-38.52961	End of transect 2.2
08/04/2006 18:46		-53.95205	-38.53091	XBT deployed
08/04/2006 17:46		-53.78556	-38.58296	XBT deployed
08/04/2006 16:42		-53.60939	-38.63974	XBT deployed
08/04/2006 15:37		-53.43361	-38.69585	XBT deployed
08/04/2006 14:32	WCB 2.2	-53.25534	-38.75098	Commence transect 2.2
08/04/2006 14:32		-53.25557	-38.75091	XBT deployed
08/04/2006 13:16	WCB 2.1	-53.28432	-39.03667	End of transect 2.1
08/04/2006 13:15		-53.28719	-39.03583	XBT deployed
08/04/2006 12:13		-53.46136	-38.98555	XBT deployed
08/04/2006 11:08		-53.63908	-38.92939	XBT deployed
08/04/2006 10:03		-53.81622	-38.87607	XBT deployed
08/04/2006 08:59		-53.98824	-38.80866	XBT deployed
08/04/2006 08:58	WCB 2.1	-53.9923	-38.80732	Commence transect 2.1
08/04/2006 08:46		-54.00099	-38.81653	V/L moving to start WCB
08/04/2006 08:45		-54.00085	-38.81689	***** Western Core box******
06/04/2006 11:27		-53.55113	-37.91968	v/l off DP
06/04/2006 10:27		-53.55103	-37.9198	CTD recovered
06/04/2006 09:56		-53.55104	-37.91979	CTD @ depth 1463m
06/04/2006 09:28	SG-CTD-1	-53.55104	-37.91983	CTD deployed

06/04/2006 09:07		-53.55109	-37.91977	AGT recovered
06/04/2006 08:34		-53.55105	-37.91479	recommence hauling
06/04/2006 08:29		-53.55104	-37.91441	stopped hauling - winch problems
06/04/2006 08:23		-53.55105	-37.91324	AGT off the seabed
06/04/2006 08:02		-53.55107	-37.91306	complete trawl
06/04/2006 07:46		-53.55098	-37.90579	commence trawl at 1kn
06/04/2006 07:35		-53.55103	-37.90332	AGT on sea bed
06/04/2006 06:59	SG-AGT-1	-53.55101	-37.89852	AGT Deployed
06/04/2006 06:50		-53.55135	-37.8981	vsl on station
06/04/2006 06:24		-53.57641	-37.89356	vsl off station
06/04/2006 06:05		-53.57645	-37.89351	EBS recovered
06/04/2006 05:15		-53.57645	-37.89005	Stopped for recovery
06/04/2006 05:04		-53.5764	-37.88534	Inc to 1kn for 10 mins - 1500m wire out
06/04/2006 04:24	SG-EBS-2	-53.57648	-37.88023	EBS Deployed
06/04/2006 03:59		-53.57643	-37.88024	AGT recovered
06/04/2006 03:15		-53.57645	-37.87658	complete trawl
06/04/2006 02:59		-53.57641	-37.86914	commence trawl at 1kn
06/04/2006 02:50		-53.57642	-37.86709	AGT on sea bed
06/04/2006 02:21	SG-AGT-2	-53.57642	-37.86375	AGT deployed
06/04/2006 02:11		-53.57644	-37.86372	CTD recovered
06/04/2006 01:46		-53.5764	-37.8637	CTD @ depth 997m
06/04/2006 01:27	SG-CTD-2	-53.57639	-37.86368	CTD deployed
06/04/2006 01:18		-53.57639	-37.86374	v/l on station (1000m)
06/04/2006 00:22		-53.59736	-37.91062	v/l off station
06/04/2006 00:12		-53.59732	-37.91058	EBS recovered
05/04/2006 23:51		-53.59732	-37.90881	EBS off seabed
05/04/2006 23:37		-53.59739	-37.90815	complete trawl
05/04/2006 23:26		-53.59738	-37.90323	commence trawl at 1kn
05/04/2006 23:20		-53.5974	-37.90234	EBS on seabed
05/04/2006 23:03	SG-EBS-3	-53.5974	-37.90031	EBS Deployed
05/04/2006 22:49		-53.59739	-37.9002	AGT recovered
05/04/2006 22:34		-53.59738	-37.89812	AGT off the seabed
05/04/2006 22:23		-53.59735	-37.89791	complete trawl
05/04/2006 22:12		-53.59737	-37.89292	commence trawl at 1kn
05/04/2006 22:05		-53.59735	-37.89106	AGT on sea bed
05/04/2006 21:52	SG-AGT-3	-53.59738	-37.88937	AGT deployed
05/04/2006 21:44		-53.59739	-37.88938	CTD recovered
05/04/2006 21:29		-53.59744	-37.88938	CTD @ depth 465m
05/04/2006 21:12	SG-CTD-3	-53.59822	-37.89014	CTD deployed
05/04/2006 21:08		-53.59838	-37.89017	v/l on station (500m)
05/04/2006 20:53		-53.61101	-37.89187	v/l off station
05/04/2006 20:40		-53.61101	-37.89126	EBS recovered
05/04/2006 20:31		-53.61103	-37.89008	EBS off seabed
05/04/2006 20:28		-53.61102	-37.8901	complete trawl
05/04/2006 20:17		-53.611	-37.88515	commence trawl at 1kn
05/04/2006 20:13		-53.61099	-37.88498	AGT on sea bed
05/04/2006 20:07	SG-EBS-4	-53.61104	-37.88405	EBS Deployed
05/04/2006 19:49		-53.61101	-37.88402	AGT recovered
05/04/2006 19:41		-53.611	-37.88405	AGT off the seabed
05/04/2006 19:37		-53.61099	-37.8828	complete trawl
05/04/2006 19:27		-53.61104	-37.87797	commence trawl at 1kn

05/04/2006 19:22		-53.611	-37.88403	AGT on sea bed
05/04/2006 19:17	SG-AGT-4	-53.61103	-37.87679	AGT deployed
05/04/2006 19:03		-53.61102	-37.8768	CTD recovered
05/04/2006 18:53		-53.61102	-37.87679	CTD @ depth 200m
05/04/2006 18:45	SG-CTD-4	-53.61101	-37.87682	CTD deployed
05/04/2006 18:31		-53.61137	-37.87628	vsl on station (200m)
05/04/2006 17:23		-53.50136	-37.88166	V/L off stn
05/04/2006 17:16		-53.50151	-37.88049	acoustic releases on deck
05/04/2006 16:38		-53.50613	-37.85585	Buoy on deck
05/04/2006 16:25		-53.50828	-37.85155	Begin recovery
05/04/2006 16:16		-53.5127	-37.84113	On the surface
05/04/2006 16:08		-53.51283	-37.84059	Mooring released
05/04/2006 16:06		-53.51281	-37.84054	Acoustics overside
05/04/2006 16:05		-53.51282	-37.84054	CTD recovered
05/04/2006 15:53		-53.5128	-37.84051	CTD @ depth 200m
05/04/2006 15:46	JR144 DeepMo CTD1	-53.51284	-37.84055	CTD deployed
05/04/2006 15:40		-53.51283	-37.83978	v/l on station for deep mooring recovery and CTD
05/04/2006 14:11		-53.79423	-37.93539	v/l moving off station
05/04/2006 13:56		-53.79433	-37.93547	accoustic release recovered
05/04/2006 13:53		-53.79433	-37.93543	Shallow mooring recovered
05/04/2006 13:41		-53.79448	-37.93547	mooring grapelled
05/04/2006 13:33		-53.79557	-37.93255	buoy on surface
05/04/2006 13:32		-53.79556	-37.93257	bouy released
05/04/2006 13:30		-53.79555	-37.93262	Pinger deployed
05/04/2006 13:12		-53.79145	-37.93043	CTD recovered
05/04/2006 13:01		-53.79128	-37.93035	CTD @ depth 200m
05/04/2006 12:53	JR144ShMo-CTD1	-53.79129	-37.93029	CTD deployed
05/04/2006 12:43		-53.79113	-37.93003	v/l on station
04/04/2006 14:40		-53.95914	-38.04445	Boats recovered
04/04/2006 14:13		-53.95913	-38.04445	Divers out of the water
04/04/2006 13:46		-53.95915	-38.04444	Divers in the water
04/04/2006 13:08	KEP-DIVE-5	-53.95916	-38.04443	FRC begins seal watch (Sooty Bluff)
04/04/2006 12:31		-54.28308	-36.4966	Divers out of the water
04/04/2006 11:57		-54.28302	-36.49648	Divers in the water
04/04/2006 11:20		-54.28306	-36.49663	FRC begins seal watch (Hobart Rock)
04/04/2006 11:18		-54.28308	-36.4966	FRC launched
04/04/2006 11:16	KEP-DIVE-4	-54.28302	-36.49658	JR1 launched
03/04/2006 19:29		-54.28306	-36.49659	Boats recovered
03/04/2006 19:09		-54.28308	-36.49662	Divers out of the water
03/04/2006 18:41		-54.28308	-36.49666	Divers in the water
03/04/2006 17:50	KEP-DIVE-3	-54.28303	-36.49657	JR3 on dive site commence seal watch (Hobart Rock)
03/04/2006 17:33		-54.28303	-36.49657	Divers out of the water
03/04/2006 16:53		-54.28302	-36.49657	Divers in the water
03/04/2006 16:18		-54.28304	-36.49657	JR2 on site for seal watch
03/04/2006 16:17		-54.28304	-36.49655	JR1 away to dive site
03/04/2006 16:10	KEP-DIVE-2	-54.28305	-36.49651	JR2 away to dive site (Moraine Fjord)
03/04/2006 14:44		-54.28295	-36.49655	Divers out of the water
03/04/2006 13:38		-54.28301	-36.4966	Divers in the water
03/04/2006 13:01		-54.2831	-36.49667	JR2 on site for seal watch
03/04/2006 12:55		-54.28307	-36.49664	JR1 launched

03/04/2006 12:47	KEP-DIVE-1	-54.28301	-36.49659	JR 2 launched (Hope Point)
03/04/2006 11:30		-54.2831	-36.49664	V/L alongside KEP Jetty
02/04/2006 23:20		-53.41121	-34.68669	v/l moving off station
02/04/2006 22:40		-53.41124	-34.68673	piston corer recovered to deck. Core barrel bent
02/04/2006 22:17		-53.4112	-34.68674	Corer at surface
02/04/2006 20:39		-53.41127	-34.68678	piston corer on the the seabed (3501 m)
02/04/2006 19:19		-53.4112	-34.68666	Piston corer deployed
02/04/2006 19:10	PC 465	-53.41126	-34.68673	Commence Piston corer deployment
02/04/2006 18:00		-53.41093	-34.68694	v/l on station for PC 465
02/04/2006 17:05		-53.33844	-34.51945	Net recovered and resuming Topas survey
02/04/2006 16:17		-53.30061	-34.50282	Net deployed
02/04/2006 16:01		-53.28491	-34.4898	Slow to deploy otter trawl for cleaning
02/04/2006 13:29		-53.04536	-34.00546	v/l moving off station
02/04/2006 13:15		-53.04515	-34.00482	Corer recovered to deck
02/04/2006 12:50		-53.04511	-34.00482	Corer at surface
02/04/2006 10:15		-53.04503	-34.00485	piston corer on the the seabed (2953 m)
02/04/2006 09:16		-53.0451	-34.00492	Piston corer deployed
02/04/2006 09:05	PC 464	-53.04506	-34.00492	Commence Piston corer deployment
02/04/2006 08:41		-53.0451	-34.00493	v/l on station
01/04/2006 20:11		-52.15708	-34.09001	v/l off station
01/04/2006 19:11		-52.15492	-34.0903	Corer recovery complete
01/04/2006 18:48		-52.15494	-34.09025	Corer at surface
01/04/2006 17:52		-52.15492	-34.0903	commence corer recovery
01/04/2006 17:51		-52.15492	-34.09033	piston corer on the the seabed (3631 m)
01/04/2006 16:41	PC 463	-52.1549	-34.09027	Piston corer deployed
01/04/2006 16:30		-52.15492	-34.09024	Begin deploying core
01/04/2006 16:24		-52.15479	-34.08901	v/l on station
01/04/2006 12:52		-52.55409	-33.99256	v/l moving off station
01/04/2006 11:44		-52.55406	-33.99258	Corer recovered to deck
01/04/2006 11:20		-52.55402	-33.99256	Corer at surface
01/04/2006 10:22		-52.55406	-33.99258	commence corer recovery
01/04/2006 10:21		-52.55406	-33.99257	piston corer on the the seabed (3206 m)
01/04/2006 09:19		-52.55406	-33.99265	Piston corer deployed
01/04/2006 09:06	PC 462	-52.55407	-33.99256	Commence Piston corer deployment
01/04/2006 08:39		-52.55403	-33.99259	vsl on station for core
30/03/2006 20:30		-55.3438	-30.68861	v/l off station
30/03/2006 20:21		-55.35815	-30.66926	CTD recovered
30/03/2006 20:16		-55.35817	-30.66935	CTD @ depth 30m
30/03/2006 20:09	MEGA-CTD-12	-55.3582	-30.66928	CTD deployed
30/03/2006 19:46		-55.35816	-30.66936	CTD recovered
30/03/2006 19:43		-55.35817	-30.66938	CTD @ depth 30m
30/03/2006 19:37	MEGA-CTD-11	-55.35814	-30.66934	CTD deployed
30/03/2006 19:09		-55.35813	-30.6693	CTD recovered
30/03/2006 19:06		-55.35814	-30.66932	CTD @ depth 30m
30/03/2006 19:00	MEGA-CTD-10	-55.35812	-30.66934	CTD deployed
30/03/2006 18:37		-55.35813	-30.66931	CTD recovered
30/03/2006 18:28		-55.35815	-30.6693	CTD @ depth 450m
30/03/2006 18:13	MEGA-CTD-09	-55.35818	-30.66927	CTD deployed
30/03/2006 17:42		-55.35815	-30.6693	CTD recovered
30/03/2006 17:28		-55.35809	-30.66932	CTD @ depth 450m
30/03/2006 17:16	MEGA-CTD-08	-55.35815	-30.66929	CTD deployed

30/03/2006 16:39		-55.35816	-30.66932	CTD recovered
30/03/2006 16:24		-55.35816	-30.66927	CTD @ depth 490m
30/03/2006 16:12	MEGA-CTD-07	-55.35817	-30.66923	CTD deployed
30/03/2006 16:00		-55.35816	-30.66928	v/l on station
30/03/2006 15:50		-55.35798	-30.66878	V/l slowing down to come onto station
29/03/2006 13:04		-58.33938	-26.40023	v/l off station
29/03/2006 13:03		-58.33937	-26.40025	CTD recovered
29/03/2006 12:50		-58.33937	-26.40023	CTD @ depth 500m
29/03/2006 12:38	MI-CTD-3	-58.33932	-26.40038	CTD deployed
29/03/2006 12:32		-58.33939	-26.40052	v/l on station
29/03/2006 11:39		-58.38707	-26.17969	v/l off station
29/03/2006 11:35		-58.38706	-26.17972	CTD Recovered
29/03/2006 11:24		-58.38702	-26.17971	CTD @ depth 500m
29/03/2006 11:12	MI-CTD-2	-58.38702	-26.17966	CTD deployed
29/03/2006 11:08		-58.38702	-26.17966	v/l on station
29/03/2006 09:48		-58.53264	-26.06614	vsl moving off station
29/03/2006 09:43		-58.53265	-26.06607	CTD Recovered
29/03/2006 09:25		-58.53264	-26.06614	CTD @ depth 1000m
29/03/2006 09:00	MI-CTD-1	-58.53254	-26.06611	CTD deployed
29/03/2006 08:40		-58.53268	-26.06608	vsl on station
28/03/2006 21:52		-59.52561	-27.47739	vsl moving off station
28/03/2006 21:36		-59.52572	-27.47723	EBS recovered
28/03/2006 20:57		-59.52435	-27.47187	EBS off seabed
28/03/2006 20:21		-59.5243	-27.47163	vsl stopped for recovery
28/03/2006 20:14		-59.52362	-27.46759	vsl proceeding at 1knt for trawl
28/03/2006 19:17	ST-EBS-1	-59.52191	-27.4586	EBS Deployed
28/03/2006 19:01		-59.52188	-27.45854	AGT recovered
28/03/2006 18:01		-59.52082	-27.45272	vsl stopped for recovery
28/03/2006 17:46		-59.51938	-27.44514	Inc to 1kn for 15 mins - 2000m wire out
28/03/2006 16:58	ST-AGT-1	-59.51781	-27.43648	AGT deployed
28/03/2006 16:47		-59.51778	-27.43645	CTD Recovered
28/03/2006 16:19		-59.51778	-27.43646	CTD @ depth 1455m
28/03/2006 15:50	ST-CTD-1	-59.51778	-27.43652	CTD deployed
28/03/2006 15:47		-59.51777	-27.43654	v/l on 1500m station
28/03/2006 14:28		-59.48006	-27.29814	v/l moving off station
28/03/2006 14:10		-59.48002	-27.29792	EBS recovered
28/03/2006 13:44		-59.48	-27.29512	complete trawl
28/03/2006 13:34		-59.48003	-27.2895	Begin trawl @ 1 kn/10 mins
28/03/2006 13:28		-59.48002	-27.2885	EBS on sea bed
28/03/2006 13:13	ST-EBS-3B	-59.47998	-27.28628	EBS deployed
28/03/2006 13:09		-59.47998	-27.28626	v/l on station (500m)
28/03/2006 12:49		-59.50637	-27.3134	v/l off station
28/03/2006 12:48		-59.50638	-27.3132	EBS recovered
28/03/2006 12:21		-59.50666	-27.30881	EBS off seabed
28/03/2006 11:58		-59.50671	-27.30837	complete trawl
28/03/2006 11:48		-59.50703	-27.30288	Begin trawl @ 1 kn/10 mins
28/03/2006 11:35		-59.50715	-27.30082	EBS on sea bed
28/03/2006 11:08	ST-EBS-2	-59.5074	-27.29676	EBS deployed
28/03/2006 11:04		-59.50742	-27.29682	V/l on DP for EBS
28/03/2006 10:49		-59.50558	-27.32111	AGT recovered

28/03/2006	10:22	-59.50599	-27.31666	AGT off the seabed
28/03/2006	09:58	-59.50611	-27.3158	vsl stopped
28/03/2006	09:43	-59.50715	-27.3079	Begin trawl @ 1 kn
28/03/2006	09:31	-59.50751	-27.30497	AGT on sea bed
28/03/2006	09:04 ST-AGT-2	-59.50756	-27.30074	AGT deployed
27/03/2006	23:19	-59.50766	-27.30081	CTD Recovered
27/03/2006	22:38 ST-CTD-2	-59.50766	-27.30074	CTD deployed
27/03/2006	22:31	-59.5075	-27.30064	Vsl on station (1000m)
27/03/2006	22:12	-59.48074	-27.28669	vsl moving off station
27/03/2006	22:09	-59.48075	-27.28669	CTD Recovered
27/03/2006	21:57	-59.48074	-27.28666	CTD @ depth 501m
27/03/2006	21:44 ST-CTD-3	-59.48075	-27.28674	CTD deployed
27/03/2006	21:13	-59.48071	-27.28661	EBS recovered
27/03/2006	20:46	-59.48077	-27.28409	vsl stopped
27/03/2006	20:34	-59.48077	-27.27835	vsl proceeding at 1 knt for trawl
27/03/2006	20:14 ST-EBS3	-59.48079	-27.27532	EBS deployed
27/03/2006	19:57	-59.48129	-27.28912	AGT recovered
27/03/2006	19:29	-59.48131	-27.28622	vsl stopped
27/03/2006	19:18	-59.48128	-27.28049	vsl proceeding at 1 knt for trawl
27/03/2006	18:58 ST-AGT-3	-59.48128	-27.27691	AGT deployed
27/03/2006	18:51	-59.48123	-27.2753	Vsl on station (500m)
27/03/2006	18:43	-59.47198	-27.28426	v/l moving off station
27/03/2006	18:27	-59.47187	-27.28384	EBS recovered
27/03/2006	18:08	-59.47145	-27.28166	v/l stopped for recovery
27/03/2006	17:58	-59.47053	-27.2765	Begin trawl @ 1 kn/10 mins - 450m wire out
27/03/2006	17:45 ST-EBS-4	-59.47024	-27.27489	EBS deployed
27/03/2006	17:43	-59.47028	-27.27481	v/l in position
27/03/2006	17:26	-59.47224	-27.28488	AGT recovered. Re-positioning vessel for EBS
27/03/2006	17:12	-59.47184	-27.28353	v/l stopped. commence AGT recovery
27/03/2006	17:00	-59.47034	-27.27836	Begin trawl @ 1 kn/10 mins - 421m wire out
27/03/2006	16:48 ST-AGT-4	-59.46989	-27.27699	Agassiz trawl deployed
27/03/2006	16:35	-59.46992	-27.27696	CTD recovered
27/03/2006	16:26	-59.4699	-27.27688	CTD @ depth 276m
27/03/2006	16:16 ST-CTD-4	-59.46995	-27.27695	CTD deployed
27/03/2006	16:11	-59.46973	-27.27495	Vsl on station (200m)
27/03/2006	15:57	-59.47783	-27.22183	v/l moving to different position
27/03/2006	15:43	-59.47783	-27.22188	Vsl on station (500m)
27/03/2006	14:21	-59.43012	-27.28918	v/l off DP
27/03/2006	14:20	-59.43011	-27.28919	CTD recovered
27/03/2006	14:05	-59.43011	-27.28919	CTD @ depth 601m
27/03/2006	13:50 ST-CTD-5	-59.43005	-27.28935	CTD deployed
27/03/2006	13:14	-59.43115	-27.31872	NO DIVE - water too deep
27/03/2006	12:44 ST-DIV-1	-59.43115	-27.31874	JR3 on dive site commence seal watch
27/03/2006	12:19	-59.43116	-27.31875	Terrestrial collection complete
27/03/2006	11:42 ST-TER-1	-59.43117	-27.31876	Terrestrial party ashore at beach point
24/03/2006	21:10	-60.91127	-46.50953	vsl moving off station
24/03/2006	21:07	-60.68174	-46.45681	All gear clear of the water
24/03/2006	21:03	-60.68331	-46.45975	net recovered
24/03/2006	20:55	-60.6835	-46.46008	Doors recovered

24/03/2006 20:44		-60.69264	-46.4738	Net on the surface
24/03/2006 20:27		-60.70482	-46.48824	Begin hauling trawl
24/03/2006 19:50		-60.73596	-46.49993	Stopped veering with 440m wire out
24/03/2006 19:33		-60.75212	-46.51119	commence veering cable
24/03/2006 19:32		-60.7526	-46.51179	weight transfered from main warp onto pennants
24/03/2006 19:23		-60.75896	-46.5211	Doors deployed
24/03/2006 19:21	SO-OTRB-3	-60.76057	-46.52339	Net deployed
24/03/2006 19:16		-60.76362	-46.52787	Vsl on station
24/03/2006 18:55		-60.80914	-46.45884	v/l moving off station
24/03/2006 18:48		-60.81375	-46.46256	Net recovered
24/03/2006 18:42		-60.81637	-46.46736	nets on the surface
24/03/2006 18:35		-60.8198	-46.47402	Doors transferred from main warp onto pennants
24/03/2006 18:31		-60.82169	-46.4777	Bridle at surface
24/03/2006 18:09		-60.83562	-46.49128	commence hauling net
24/03/2006 17:23		-60.87499	-46.50117	Stopped veering with 600m wire out
24/03/2006 16:59		-60.89572	-46.50769	Doors transferred to main warp
24/03/2006 16:48		-60.90369	-46.5143	Doors in water
24/03/2006 16:46		-60.90495	-46.51545	Net deployed
24/03/2006 16:43		-60.90633	-46.51657	V/L increasing speed to 3kts
24/03/2006 16:42	SO-OTRB-2	-60.90635	-46.51646	Commence deployment of net
24/03/2006 16:35		-60.90658	-46.51615	V/L head to wind ready to deploy trawl
24/03/2006 13:03		-60.70819	-45.57218	3rd net recovered
24/03/2006 12:43		-60.7096	-45.57088	3rd net grappled
24/03/2006 12:23		-60.71551	-45.56836	2nd net recovered
24/03/2006 12:02		-60.71551	-45.56837	2nd net grappled
24/03/2006 11:30		-60.71549	-45.56837	1st trammell net recovered
24/03/2006 11:15		-60.71547	-45.56838	commence recovery of 1st trammell net
23/03/2006 22:36		-60.69173	-45.53137	V/L on D.P off Borge Bay waiting to recover Trammel nets at 1000Z
23/03/2006 19:41		-60.69172	-45.53138	Vsl moving off station
23/03/2006 19:36		-60.93428	-46.01897	Net recovered
23/03/2006 19:24		-60.94004	-46.01248	nets on the surface
23/03/2006 19:12		-60.94696	-46.00616	Transferring pennants onto messengers
23/03/2006 18:40		-60.96722	-45.96785	commence hauling net
23/03/2006 18:08		-60.9837	-45.91707	Stopped veering with 700m wire out
23/03/2006 17:37		-61.00056	-45.86574	Veering net
23/03/2006 17:35		-61.00206	-45.86207	Doors transferred to main warp
23/03/2006 17:25		-61.00718	-45.85022	trawl in water and flying
23/03/2006 17:23		-61.00816	-45.84813	Net deployed
23/03/2006 17:19	SO-OTRB-1	-61.01081	-45.84285	Begin deploying trawl
23/03/2006 17:00		-61.01129	-45.82817	V/L head to wind ready to deploy trawl
23/03/2006 14:11		-60.7009	-45.57697	Off`DP and dpt Borge Bay to look for trawl site
23/03/2006 13:34	SI-TRM-6	-60.70087	-45.57711	3rd trammel net redeployed
23/03/2006 12:40		-60.70087	-45.57707	3rd trammel net recovered
23/03/2006 12:13	SI-TRM-5	-60.70093	-45.57706	2nd trammell net redeployed
23/03/2006 11:55	SI-TRM-4	-60.70093	-45.57716	1st Trammell net redeployed
23/03/2006 11:55		-60.70091	-45.57709	
23/03/2006 11:00		-60.70088	-45.57708	2nd trammell net recovered
23/03/2006 10:43		-60.70089	-45.57725	1st Trammel net recovered
23/03/2006 10:18		-60.70049	-45.57576	CT launched and away to recover Trammell Nets x3

22/03/2006 19:00		-60.69131	-45.54094	V/L moving out to 2nm off Bernsten point
22/03/2006 18:45		-60.70084	-45.57704	JR1 & JR3 recovered aboard
22/03/2006 18:35	SIG-DIV-4	-60.70085	-45.57691	Divers uplifted JR1 & JR3 returning to ship
22/03/2006 18:19	SIG-DIV-4	-60.70089	-45.57699	JR3 reports Leopard seal in close proximity to boat – JR1 to beach to uplift divers
22/03/2006 18:17	SIG-DIV-4	-60.70087	-45.57699	Dive aborted: Leopard seal sighted – divers exit water to beach
22/03/2006 17:49	SIG-DIV-4	-60.70089	-45.57692	Dive 4 commenced - 2x divers in water
22/03/2006 17:37	SIG-DIV-4	-60.70085	-45.57695	Seal watch completed OK - prep for dive
22/03/2006 17:08		-60.70092	-45.57691	JR1 launched and away to Starfish Cove
22/03/2006 17:07	SIG-DIV-4	-60.70092	-45.5769	JR3 on site commenced seal watch
22/03/2006 17:00	SIG-DIV-4	-60.70092	-45.57694	JR3 launched and away to Starfish Cove dive site
22/03/2006 16:31		-60.70087	-45.57691	Terrestial team back on board
22/03/2006 15:03		-60.70091	-45.57703	CT recovered
22/03/2006 14:10		-60.70091	-45.57699	C/T + JR3 proceeding in to base to collect terrestrial samples
22/03/2006 13:57		-60.70093	-45.57694	3rd dredge recovered
22/03/2006 13:42	SI-RD-3	-60.70085	-45.57708	3rd Rauscher dredge deployed
22/03/2006 13:41		-60.70088	-45.57705	Rauscher dredge recovered
22/03/2006 13:31	SI-RD-2	-60.70088	-45.577	2nd rauscher dredge deployed
22/03/2006 13:26		-60.70095	-45.57686	Rauscher dredge recovered
22/03/2006 13:16	SI-RD-1	-60.70087	-45.57692	Commence rauscher dredge from cargo tender in region of small rock
22/03/2006 13:06	SI-TRM-3	-60.70091	-45.57699	3rd Trammell net deployed in region of outer island
22/03/2006 12:56	SI-TRM-2	-60.70088	-45.57696	2nd trammell net deployed in region of small rock
22/03/2006 12:39	SI-TRM-1	-60.70081	-45.57684	1st trammel net deployed in region of powell rock
22/03/2006 12:22	SIG-TRN-1	2	3	-60.70085
22/03/2006 12:12	SIG-TRN-1	2	3	-60.70093
22/03/2006 11:56		-60.70084	-45.57679	JR3 A/side: disembark diver: JR3 away to support CT with trammell nets
22/03/2006 11:50		-60.70084	-45.57679	JR1 lifted aboard
22/03/2006 11:46	SIG-DIV-3	-60.70084	-45.57682	Dive cancelled: Leopard Seal sighted
22/03/2006 11:42		-60.70094	-45.57699	JR1 away to dive site
22/03/2006 11:41		-60.70093	-45.57698	JR3 away to dive site Billie Rocks
22/03/2006 11:38	SIG-DIV-3	-60.7009	-45.57704	JR3 at ship
22/03/2006 11:30	SIG-T	-60.70084	-45.5769	JR3 Lands Terrestrial team at Elephant Flats /rescue hut: VHF radio check OK
22/03/2006 11:22	SIG-TER-1	-60.70085	-45.57683	JR3 launched and away to Elephant Flats with 3 x Terrestrial samplers for lakes
22/03/2006 10:00		-60.70038	-45.57348	On DP AutoPos 4 cables off Bare Rock prep for Diving etc
21/03/2006 19:20		-60.69665	-45.56407	Diving cancelled for the day
21/03/2006 16:06		-60.69904	-45.57264	V/L on DP 0.6' off Bare Rk waiting on Wx to improve
21/03/2006 15:14		-60.70032	-45.5774	Boats recovered
21/03/2006 15:09		-60.70036	-45.57727	Boats alongside
21/03/2006 15:04		-60.70038	-45.57756	Boats returning to ship
21/03/2006 15:00		-60.70042	-45.57751	Divers recovered
21/03/2006 14:54		-60.70042	-45.57745	Divers on surface
21/03/2006 14:26	SIG-DIV-2	-60.70043	-45.57752	Dive commenced - 2 divers in water
21/03/2006 14:20		-60.70043	-45.5775	Seal watch completed OK
21/03/2006 14:10	SIG-TRN-	-60.70048	-45.57754	Cargo Tender Hung off - deferred launch due increasing wind trend - monitor and decide at 1530 whether conditions are workable or not.

21/03/2006 13:45	SIG-DIV-2	-60.70043	-45.57747	JR1 launched and away to Berntsen Point
21/03/2006 13:41	SIG-DIV-2	-60.70041	-45.57754	Seal watch commenced
21/03/2006 13:37	SIG-DIV-2	-60.70042	-45.57756	JR3 launched & away to Berntsen Point
21/03/2006 13:10		-60.70037	-45.57748	JR1 & JR3 recovered
21/03/2006 13:05		-60.70041	-45.57745	Boats alongside
21/03/2006 12:58		-60.70041	-45.57744	Divers recovered - returning to ship
21/03/2006 12:55	SIG-DIV-1	-60.70036	-45.57754	Divers on surface - dive completed
21/03/2006 12:16	SIG-DIV-1	-60.70047	-45.57752	Seal watch completed OK: 2 x Divers in water
21/03/2006 11:44	SIG-DIV-1	-60.70075	-45.5765	JR1 Launched and away to Berntsen Point
21/03/2006 11:38	SIG-DIV-1	-60.70074	-45.57654	JR3 Commenced seal watch
21/03/2006 11:33	SIG-DIV-1	-60.70071	-45.57638	JR3 launched
20/03/2006 15:45		-60.69018	-45.53864	Conditions suitable for launching of small boats but Dive officer advises it is too rough to dive. Diving aborted for the day.
20/03/2006 15:00		-60.69018	-45.53869	V/L moves closer to Signy to assess possibility of diving
19/03/2006 09:30		-60.69328	-45.5273	Weather not suitable for launching boats
18/03/2006 22:05		-60.69396	-45.5285	V/L on DP at Signy
18/03/2006 19:20		-60.82518	-46.48114	V/l off station and proceeding to Signy
18/03/2006 19:07		-60.82516	-46.48121	EBS recovered
18/03/2006 18:58		-60.82455	-46.48192	V/L stopped for recovery
18/03/2006 18:46		-60.82195	-46.48499	Inc to 1.0kn for 10 mins
18/03/2006 18:38	PB-EBS-4	-60.82139	-46.48569	EBS deployed
18/03/2006 17:34		-60.82142	-46.48569	AGT recovered
18/03/2006 17:22		-60.82069	-46.48649	V/L stopped for recovery
18/03/2006 17:10		-60.81816	-46.48956	Inc to 1.0kn for 10 mins
18/03/2006 17:01	PB-AGT- 4	-60.81758	-46.49018	AGT Deployed - 200m stn
18/03/2006 16:50		-60.81761	-46.49016	CTD recovered
18/03/2006 16:41		-60.81759	-46.49016	CTD @ depth 207m
18/03/2006 16:33	PB-CTD-4	-60.81757	-46.49019	CTD deployed
18/03/2006 16:30		-60.81764	-46.49023	V/L on station (200m)
18/03/2006 14:15		-60.99546	-46.83193	V/l off station proceeding to 200m site
18/03/2006 13:52		-60.99525	-46.8318	EBS recovered
18/03/2006 13:37		-60.99402	-46.83175	EBS off the seabed
18/03/2006 13:23		-60.99361	-46.83178	Complete trawl
18/03/2006 13:13		-60.99096	-46.83182	Commence 10 minute trawl at 1 kt
18/03/2006 13:07		-60.99037	-46.83182	EBS on the seabed
18/03/2006 12:49	PB-EBS-3	-60.989	-46.83174	EBS deployed
18/03/2006 12:22		-60.98886	-46.83184	AGT recovered
18/03/2006 12:06		-60.9901	-46.83185	AGT off the seabed
18/03/2006 11:52		-60.99033	-46.83177	Complete trawl
18/03/2006 11:41		-60.9934	-46.83176	Commence 10 minute trawl at 1 kt
18/03/2006 11:35		-60.99424	-46.83177	AGT on the seabed
18/03/2006 11:21	PB-AGT-3	-60.99545	-46.83167	AGT Deployed
18/03/2006 11:08		-60.99551	-46.83168	CTD recovered
18/03/2006 10:49		-60.99546	-46.83163	CTD @ depth 496m
18/03/2006 10:39	PB-CTD-3	-60.9954	-46.8317	CTD deployed
18/03/2006 10:28		-60.99543	-46.8316	V/L on station (500m)
18/03/2006 09:53		-60.99546	-46.83161	V/l off station
18/03/2006 09:49		-61.02724	-46.86507	CTD recovered
18/03/2006 09:28		-61.02726	-46.86506	CTD @ depth 972m
18/03/2006 09:06	PB-CTD-2	-61.0273	-46.8651	CTD deployed

18/03/2006 00:29		-61.02729	-46.86519	V/L waiting on DP at 1000m stn to start work @ 0600LT
18/03/2006 00:28		-61.02728	-46.86519	AGT recovered
17/03/2006 23:38		-61.02968	-46.86527	Complete trawl
17/03/2006 23:23		-61.03391	-46.8652	Commence 15 minute trawl at 1 kt
17/03/2006 22:47	PB-AGT-2	-61.0375	-46.86522	AGT Deployed - 1000m stn
17/03/2006 22:24		-61.02929	-46.86657	EBS recovered
17/03/2006 21:57		-61.03091	-46.86663	EBS off the seabed
17/03/2006 21:36		-61.031	-46.86667	Complete trawl
17/03/2006 21:26		-61.03338	-46.86668	Commence 10 minute trawl at 1 kt
17/03/2006 21:14		-61.03475	-46.86665	EBS on the seabed
17/03/2006 20:49	PB-EBS-2	-61.03682	-46.86662	EBS deployed - 1000m stn
17/03/2006 20:44		-61.03683	-46.86652	Vsl on station
17/03/2006 20:16		-61.03359	-46.86669	Vsl off station
17/03/2006 20:10		-61.02771	-46.95566	EBS recovered
17/03/2006 18:52		-61.03116	-46.95578	V/L stopped for recovery
17/03/2006 18:41		-61.03424	-46.95576	Inc to 1.0kn for 10 mins
17/03/2006 18:25		-61.0356	-46.95574	EBS on the seabed - 2400m wire out
17/03/2006 17:45	PB-EBS-1	-61.03876	-46.95574	EBS deployed
17/03/2006 17:41		-61.03875	-46.95584	In position for EBS
17/03/2006 17:23		-61.02846	-46.95563	Swapping AGT for EBS
17/03/2006 17:16		-61.02843	-46.95558	AGT recovered
17/03/2006 16:40		-61.03145	-46.95539	AGT off the seabed
17/03/2006 16:19		-61.03175	-46.95539	V/L stopped for recovery
17/03/2006 16:09		-61.03476	-46.95515	Commence 10 minute trawl at 1 kt (2000m wire out)
17/03/2006 15:55		-61.03647	-46.95502	AGT on the seabed
17/03/2006 15:22	PB-AGT-1b	-61.03911	-46.95479	AGT deployed
17/03/2006 15:17		-61.03912	-46.95484	V/L on station
17/03/2006 13:44		-61.08672	-47.08375	V/l off station
17/03/2006 13:41		-61.08691	-47.08388	AGT recovered
17/03/2006 12:39		-61.09064	-47.08568	Bottom trawl complete
17/03/2006 12:24		-61.09477	-47.08784	Commence 15 minute trawl at 1 kt
17/03/2006 12:16		-61.09554	-47.08825	AGT on the seabed
17/03/2006 11:43		-61.09063	-47.08569	Bow thrust fault identified
17/03/2006 11:28		-61.09062	-47.08567	Bow thrust fault
17/03/2006 11:24	PB-AGT-1	-61.09981	-47.09057	AGT deployed
17/03/2006 11:17		-61.09976	-47.09054	v/l on station (1500m)
17/03/2006 10:22		-60.98179	-47.03245	Vsl off station
17/03/2006 10:16		-60.98179	-47.03239	CTD recovered
17/03/2006 09:46		-60.98175	-47.03245	CTD reached depth of 1500m
17/03/2006 09:14	PB-CTD-1	-60.98185	-47.03238	CTD deployed
17/03/2006 09:06		-60.98186	-47.03232	Vsl on station
17/03/2006 04:20		-61.10249	-47.0879	End of Transit. Commence SWATH survey for depth contour identification
16/03/2006 17:05		-60.81526	-50.98503	Gantry secure. V/L moving off station
16/03/2006 16:14		-60.81524	-50.98509	Piston corer recovered
16/03/2006 15:48		-60.81528	-50.98506	Piston corer on surface
16/03/2006 14:58		-60.81527	-50.985	Piston corer off sea bed
16/03/2006 14:53		-60.81526	-50.98504	Piston corer on sea bed 2555m
16/03/2006 14:02		-60.81528	-50.98503	piston corer deployed
16/03/2006 13:50	PC 461	-60.81525	-50.98505	Commence deploying piston corer
16/03/2006 13:04		-60.81504	-50.98695	v/l on station for piston coring

16/03/2006 12:37		-60.80905	-51.03369	v/l off station proceeding to next core sight
16/03/2006 12:05		-60.80906	-51.03361	Piston corer recovered
16/03/2006 11:35		-60.80904	-51.03359	Corer at surface
16/03/2006 10:50		-60.80903	-51.03362	corer of the seabed
16/03/2006 10:48		-60.80902	-51.03367	corer on the bottom
16/03/2006 09:56		-60.80901	-51.0336	piston corer deployed
16/03/2006 09:40	PC460	-60.80902	-51.0336	Commence deploying piston corer
16/03/2006 08:43		-60.80905	-51.03389	Vsl on station (water depth 2591m)
15/03/2006 19:16	XBT 1	-60.34223	-50.3335	XBT deployed
14/03/2006 23:18		-60.97359	-55.97355	V/L moving off station
14/03/2006 23:02		-60.97374	-55.96783	EBS recovered
14/03/2006 22:46		-60.97247	-55.96686	Commence hauling
14/03/2006 22:36		-60.97249	-55.96689	Complete trawl
14/03/2006 22:26		-60.96984	-55.96488	Commence bottom trawl @ 1 knot
14/03/2006 22:05	EI-EBS-4	-60.96861	-55.96385	EBS deployed
14/03/2006 21:57		-60.96917	-55.96297	Vsl on station
14/03/2006 20:19		-61.1438	-55.78912	vessel moving off station proceeding to next site
14/03/2006 20:17		-61.14757	-55.78624	Net recovered
14/03/2006 20:10		-61.14972	-55.78461	Doors recovered
14/03/2006 19:54		-61.16076	-55.77562	Net on surface
14/03/2006 19:36		-61.17532	-55.76351	commence hauling net
14/03/2006 18:22		-61.22779	-55.71896	Stop veering at 280m
14/03/2006 17:54		-61.25229	-55.70273	Doors deployed
14/03/2006 17:52		-61.25368	-55.70163	Net deployed
14/03/2006 17:47	EI-OTRB-7	-61.25718	-55.69872	Deploying net
14/03/2006 17:46		-61.25763	-55.69833	V/L on station
14/03/2006 17:12		-61.17191	-55.75809	V/L moving off station
14/03/2006 17:09		-61.17309	-55.75762	Net recovered on deck
14/03/2006 17:05		-61.17586	-55.75617	Doors home
14/03/2006 16:51		-61.18177	-55.75194	Net on surface
14/03/2006 16:32		-61.19511	-55.7413	Begin hauling for recovery
14/03/2006 15:20		-61.23921	-55.68199	Veering the net
14/03/2006 15:10		-61.23788	-55.66217	Doors deployed
14/03/2006 15:08		-61.23768	-55.65857	Net deployed
14/03/2006 15:06	EI-OTRB-6	-61.23726	-55.65434	Commence Otter trawl deployment
14/03/2006 15:02		-61.23673	-55.65301	V/L on station
14/03/2006 14:10		-61.15532	-55.8144	V/L off station
14/03/2006 13:59		-61.15755	-55.79799	Net recovered
14/03/2006 13:55		-61.15844	-55.79228	Doors home
14/03/2006 13:41		-61.16361	-55.76694	Bridle on surface
14/03/2006 13:23		-61.17693	-55.74353	Commence hauling
14/03/2006 12:45		-61.21144	-55.69882	Stop veering at 282m of cable out
14/03/2006 12:41		-61.21579	-55.69306	Net on seabed
14/03/2006 12:18		-61.23371	-55.64852	Deployment complete
14/03/2006 12:07		-61.23995	-55.62486	Deploying trawl doors
14/03/2006 12:03	EI-OTRB-5	-61.24165	-55.61835	Commence Otter trawl deployment
14/03/2006 11:59		-61.24248	-55.61498	v/l on station for otter trawl
14/03/2006 10:44		-61.116	-55.97638	Out of D.P moving to next station
14/03/2006 10:32		-61.12228	-55.96027	Net recovered
14/03/2006 10:26		-61.12396	-55.95607	Doors recovered
14/03/2006 10:12		-61.13091	-55.93951	Gear on the surface

14/03/2006 10:06		-61.13457	-55.93063	Off the bottom
14/03/2006 09:56		-61.14031	-55.91732	commence hauling net
14/03/2006 09:44		-61.14836	-55.89931	net on the bottom
14/03/2006 09:27		-61.16001	-55.87223	weight transfered onto the trawl warp
14/03/2006 09:16		-61.16734	-55.85476	Doors in the water
14/03/2006 09:14	EI-OTRB-4	-61.16853	-55.85202	Net deployed
14/03/2006 09:12		-61.16961	-55.84946	commence deployement
14/03/2006 08:40		-61.17118	-55.84572	Vessel on station for trawl
13/03/2006 21:33		-60.98777	-55.92341	Net recovered
13/03/2006 21:30		-60.98785	-55.92817	Doors recovered
13/03/2006 21:16		-60.98838	-55.94815	Gear on surface
13/03/2006 20:46		-60.98838	-55.94794	Commenced heaving
13/03/2006 20:14		-60.98825	-55.94328	net on the seabed
13/03/2006 19:48		-61.06648	-55.97903	Veering the net
13/03/2006 19:34		-61.07515	-55.99878	weight transfered onto the trawl warp
13/03/2006 19:26		-61.07473	-55.99623	Doors in the water
13/03/2006 19:23	EI-OTRB-3	-61.07656	-56.01948	Net deployed
13/03/2006 19:20		-61.07676	-56.02881	Commence deployement
13/03/2006 19:17		-61.07633	-56.03042	Vessel on station
13/03/2006 18:05		-60.9638	-55.78946	Moving off to next station
13/03/2006 17:54		-60.96351	-55.77262	Trawl recovered on deck
13/03/2006 17:39		-60.96499	-55.79697	Net on surface
13/03/2006 17:25		-60.97003	-55.81954	Off bottom
13/03/2006 17:12		-60.97923	-55.83239	Begin hauling for recovery
13/03/2006 16:40		-61.00386	-55.86965	Net on seabed - 400m wire out
13/03/2006 16:12		-61.02336	-55.89774	Doors in the water
13/03/2006 16:10		-61.02464	-55.90033	Net deployed
13/03/2006 16:09	EI-OTRB-2	-61.02577	-55.90305	Commence Otter trawl deployment
13/03/2006 16:02		-61.0275	-55.90709	V/L on station
13/03/2006 15:05		-61.15026	-55.77507	Moving off to next station
13/03/2006 14:28		-61.15235	-55.76452	Net recovered
13/03/2006 14:26		-61.15346	-55.76268	hauling on lazy decky
13/03/2006 14:25		-61.15403	-55.76181	doors home
13/03/2006 14:10		-61.15915	-55.75403	Net on surface
13/03/2006 13:52		-61.17277	-55.73638	Commence hauling net
13/03/2006 13:26		-61.1944	-55.70837	Stop veering at 275m of cable out
13/03/2006 13:09		-61.21007	-55.69146	Commence veering trawl
13/03/2006 12:56		-61.22073	-55.67835	Doors in the water
13/03/2006 12:53		-61.22243	-55.67583	Net deployed
13/03/2006 12:52	EI-OTRB-1B	-61.22315	-55.67475	Commence Otter trawl deployment
13/03/2006 12:48		-61.2254	-55.67083	V/l on station preparing to commence otter trawl
13/03/2006 12:09		-61.16042	-55.75378	V/L moving off station
13/03/2006 12:04		-61.14408	-55.77886	Net recovered - cod end found not to be tied
13/03/2006 12:02		-61.14484	-55.77762	hauling on lazy decky
13/03/2006 11:57		-61.14859	-55.77186	Trawl doors home
13/03/2006 11:33		-61.16828	-55.74639	Net off seabed
13/03/2006 11:26		-61.17487	-55.73827	Commence hauling net
13/03/2006 10:59		-61.19516	-55.7144	Stop veering at 250m
13/03/2006 10:54		-61.19887	-55.71022	Net on seabed
13/03/2006 10:45		-61.20769	-55.70075	weight transfered onto the trwal warp
13/03/2006 10:25		-61.22982	-55.67411	Doors in the water

13/03/2006 10:22		-61.23005	-55.6738	Net deployed
13/03/2006 10:20		-61.23195	-55.67083	commence redeployement
13/03/2006 10:03		-61.22005	-55.68858	Net recovered
13/03/2006 09:58		-61.22408	-55.68156	Net tangled
13/03/2006 09:55		-61.22694	-55.67658	Net deployed
13/03/2006 09:52		-61.2288	-55.67321	commence redeployement
13/03/2006 09:43		-61.23171	-55.66753	net recovered
13/03/2006 09:36		-61.23744	-55.65771	Net tangled
13/03/2006 09:35	EI-OTRB-1	-61.23833	-55.65624	Net Deployed
13/03/2006 09:32		-61.2408	-55.65224	commence deployment
13/03/2006 09:30		-61.24163	-55.65077	vessel moving ahead 3 knts for deployment
13/03/2006 08:28		-61.24172	-55.65074	V/L on station
13/03/2006 00:37		-61.38798	-55.20257	All secure
13/03/2006 00:15		-61.38795	-55.20268	CTD recovered
12/03/2006 23:51	EI-CTD-3	-61.38795	-55.20265	CTD deployed
12/03/2006 23:36		-61.38802	-55.20262	AGT recovered
12/03/2006 23:11		-61.38744	-55.20024	Complete trawl
12/03/2006 23:00		-61.38625	-55.195	Commence 10 minute trawl at 1 kt
12/03/2006 22:41	EI-AGT-3	-61.3856	-55.19174	AGT deployed
12/03/2006 22:23		-61.38708	-55.20322	EBS recovered
12/03/2006 21:57		-61.38662	-55.20043	Complete trawl
12/03/2006 21:47		-61.38559	-55.19464	Commence 10 minute trawl at 1 kt
12/03/2006 21:41		-61.38541	-55.19366	EBS on the seabed
12/03/2006 21:27	EI-EBS-3	-61.38508	-55.19184	EBS deployed
12/03/2006 21:19		-61.38497	-55.19175	Traction winch repaired
12/03/2006 20:22		-61.38667	-55.19461	Problem with traction winch - bolt sheared
12/03/2006 20:19		-61.38671	-55.19473	V/L on station (500m)
12/03/2006 19:55		-61.33821	-55.20555	V/L moving off station
12/03/2006 19:46		-61.33663	-55.21103	EBS recovered
12/03/2006 19:35		-61.33642	-55.20959	Complete trawl
12/03/2006 19:26		-61.33552	-55.20474	Commence 10 minute trawl at 1 kt
12/03/2006 19:21		-61.33538	-55.20387	EBS on the seabed
12/03/2006 19:16	EI-EBS-4	-61.33523	-55.20291	EBS deployed
12/03/2006 19:01		-61.33523	-55.20275	AGT recovered
12/03/2006 18:48		-61.33492	-55.20093	V/L stopped for recovery
12/03/2006 18:37		-61.3339	-55.19524	Commence 10 minute trawl at 1 kt
12/03/2006 18:28	EI-AGT-4	-61.3337	-55.19423	AGT deployed
12/03/2006 18:26		-61.33373	-55.19423	V/L in position for AGT
12/03/2006 18:06		-61.33928	-55.19206	CTD recovered - relocating v/l
12/03/2006 17:56		-61.33939	-55.19201	CTD @ depth 234m
12/03/2006 17:48	EI-CTD-4	-61.33925	-55.1918	CTD deployed
12/03/2006 17:46		-61.33926	-55.19182	BT working - resume deploying CTD
12/03/2006 17:25		-61.33855	-55.19273	Problem with bow thruster
12/03/2006 17:23		-61.33854	-55.19274	V/L on station (200m)
12/03/2006 15:44		-61.57833	-55.27243	Moving off to next station
12/03/2006 15:40		-61.57834	-55.27246	AGT recovered
12/03/2006 14:51		-61.57748	-55.26793	Complete trawl
12/03/2006 14:36		-61.57592	-55.25955	Commence 10 minute trawl at 1 kt
12/03/2006 14:25		-61.57541	-55.25667	AGT on the seabed
12/03/2006 13:59	EI-AGT-2	-61.57479	-55.25269	AGT deployed
12/03/2006 13:38		-61.57478	-55.25263	EBS recovered

12/03/2006 13:14		-61.57415	-55.24917	EBS off the seabed
12/03/2006 12:49		-61.57404	-55.24859	Complete trawl
12/03/2006 12:39		-61.57305	-55.24279	Commence 10 minute trawl at 1 kt
12/03/2006 12:27		-61.57269	-55.24075	EBS on the seabed
12/03/2006 12:00	EI-EBS-2	-61.57204	-55.23682	EBS deployed
12/03/2006 11:57		-61.57204	-55.23682	V/L on station (1000m)
12/03/2006 11:31		-61.61623	-55.2267	V/L moving off station
12/03/2006 11:25		-61.61621	-55.22662	EBS recovered
12/03/2006 10:48		-61.61408	-55.22229	EBS off the seabed
12/03/2006 10:16		-61.61417	-55.22232	Complete trawl
12/03/2006 10:05		-61.6121	-55.21837	Commence 10 minute trawl at 1 kt
12/03/2006 09:47		-61.61095	-55.21589	EBS on the seabed
12/03/2006 09:09	EI-EBS-1	-61.60891	-55.21162	EBS deployed
12/03/2006 08:44		-61.60964	-55.2122	vessel on station
12/03/2006 00:15		-61.56772	-55.21173	vessel moving of station
12/03/2006 00:09		-61.56775	-55.21176	CTD recovered
11/03/2006 23:45		-61.56772	-55.21158	CTD stopped at depth 979M
11/03/2006 23:25	EI-CTD-2	-61.56768	-55.21154	CTD deployed
11/03/2006 23:15		-61.56773	-55.2117	vessel on station
11/03/2006 22:54		-61.60298	-55.20957	v/l moving off station
11/03/2006 22:36		-61.60912	-55.21013	AGT recovered
11/03/2006 21:59		-61.60995	-55.21169	AGT off the seabed
11/03/2006 21:39		-61.61167	-55.21543	Complete trawl
11/03/2006 21:28		-61.6134	-55.21916	Commence 10 minute trawl at 1 kt
11/03/2006 21:19		-61.61417	-55.22076	AGT on the seabed
11/03/2006 20:47		-61.61638	-55.22518	V/L proceeding at 0.3kts
11/03/2006 20:43	EI-AGT-1	-61.61644	-55.2253	AGT deployed
11/03/2006 20:28		-61.6165	-55.22548	CTD recovered
11/03/2006 19:59		-61.61652	-55.22549	CTD stopped at depth 1470m
11/03/2006 19:29	EI-CTD-1	-61.61642	-55.2253	CTD deployed
11/03/2006 19:27		-61.61664	-55.22709	V/L on station
11/03/2006 13:40		-61.87269	-57.24565	vessel moving off station
11/03/2006 13:24		-61.8733	-57.24553	net recovered
11/03/2006 12:42		-61.89055	-57.2487	Trawl doors on deck
11/03/2006 11:21		-61.93063	-57.24211	Net on surface - gear twisted
11/03/2006 10:54		-61.95294	-57.24371	Commence hauling
11/03/2006 10:40		-61.96138	-57.24391	Cable veered to 380m
11/03/2006 10:31		-61.97162	-57.24361	Net on seabed
11/03/2006 10:24		-61.97906	-57.24399	Veering the warp
11/03/2006 09:44		-62.01993	-57.24214	Commence veering trawl
11/03/2006 09:43		-62.02115	-57.24211	Trawl on main warp
11/03/2006 09:24		-62.03833	-57.2432	Trawls in the water
11/03/2006 09:21		-62.04129	-57.24364	Net Deployed
11/03/2006 09:20		-62.0429	-57.24389	Commence Otter trawl deployment
11/03/2006 09:17	RGBT-2	-62.04432	-57.24402	Increase speed to 3kts for deployment
11/03/2006 09:07		-62.04435	-57.244	V/L on station
10/03/2006 00:09		-61.56775	-55.21175	CTD recovered
09/03/2006 21:57	JU-DIV-8	-62.23194	-58.67774	JR1 & JR3 recovered on board
09/03/2006 21:53	JU-DIV-8	-62.23197	-58.67773	JR1 & JR3 at ship
09/03/2006 21:39	JU-DIV-8	-62.23196	-58.67768	Divers recovered to boats
09/03/2006 21:39	JU-DIV-8	-62.23196	-58.67767	Divers recovered to boats

09/03/2006 21:37	N/N	-62.23194	-58.67769	Dive 8 completed
09/03/2006 20:59	JU-DIV-8	-62.2319	-58.67777	Dive 8 commenced
09/03/2006 20:49	JU-DIV-8	-62.23192	-58.67773	JR1 at dive site
09/03/2006 20:40	JU-DIV-8	-62.23184	-58.67768	JR1 departs for dive site
09/03/2006 20:16	JU-DIV-8	-62.23185	-58.67769	JR1 at ship
09/03/2006 20:08	N/N	-62.23184	-58.67757	CT recovered
09/03/2006 20:02	JU-DIV-8	-62.2318	-58.6777	Dive 8 aborted before start due to cracked face mask
09/03/2006 19:55	N/N	-62.23184	-58.67766	CT alongside
09/03/2006 19:43	N/N	-62.23182	-58.67771	CT departs Base
09/03/2006 19:24	N/N	-62.23183	-58.6777	CT at Base
09/03/2006 19:22	JU-DIV-8	-62.23184	-58.6777	Commenced seal watch
09/03/2006 19:18	N/N	-62.23184	-58.67771	CT away to Jubany to uplift ship Pax
09/03/2006 19:13	JU-DIV-8	-62.23182	-58.6777	JR1 & JR3 away for Dive 8
09/03/2006 18:44	JU-DIV-7	-62.23178	-58.67777	JR1 & JR3 at ship
09/03/2006 18:33	JU-DIV-7	-62.23179	-58.67765	JR3 & JR1 returning
09/03/2006 18:30	JU-DIV-7	-62.23176	-58.67766	Divers on surface - dive 7 completed
09/03/2006 18:04	N/N	-62.23177	-58.67772	CT alongside
09/03/2006 17:59	N/N	-62.23179	-58.67773	CT returning to ship
09/03/2006 17:54	N/N	-62.23173	-58.67785	CT at Base
09/03/2006 17:51	JU-DIV-7	-62.23186	-58.67772	Dive 7 commenced: Emm Rock
09/03/2006 17:49	N/N	-62.23184	-58.67769	CT away to Base with Pax
09/03/2006 17:45	JU-DIV-7	-62.23186	-58.67772	Seal Watch completed
09/03/2006 17:31	N/N	-62.23185	-58.67775	CT at Jubany offloading Pax
09/03/2006 17:25	N/N	-62.23188	-58.67783	CT away to Jubany to with Guests
09/03/2006 17:15	JU-DIV-7	-62.23184	-58.6777	Commenced seal watch
09/03/2006 17:09	JU-DIV-7	-62.23183	-58.67769	JR1 & JR3 launched & away to dive site Emm Rock
09/03/2006 15:12	N\N	-62.23191	-58.6776	CT returned alongside with Jubany Guests x11
09/03/2006 15:06	JU-DIV-6	-62.2319	-58.67768	JR3 & JR1 recovered
09/03/2006 14:48	JU-DIV-6	-62.23189	-58.67765	Divers recovered to boats
09/03/2006 14:47	N/N	-62.2319	-58.67764	CT away to Jubany to uplift Guests
09/03/2006 14:45	JU-DIV-6	-62.23191	-58.67769	Divers on surface - dive 6 completed
09/03/2006 14:01	JU-DIV-6	-62.23192	-58.67775	Dive 6 commenced Emm Rock
09/03/2006 13:56	JU-DIV-6	-62.23187	-58.67763	Seal watch completed OK
09/03/2006 13:17	JU-DIV-6	-62.2319	-58.67777	JR1 launched and away to dive site
09/03/2006 13:17	JU-TRM-1	2	3	-62.23191
09/03/2006 13:10	JU-DIV-6	-62.23196	-58.67779	JR3 launched and away to dive site
09/03/2006 13:03	JU-TRM-1	2	3	-62.23192
09/03/2006 12:52		-62.23194	-58.67775	JR1 & 3 recovered
09/03/2006 12:48	JU-DIV-5	-62.23191	-58.67765	JR1 & JR3 at ship
09/03/2006 12:44	JU-TRM-1	2	3	-62.2319
09/03/2006 12:41	JU-TRM-1	2	3	-62.23189
09/03/2006 12:39	JU-DIV-5	-62.232	-58.67774	Dive team returning to ship
09/03/2006 12:35	JU-DIV-5	-62.23193	-58.67769	Divers recovered to boats
09/03/2006 12:32	JU-DIV-5	-62.23193	-58.67766	Divers on surface - dive 5 completed
09/03/2006 12:27	JU-TRM-1	2	3	-62.23193
09/03/2006 12:19	JU-TRM-1	2	3	-62.23194
09/03/2006 12:06	JU-DIV-5	-62.2319	-58.67775	Dive 5 commenced: Winship Point
09/03/2006 12:03		-62.23191	-58.67769	Commence recovery of T/Net 1
09/03/2006 12:00	JU-DIV-5	-62.23195	-58.67763	Seal watch completed OK
09/03/2006 11:53	JU-TRM-1	2	3	-62.23191
09/03/2006 11:33		-62.23191	-58.67776	JR1 launched and away to dive site

09/03/2006 11:30	JU-DIV-5	-62.23192	-58.67761	Seal watch commenced at dive site
09/03/2006 11:24	JU-DIV-5	-62.23192	-58.6777	JR3 launched and away to dive site
08/03/2006 22:16		-62.23218	-58.67809	Cargo Tender recovered
08/03/2006 21:50		-62.23218	-58.67809	CT started and returning to ship
08/03/2006 21:30		-62.23218	-58.67809	JR1 back at the ship
08/03/2006 21:12		-62.23218	-58.67809	Divers out of the water
08/03/2006 20:31	JU-DIV-4	-62.23221	-58.67813	Dive commenced
08/03/2006 20:22		-62.23219	-58.67818	Seal watch completed OK
08/03/2006 19:51	JU-DIV-4	-62.23218	-58.67815	Commence Seal watch off Emm Rock
08/03/2006 19:43		-62.23216	-58.67814	Dive team transferring to Emm Rock
08/03/2006 19:36		-62.2322	-58.67814	Divers out of water
08/03/2006 19:33		-62.23221	-58.67817	Divers on surface
08/03/2006 19:00	JU-DIV-3	-62.23223	-58.67804	Dive commenced
08/03/2006 19:00	JU-DIV-3	-62.23223	-58.67804	Dive commenced
08/03/2006 18:53		-62.23223	-58.67804	Seal watch completed
08/03/2006 18:23		-62.23219	-58.67815	Commenced Seal watch
08/03/2006 18:19		-62.23222	-58.67813	CT away for Dives x 2
08/03/2006 18:17		-62.2322	-58.67813	JR1 away to commence Seal Watch
08/03/2006 17:59		-62.23223	-58.67814	CT returns alongside
08/03/2006 17:49		-62.23221	-58.6781	Trammel nets x 3 deployed in Potter Cove
08/03/2006 16:55	JU-TRM-1	2 & 3	-62.23217	-58.67811
08/03/2006 16:55		-62.2322	-58.67815	CT returns alongside
08/03/2006 16:05		-62.23226	-58.67812	Divers out
08/03/2006 15:30	JU-DIV-2	-62.23217	-58.67814	Divers in water
08/03/2006 14:57		-62.23228	-58.67813	Commence seal watch site 2
08/03/2006 14:39		-62.23218	-58.67816	Divers out
08/03/2006 13:56		-62.23227	-58.67811	Divers in water
08/03/2006 13:23	JU-DIV-1	-62.23222	-58.67803	Boats at dive site in Potter Cove
08/03/2006 13:23		-62.23222	-58.67803	Commence seal watch site 1
07/03/2006 10:09		-63.00093	-60.40601	Nets recovered
07/03/2006 08:52		-62.98069	-60.22685	Boat away to recover Trammel nets
06/03/2006 23:15		-62.86139	-60.93413	V/l off station
06/03/2006 21:03		-62.87839	-61.00152	Commenced hauling Otter Trawl – reduced to 2.0kt |OG 2100
06/03/2006 20:25		-62.92993	-61.00302	Commence AGT bottom trawl
06/03/2006 20:11	RGBT 01	-62.9301	-61.0032	Otter Trawl deployed commenced veering
06/03/2006 19:00		-62.87453	-60.95065	Begin next EK60 run
06/03/2006 18:28		-62.9326	-61.07754	Begin EK60 survey for Otter trawl
06/03/2006 16:35		-62.97697	-60.60438	Complete deploying nets near Penfold Pt
06/03/2006 15:35		-62.97387	-60.60888	Re-deploying Trammel nets
06/03/2006 13:11		-62.9538	-60.64649	CTD recovered
06/03/2006 13:03		-62.95379	-60.64633	CTD @ depth 155m
06/03/2006 12:56	DI-CTD-1	-62.95378	-60.64636	CTD deployed
06/03/2006 12:20		-62.94966	-60.63441	AGT recovered
06/03/2006 12:15		-62.94943	-60.63361	AGT off the bottom
06/03/2006 12:10		-62.94939	-60.63363	Bottom trawl complete
06/03/2006 12:00		-62.94779	-60.62848	Commence AGT bottom trawl
06/03/2006 11:56		-62.94759	-60.62794	AGT on seabed
06/03/2006 11:51	DI-AGT-1	-62.94743	-60.62741	AGT deployed
05/03/2006 22:40		-62.94988	-60.65201	EBS Recovered
05/03/2006 22:36		-62.94941	-60.6526	EBS off seabed

05/03/2006 22:31		-62.94943	-60.65248	Complete bottom trawl
05/03/2006 22:20		-62.94749	-60.65527	Commence trawling at 1 kt
05/03/2006 22:15		-62.94667	-60.65654	EBS on the seabed
05/03/2006 22:11	DI-EBS-1	-62.9465	-60.65676	EBS deployed
05/03/2006 22:07		-62.94665	-60.65656	V/L on station
04/03/2006 20:37		-62.52495	-61.83405	V/L off station
04/03/2006 20:26		-62.52502	-61.84401	AGT recovered
04/03/2006 20:11		-62.52505	-61.84402	Complete bottom trawl
04/03/2006 19:41		-62.525	-61.8264	Inc to 1.0kn for 30 mins
04/03/2006 19:28	LI-AGT-5	-62.525	-61.82428	AGT deployed
04/03/2006 19:12		-62.52504	-61.83708	AGT recovered
04/03/2006 19:01		-62.525	-61.83557	Stop for recovery
04/03/2006 18:49		-62.52494	-61.82898	Inc to 1.0kn for 10 mins
04/03/2006 18:39	LI-AGT-4	-62.5249	-61.82685	AGT deployed
04/03/2006 18:33		-62.5249	-61.82665	V/L on DP ready to deploy AGT
04/03/2006 18:23		-62.52522	-61.83952	relocating v/l to do AGT
04/03/2006 18:05		-62.52522	-61.83957	EBS on deck
04/03/2006 17:50		-62.52526	-61.83737	Stop for recovery
04/03/2006 17:40		-62.52527	-61.83136	Inc to 1.0kn for 10 mins
04/03/2006 17:28	Ll-EBS-4	-62.52522	-61.82993	EBS deployed
04/03/2006 17:16		-62.52523	-61.82993	CTD recovered
04/03/2006 17:10		-62.52522	-61.82987	CTD @ depth 200m
04/03/2006 17:02	LI-CTD-4	-62.52526	-61.82996	CTD deployed
04/03/2006 16:58		-62.52527	-61.82991	V/L on station
04/03/2006 15:58		-62.39468	-61.7807	Repair complete - moving to 200m stn
04/03/2006 15:23		-62.39465	-61.78057	Waiting on welding repair to EBS frame
04/03/2006 15:00		-62.39467	-61.7803	EBS on deck
04/03/2006 14:44		-62.39497	-61.77734	EBS off the bottom
04/03/2006 14:36		-62.39496	-61.77713	Bottom trawl complete
04/03/2006 14:25		-62.39544	-61.77116	commence bottom trawl
04/03/2006 14:19		-62.39556	-61.77005	on seabed
04/03/2006 14:04	LI-EBS-3	-62.39574	-61.76756	EBS deployed
04/03/2006 13:36		-62.39542	-61.77421	AGT recovered
04/03/2006 13:22		-62.39555	-61.77177	AGT off the bottom
04/03/2006 13:13		-62.39561	-61.77107	Complete bottom trawl
04/03/2006 13:02		-62.3961	-61.76526	Commence trawling at 1 kt
04/03/2006 12:54		-62.39626	-61.76293	AGT on seabed
04/03/2006 12:41	LI-AGT-3	-62.3964	-61.76105	AGT deployed
04/03/2006 12:25		-62.39578	-61.76811	CTD recovered
04/03/2006 12:14		-62.39578	-61.76815	CTD @ depth 486M
04/03/2006 12:02	Li-CTD-3	-62.39578	-61.76812	CTD deployed
04/03/2006 11:55		-62.39577	-61.7685	V/L on station off livingstone island for 500m site
04/03/2006 10:50		-62.34441	-61.7559	V/L moving off station
04/03/2006 10:45		-62.3447	-61.75521	AGT recovered
04/03/2006 10:18		-62.34635	-61.75169	AGT clear of the seabed
04/03/2006 09:59		-62.34638	-61.7516	Bottom trawl complete
04/03/2006 09:49		-62.34835	-61.74671	Commence trawling at 1 kt
04/03/2006 09:39		-62.34927	-61.74436	AGT on seabed
04/03/2006 09:12	LI-AGT-2c	-62.35065	-61.74075	AGT clear of the seabed
04/03/2006 08:54		-62.35103	-61.74224	V/L on station
04/03/2006 07:16		-62.33253	-61.735	V/L moving off station

04/03/2006	07:16	-62.33253	-61.735	V/L moving off station
04/03/2006	00:15	-62.33224	-61.66401	Last AGT unsuccessful vsl on station depth 1000m awiting redeployment at first light
03/03/2006	23:59	-62.33036	-61.66259	AGT secured vsl on d.p moving to find depth of 1000m
03/03/2006	23:45	-62.33014	-61.66239	AGT recovered
03/03/2006	23:03	-62.33178	-61.65862	Bottom trawl complete
03/03/2006	22:53	-62.33381	-61.65474	Commence trawling at 1 kt
03/03/2006	22:20 LI-AGT-2b	-62.33627	-61.65038	AGT deployed
03/03/2006	21:48	-62.33026	-61.66306	AGT recovered
03/03/2006	21:05	-62.33153	-61.65921	Trawl complete
03/03/2006	20:55	-62.33353	-61.65554	Commence trawling at 1 kt
03/03/2006	20:46	-62.33445	-61.65401	AGT on seabed
03/03/2006	20:24	-62.33471	-61.65095	All OK. Re-deploy AGT
03/03/2006	20:17	-62.33534	-61.64949	Bow thruster fault detected. Hoisting AGT.
03/03/2006	19:53 LI-AGT-2	-62.33618	-61.64817	AGT deployed
03/03/2006	19:18	-62.33019	-61.66235	EBS Recovered
03/03/2006	18:31	-62.33252	-61.65778	Stop for recovery
03/03/2006	18:21	-62.33449	-61.65409	Begin trawl 1kn/10mins
03/03/2006	17:49 Ll-EBS-2	-62.33633	-61.65038	EBS deployed
03/03/2006	17:30	-62.33605	-61.64742	CTD Recovered
03/03/2006	17:12	-62.336	-61.64747	CTD @ depth 781m
03/03/2006	16:53 LI-CTD-2	-62.33605	-61.64747	CTD deployed
03/03/2006	16:48	-62.33604	-61.64748	V/L on station FOR ctd
03/03/2006	15:50	-62.26999	-61.60768	V/L moving off station
03/03/2006	15:40	-62.27061	-61.60652	EBS Recovered
03/03/2006	14:23	-62.27343	-61.60134	Bottom trawl complete
03/03/2006	14:13	-62.27559	-61.59721	commencing trawl
03/03/2006	13:55	-62.27675	-61.59518	EBS on the seabed
03/03/2006	13:19 Ll-EBS-1	-62.27893	-61.59091	EBS deployed
03/03/2006	12:49	-62.27017	-61.60625	AGT recovered
03/03/2006	12:15	-62.27261	-61.60175	AGT clear of the seabed
03/03/2006	11:46	-62.27267	-61.60169	Trawl complete
03/03/2006	11:36	-62.27488	-61.59799	Commence trawling at 1 kt
03/03/2006	11:26	-62.27598	-61.59617	AGT on seabed
03/03/2006	10:47 LI-AGT-1	-62.27859	-61.59244	AGT deployed
03/03/2006	10:29	-62.27861	-61.59246	CTD Recovered
03/03/2006	10:01	-62.27862	-61.59244	CTD @ depth 1388M
03/03/2006	09:34 LI-CTD-1	-62.27861	-61.59242	CTD deployed
03/03/2006	09:27	-62.27859	-61.59235	V/L on station
02/03/2006	19:16	-60.01264	-59.9489	V/L moving off station
02/03/2006	19:03	-60.01261	-59.94888	Wire recovered
02/03/2006	17:37	-60.01263	-59.94886	CTD wire at 3990m
02/03/2006	16:07 Respooling CTD	-60.01265	-59.94878	Deploying weight on CTD wire to near bottom
02/03/2006	15:52	-60.01267	-59.94878	CTD Recovered
02/03/2006	15:35	-60.01268	-59.94886	CTD @ depth 500m
02/03/2006	15:22 MEGA-CTD-6	-60.01267	-59.94874	CTD deployed
02/03/2006	14:55	-60.01264	-59.94889	CTD Recovered
02/03/2006	14:39	-60.01267	-59.94882	CTD @ depth 500m
02/03/2006	14:26 MEGA-CTD-5	-60.0127	-59.94881	CTD deployed
02/03/2006	13:58	-60.01268	-59.94885	CTD Recovered
02/03/2006	13:42	-60.0127	-59.94883	CTD @ depth 500m

02/03/2006 13:31	MEGA-CTD-4	-60.01263	-59.94874	CTD deployed
02/03/2006 13:13		-60.0127	-59.94882	CTD Recovered
02/03/2006 13:01		-60.01262	-59.94886	CTD @ depth 200m
02/03/2006 12:53	MEGA-CTD-3	-60.01266	-59.94883	CTD deployed
02/03/2006 12:26		-60.01265	-59.94877	CTD Recovered
02/03/2006 12:12		-60.0127	-59.94885	CTD @ depth 200m
02/03/2006 12:05	MEGA-CTD-2	-60.01266	-59.94886	CTD deployed
02/03/2006 11:34		-60.01262	-59.94883	CTD Recovered
02/03/2006 11:16		-60.01265	-59.94881	CTD @ depth 200m
02/03/2006 11:06	MEGA-CTD-1	-60.01261	-59.94878	CTD deployed
02/03/2006 10:47		-60.01264	-59.94875	V/L on station
28/02/2006 22:51		-54.15718	-56.14843	V/L moving off station
28/02/2006 22:31		-54.13008	-56.12499	AGT Recovered
28/02/2006 21:36		-54.12864	-56.1184	Complete AGT Trawl
28/02/2006 21:26		-54.12822	-56.1137	Commence trawling at 1 kt
28/02/2006 20:43	FT-AGT-4(b)	-54.12801	-56.11249	AGT deployed
28/02/2006 18:48		-54.12812	-56.11271	V/L on DP ready to deploy AGT
28/02/2006 18:28		-54.13304	-56.1492	relocating v/l to do another AGT
28/02/2006 17:46		-54.13291	-56.14922	AGT on deck
28/02/2006 16:15		-54.13178	-56.14181	Stop for recovery
28/02/2006 16:03		-54.13102	-56.13684	Inc to 1.0kn for 10 mins
28/02/2006 15:49		-54.13055	-56.13383	On bottom - begin moving ahead
28/02/2006 15:09	Ft-AGT-4	-54.13053	-56.13365	AGT deployed
28/02/2006 14:51		-54.1305	-56.13349	CTD Recovered
28/02/2006 13:52		-54.13053	-56.13331	CTD @ depth 1471M
28/02/2006 13:22	FT-CTD-4	-54.13048	-56.13342	CTD deployed
28/02/2006 13:10		-54.13038	-56.13111	v/l on station (water depth 1506m)
28/02/2006 12:00		-54.22217	-56.30039	V/L moving off station
28/02/2006 11:51		-54.22254	-56.30091	AGT Recovered
28/02/2006 10:56		-54.22189	-56.29502	Complete AGT Trawl
28/02/2006 10:46		-54.22364	-56.29146	Commence trawling at 1 kt
28/02/2006 10:06	FT-AGT-3	-54.22616	-56.28646	AGT deployed
28/02/2006 09:46		-54.22656	-56.28582	CTD Recovered
28/02/2006 09:26		-54.22652	-56.28587	CTD @ depth 974m
28/02/2006 09:05	FT-CTD-3	-54.2265	-56.28595	CTD deployed
28/02/2006 08:09		-54.22651	-56.28574	V/L on station
28/02/2006 08:09		-54.22651	-56.28574	V/L on station
28/02/2006 00:38		-54.2985	-56.50114	vessel moving of station to commence overnight swath survey
28/02/2006 00:18		-54.29871	-56.50061	AGT Recovered
27/02/2006 23:43		-54.29987	-56.49638	commence recovery
27/02/2006 23:33		-54.30088	-56.49175	750m cable out
27/02/2006 23:09	Ft-AGT-2	-54.30149	-56.4896	AGT deployed
27/02/2006 22:42		-54.29955	-56.49712	EBS Recovered
27/02/2006 22:29		-54.30044	-56.49457	EBS off seabed
27/02/2006 22:10		-54.30056	-56.4943	Complete EBS Trawl
27/02/2006 21:59		-54.30226	-56.49002	Commence EBS Trawl
27/02/2006 21:53		-54.30263	-56.48902	EBS on seabed
27/02/2006 21:41	FT-EBS-2	-54.30265	-56.48914	EBS deployed
27/02/2006 21:18		-54.30221	-56.48866	CTD Recovered
27/02/2006 21:06		-54.30211	-56.48856	CTD @ depth 500m

27/02/2006 20:53	FT-CTD-2	-54.30213	-56.48855	CTD deployed
27/02/2006 20:48		-54.30218	-56.48867	V/L on station (water depth 511m)
27/02/2006 19:42		-54.3084	-56.61915	V/L off station
27/02/2006 19:19		-54.31288	-56.68652	AGT recovered
27/02/2006 19:03		-54.31333	-56.68466	Stop for recovery
27/02/2006 18:51		-54.31429	-56.67995	Inc to 1.0kn for 10 mins
27/02/2006 18:39	Ft-AGT-1B	-54.31449	-56.67908	AGT deployed
27/02/2006 18:37		-54.31446	-56.67903	On station
27/02/2006 18:26		-54.31346	-56.68681	relocating v/l to do another AGT
27/02/2006 18:20		-54.3135	-56.68649	AGT on deck
27/02/2006 18:05		-54.31388	-56.68525	V/L stopped for recovery
27/02/2006 17:53		-54.31528	-56.68112	Inc to 1.0kn for 10 mins
27/02/2006 17:51		-54.31544	-56.68065	Begin to move ahead
27/02/2006 17:43	Ft-AGT-1	-54.31555	-56.68043	Agazzi deployed
27/02/2006 17:39		-54.31555	-56.68028	V/L on station
27/02/2006 17:28		-54.31276	-56.68873	relocating v/l
27/02/2006 17:06		-54.31281	-56.68888	EBS on deck
27/02/2006 16:46		-54.31355	-56.68656	Stop for recovery
27/02/2006 16:35		-54.3149	-56.68229	Inc to 1.0kn for 10 mins
27/02/2006 16:25		-54.31522	-56.68137	EBS deployed
27/02/2006 16:19	FT-EBS-1	-54.31527	-56.68111	Commence deploying EBS
27/02/2006 16:00		-54.31664	-56.67938	V/L on DP ready to deploy EBS
27/02/2006 15:08		-54.2499	-56.79971	V/L relocating for EBS
27/02/2006 14:43		-54.24895	-56.79916	Recovery of otter trawl complete
27/02/2006 14:06		-54.2685	-56.76438	Commence hauling otter trawl
27/02/2006 13:56		-54.27768	-56.75011	Stopped veering cable at 201m
27/02/2006 13:47		-54.28579	-56.73762	Otter Trawl deployed commenced veering
27/02/2006 13:27		-54.30047	-56.71477	net deployed
27/02/2006 13:22		-54.30337	-56.7102	Net untangled - recommence deployment
27/02/2006 13:07		-54.30589	-56.70353	Net recovered to deck
27/02/2006 12:58		-54.30815	-56.69783	Net tangled
27/02/2006 12:55	FT-OTRB-1	-54.30986	-56.69488	Commence deployment of otter trawl @ 2 knots
27/02/2006 11:50		-54.31006	-56.69429	Commence rigging for otter trawl
27/02/2006 11:33		-54.31005	-56.69437	CTD Recovered
27/02/2006 11:23		-54.3101	-56.69436	CTD @ depth 213m
27/02/2006 11:13	FT-CTD-1	-54.31003	-56.69438	CTD deployed
27/02/2006 11:06		-54.31	-56.69437	Vessel on station
26/02/2006 17:30		-52.30408	-57.43144	Depart Stanley

8.1.2. Trawled Gear

Time	Latitude	Longitude	Station	Depth	Wind (m/s)	Bearing (degrees)	Speed (kn)	Action	Cable Length (m)	Comment
12/04/2006 15:40	-53.25323	-42.14896	SR-EBS-6	1041.7	19.9	310.9	-0.06	EBS of bottom	1023	
12/04/2006 15:15	-53.2532	-42.14822	SR-EBS-6	1027.42	14.7	310.7	0.52	stop trawling	1500	
12/04/2006 15:05	-53.25323	-42.1439	SR-EBS-6	1016.43	20.1	306.9	0.15	start trawling	1499	
12/04/2006 14:53	-53.2532	-42.14227	SR-EBS-6	1016.82	23.2	309.2	0.24	EBS on bottom	995	
12/04/2006 14:29	-53.25321	-42.1391	SR-EBS-6	1012.07	21.9	307.8	0.24	EBS in water	4	
12/04/2006 14:05	-53.2531	-42.15207	SR-AGT-6	1023.49	22.3	329.5	0.17	AGT on deck	-6	

12/04/2006 13:38	-53.25307	-42.1486	SR-AGT-6	1022	21.8	317.9	0.27	AGT off bottom	1013	
12/04/2006 13:13	-53.25309	-42.1478	SR-AGT-6	1020.33	25.7	313.7	0.93	stop trawling	1500	
12/04/2006 12:59	-53.25308	-42.14149	SR-AGT-6	1018.36	22.3	319.6	0.32	start trawling	1500	
12/04/2006 12:47	-53.2531	-42.13989	SR-AGT-6	1017.67	23.3	321.6	0.63	AGT on bottom	1004	
12/04/2006 12:22	-53.25308	-42.13661	SR-AGT-6	1007.81	27.3	330.7	0.58	AGT in water	-4	
12/04/2006 11:21	-53.32132	-42.22679	SR-EBS-5	503.84	25	31	-0.14	EBS on deck	-17	
12/04/2006 11:04	-53.32116	-42.22924	SR-EBS-5	505.4	19.4	31.5	0.24	EBS of bottom	521	
12/04/2006 10:52	-53.32118	-42.22988	SR-EBS-5	505	21.2	40.5	0.3	stop trawling	750	
12/04/2006 10:42	-53.32117	-42.23422	SR-EBS-5	501.61	27.2	36.5	0.23	start trawling	749	
12/04/2006 10:35	-53.32118	-42.23521	SR-EBS-5	501.43	14.4	19.8	0.34	EBS on bottom	486	
12/04/2006 10:21	-53.32119	-42.2371	SR-EBS-5	500.86	18.8	18.7	0.14	EBS in water	3	
12/04/2006 10:03	-53.32159	-42.22611	SR-AGT-5	503.08	19.2	15.2	0.29	AGT on deck	-11	
12/04/2006 09:49	-53.32156	-42.22811	SR-AGT-5	501.62	17.9	42.7	0.33	AGT of bottom	507	
12/04/2006 09:36	-53.32156	-42.22869	SR-AGT-5	502.55	16.9	44.3	0.81	stop trawling	750	
12/04/2006 09:26	-53.32156	-42.23302	SR-AGT-5	498.39	13.8	45	0.28	start trawling	750	
12/04/2006 09:19	-53.32154	-42.234	SR-AGT-5	497.98	13.9	44.8	0.41	AGT on bottom	487	
12/04/2006 09:03	-53.32157	-42.2359	SR-AGT-5	500.7	11.4	44.8	0.23	AGT in water	-4	
11/04/2006 21:30	-53.56397	-40.91949	SR-AGT-1	1550.49	3.4	315.5	-0.42	AGT on deck	-9	
11/04/2006 20:52	-53.5657	-40.91579	SR-AGT-1	1575.77	2.4	301.8	0.07	AGT of bottom	1532	
11/04/2006 20:32	-53.56579	-40.91544	SR-AGT-1	1541.03	5	330.4	0.75	stop trawling	1900	
11/04/2006 20:17	-53.56782	-40.90957	SR-AGT-1	1496.11	3.9	330.2	0.37	start trawling	1900	
11/04/2006 20:10	-53.56817	-40.90869	SR-AGT-1	1477.33	1.4	330.3	0.38	AGT on bottom	1575	
11/04/2006 19:31	-53.5697	-40.90422	SR-AGT-1	1451.61	0.7	330.6	-0.16	AGT in water	-4	
11/04/2006 17:51	-53.57217	-40.9022	SR-AGT-2	1415.61	2.8	26.9	4.81	AGT on deck	-17	
11/04/2006 17:26	-53.57774	-40.91932	SR-AGT-2	1054.09	5.5	115.3	0.78	AGT off bottom	1003	
11/04/2006 16:59	-53.57761	-40.91974	SR-AGT-2	1055.14	9	115.4	1.53	stop trawling	1500	
11/04/2006 16:44	-53.57622	-40.926	SR-AGT-2	1014.71	10.5	114.7	0.75	start trawling	1500	
11/04/2006 16:33	-53.57576	-40.92837	SR-AGT-2	877.65	10.4	115	0.73	AGT on bottom	1029	
11/04/2006 16:07	-53.57507	-40.93158	SR-AGT-2	961.59	8.8	126.9	0.58	AGT in water	-2	
11/04/2006 14:45	-53.58493	-40.92236	SR-AGT-2	454.25	9.4	210	-0.09	AGT on deck	-17	Front bars and tow rings bend
11/04/2006 14:32	-53.58541	-40.92084	SR-AGT-3	467.32	9.8	208.8	-0.08	AGT off bottom	436	up to 5 t peaks on haul
11/04/2006 13:42	-53.58611	-40.91808	SR-AGT-3	448.33	12.8	139.2	1.28	stop trawling	750	
11/04/2006 13:31	-53.58516	-40.92233	SR-AGT-3	453.54	14.2	141.9	0.92	start trawling	750	
11/04/2006 13:28	-53.58506	-40.92279	SR-AGT-3	451.89	14.5	140.2	0.97	AGT on bottom	614	
11/04/2006 13:11	-53.58461	-40.92482	SR-AGT-3	481.42	11.3	141.5	0.59	AGT in water	-4	
11/04/2006 11:05	-53.62728	-40.91287	SR-EBS-4	201.34	14.3	211.6	0.73	EBS on deck	-16	

11/04/2006 10:55	-53.62658	-40.912	SR-EBS-4	201.66	13.8	209.9	0.56	EBS off bottom	204
11/04/2006 10:50	-53.62666	-40.91153	SR-EBS-4	201.02	16.2	249.7	0.59	stop trawling	300
11/04/2006 10:40	-53.628	-40.90771	SR-EBS-4	203.6	17	231.9	0.38	start trawling	295
11/04/2006 10:37	-53.6281	-40.90741	SR-EBS-4	205.69	13.7	230.2	0.58	EBS on bottom	201
11/04/2006 10:31	-53.62835	-40.90674	SR-EBS-4	203.29	18.3	212.1	0.65	EBS in water	3
11/04/2006 10:13	-53.62834	-40.90674	SR-AGT-4	203.49	16.4	226	0.52	AGT on deck	-18
11/04/2006 10:06	-53.62836	-40.90672	SR-AGT-4	203.64	16.6	241.1	0.36	AGT off bottom	211
11/04/2006 10:01	-53.62852	-40.90618	SR-AGT-4	202.99	14.2	229.3	0.63	stop trawling	300
11/04/2006 09:51	-53.62981	-40.90246	SR-AGT-4	212.01	16.1	231	0.61	start trawling	300
11/04/2006 09:49	-53.62981	-40.90246	SR-AGT-4	212.01	16.1	231	0.61	AGT on bottom	300
11/04/2006 09:42	-53.63014	-40.90147	SR-AGT-4	211.43	14.7	231.6	0.38	AGT in water	3
10/04/2006 05:03	-53.55114	-37.92052	SG-EBS-1	1493.93	19.8	280.3	0.03	EBS on deck	-18
10/04/2006 04:27	-53.55129	-37.91551	SG-EBS-1	1493.66	20.8	279.9	-0.14	EBS off bottom	1503
10/04/2006 03:52	-53.5513	-37.91481	SG-EBS-1	1499.73	23.4	271.7	0.5	stop trawling	2200
10/04/2006 03:41	-53.5514	-37.91004	SG-EBS-1	1494.48	24	272.4	-0.14	start trawling	2199
10/04/2006 03:24	-53.55144	-37.90777	SG-EBS-1	1508.28	17.4	280.6	-0.03	EBS on bottom	1499
10/04/2006 02:47	-53.55155	-37.90246	SG-EBS-1	1463.56	15.7	280.3	0.37	EBS in water	11
09/04/2006 04:12	-53.78712	-37.98283	SG-EBS-5	315.31	15.9	311.2	0.26	EBS on deck	-15
09/04/2006 04:02	-53.7876	-37.98179	SG-EBS-5	315.2	16.5	310.2	0.41	EBS off bottom	320
09/04/2006 03:55	-53.78782	-37.9814	SG-EBS-5	315.59	16.9	310.2	0.98	stop trawling	450
09/04/2006 03:45	-53.78955	-37.97794	SG-EBS-5	316.07	15.9	310.8	0.4	start trawling	455
09/04/2006 03:41	-53.78975	-37.97755	SG-EBS-5	316.09	16	311.1	0.64	EBS on bottom	310
09/04/2006 03:32	-53.79017	-37.97671	SG-EBS-5	316.69	17.7	307.6	0.12	EBS in water	3
09/04/2006 02:44	-53.78662	-37.98418	SG-AGT-5	314.8	13.9	306.2	0.7	AGT on deck	-18
09/04/2006 02:27	-53.78744	-37.98217	SG-AGT-5	317.66	16.4	305	0.56	AGT off bottom	318
09/04/2006 02:20	-53.78761	-37.98176	SG-AGT-5	315.24	15.4	304.9	1.25	stop trawling	450
09/04/2006 02:10	-53.78914	-37.97807	SG-AGT-5	315.96	13.9	303.3	0.25	start trawling	449
09/04/2006 02:06	-53.7893	-37.97769	SG-AGT-5	315.99	14.5	305.7	0.25	AGT on bottom	318
09/04/2006 01:56	-53.78975	-37.97666	SG-AGT-5	316.2	14.9	303.7	-0.09	AGT in water	-5
06/04/2006 09:07	-53.55114	-37.91944	SG-AGT-1	1512.65	30	334.5	0.2	AGT on deck	-18
06/04/2006 08:23	-53.55113	-37.9132	SG-AGT-1	1524.63	28.6	326.4	-0.09	of bottom	1522
06/04/2006 08:01	-53.55109	-37.91266	SG-AGT-1	1521.59	28.7	329.6	0.09	stop trawling	1898
06/04/2006 07:45	-53.55108	-37.90563	SG-AGT-1	1515.5	25.3	329.7	0.14	start trawling	1900
06/04/2006 07:36	-53.55107	-37.90345	SG-AGT-1	1517.31	27.2	325.4	0.2	on bottom	1504
06/04/2006 06:58	-53.55109	-37.89847	SG-AGT-1	1536.88	26	323.8	-0.42	AGT in water	-1
06/04/2006 06:05	-53.57651	-37.8935	SG-EBS-2	1023.89	23.4	324.3	0.2	EBS on deck	-15

06/04/2006 05:39	-53.57652	-37.89018	SG-EBS-2	983.5	21.3	319.2	0.1	EBS off bottom	983
06/04/2006 05:14	-53.5765	-37.88955	SG-EBS-2	971.71	21.2	311	0.52	stop trawling	1500
06/04/2006 05:04	-53.5765	-37.88517	SG-EBS-2	988.66	24.1	310.2	0.25	start trawling	1499
06/04/2006 04:53	-53.57651	-37.88375	SG-EBS-2	1012.27	23.7	310.3	0.57	EBS on bottom	1060
06/04/2006 04:24	-53.57655	-37.88012	SG-EBS-2	1005.79	29.3	308	-0.18	EBS in water	6
06/04/2006 03:59	-53.57653	-37.88006	SG-AGT-2	1008.92	23.7	325.7	-0.31	AGT on deck	-12
06/04/2006 03:35	-53.57653	-37.87702	SG-AGT-2	977.74	22.9	311.7	-0.26	AGT off bottom	956
06/04/2006 03:14	-53.5765	-37.87606	SG-AGT-2	977.51	23.4	309	0.66	stop trawling	1400
06/04/2006 02:58	-53.57651	-37.86902	SG-AGT-2	1038.77	22.8	320.1	0.23	start trawling	1400
06/04/2006 02:49	-53.57652	-37.86698	SG-AGT-2	1045.96	25.4	320.3	0.4	AGT on bottom	1018
06/04/2006 02:22	-53.57652	-37.86361	SG-AGT-2	1018.39	25.5	315.7	0.03	AGT in water	-2
06/04/2006 00:12	-53.59745	-37.91051	SG-EBS-3	484.27	20.8	324.1	0.25	EBS on deck	-11
05/04/2006 23:51	-53.59744	-37.90861	SG-EBS-3	477.57	19.5	314.3	0.3	EBS off bottom	483
05/04/2006 23:37	-53.59745	-37.90779	SG=EBS-3	477.95	16.4	310.9	0.75	stop trawling	750
05/04/2006 23:26	-53.59745	-37.90307	SG-EBS-3	496.22	17.4	310.8	0.31	start trawling	750
05/04/2006 23:19	-53.59745	-37.90212	SG-EBS-3	502.66	18.8	311.9	0.34	EBS on bottom	493
05/04/2006 23:04	-53.59745	-37.90022	SG-EBS-3	502.66	18.7	310.5	0.14	EBS in water	
05/04/2006 22:49	-53.59746	-37.9001	SG-AGT-3	503.68	16	309.3	0.64	AGT on deck	-19
05/04/2006 22:35	-53.59747	-37.89813	SG-AGT-3	502.65	18.4	309.4	0.43	AGT off bottom	507
05/04/2006 22:22	-53.59747	-37.89737	SG-AGT-3	500.29	15.9	310.2	0.44	stop trawling	750
05/04/2006 22:11	-53.59746	-37.89268	SG-AGT-3	479.81	14.2	310.1	0.53	start trawling	750
05/04/2006 22:06	-53.59745	-37.89118	SG-AGT-3	484.64	17.2	311.1	0.25	AGT on bottom	525
05/04/2006 21:52	-53.59747	-37.88927	SG-AGT-3	493.49	15.5	310.4	0.02	AGT in water	-5
05/04/2006 20:40	-53.61109	-37.89123	SG-EBS-4	220.38	14.3	300.2	0.12	EBS on deck	-18
05/04/2006 20:31	-53.61108	-37.88997	SG-EBS-4	220.21	15.1	300.7	0.25	EBS off bottom	228
05/04/2006 20:27	-53.61108	-37.88945	SG-EBS-4	221.73	14.9	299.7	0.79	stop trawling	300
05/04/2006 20:16	-53.61108	-37.88494	SG-EBS-4	221.94	16.2	299.2	0.05	start trawling	299
05/04/2006 20:14	-53.61109	-37.88464	SG-EBS-4	222.93	15.5	300.8	-0.04	EBS on bottom	216
05/04/2006 20:07	-53.61109	-37.88388	SG-EBS-4	222.22	14.2	299.4	-0.39	EBS in water	58
05/04/2006 20:02	-53.61108	-37.88389	SG-AGT-4	222.48	13.7	299.2	-0.33	AGT on deck	8
05/04/2006 19:41	-53.6111	-37.8828	SG-AGT-4	224.47	14.2	298.5	-0.08	AGT off bottom	216
05/04/2006 19:36	-53.61108	-37.88217	SG-AGT-4	222.98	15	302.2	0.5	stop trawling	300
05/04/2006 19:26	-53.61108	-37.87771	SG-AGT-4	224.86	14.8	298.3	-0.13	start trawling	300
05/04/2006 19:24	-53.61111	-37.87746	SG-AGT-4	226.09	16.9	288.5	-0.21	AGT on bottom	226
05/04/2006 19:17	-53.61111	-37.87666	SG-AGT-4	228.1	15.2	290.2	-0.3	AGT in water	-1
28/03/2006 21:26	-59.52196	-27.45843	ST-EBS-1	1556.51	12.5	270.2	-0.04	EBS on deck	-11

28/03/2006 20:56	-59.52438	-27.47164	ST-EBS-1	1580.14	17.2	269.8	0.22	EBS off bottom	1588
28/03/2006 20:21	-59.52425	-27.47089	ST-EBS-1	1576.64	14.9	270.2	0.94	stop trawling	2300
28/03/2006 20:10	-59.52338	-27.46614	ST-EBS-1	1571.19	15.9	270.1	0.22	start trawling	2297
28/03/2006 19:54	-59.52289	-27.46355	ST-EBS-1	1569.1	14.6	270.6	0.21	EBS on bottom	1551
28/03/2006 19:17	-59.52195	-27.45842	ST-EBS-1	1586.88	12.9	270.2	-0.06	EBS in water	1
28/03/2006 19:05	-59.52196	-27.45843	ST-AGT-1	1556.51	12.5	270.2	-0.04	AGT on deck	-11
28/03/2006 18:24	-59.5209	-27.45269	ST-AGT-1	1545.45	11.8	270.2	0.46	AGT off bottom	1540
28/03/2006 18:00	-59.52071	-27.45209	ST-AGT-1	1542.67	13.9	260.4	0.99	stop trawling	2000
28/03/2006 17:44	-59.51933	-27.44451	ST-AGT-1	1523.29	12.8	260.5	0.38	start trawling	2000
28/03/2006 17:34	-59.51785	-27.43623	ST-AGT-1	1526.58	11.2	260.9	-0.12	AGT on bottom	-5
28/03/2006 16:57	-59.51785	-27.43623	ST-AGT-1	1526.58	11.2	260.9	-0.12	AGT in water	-5
28/03/2006 14:10	-59.50357	-27.41503	ST-EBS-3B	1319.57	23.6	249.5	10.25	EBS on deck	-14
28/03/2006 13:57	-59.48005	-27.29544	St-EBS-3B	501.06	17.3	270.1	0.37	EBS off bottom	504
28/03/2006 13:44	-59.48005	-27.29457	ST-EBS-3B	501.06	19.2	270.2	1.01	stop trawling	750
28/03/2006 13:33	-59.48005	-27.28918	ST-EBS-3B	500.31	16.1	270.2	0.38	start trawling	748
28/03/2006 13:27	-59.48003	-27.28818	ST-EBS-3B	507	15.7	270.1	0.4	EBS on bottom	497
28/03/2006 13:13	-59.47999	-27.28604	ST-EBS-3B	510.24	14.5	271.4	0.15	EBS in water	1
28/03/2006 12:48	-59.50642	-27.31293	ST-EBS-2	1107.09	12.4	270.2	0.24	EBS on deck	-15
28/03/2006 12:20	-59.50669	-27.30848	ST-EBS-2	1040.42	13.8	270.4	0.34	EBS off bottom	1069
28/03/2006 11:58	-59.50673	-27.30786	ST-EBS-2	1038.85	15.5	270.2	0.91	stop trawling	1500
28/03/2006 11:47	-59.50705	-27.3026	ST-EBS-2	1019.11	14.2	270.2	0.61	start trawling	1500
28/03/2006 11:35	-59.50717	-27.30057	ST-EBS-2	1007.51	13.9	270.2	0.38	EBS on bottom	976
28/03/2006 11:09	-59.50741	-27.29654	ST-EBS-2	989.24	16.8	270.2	0.45	EBS in water	4
28/03/2006 10:49	-59.50565	-27.32091	ST-AGT-2	1047.44	15.4	279.9	0.5	AGT on deck	-7
28/03/2006 10:21	-59.50605	-27.31645	ST-AGT-2	1045.38	17.8	279.9	0.68	AGT off bottom	1022
28/03/2006 09:57	-59.50621	-27.31521	ST-AGT-2	1046.83	18.1	279.3	1.26	stop trawling	1500
28/03/2006 09:42	-59.50721	-27.30761	ST-AGT-2	1043.61	16.9	280	0.89	start trawling	1500
28/03/2006 09:31	-59.50759	-27.30467	ST-AGT-2	1033.92	15.7	279.1	0.7	AGT on bottom	1028
28/03/2006 09:04	-59.5076	-27.30057	ST-AGT-2	1010.98	13.5	285.3	0.27	AGT in water	-8
27/03/2006 23:18	-59.50764	-27.30055	ST-CTD-2	1011.33	7.6	247.4	0.27	CTD on deck	-4
27/03/2006 23:17	-59.50764	-27.30055	ST-CTD-2	1011.14	7.1	245.7	0.16	CTD - 1 bottle closed at surface	1
27/03/2006 22:59	-59.50765	-27.30056	ST-CTD-2	1011.49	7.7	246.7	0.26	CTD at depth	976
27/03/2006 22:40	-59.50765	-27.30054	ST-CTD-2	1011.49	9	246.4	0.18	CTD in water	2
27/03/2006 22:10	-59.48076	-27.28644	ST-CTD-3	518.98	9.1	270.2	0.1	CTD on deck	-3
27/03/2006 22:08	-59.48077	-27.28644	ST-CTD-3	525.84	12.5	270.1	0.19	CTD - 1 bottle closed at surface	3
27/03/2006 21:57	-59.48077	-27.28645	ST-CTD-3	518.96	10.6	270.3	0.14	CTD at depth	502

27/03/2006 21:44	-59.48077	-27.28643	ST-CTD-3	519.39	10.3	270.2	0.21	CTD in water	
27/03/2006 21:12	-59.4808	-27.2862	ST-EBS-3	518	10	270.2	0.33	EBS on deck	11
27/03/2006 20:59	-59.48079	-27.2841	ST-EBS-3	518.43	9.4	270.2	0.44	off bottom	514
27/03/2006 20:44	-59.48081	-27.28354	ST-EBS-3	519.86	11.9	270.2	0.98	stop trawling	800
27/03/2006 20:33	-59.48079	-27.27817	ST-EBS-3	543.88	10.4	269.8	0.44	start trawling	798
27/03/2006 20:27	-59.48079	-27.27717	ST-EBS-3	544.86	10.7	269.8	0.5	EBS on bottom	538
27/03/2006 20:14	-59.48077	-27.27515	ST-EBS-3	542.06	12.6	270.2	0.28	EBS in water	-1
27/03/2006 19:58	-59.48132	-27.28885	ST-AGT-3	536.66	12.2	270.1	0.43	AGT on deck	-8
27/03/2006 19:43	-59.48133	-27.28629	ST-AGT-3	531.48	11	270.2	0.49	off bottom	530
27/03/2006 19:28	-59.48133	-27.28558	ST-AGT-3	537.46	11.8	270.2	1.03	stop trawling	800
27/03/2006 19:18	-59.48132	-27.28014	ST-AGT-3	547.32	13.5	271.3	0.58	start trawling	800
27/03/2006 19:12	-59.48133	-27.27868	SI-AGT-3	549.63	15.4	270.2	0.37	AGT on bottom	552
27/03/2006 18:58	-59.48133	-27.27668	ST-AGT-3	551.01	13.4	270	0.12	AGT in water	-3
27/03/2006 18:27	-59.48133	-27.27659	ST-EBS-4	550.48	12.4	286	0.36	EBS on deck	-17
27/03/2006 18:17	-59.47167	-27.28193	ST-EBS-4	294.34	10.7	266	0.47	EBS off bottom	295
27/03/2006 18:08	-59.47138	-27.28129	ST-EBS-4	294.4	12.8	265.6	1.08	stop trawling	450
27/03/2006 17:57	-59.47048	-27.27618	ST-EBS-4	307.78	12.9	266.2	0.25	start trawling	448
27/03/2006 17:54	-59.47038	-27.27562	ST-EBS-4	304.9	9.8	265.3	0.39	EBS on bottom	302
27/03/2006 17:46	-59.47022	-27.27462	ST-EBS-4	300.52	6.9	261	0.2	EBS in water	6
27/03/2006 17:26	-59.47198	-27.28372	ST-AGT-4	289.4	12.9	259.7	0.15	AGT on deck	233
27/03/2006 17:16	-59.47188	-27.28333	ST-AGT-4	289.83	16.3	260.4	0.38	off bottom	307
27/03/2006 17:10	-59.4717	-27.28274	ST-AGT-4	288.74	14.7	259.9	1	stop trawling	421
27/03/2006 16:59	-59.47036	-27.27806	ST-AGT-4	285.96	13.8	260.4	0.26	start trawling	420
27/03/2006 16:56	-59.47022	-27.27766	ST-AGT-4	284.66	13.6	260.4	0.33	AGT on bottom	299
27/03/2006 16:48	-59.46995	-27.27669	ST-AGT-4	287.15	13.2	260.5	-0.05	AGT in water	2
24/03/2006 20:34	-60.6994	-46.4828		150.96	18.5	30	2.24	#NAME?	323
24/03/2006 19:50	-60.73545	-46.4998		154.87	23.7	10.8	3.25	RGBT on bottom	440
24/03/2006 19:30	-60.75134	-46.51038	SG-RGBT-03	164.83	22.8	29.6	3.7	OTRB in water	27
24/03/2006 18:49	-60.81364	-46.46229	SG-RGBT-02	203.5	22	33.6	1.24	OTRB on Deck	10
24/03/2006 18:18	-60.82982	-46.48958	SG-RGBT-02	216.41	23.6	19	2.81	OTRB off Bottom	393
24/03/2006 17:24	-60.87382	-46.50078	SG-RGBT-02	235.58	22.7	10	3.43	OTRB on bottom	600
24/03/2006 16:47	-60.90423	-46.51486	SG-RGBT-02	315.87	26.2	20.5	2.6	net in water	5
23/03/2006 18:46	-61.00095	-45.86489	SG-RGBT-01	257.49	15.4	310.3	3.21	trawl off bottom	31
23/03/2006 17:59	-60.98893	-45.90218	SG-RGBT-01	240.07	14.8	300.2	3.38	Trawl on bottom	513
23/03/2006 17:37	-61.00095	-45.86489	SG-RGBT-01	257.49	15.4	310.3	3.21	trawl in water	31
18/03/2006 19:07	-60.82503	-46.48128	PB-EBS-4	213.89	5.9	151.8	0.18	EBS on deck	-5

18/03/2006 19:00	-60.82455	-46.48184	PB-EBS-4	215.99	6.5	150.1	-0.06	EBS off bottom	220
18/03/2006 18:56	-60.82417	-46.48231	PB-EBS-4	211.55	6.6	149.9	0.51	Stop trawling	300
18/03/2006 18:45	-60.82181	-46.48507	PB-EBS-4	210.91	8.3	150.7	0	Start trawling	298
18/03/2006 18:43	-60.82165	-46.48529	PB-EBS-4	211.35	7	149.9	-0.02	EBS on bottom	205
18/03/2006 18:37	-60.82132	-46.48569	PB-EBS-4	213.04	8	150.4	-0.13	EBS in water	
18/03/2006 17:32	-60.82119	-46.48582	PB-AGT-4	214	8.9	152	0.1	AGT on surface	-1
18/03/2006 17:25	-60.82073	-46.48638	PB-AGT-4	211.72	8.8	150.6	0.21	AGT off bottom	214
18/03/2006 17:20	-60.82037	-46.4868	PB-AGT-4	212.92	9.8	150.3	0.71	Stop trawling	300
18/03/2006 17:10	-60.81806	-46.48955	PB-AGT-4	218.64	9.9	150.2	0.24	Start trawling	300
18/03/2006 17:08	-60.8179	-46.48972	PB-AGT-4	221.32	7.9	150.4	0.26	AGT on bottom	218
18/03/2006 17:01	-60.81749	-46.49019	PB-AGT-4	219.05	8	150.2	-0.1	AGT in water	-2
18/03/2006 13:52	-60.99534	-46.8319	PB-EBS-3	511.98	21.8	159.9	-0.19	EBS on deck	-10
18/03/2006 13:37	-60.99385	-46.8318	PB-EBS-3	504.34	24.6	150.4	0.26	EBS off bottom	499
18/03/2006 13:23	-60.99338	-46.83177	PB-EBS-3	506.03	18.1	150.3	0.67	Stop trawling	750
18/03/2006 13:13	-60.99074	-46.83182	PB-EBS-3	505.47	16.8	151.1	0.26	start trawling	748
18/03/2006 13:06	-60.99021	-46.83181	PB-EBS-3	504.31	15.8	150.4	0.29	EBS on bottom	507
18/03/2006 12:49	-60.98886	-46.83178	PB-EBS-3	502.21	12	149.3	0.11	EBS in water	1
18/03/2006 12:22	-60.99015	-46.83179	PB-AGT-3	506.21	11.3	331.4	0.53	AGT on surface	499
18/03/2006 12:05	-60.99028	-46.83177	PB-AGT-3	506.02	10.4	330.8	0.27	AGT off bottom	514
18/03/2006 11:52	-60.99062	-46.83176	PB-AGT-3	506.68	4.9	330.9	0.79	Stop trawling	750
18/03/2006 11:41	-60.9936	-46.83176	PB-AGT-3	504.74	9.2	341.1	0.6	Start trawling	749
18/03/2006 11:35	-60.99443	-46.83181	PB-AGT-3	506.04	3.3	345	0.55	AGT on bottom	501
18/03/2006 11:20	-60.99554	-46.83179	PB-AGT-3	511.15	13.2	7.2	0.25	AGT in water	-4
18/03/2006 00:28	-61.02937	-46.86527	PB-AGT-2	1013.13	22.3	1.4	0.33	AGT on deck	1012
18/03/2006 00:03	-61.02939	-46.86527	PB-AGT-2	1012.27	18.7	1	0.26	AGT off bottom	1014
17/03/2006 23:38	-61.02988	-46.86531	PB-AGT-2	1014.62	22.9	0.1	0.97	stop trawling	1501
17/03/2006 23:23	-61.03395	-46.86526	PB-AGT-2	953.38	18.8	3.3	0.61	Start trawling	1501
17/03/2006 23:11	-61.03556	-46.86529	PB-AGT-2	964.2	22.6	0.7	0.63	AGT on bottom	999
17/03/2006 22:46	-61.0376	-46.86534	PB-AGT-2	964.8	25.8	0.2	0.42	AGT in water	-8
17/03/2006 22:24	-61.03012	-46.86661	PB-EBS-2	1024.45	20.9	0	0.59	EBS on deck	640
17/03/2006 22:01	-61.03072	-46.8666	PB-EBS-2	1032.35	22.3	0.8	0.38	EBS off bottom	1020
17/03/2006 21:36	-61.03122	-46.86671	PB-EBS-2	1027.43	26.9	1	1.68	stop trawling	1500
17/03/2006 21:25	-61.03391	-46.86676	PB-EBS-2	967.18	26.6	359.5	0.81	start trawling	1499
17/03/2006 21:14	-61.03489	-46.86674	PB-EBS-2	986.59	23.8	359.9	1.08	EBS on bottom	995
17/03/2006 20:48	-61.03692	-46.86672	PB-EBS-2	984.06	24.3	4.2	0.71	EBS in water	1
17/03/2006 20:10	-61.02894	-46.95578	PB-EBS-1	1624.97	23	12.2	0.67	EBS on deck	515

17/03/2006 19:30	-61.03108	-46.9558	PB-EBS-1	1652.8	24	12.4	0.83	EBS off bottom	1655
17/03/2006 18:52	-61.03145	-46.95586	PB-EBS-1	1655.95	25.6	10.3	1.92	stop trawling	2400
17/03/2006 18:41	-61.03438	-46.95586	PB-EBS-1	1638.14	25.9	10.1	0.77	start trawling	2398
17/03/2006 18:22	-61.03592	-46.95587	PB-EBS-1	1636.25	27.6	9.3	1.02	EBS on bottom	1572
17/03/2006 17:45	-61.03886	-46.95582	PB-EBS-1	1540.61	26.6	7.7	0.62	EBS in water	2
17/03/2006 17:17	-61.03886	-46.95589	PB-AGT-1B	1546.68	23.3	3.3	0.61	AGT on deck	-9
17/03/2006 16:38	-61.0317	-46.95546	PB-AGT-1B	0	24.9	10.4	1.31	AGT off bottom	1626
17/03/2006 16:19	-61.03205	-46.95549	PB-AGT-1B	1630	26.7	0.9	0.92	Stop trawling	2000
17/03/2006 16:08	-61.03485	-46.95528	PB-AGT-1B	1605	22.2	8.8	0.54	Start trawling	1997
17/03/2006 16:00	-61.03592	-46.95517	PB-AGT-1B	0	26.6	10.4	0.54	AGT on bottom	1655
17/03/2006 15:21	-61.03923	-46.95496	PB-AGT-1B	0	26.4	18.6	-0.05	AGT in water	-2
17/03/2006 13:41	-61.0651	-46.98023	PB-AGT-1	0	28.9	71.3	2.48	AGT on surface	-12
17/03/2006 12:58	-61.0905	-47.08566	PB-AGT-1	1530.01	21.5	0	-0.23	AGT off bottom	1524
17/03/2006 12:38	-61.09089	-47.08583	PB-AGT-1	1534	24.8	359.2	0.38	Stop trawling	1900
17/03/2006 12:23	-61.09488	-47.08795	PB-AGT-1	1528.66	21.2	359.6	0.02	Start trawling	1900
17/03/2006 12:16	-61.0959	-47.08847	PB-AGT-1	1520.63	24.7	0.3	0.14	AGT on bottom	1585
17/03/2006 11:24	-61.09989	-47.09065	PB-AGT-1	2762.7	19.6	359.6	-0.15	AGT in water	2
14/03/2006 23:03	-60.9727	-55.96683	EI-EBS-5	519.36	26.4	288.3	0.23	EBS on surface	529
14/03/2006 22:47	-60.97263	-55.96672	EI-EBS-5	519.41	25.6	290.4	0.13	EBS off bottom	540
14/03/2006 22:36	-60.97235	-55.96656	EI-EBS-5	521.34	22.3	278.8	0.22	Stop trawling	750
14/03/2006 22:25	-60.96993	-55.96468	EI-EBS-5	544.52	22.7	284.7	0.12	Start trawling	749
14/03/2006 22:25	-60.96988	-55.96464	EI-EBS-5	542.93	21.9	285.1	-0.1	Start trawling	744
14/03/2006 22:20	-60.9695	-55.96435	EI-EBS-5	543.43	23.4	285.3	0.14	EBS on bottom	528
14/03/2006 22:06	-60.96863	-55.96361	EI-EBS-5	542.51	26.7	290.4	0.02	EBS in water	1
14/03/2006 19:45	-61.16885	-55.76883	EI-RBGT-10	93.61	1.4	330.8	3.18	OTRB off Bottom	168
14/03/2006 18:18	-61.23116	-55.71702	EI-RBGT-10	103.4	2	338.3	3.39	OTRB on bottom	223
14/03/2006 17:58	-61.24893	-55.70517	EI-RBGT-10	101.46	4.1	337.4	2.61	net in water	4
14/03/2006 16:37	-61.19112	-55.74456	EI-RBGT-09	86.65	7	339.8	3.22	RGBT off bottom	191
14/03/2006 15:36	-61.23176	-55.70935	EI-RBGT-09	102.86	7.8	339.7	3.46	net on bottom	259
14/03/2006 15:07	-61.23756	-55.65704	EI-RBGT-09	99.29	8.5	279.4	2.8	net in water	4
14/03/2006 13:32	-61.16975	-55.75335	EI-RGBT-08	90.71	20.3	331.4	2.5	OTRB off Bottom	164
14/03/2006 12:44	-61.21284	-55.69708	EI-RGBT-08	0	24.3	331.2	3.83	Trawl on bottom	272
14/03/2006 12:05	-61.24103	-55.6209	EI-RGBT-08	83.52	20.9	300.4	2.12	time in water	5
14/03/2006 10:32	-61.12124	-55.96303	EI-RGBT-07	129.57	28.5	301.5	2.34	On deck	5
14/03/2006 10:27	-61.12355	-55.95698	EI-RGBT-07	123.47	26.4	303.4	2.49	Doors recovered	5
14/03/2006 10:13	-61.13033	-55.94096	EI-RGBT-07	115.96	22.4	302.5	2.95	OTRB at surface	2

14/03/2006 10:02	-61.13699	-55.92498	EI-RGBT-07	110.44	23.2	302.9	3.26	OTRB off Bottom	201	
14/03/2006 09:39	-61.15179	-55.89157	EI-RGBT-07	107.57	24.5	302.2	3.65	net on bottom	251	
14/03/2006 09:15	-61.16797	-55.85333	EI-RGBT-07	107.96	21.4	300.3	2.92	net in water	4	
13/03/2006 20:51	-61.00206	-55.97022	EI-RGBT-06	272.59	25.7	21.5	2.77	OTRB off Bottom	802	
13/03/2006 20:20	-61.0319	-55.98461	EI-RGBT-06	337.22	26.1	19.8	4.25	net on bottom	855	
13/03/2006 19:23	-61.07656	-56.01986	EI-RGBT-06	240.5	27.8	79.8	3.13	net in water	18	
13/03/2006 17:18	-60.97488	-55.82662	EI-RGBT-05	159.3	27.3	46.4	1.81	OTRB off Bottom	300	
13/03/2006 16:44	-60.99986	-55.86315	EI-RGBT-05	153.53	22.2	43.7	3.49	OTRB on bottom	329	
13/03/2006 14:05	-61.16536	-55.74665	EI-RGBT-04	91.44	20.4	341.4	3.25	net off bottom	96	
13/03/2006 13:21	-61.19901	-55.70327	EI-RGBT-04	91.84	20.9	347.5	3.56	Commence hauling	257	
13/03/2006 12:58	-61.21877	-55.68116	EI-RGBT-04	88.5	18.2	340.1	2.95	net in water	7	
13/03/2006 11:28	-61.1731	-55.74054	EI-RGBT-03	88.36	18.9	338.1	2.61	net off bottom	199	
13/03/2006 10:54	-61.19907	-55.71009	EI-RGBT-03	95.28	17.9	340	2.49	net on bottom	203	
13/03/2006 10:24	-61.22873	-55.67585	EI-RGBT-03	84.58	15.9	328.9	3.74	net in water	-12	Elephant Island
12/03/2006 23:36	-61.38802	-55.20243	EI-AGT-3	498.31	13.9	249	0.53	AGT on surface	-21	
12/03/2006 23:21	-61.38747	-55.19997	EI-AGT-3	0	13.7	250	1.29	AGT off bottom	542	
12/03/2006 23:10	-61.38736	-55.1997	EI-AGT-3	0	14.8	250.3	1.36	Stop trawling	750	
12/03/2006 23:00	-61.38625	-55.19473	EI-AGT-3	482.92	13.8	251	0.5	Start trawling	748	
12/03/2006 22:54	-61.38594	-55.1933	EI-AGT-3	463.36	13	250.4	0.52	AGT on bottom	516	
12/03/2006 22:41	-61.38555	-55.1915	EI-AGT-3	0	14.6	250.6	0.32	AGT in water	-2	
12/03/2006 22:23	-61.38675	-55.20109	EI-EBS-3	0	10.3	250.4	0.89	EBS on surface	452	
12/03/2006 22:09	-61.38669	-55.20074	EI-EBS-3	0	10.4	250.4	0.97	EBS off bottom	529	
12/03/2006 21:57	-61.38654	-55.1998	EI-EBS-3	491.44	11.5	250.2	1.62	Stop trawling	750	
12/03/2006 21:46	-61.38559	-55.19433	EI-EBS-3	493.27	7.7	249.9	1.09	Start trawling	750	
12/03/2006 21:40	-61.38541	-55.19338	EI-EBS-3	494.69	4.8	250.1	0.95	EBS on bottom	508	
12/03/2006 21:28	-61.38509	-55.1916	EI-EBS-3	498.92	5	250.3	0.89	EBS in water	3	
12/03/2006 19:46	-61.33668	-55.21067	EI-EBS-4	205.18	10.6	270.2	1.65	EBS on deck	-10	
12/03/2006 19:38	-61.33648	-55.20942	EI-EBS-4	204.4	9.8	268.9	1.73	EBS off bottom	235	
12/03/2006 19:34	-61.33637	-55.20901	EI-EBS-4	204.17	11	270.2	2.17	Stop trawling	300	
12/03/2006 19:24	-61.33544	-55.20379	EI-EBS-4	199.39	9.7	270.5	1.76	Start trawling	300	
12/03/2006 19:21	-61.33542	-55.20366	EI-EBS-4	203.92	7.6	270.3	1.89	EBS on bottom	281	
12/03/2006 19:16	-61.33525	-55.20264	EI-EBS-4	0	7.9	270	1.24	EBS in water	2	
12/03/2006 19:01	-61.33497	-55.20105	EI-AGT-4	199.55	9.2	250.4	1.05	AGT on surface	180	
12/03/2006 18:51	-61.33493	-55.20082	EI-AGT-4	199.54	9	250.8	1.03	AGT off bottom	218	
12/03/2006 18:46	-61.33481	-55.20012	EI-AGT-4	201.13	11.5	249.8	1.68	Stop trawling	300	
12/03/2006 18:37	-61.33394	-55.19509	EI-AGT-4	201.07	10.4	249.9	0.95	Start trawling	300	

12/03/2006 18:35	-61.33387	-55.19473	EI-AGT-4	200.96	11.3	249.4	0.94	AGT on bottom	211	
12/03/2006 18:28	-61.33372	-55.19396	EI-AGT-4	200.97	9.9	248.9	0.64	AGT in water	1	
12/03/2006 15:40	-61.47763	-55.27643	EI-AGT-2	0	21	349	12.03	AGT on surface	-14	
12/03/2006 15:16	-61.5776	-55.26814	EI-AGT-2	0	8.3	270.2	0.61	AGT off bottom	998	
12/03/2006 14:51	-61.57747	-55.26742	EI-AGT-2	976.9	9.8	270.2	1.24	Stop trawling	1500	
12/03/2006 14:36	-61.57617	-55.26034	EI-AGT-2	987.73	8.9	271.7	1.36	Start trawling	1500	
12/03/2006 14:24	-61.57544	-55.25635	EI-AGT-2	990.49	11.2	270.5	0.61	AGT on bottom	995	
12/03/2006 13:59	-61.5748	-55.25241	EI-AGT-2	995.35	12.7	262.3	0.26	AGT in water	-6	
12/03/2006 13:38	-61.57453	-55.25096	EI-EBS-2	996.79	14.2	262.9	0.62	EBS on deck	400	
12/03/2006 13:14	-61.57415	-55.24883	EI-EBS-2	0	9.8	262.6	0.51	EBS off bottom	991	
12/03/2006 12:49	-61.57401	-55.24799	EI-EBS-2	1000.38	13.5	262.2	1.18	Stop trawling	1500	
12/03/2006 12:38	-61.57307	-55.24242	EI-EBS-2	1000.27	11.4	262.1	0.53	Start trawling	1499	
12/03/2006 12:26	-61.5727	-55.24043	EI-EBS-2	999.47	12	263	0.65	EBS on bottom	995	
12/03/2006 12:01	-61.57206	-55.23656	EI-EBS-2	999.94	13.8	262.7	0.48	EBS in water	3	
12/03/2006 11:25	-61.61626	-55.22635	EI-EBS-1	1513.21	15.6	271.3	-0.06	EBS on deck	-19	
12/03/2006 10:48	-61.61417	-55.22206	EI-EBS-1	1544.08	17	275.8	-0.2	EBS off bottom	1530	
12/03/2006 10:14	-61.61399	-55.22177	EI-EBS-1	1503.15	19.8	258.3	0.63	Stop trawling	2200	
12/03/2006 10:03	-61.61193	-55.21758	EI-EBS-1	1490.5	18.8	268	0.11	Start trawling	2200	
12/03/2006 09:46	-61.61095	-55.21554	EI-EBS-1	1481.57	14.9	267.4	0.16	EBS on bottom	1471	
12/03/2006 09:10	-61.60892	-55.21138	EI-EBS-1	1463.92	18.8	268.3	0.09	EBS in water	3	
11/03/2006 22:36	-61.61115	-55.21444	EI-AGT-1	1489.54	7.2	81.9	0.24	AGT on surface	1417	
11/03/2006 22:00	-61.61126	-55.21472	EI-AGT-1	1490.15	7.1	82.8	0.12	AGT off bottom	1482	
11/03/2006 21:38	-61.61156	-55.21538	EI-AGT-1	1492.09	9.7	50.8	0.51	Stop trawling	1900	
11/03/2006 21:28	-61.6135	-55.21948	EI-AGT-1	1503.39	7.6	51.4	0.28	Start trawling	1899	
11/03/2006 21:20	-61.61436	-55.22126	EI-AGT-1	1562.19	8.3	50.3	0.25	AGT on bottom	1534	
11/03/2006 20:43	-61.6164	-55.22551	EI-AGT-1	1517.83	5.3	90.1	-0.05	AGT in water	15	
11/03/2006 13:24	-61.61634	-55.22543	RGBT-02	1517.27	2.7	112.2	-0.59	on deck	-2	
11/03/2006 11:01	-61.94734	-57.24377	RGBT-02	129.76	10.2	6.2	1.35	trawl off bottom	304	
11/03/2006 10:33	-61.96633	-57.24374	RGBT-02	111.45	9.7	3.1	1.99	Trawl on bottom	365	
11/03/2006 09:28	-62.03478	-57.24289	RGBT-02	442.58	13	0.4	2.59	time in water		CAPE MELVILLE
06/03/2006 22:21	-62.86234	-60.9476	RGBT-01	193.32	22.4	55.4	1.18	OTRB on Deck	10	
06/03/2006 21:48	-62.86523	-60.97401	RGBT-01	194.03	24.3	54.4	2.02	Shackle on starboard door cable disrupted on recovery	11	
06/03/2006 21:12	-62.87915	-61.00137	RGBT-01	209.39	22.5	5.1	2.19	OTRB off Bottom	422	
06/03/2006 21:00	-62.8865	-60.99899	RGBT-01	208.31	19.2	5.4	3.45	slowed ship speed to 2 knots. stated hauling at 10m/min	600	

06/03/2006 20:25	-62.91708	-60.99896	RGBT-01	199.39	20.8	5.3	3.28	OTRB on bottom	486
06/03/2006 19:55	-62.94297	-61.02423	RGBT-01	191.8	19.6	31.2	4.7	OTRB in water	-12
06/03/2006 12:20	-62.9494	-60.63337	DI-AGT-1	156.88	9.2	235.4	-0.19	AGT on surface	161
06/03/2006 12:14	-62.9494	-60.63338	DI-AGT-1	0	9.7	235.2	-0.16	AGT off bottom	164
06/03/2006 12:10	-62.9493	-60.63308	DI-AGT-1	156.65	9.7	235.2	1	Stop trawling	240
06/03/2006 11:59	-62.94772	-60.62809	DI-AGT-1	149.94	7.9	235.4	0.36	Start trawling	238
06/03/2006 11:56	-62.94757	-60.62762	DI-AGT-1	0	10.8	235.1	0.12	AGT on bottom	146
06/03/2006 11:51	-62.94739	-60.6271	DI-AGT-1	148.58	7.9	234.9	-0.32	AGT in water	-1
05/03/2006 22:40	-62.9498	-60.65211	DI-EBS-1	160.81	13	125.6	1.03	EBS on surface	-20
05/03/2006 22:34	-62.94934	-60.6527	DI-EBS-1	160.72	5.4	120.4	-0.03	EBS off bottom	162
05/03/2006 22:30	-62.94916	-60.65297	DI-EBS-1	160.74	11.2	120.3	0.77	Stop trawling	240
05/03/2006 22:19	-62.94691	-60.6563	DI-EBS-1	160.61	11.5	99.4	0.13	Start trawling	238
05/03/2006 22:16	-62.94672	-60.65655	DI-EBS-1	160.49	13	99.4	0.26	EBS on bottom	155
05/03/2006 22:10	-62.94646	-60.65695	DI-EBS-1	160.46	13.8	89.2	-0.13	EBS in water	-4
04/03/2006 20:46	-62.53969	-61.84531	LI-AGT-5	177.23	29.4	197.9	12.35	AGT on surface	6
04/03/2006 20:16	-62.52505	-61.84383	LI-AGT-5	193.43	23.7	269.7	-0.13	AGT off bottom	198
04/03/2006 20:11	-62.52506	-61.84378	LI-AGT-5	192.11	21.3	271.3	-0.35	Stop trawling	291
04/03/2006 19:40	-62.52503	-61.82589	LI-AGT-5	190.58	19.9	270.6	0.43	Start trawling	295
04/03/2006 19:37	-62.52504	-61.82514	LI-AGT-5	190.72	22.9	270.1	0.89	AGT on bottom	215
04/03/2006 19:29	-62.52504	-61.82413	LI-AGT-5	190.77	23.3	269.7	0.37	AGT in water	-7
04/03/2006 19:12	-62.52506	-61.83679	LI-AGT-4	192.26	24.5	271.2	0.52	AGT on surface	-12
04/03/2006 19:05	-62.52505	-61.83546	LI-AGT-4	190.45	20.9	268.4	0.33	AGT off bottom	188
04/03/2006 18:59	-62.52505	-61.83472	LI-AGT-4	190.65	18.7	270.2	0.98	Stop trawling	300
04/03/2006 18:48	-62.525	-61.82856	LI-AGT-4	192.57	22.9	270.3	0.5	Start trawling	298
04/03/2006 18:44	-62.52501	-61.82748	LI-AGT-4	192.03	20.6	268.9	0.64	AGT on bottom	188
04/03/2006 18:39	-62.52498	-61.82662	LI-AGT-4	190.78	19.8	271.4	0.29	AGT in water	1
04/03/2006 18:05	-62.52527	-61.83929	LI-EBS-4	192.89	16.1	268.1	-0.09	EBS on surface	-18
04/03/2006 17:56	-62.52529	-61.83779	LI-EBS-4	192.4	17.7	270.4	0.33	EBS off bottom	187
04/03/2006 17:49	-62.5253	-61.83685	LI-EBS-4	191.87	15	269.6	0.69	Stop trawling	300
04/03/2006 17:39	-62.52529	-61.83101	LI-EBS-4	189.34	13.7	268.9	-0.01	Start trawling	296
04/03/2006 17:36	-62.52529	-61.83044	LI-EBS-4	191.25	15	270.6	0.11	EBS on bottom	194
04/03/2006 17:29	-62.52528	-61.8297	LI-EBS-4	190.86	16.9	269.9	0.25	EBS in water	-2
04/03/2006 14:59	-62.39476	-61.77987	LI-EBS-3	0	16.2	281.2	0.64	EBS on surface	-7
04/03/2006 14:43	-62.39504	-61.77695	LI-EBS-3	0	14.2	280.8	0.48	EBS off bottom	642
04/03/2006 14:35	-62.39505	-61.77666	LI-EBS-3	624.21	14.2	280.6	0.65	Stop trawling	800
04/03/2006 14:25	-62.39553	-61.77087	LI-EBS-3	557.35	17.5	279	0.64	Start trawling	800

04/03/2006 14:18	-62.3956	-61.76972	LI-EBS-3	0	13.3	279.3	0.05	EBS on bottom	522	
04/03/2006 14:04	-62.39575	-61.76734	LI-EBS-3	0	11.8	278.2	-0.1	EBS in water	4	
04/03/2006 13:36	-62.39546	-61.774	LI-AGT-3	0	17.3	281.7	0.76	AGT on surface	-15	
04/03/2006 13:21	-62.39563	-61.77143	LI-AGT-3	556.41	13.6	281.6	0.27	AGT off bottom	556	
04/03/2006 13:11	-62.39571	-61.77051	LI-AGT-3	0	18.2	280.4	0.7	Stop trawling	750	
04/03/2006 13:01	-62.39617	-61.76481	LI-AGT-3	453.81	14.7	280.4	0.83	Start trawling	749	
04/03/2006 12:54	-62.39633	-61.76265	LI-AGT-3	434.18	14.4	279.7	0.29	AGT on bottom	436	
04/03/2006 12:41	-62.39646	-61.7608	LI-AGT-3	418.48	13.4	279.8	0.13	AGT in water	-5	
04/03/2006 10:45	-62.34478	-61.75498	LI-AGT-2C	0	17.8	283.8	0.07	AGT on deck	-16	
04/03/2006 10:16	-62.34653	-61.7513	LI-AGT-2C	1119.87	16.7	283.4	0.25	AGT of bottom	1157	
04/03/2006 09:59	-62.34674	-61.75076	LI-AGT-2C	1082.35	19.1	285.1	1.07	Stop trawling	1500	
04/03/2006 09:49	-62.34851	-61.74633	LI-AGT-2C	1048.06	18.6	282.4	0.23	Start trawling	1497	
04/03/2006 09:39	-62.34937	-61.74406	LI-AGT-2C	1020.38	16.3	286	0.37	AGT on bottom	1052	
04/03/2006 09:12	-62.35073	-61.74053	LI-AGT-2C	979.55	16.8	284.2	-0.07	AGT in water	-1	
03/03/2006 23:45	-62.33025	-61.66219	LI-AGT-2B	1069.64	28.2	304.3	-0.09	AGT on surface	-10	Failed
03/03/2006 23:19	-62.33154	-61.65903	LI-AGT-2B	1013.29	24	306.2	0.45	AGT off bottom	1016	
03/03/2006 23:03	-62.3319	-61.65832	LI-AGT-2B	1008.7	25.7	308.2	0.72	Stop trawling	1350	
03/03/2006 22:52	-62.33409	-61.65425	LI-AGT-2B	931.97	20.4	312.5	0.02	Start trawling	1350	
03/03/2006 22:43	-62.33511	-61.65253	LI-AGT-2B	870.48	21.5	308.2	0	AGT on bottom	935	
03/03/2006 22:20	-62.33636	-61.65024	LI-AGT-2B	832.5	22.6	311.3	-0.22	AGT in water	-3	
03/03/2006 21:48	-62.33037	-61.66285	LI-AGT-2	957.35	19.7	305.9	-0.29	AGT on deck	-17	Failed
03/03/2006 21:22	-62.33152	-61.65936	LI-AGT-2	1007.85	18.7	308.7	0.19	AGT off bottom	1000	
03/03/2006 21:04	-62.33168	-61.6589	LI-AGT-2	1002.42	25	307.6	1.12	Stop trawling	1350	
03/03/2006 20:53	-62.33375	-61.6552	LI-AGT-2	922.15	24.7	308.1	0.27	Start trawling	1349	
03/03/2006 20:45	-62.33466	-61.65357	LI-AGT-2	0	23.3	308.9	0.9	AGT on bottom	963	
03/03/2006 20:26	-62.33502	-61.6511	LI-AGT-2	845.21	23.8	306.1	-0.2	problem with bow truster	relocated for restart veering	213
03/03/2006 19:53	-62.33626	-61.64802	LI-AGT-2	793.16	22.3	308.9	0.12	AGT in water	-8	
03/03/2006 19:14	-62.3307	-61.66144	LI-EBS-2	1028.73	25.4	319.7	0.39	EBS on surface	-9	
03/03/2006 18:48	-62.33227	-61.65843	LI-EBS-2	994.55	22.5	316.5	0.28	EBS off bottom	1017	
03/03/2006 18:31	-62.33256	-61.65783	LI-EBS-2	978.49	24.1	316.6	0.96	Stop trawling	1350	
03/03/2006 18:21	-62.33463	-61.65389	LI-EBS-2	899.15	25.4	317.2	0.25	Start trawling	1350	
03/03/2006 18:11	-62.33526	-61.65266	LI-EBS-2	878.29	23.7	317.7	0.65	EBS on bottom	906	
03/03/2006 17:48	-62.33648	-61.65025	LI-EBS-2	840.79	20.3	322.2	-0.12	EBS in water	-2	
03/03/2006 15:37	-62.27089	-61.60611	LI-EBS-1	0	23	319.1	0.48	EBS on surface	-1	
03/03/2006 15:00	-62.27327	-61.60184	LI-EBS-1	1502.82	22	320.3	0.21	EBS off bottom	1507	
03/03/2006	-62.27365	-61.60108	LI-EBS-1	0	25.7	319.8	1.12	Stop trawling	2250	

14:23										
03/03/2006 14:12	-62.27573	-61.59708	LI-EBS-1	0	20	320.6	1.12	Start trawling	2248	
03/03/2006 13:54	-62.27685	-61.59502	LI-EBS-1	1455.44	21.1	319.2	0.06	EBS on bottom	1466	
03/03/2006 13:19	-62.27903	-61.59087	LI-EBS-1	1424.73	21.4	318.5	0.46	EBS in water	4	
03/03/2006 12:49	-62.27029	-61.60602	LI-AGT-1	1534.46	22.9	318.4	1.03	AGT on surface	-5	
03/03/2006 12:13	-62.27247	-61.60206	LI-AGT-1	1511.18	21.7	320.1	0.55	AGT off bottom	1512	
03/03/2006 11:46	-62.27283	-61.60147	LI-AGT-1	1506.38	20.4	318	1	Stop trawling	1900	
03/03/2006 11:35	-62.27518	-61.59759	LI-AGT-1	1473.27	24.5	319.9	0.65	Start trawling	1895	
03/03/2006 11:26	-62.27619	-61.5959	LI-AGT-1	1464.67	22.8	320.4	0.92	AGT on bottom	1475	
03/03/2006 10:47	-62.27871	-61.59229	LI-AGT-1	1432.16	21.6	321.7	-0.26	AGT in water	5	
28/02/2006 22:31	-54.13	-56.12454	FT-AGT-4B	1494.9	23.8	250.7	2.04	AGT on surface	-9	
28/02/2006 22:00	-54.12863	-56.11819	FT-AGT-4B	1516.64	27.8	249.9	1.02	AGT off bottom	1520	
28/02/2006 21:36	-54.12867	-56.11777	FT-AGT-4B	1517.67	28.8	254.8	0.98	Stop trawling	1800	
28/02/2006 21:25	-54.12819	-56.11327	FT-AGT-4B	1521.69	29.8	256.2	0.83	Start trawling	1796	
28/02/2006 21:20	-54.12807	-56.11233	FT-AGT-4B	1520.7	22.7	254.9	0.29	AGT on bottom	1595	
28/02/2006 20:43	-54.12804	-56.11225	FT-AGT-4B	1521.62	25.5	257.3	0.46	AGT in water		Redeployment using coring cable
28/02/2006 17:46	-54.1329	-56.14901	FT-AGT-4	1459.35	29	255.7	0.34	AGT on surface	-23	
28/02/2006 17:11	-54.13176	-56.1416	FT-AGT-4	1483.53	34.6	253.9	0.29	AGT off bottom	1485	
28/02/2006 16:12	-54.13171	-56.14108	FT-AGT-4	1486.42	21.3	254.6	1.6	Stop trawling	2200	
28/02/2006 16:02	-54.13102	-56.13662	FT-AGT-4	1504.4	29.3	254.3	0.65	Start trawling	2200	
28/02/2006 15:47	-54.13054	-56.13355	FT-AGT-4	1505.99	26.9	254.2	0.68	AGT on bottom	1528	
28/02/2006 15:08	-54.13054	-56.13334	FT-AGT-4	1506.69	22.3	256.7	0.38	AGT in water	-5	
28/02/2006 11:51	-54.22251	-56.3007	FT-AGT-3	993.56	30.1	253.5	-0.11	AGT on surface	-15	
28/02/2006 11:23	-54.22188	-56.29479	FT-AGT-3	1013.57	22.5	251	0.03	AGT off bottom	1019	
28/02/2006 10:56	-54.22193	-56.29469	FT-AGT-3	1013.24	30.7	258.9	0.19	Stop trawling	1500	
28/02/2006 10:45	-54.22368	-56.2912	FT-AGT-3	1009.53	31	261.1	0.26	Start trawling	1500	
28/02/2006 10:35	-54.22464	-56.28935	FT-AGT-3	1008.59	26.7	247.8	0.85	AGT on bottom	1049	
28/02/2006 10:04	-54.22615	-56.28624	FT-AGT-3	996.35	28.2	258.4	0.2	AGT in water	-5	
28/02/2006 00:18	-54.29882	-56.50036	FT-AGT-2	506.49	20.4	302.2	-0.09	AGT on surface	-17	
28/02/2006 00:01	-54.29983	-56.49704	FT-AGT-2	506.83	20.7	306.5	-0.45	AGT off bottom	508	
27/02/2006 23:43	-54.30003	-56.49591	FT-AGT-2	508.65	21.6	302.2	0.11	Stop trawling	750	
27/02/2006 23:32	-54.301	-56.49152	FT-AGT-2	483.54	18.4	302	-0.41	Start trawling	749	
27/02/2006 23:27	-54.30124	-56.49053	FT-AGT-2	509.76	19.5	302.7	-0.49	AGT on bottom	531	
27/02/2006 23:09	-54.30156	-56.48947	FT-AGT-2	510.85	15.8	306	-0.85	AGT in water	-3	
27/02/2006 22:42	-54.29964	-56.49699	FT-EBS-2	507.54	16.1	301.8	-0.2	EBS on surface	-19	
27/02/2006 22:27	-54.30064	-56.49415	FT-EBS-2	509.1	18.3	300.8	-0.74	EBS off bottom	513	
27/02/2006	-54.30077	-56.49373	FT-EBS-2	508.7	22	302.2	0.49	Stop trawling	750	

22:09										
27/02/2006 21:58	-54.30237	-56.4899	FT-EBS-2	507.79	18.9	303.9	-0.16	Start trawling	749	
27/02/2006 21:53	-54.30274	-56.48893	FT-EBS-2	508.75	19.6	304.4	-0.44	EBS on bottom	528	
27/02/2006 21:40	-54.30274	-56.48898	FT-EBS-2	509	21.6	298.3	-0.22	EBS in water	-6	
27/02/2006 19:19	-54.31296	-56.6863	FT-AGT-1B	197.17	12.8	286	0.28	AGT on surface	-21	
27/02/2006 19:08	-54.31339	-56.68444	FT-AGT-1B	197.62	17.5	289	0.24	AGT off bottom	198	
27/02/2006 19:01	-54.31347	-56.68404	FT-AGT-1B	197.9	24	289.9	1.82	Stop trawling	300	
27/02/2006 18:51	-54.31438	-56.67971	FT-AGT-1B	200.91	18.9	291.9	0.97	Start trawling	300	
27/02/2006 18:47	-54.31452	-56.67918	FT-AGT-1B	201.14	19.1	292.4	0.28	AGT on bottom	204	
27/02/2006 18:40	-54.31457	-56.67904	FT-AGT-1B	201.09	17.3	288.7	0.44	AGT in water		
27/02/2006 18:20	-54.31358	-56.68647	FT-AGT-1	194.97	21.3	300.9	0.66	AGT on surface	-18	Most of contents of net lost
27/02/2006 18:10	-54.31402	-56.68512	FT-AGT-1	194.37	21.5	310	0.56	AGT off bottom	197	
27/02/2006 18:03	-54.31413	-56.68473	FT-AGT-1	194.75	18.5	311.7	1.14	Stop trawling	300	
27/02/2006 17:53	-54.31543	-56.68088	FT-AGT-1	193.83	15.9	310.8	0.95	Start trawling	300	
27/02/2006 17:49	-54.31563	-56.68032	FT-AGT-1	193.96	19.6	310.7	0.81	AGT on bottom	197	
27/02/2006 17:42	-54.31565	-56.68029	FT-AGT-1	194.22	17.9	310.6	0.54	AGT in water	7	
27/02/2006 17:03	-54.31301	-56.68824	FT-EBS-1	194.49	17.3	288.5	0.59	EBS on surface	-7	
27/02/2006 16:53	-54.31365	-56.68646	FT-EBS-1	193.98	14.7	289.9	0.51	EBS off bottom	195	
27/02/2006 16:45	-54.31375	-56.68611	FT-EBS-1	194.49	22.2	310.7	2.01	Stop trawling	300	
27/02/2006 16:35	-54.31505	-56.68208	FT-EBS-1	193.71	20.5	309.7	0.97	Start trawling	300	
27/02/2006 16:31	-54.31529	-56.68126	FT-EBS-1	192.15	19.4	311.7	0.55	EBS on bottom	194	
27/02/2006 16:23	-54.31531	-56.68121	FT-EBS-1	193.64	18	307.8	0.51	EBS in water	18	
27/02/2006 14:43	-54.24901	-56.79924	FT-OTRB-1B	330.89	24.4	325.9	1.52	Net on deck	-34	
27/02/2006 13:27	-54.30044	-56.71488	FT-OTRB-1B	226.06	23.4	326.5	3.1	Net in water	13	
27/02/2006 13:07	-54.30601	-56.70334	FT-OTRB-1A	230.6	20.3	323.8	1.47	Net on deck	13	Net tangled - redeploy
27/02/2006 12:55	-54.30989	-56.69497	FT-OTRB-1A	224.83	20.6	324.3	1.24	Net in water	13	

8.1.3. CTD

Time	Latitude	Longitude	Station	Depth	Wind (m/s)	Bearing (degrees)	Speed (kn)	Action	Cable Length (m)	Comment
11/04/2006 19:22	-53.5697	-40.9042	SR-CTD-1	1426.37	1.1	332.3	0.1	Surface	3	
11/04/2006 18:52	-53.5697	-40.90422	SR-CTD-1	1463.7	2.7	332	0.09	1500m	1463	
11/04/2006 18:14	-53.56968	-40.90425	SR-CTD-1	1445.82	5.4	330.5	-0.01	Surface	-3	
11/04/2006 15:56	-53.57506	-40.93159	SR-CTD-2	986.32	9.7	125.1	0.3	Surface	-1	
11/04/2006 15:55	-53.57506	-40.9316	SR-CTD-2	865.36	8.2	125.1	0.63	2m	2	
11/04/2006 15:38	-53.57506	-40.93154	SR-CTD-2	877.83	11.1	124.7	1	1000m	984	

11/04/2006 15:15	-53.57508	-40.93153	SR-CTD-2	925.2	8.1	140	0.65	Surface	1
11/04/2006 12:39	-53.58893	-40.90104	SR-CTD-3	527.05	14.8	200.7	0.33	Surface	2
11/04/2006 12:38	-53.58894	-40.90107	SR-CTD-3	520.89	14.2	199.8	0.59	2m	3
11/04/2006 12:29	-53.58892	-40.90104	SR-CTD-3	487.36	13	210	0.14	500m	532
11/04/2006 12:13	-53.58899	-40.90089	SR-CTD-3	487.83	12.1	219.9	0.25	Surface	6
11/04/2006 09:27	-53.63013	-40.90143	SR-CTD-4	214.23	13.9	225.3	0.42	Surface	
11/04/2006 09:26	-53.63012	-40.90147	SR-CTD-4	211.61	18.5	231.8	0.55	2m	4
11/04/2006 09:22	-53.63014	-40.90146	SR-CTD-4	211.45	18.8	239	0.6	200m	188
11/04/2006 09:15	-53.63015	-40.90145	SR-CTD-4	211.51	16.3	217.7	0.47	Surface	-2
06/04/2006 10:25	-53.55115	-37.9197	SG-CTD-1	1507.62	35.7	339.3	-0.08	surface	2
06/04/2006 10:25	-53.55112	-37.91973	SG-CTD-1	1500.95	36.5	337	-0.18	2m	7
06/04/2006 10:14	-53.55114	-37.91974	SG-CTD-1	1506.51	32.9	338.5	-0.13	400m	400
06/04/2006 09:56	-53.55112	-37.91976	SG-CTD-1	1509.26	30.4	337.4	-0.29	1500m	1460
06/04/2006 09:29	-53.55111	-37.91973	SG-CTD-1	1507.01	32.7	333.5	-0.06	surface	10
06/04/2006 02:11	-53.57652	-37.86359	SG-CTD-2	1026.03	19.9	316.4	-0.07	CTD on deck	6
06/04/2006 02:08	-53.57651	-37.8636	SG-CTD-2	1023.02	22.1	315.1	0.1	surface	
06/04/2006 02:07	-53.57651	-37.8636	SG-CTD-2	1021.18	25	315.3	-0.1	2m	3
06/04/2006 01:56	-53.57651	-37.86357	SG-CTD-2	1013.07	23.6	317.9	0.14	400m	407
06/04/2006 01:46	-53.5765	-37.86359	SG-CTD-2	1015.76	21.9	318	0.11	1000m	996
06/04/2006 01:23	-53.57652	-37.8636	SG-CTD-2	1021.73	24	316.6	0.14	surface	-1
05/04/2006 21:42	-53.59745	-37.88926	SG-CTD-3	496.27	17.3	309.5	0.25	CTD on deck	1
05/04/2006 21:41	-53.59745	-37.88926	SG-CTD-3	495.62	16.1	311.8	-0.05	1 bottle closed at 2m	6
05/04/2006 21:33	-53.59745	-37.88927	SG-CTD-3	495.84	16.1	309.4	0.19	400m	400
05/04/2006 21:28	-53.59756	-37.88936	SG-CTD-3	491.5	15.3	310	0.17	CTD at depth	463
05/04/2006 21:17	-53.61109	-37.88464	SG-CTD-3	222.93	15.5	300.8	-0.04	CTD at surface	216
05/04/2006 19:03	-53.61112	-37.87663	SG-CTD-4	227.59	15.2	291.4	-0.41	CTD on deck	-1
05/04/2006 19:01	-53.6111	-37.87664	SG-CTD-4	228.57	16	291.4	-0.36	1 bottle closed at 2m	2
05/04/2006 18:57	-53.6111	-37.87666	SG-CTD-4	228.22	16.1	289.4	-0.36	11 bottles closed at 20m	20
05/04/2006 18:43	-53.6111	-37.87664	SG-CTD-4	228.73	15	292.2	-0.41	CTD in water	-1
05/04/2006 16:03	-53.51285	-37.84036	JR144_deep-CTD	1314.77	16.3	270.2	-0.47	CTD on deck	-3
05/04/2006 15:58	-53.51284	-37.84033	JR144_deep-CTD	1314.97	14.7	270.1	-0.44	12 bottles closed at 20 m	20
05/04/2006 15:53	-53.51287	-37.84035	JR144_deep-CTD	1314.86	14.6	270.6	-0.46	CTD at 200m	200
05/04/2006 15:48	-53.51287	-37.84033	JR144_deep-CTD	1314.81	16.6	265.8	-0.18	CTD in water	1
05/04/2006 13:11	-53.79147	-37.93025	JR144_shallow_CTD	284.14	21.2	256.1	0.6	CTD on deck	-2
05/04/2006 13:06	-53.51284	-37.84033	JR144_shallow-CTD	1314.97	14.7	270.1	-0.44	12 bottles closed at 20m	20
05/04/2006 13:01	-53.7913	-37.93015	JR144_shallow-CTD	282.38	22.5	256.4	0.36	CTD at 200m	200

05/04/2006 12:54	-53.79128	-37.93015	JR144_shallow-CTD	282.21	22	255.2	0.32	CTD in water	6
30/03/2006 20:20	-55.35824	-30.66926	MEGA-CTD-12	2129.09	16.9	329.8	0.25	CTD on deck	-3
30/03/2006 20:14	-55.35823	-30.66927	MEGA-CTD-12	2164.46	16.3	328.6	0.11	12 bottles taken at depth	30
30/03/2006 20:10	-55.35824	-30.66929	MEGA-CTD-12	2270.19	22.5	328.9	0.55	CTD in water	-2
30/03/2006 19:45	-55.35826	-30.6693	MEGA-CTD-11	0	10.6	311	0.26	CTD on deck	-3
30/03/2006 19:40	-55.35826	-30.66928	MEGA-CTD-11	2283.17	9.7	317.1	0.26	12 bottles taken at depth	30
30/03/2006 19:35	-55.35825	-30.6693	MEGA-CTD-11	2137.66	15.7	314.5	0.11	CTD in water	-1
30/03/2006 19:09	-55.35824	-30.66929	MEGA-CTD-10	2106.08	20.7	329.6	-0.15	CTD on deck	-3
30/03/2006 19:05	-55.35824	-30.66928	MEGA-CTD-10	2146.05	24.2	332	0.24	12 bottles taken at depth	30
30/03/2006 19:00	-55.35823	-30.66924	MEGA-CTD-10	2327.86	18.4	330.9	0.19	CTD in water	-4
30/03/2006 18:36	-55.35828	-30.66928	MEGA-CTD-9	2093.58	18.5	331.2	0.11	CTD on deck	-4
30/03/2006 18:23	-55.35827	-30.66923	MEGA-CTD-9	2090.81	17.1	332	-0.01	12 bottles taken at depth	450
30/03/2006 18:11	-55.35828	-30.66929	MEGA-CTD-9	2184.38	20.4	328.9	-0.08	CTD in water	-3
30/03/2006 17:42	-55.35821	-30.66931	MEGA-CTD-8	0	23.5	330.3	-0.14	CTD on deck	-2
30/03/2006 17:28	-55.35819	-30.66929	MEGA-CTD-8	0	21.2	330.2	-0.11	12 bottles taken at depth	450
30/03/2006 17:16	-55.35824	-30.66928	MEGA-CTD-8	0	23.1	333.2	0.24	CTD in water	-4
30/03/2006 16:38	-58.33943	-26.40003	MEGA-CTD-7	1301.36	16.6	295.8	0.26	CTD on deck	-4
30/03/2006 16:28	-55.35826	-30.66928	MEGA-CTD-7	2204.46	21.2	330.6	-0.14	12 bottles taken at depth	450
30/03/2006 16:12	-55.35823	-30.66925	MEGA-CTD-7	2127.9	27.7	332.5	-0.25	CTD in water	287
29/03/2006 13:00	-58.33943	-26.40003	MI-CTD-3	1301.36	16.6	295.8	0.26	CTD on deck	-4
29/03/2006 12:59	-58.33942	-26.4001	MI-CTD-3	1304.24	24.2	294.6	0.53	CTD near surface	
29/03/2006 12:50	-58.33942	-26.40008	MI-CTD-3	1298.12	22.7	295.1	0.64	CTD at depth	497
29/03/2006 12:40	-58.33939	-26.40031	MI-CTD-3	1290.91	21.3	300.4	0.38	CTD in water	5
29/03/2006 11:34	-58.38712	-26.17953	MI-CTD-2	1012.4	37.2	289.4	-0.19	CTD on deck	-1
29/03/2006 11:33	-58.38711	-26.17952	MI-CTD-2	1011.01	38.9	289.5	-0.08	1 bottle taken near surface	2
29/03/2006 11:24	-58.53267	-26.06589	MI-CTD-2	1158.87	30.9	266.9	0.17	CTD at depth	3
29/03/2006 11:13	-58.3871	-26.1795	MI-CTD-2	1015.66	24.4	293.2	0.38	CTD in water	1
29/03/2006 09:42	-58.53266	-26.06587	MI-CTD-1	1160.39	20	267.5	0.13	CTD on deck	-5
29/03/2006 09:41	-58.53267	-26.06589	MI-CTD-1	1158.87	30.9	266.9	0.17	1 bottle taken near surface	3
29/03/2006 09:24	-58.53264	-26.06594	MI-CTD-1	1158.4	18.7	260.6	-0.32	CTD at depth	999
29/03/2006 09:05	-58.53258	-26.06587	MI-CTD-1	1158.98	33.8	266.9	-0.1	CTD in water	
28/03/2006 16:44	-59.51786	-27.43624	ST-CTD-1	1536.45	11.1	270.2	-0.07	CTD on deck	-4
28/03/2006 16:43	-59.51786	-27.43625	ST-CTD-1	1502.29	11.9	270.2	-0.17	CTD - 1 bottle closed at surface	2
28/03/2006 16:18	-59.51785	-27.43625	ST-CTD-1	1520.95	15.1	280.5	-0.09	CTD at depth	1450
28/03/2006 15:52	-59.51783	-27.43624	ST-CTD-1	1557.83	11.4	266.9	-0.23	CTD in water	2
27/03/2006 23:18	-59.50764	-27.30055	ST-CTD-2	1011.33	7.6	247.4	0.27	CTD on deck	-4

27/03/2006 23:17	-59.50764	-27.30055	ST-CTD-2	1011.14	7.1	245.7	0.16	CTD - 1 bottle closed at surface	1
27/03/2006 22:59	-59.50765	-27.30056	ST-CTD-2	1011.49	7.7	246.7	0.26	CTD at depth	976
27/03/2006 22:40	-59.50765	-27.30054	ST-CTD-2	1011.49	9	246.4	0.18	CTD in water	2
27/03/2006 22:10	-59.48076	-27.28644	ST-CTD-3	518.98	9.1	270.2	0.1	CTD on deck	-3
27/03/2006 22:08	-59.48077	-27.28644	ST-CTD-3	525.84	12.5	270.1	0.19	CTD - 1 bottle closed at surface	3
27/03/2006 21:57	-59.48077	-27.28645	ST-CTD-3	518.96	10.6	270.3	0.14	CTD at depth	502
27/03/2006 21:44	-59.48077	-27.28643	ST-CTD-3	519.39	10.3	270.2	0.21	CTD in water	
27/03/2006 16:32	-59.46995	-27.27669	ST-CTD-4	287.7	13.6	259.9	-0.1	CTD on deck	0
27/03/2006 16:31	-59.46995	-27.2767	ST-CTD-4	287.51	13.9	259.8	0.08	CTD - 1 bottle closed at surface	3
27/03/2006 16:26	-59.46994	-27.27668	ST-CTD-4	288.93	12.9	260.7	-0.11	CTD at depth	274
27/03/2006 16:18	-59.46993	-27.27669	ST-CTD-4	286.39	12.4	261	-0.11	CTD in water	1
27/03/2006 14:19	-59.43002	-27.28904	ST-CTD-5	628.75	15	200.2	0.37	CTD on deck	-4
27/03/2006 14:17	-59.43003	-27.28905	ST-CTD-5	629.13	14.3	200.3	0.39	CTD - 1 bottle closed at surface	4
27/03/2006 14:16	-59.43002	-27.28905	ST-CTD-5	628.91	10.2	200.5	0.39	CTD - 1 bottle closed at 30 m	32
27/03/2006 14:13	-59.43002	-27.28904	ST-CTD-5	629.03	10	199.6	0.27	CTD - 1 bottle closed at 200 m	202
27/03/2006 14:07	-59.43005	-27.28904	ST-CTD-5	629.1	13.2	200.3	0.34	CTD - 1 bottle closed at 500 m	501
27/03/2006 14:05	-59.43004	-27.28905	ST-CTD-5	628.87	15.7	199.8	0.27	CTD - 1 bottle closed at depth	601
27/03/2006 13:52	-59.43003	-27.28908	ST-CTD-5	628.68	17.2	231.1	-0.03	CTD in water	4
18/03/2006 16:47	-60.81751	-46.49018	PB-CTD-4	221.16	9.4	150.5	-0.02	CTD on deck	-4
18/03/2006 16:46	-60.81751	-46.49018	PB-CTD-4	217.76	8.5	150.4	-0.22	CTD - one bottle closed at surface	5
18/03/2006 16:45	-60.81751	-46.49018	PB-CTD-4	222.5	7.8	151.3	-0.07	CTD - 1 bottle closed at 30 m	34
18/03/2006 16:41	-60.8175	-46.49019	PB-CTD-4	222.58	9.2	149.9	0.06	CTD - 1 bottle closed at depth	207
18/03/2006 16:35	-60.81748	-46.4902	PB-CTD-4	219.55	8.1	150.2	-0.03	CTD in water	2
18/03/2006 11:05	-60.99557	-46.83176	PB-CTD-3	512.14	12.7	5.1	0.29	CTD on deck	-3
18/03/2006 11:04	-60.99556	-46.83178	PB-CTD-3	513.4	12.2	5.6	0.6	CTD - 1 bottle closed at surface	3
18/03/2006 11:02	-60.99556	-46.83178	PB-CTD-3	514.32	11.4	5.3	0.29	CTD - 1 bottle closed at 30 m	32
18/03/2006 10:58	-60.99556	-46.83179	PB-CTD-3	511.62	9.1	5.7	0.21	CTD - 1 bottle closed at 200 m	205
18/03/2006 10:53	-60.99556	-46.83177	PB-CTD-3	513.43	8.8	5.4	0.24	CTD - 1 bottle closed at depth	493
18/03/2006 10:42	-60.99557	-46.83174	PB-CTD-3	510.97	6.6	5.2	0.25	CTD in water	2
18/03/2006 09:47	-61.02734	-46.86509	PB-CTD-2	1005.75	7.4	6.3	0.27	CTD on deck	-4
18/03/2006 09:46	-61.02735	-46.86516	PB-CTD-2	1006.02	7	5.1	0.24	CTD - 1 bottle closed at surface	-1
18/03/2006 09:45	-61.02733	-46.86515	PB-CTD-2	1000.09	5.4	5.2	0.25	CTD - 1 bottle closed at 30 m	33
18/03/2006 09:42	-61.02733	-46.86515	PB-CTD-2	1004.27	7.4	5.3	0.23	CTD - 1 bottle closed at 200 m	203
18/03/2006 09:36	-61.02735	-46.86518	PB-CTD-2	1001.17	7.1	5.2	0.32	CTD - 1 bottle closed at 500 m	504
18/03/2006 09:28	-61.02736	-46.86517	PB-CTD-2	1005.28	9.4	5.3	0.32	CTD - 1 bottle closed at depth	972
18/03/2006 09:09	-61.02737	-46.86516	PB-CTD-2	1001.33	7.4	6	0.44	CTD in water	7

17/03/2006 10:15	-60.98192	-47.03242	PB-CTD-1	2762.7	21	354.3	0.06	CTD on deck	-4
17/03/2006 10:14	-60.98191	-47.03242	PB-CTD-1	2762.7	20.3	351.9	0.1	CTD - 1 bottle closed at surface	
17/03/2006 10:13	-60.9819	-47.03242	PB-CTD-1	2762.7	21.9	352	0.27	CTD - 1 bottle closed at 30 m	33
17/03/2006 10:09	-60.98191	-47.03244	PB-CTD-1	2762.7	20.1	351.9	0.11	CTD - 1 bottle closed at 200 m	204
17/03/2006 10:04	-60.98193	-47.03245	PB-CTD-1	2762.7	21	352.3	0.48	CTD - 1 bottle closed at 500 m	501
17/03/2006 09:55	-60.98189	-47.03244	PB-CTD-1	2762.7	21	352	0.38	CTD - 1 bottle closed at 1000 m	1004
17/03/2006 09:46	-60.98189	-47.03245	PB-CTD-1	2762.7	18.1	345.3	0.42	CTD - 1 bottle closed at depth	1498
17/03/2006 09:18	-60.98195	-47.0324	PB-CTD-1	2762.7	18.1	345	0.43	CTD in water	1
13/03/2006 00:13	-61.388	-55.20239	EI-CTD-3	0	13.5	280	-0.06	CTD on deck	
13/03/2006 00:13	-61.38799	-55.20239	EI-CTD-3	497.97	13.3	279.6	-0.06	CTD - 1 bottle closed at surface	7
13/03/2006 00:12	-61.388	-55.2024	EI-CTD-3	487.87	11.3	280	-0.15	CTD - 1 bottle closed at 30 m	35
13/03/2006 00:08	-61.388	-55.20236	EI-CTD-3	0	13.4	279.2	-0.09	CTD - 1 bottle closed at 200 m	203
13/03/2006 00:03	-61.388	-55.20239	EI-CTD-3	498	12.2	279.9	-0.11	CTD - 1 bottle closed at depth	478
12/03/2006 23:53	-61.388	-55.20242	EI-CTD-3	0	13.7	279.5	-0.1	CTD in water	2
12/03/2006 18:03	-61.33937	-55.19178	EI-CTD-4	243.74	4.2	250.2	0.87	CTD out of water	-3
12/03/2006 18:02	-61.33938	-55.19175	EI-CTD-4	244.01	6.2	249.2	0.67	CTD - one bottle closed at surface	
12/03/2006 18:01	-61.33938	-55.19175	EI-CTD-4	243.88	5.2	249.9	0.83	CTD - one bottle closed at 30m	30
12/03/2006 17:57	-61.33936	-55.19174	EI-CTD-4	243.96	4	249.7	0.66	CTD 1 bottle closed near bottom	212
12/03/2006 17:49	-61.33936	-55.19175	EI-CTD-4	229.85	2.7	305.7	0.98	CTD in water	7
12/03/2006 00:06	-61.56783	-55.21164	EI-CTD-2	1019.51	14.5	309.4	0.29	CTD on deck	-5
12/03/2006 00:05	-61.56782	-55.21166	EI-CTD-2	1019.14	16.1	310.8	0.32	CTD - 1 bottle closed at surface	1
12/03/2006 00:04	-61.56783	-55.21171	EI-CTD-2	1018.86	14.7	312.7	0.28	CTD - 1 bottle closed at 30 m	31
12/03/2006 00:00	-61.56781	-55.21163	EI-CTD-2	1024.69	13.4	356.9	-0.24	CTD - 1 bottle closed at 200 m	201
11/03/2006 23:55	-61.56781	-55.21162	EI-CTD-2	1019.27	10.4	0.5	-0.12	CTD - 1 bottle closed at 500 m	500
11/03/2006 23:46	-61.56782	-55.21163	EI-CTD-2	1019.82	7.2	0.2	0.02	CTD - 1 bottle closed at depth	986
11/03/2006 23:26	-61.56782	-55.2116	EI-CTD-2	1030.41	9.8	0.2	-0.14	CTD in water	4
11/03/2006 20:27	-61.6164	-55.22553	EI-CTD-1	1518.06	6.1	139.2	-0.12	CTD on deck	-2
11/03/2006 20:26	-61.61639	-55.22553	EI-CTD-1	1518.01	5.6	139.5	-0.03	CTD - 1 bottle closed at surface	0
11/03/2006 20:25	-61.6164	-55.22554	EI-CTD-1	1517.85	5.5	139.5	-0.13	CTD - 1 bottle closed at 30 m	36
11/03/2006 20:21	-61.61639	-55.22553	EI-CTD-1	1569.8	6.4	139.7	-0.12	CTD - 1 bottle closed at 200 m	204
11/03/2006 20:16	-61.61639	-55.22555	EI-CTD-1	1517.87	5.3	138.9	-0.19	CTD - 1 bottle closed at 500 m	501
11/03/2006 20:07	-61.61639	-55.22553	EI-CTD-1	1518.15	5	140	-0.21	CTD - 1 bottle closed at 1000 m	1005
11/03/2006 19:59	-61.6164	-55.22551	EI-CTD-1	1518.18	5.7	139.8	-0.25	CTD - 1 bottle closed at depth	1469
11/03/2006 19:31	-61.61638	-55.22546	EI-CTD-1	1517.96	4.6	139.1	-0.01	CTD in water	2
06/03/2006 13:09	-62.95377	-60.64613	DI-CTD-1	0	7.1	235.4	-0.01	CTD on deck	-4
06/03/2006 13:08	-62.95378	-60.64614	DI-CTD-1	160.54	8.3	235.1	0.14	CTD - 1 bottle closed at surface	

06/03/2006 13:06	-62.95378	-60.64613	DI-CTD-1	160.56	7.7	235.2	-0.08	CTD - 1 bottle closed at 30 m	30
06/03/2006 13:03	-62.95378	-60.64614	DI-CTD-1	160.44	7.7	235.6	-0.01	CTD - 1 bottle closed at depth	150
06/03/2006 12:58	-62.9538	-60.64613	DI-CTD-1	0	9	235.4	-0.01	CTD in water	2
04/03/2006 17:13	-62.52525	-61.82972	LI-CTD-4	191.08	17.6	270.1	-0.01	CTD at surface	-12
04/03/2006 17:13	-62.52526	-61.82973	LI-CTD-4	191.35	19.9	270.2	0.06	CTD - 1 bottle closed below surface	1
04/03/2006 17:11	-62.52525	-61.82963	LI-CTD-4	191.43	19.8	269.5	-0.37	CTD - 1 bottle closed at 30m	30
04/03/2006 17:08	-62.52524	-61.82969	LI-CTD-4	191.35	20.5	269.6	0.11	CTD - 1 bottle closed at depth	178
04/03/2006 17:03	-62.52523	-61.82968	LI-CTD-4	190.94	18.3	270.2	0.06	CTD at surface	-4
04/03/2006 12:25	-62.39584	-61.76791	LI-CTD-3	494.95	17.4	281.8	-0.13	CTD on surface	-3
04/03/2006 12:24	-62.39586	-61.76784	LI-CTD-3	496	21.1	278.9	-0.23	CTD - 1 bottle closed below surface	2
04/03/2006 12:22	-62.39583	-61.76788	LI-CTD-3	0	19.9	280.5	-0.14	CTD - 1 bottle closed at 30m	30
04/03/2006 12:19	-62.39582	-61.76779	LI-CTD-3	0	20.4	280	0.04	CTD - 1 bottle closed at 200m	203
04/03/2006 12:14	-62.39583	-61.7679	LI-CTD-3	495.31	16.4	279.2	0.21	CTD - 1 bottle closed at depth	485
04/03/2006 12:04	-62.39583	-61.76792	LI-CTD-3	0	15.9	281.5	0.19	CTD in water	3
03/03/2006 17:27	-62.33611	-61.64741	LI-CTD-2	789.23	22.1	325.9	0.07	CTD at surface	2
03/03/2006 17:26	-62.33611	-61.64742	LI-CTD-2	784.65	21.3	325.7	-0.14	CTD - 1 bottle closed below surface	3
03/03/2006 17:22	-62.33611	-61.64742	LI-CTD-2	784.94	24.5	325.3	0.59	CTD - 1 bottle closed at 200m	201
03/03/2006 17:16	-62.33612	-61.64741	LI-CTD-2	784.98	21.4	326.7	0.35	CTD - 1 bottle closed at 500m	502
03/03/2006 17:11	-62.33614	-61.64739	LI-CTD-2	784.73	23.3	326.6	0.22	CTD - 1 bottle closed at depth	781
03/03/2006 16:54	-62.33615	-61.64738	LI-CTD-2	784.57	23.9	326.8	0.28	CTD in water	1
03/03/2006 10:28	-62.2787	-61.59231	LI-CTD-1	1432.52	20.5	319.2	-0.18	CTD at surface	-3
03/03/2006 10:27	-62.27871	-61.59233	LI-CTD-1	1432.56	20.8	320.2	0.09	CTD - 1 bottle closed below surface	1
03/03/2006 10:22	-62.27871	-61.59239	LI-CTD-1	1432.43	19.5	317.6	0.15	CTD - 1 bottle closed at 200m	202
03/03/2006 10:17	-62.27869	-61.59233	LI-CTD-1	1383.54	21.4	321.9	0.21	CTD - 1 bottle closed at 500m	501
03/03/2006 10:08	-62.27871	-61.59232	LI-CTD-1	1432.43	19.9	320.2	0.14	CTD - 1 bottle closed at 1000m	1000
03/03/2006 10:00	-62.2787	-61.59232	LI-CTD-1	1429.55	20	321	0.02	CTD - 1 bottle closed at depth	1388
03/03/2006 09:35	-62.27871	-61.59232	LI-CTD-1	0	20.6	319	-0.01	CTD in water	1
02/03/2006 15:49	-60.01271	-59.94858	MEGA-CTD-6	4390.9	25.8	268.3	-0.41	CTD at surface	4
02/03/2006 15:35	-60.01272	-59.9486	MEGA-CTD-6	4377.46	24.1	270.2	-0.22	CTD bottles filled at 500 m	500
02/03/2006 15:22	-60.01271	-59.94858	MEGA-CTD-6	4359.57	25.5	271.3	-0.03	CTD in water	1
02/03/2006 14:53	-60.01267	-59.94866	MEGA-CTD-5	4383.21	23	270.3	-0.04	CTD at surface	
02/03/2006 14:39	-60.01268	-59.94859	MEGA-CTD-5	4360.23	26	270.2	0.25	CTD bottles filled at 500 m	500
02/03/2006 14:27	-60.01271	-59.94861	MEGA-CTD-5	4344.98	26.8	270.2	0.24	CTD in water	2
02/03/2006 13:56	-60.01268	-59.94862	MEGA-CTD-4	0	30.9	270.2	0.2	CTD at surface	4

02/03/2006 13:42	-60.01271	-59.94861	MEGA-CTD-4	0	26.5	270.2	0.11	CTD bottles filled at 500 m	497	
02/03/2006 13:32	-60.01271	-59.94858	MEGA-CTD-4	0	30.7	275.2	0.1	CTD at surface	3	
02/03/2006 13:08	-60.01271	-59.94862	MEGA-CTD-3	0	27.8	274.3	0.33	CTD at surface	2	
02/03/2006 13:06	-60.01271	-59.94854	MEGA-CTD-3	0	26.4	274.8	0.71	CTD water sampled at 38m	38	
02/03/2006 13:01	-60.0127	-59.9486	MEGA-CTD-3	4133.72	21.6	276.1	0.21	CTD at 200m	199	
02/03/2006 12:55	-60.01271	-59.94862	MEGA-CTD-3	0	24.9	274.8	0.21	CTD at surface	2	
02/03/2006 12:24	-60.01273	-59.94858	MEGA-CTD-2	0	30.5	274.9	0.24	CTD on surface	3	
02/03/2006 12:18	-60.01274	-59.94862	MEGA-CTD-2	0	26.3	273.8	0.23	CTD - all Bottles closed at 35m	35	
02/03/2006 12:13	-60.01274	-59.94861	MEGA-CTD-2	0	30	274.7	0.56	CTD at 200m	200	
02/03/2006 12:07	-60.01272	-59.94863	MEGA-CTD-2	0	27.7	276.9	0.27	CTD in water	2	
02/03/2006 11:32	-60.01272	-59.94859	MEGA-CTD-1	0	23.2	285.2	0.23	CTD on surface	3	
02/03/2006 11:25	-60.01272	-59.94859	MEGA-CTD-1	0	24.5	284.2	0.5	CTD - Bottles closed at 30 m	29	
02/03/2006 11:16	-60.0127	-59.9486	MEGA-CTD-1	4338.83	23.1	285.3	0.15	CTD at 200m	200	
02/03/2006 11:09	-60.01267	-59.94855	MEGA-CTD-1	4336.35	24.3	291.4	0.39	CTD in water	1	
28/02/2006 14:51	-54.13052	-56.13323	FT-CTD-4	1506.17	27.3	255.7	-0.01	CTD on surface	0	
28/02/2006 14:09	-54.13051	-56.13317	FT-CTD-4	1505.86	29.6	258.2	0.24		516	no clear cast
28/02/2006 13:51	-54.13054	-56.13316	FT-CTD-4	1505.99	32.6	251.2	-0.04	CTD at depth	1471	
28/02/2006 13:22	-54.13052	-56.13321	FT-CTD-4	1505.85	23.9	258.7	0.23	CTD in water	72	
28/02/2006 09:43	-54.22656	-56.28566	FT-CTD-3	994.03	25.6	262.1	0.24	CTD on surface	5	
28/02/2006 09:26	-54.22653	-56.28567	FT-CTD-3	992.94	32.1	262.9	0.12	CTD at depth	974	
28/02/2006 09:07	-54.2265	-56.28561	FT-CTD-3	993	24.4	261.5	0.32	CTD in water	2	
27/02/2006 21:16	-54.30224	-56.48846	FT-CTD-2	510.99	22.6	302.5	-0.31	CTD on surface	12	
27/02/2006 21:06	-54.30222	-56.48842	FT-CTD-2	511.17	17.9	301.2	-0.17	CTD at depth	500	
27/02/2006 20:55	-54.30221	-56.48847	FT-CTD-2	511.08	16.5	308	-0.26	CTD in water	15	
27/02/2006 11:31	-54.31014	-56.69427	FT-CTD-1	217.58	24.1	319.6	-0.7	CTD on surface	-2	
27/02/2006 11:23	-54.3101	-56.69426	FT-CTD-1	217.58	18.2	320.4	-0.66	CTD at depth	213	
27/02/2006 11:13	-54.31012	-56.69428	FT-CTD-1	218.15	23.4	319.2	-0.65	CTD in water	3	

8.1.4. Coring

Time	J-Day	Lat	Long	ID	Comment
03/04/2006 23:00	92	-54.2831	-36.4967	EP	2m of piston core recovered and trigger core.
03/04/2006 22:47	92	-53.5673	-35.0378	AH	Corer attached - major bend in core visible... oops!
02/04/2006 22:34	92	-53.4111	-34.6866	AH	Corer on board
02/04/2006 22:17	92	-53.4111	-34.6866	AH	Corer at surface
02/04/2006 20:40	92	-53.4112	-34.6866	AH	Corer released / triggered. Tension = 3.88 (5.02 max); cable out = 3497m; EM120 depth = 3569m
02/04/2006 19:24	92	-53.4111	-34.6866	AH	Problem with winch again - Doug investigating. Winch slipping below 25m. Hauled back and let

				out again to test the hauling capability. Sent back down again.
				Corer in water. Tension = 1.34t; Cable out 0m;
02/04/2006 19:18	92	-53.4111	-34.6866	AH EM120 depth = 3571m
				Winches working; Gantry out 19:10;
02/04/2006 19:08	92	-53.4111	-34.6866	AH Attaching trigger 19:16
02/04/2006 18:56	92	-53.4111	-34.6866	AH Clear to deploy (delay due to winch problems)
				On PC465 core site. EM120 depth = 3570m;
02/04/2006 18:01	92	-53.4111	-34.6866	AH ore barrel = 12m
02/04/2006 14:00	92	-53.0935	-34.0948	EP PC464 recovered 10m of piston core and a trigger core.
02/04/2006 13:14	92	-53.045	-34.0047	EP Corer attached.
02/04/2006 13:08	92	-53.045	-34.0047	EP Corer on board
02/04/2006 12:52	92	-53.045	-34.0047	EP Corer at surface
02/04/2006 10:15	92	-53.045	-34.0047	EP Corer released. Tension: 3.85t
02/04/2006 09:17	92	-53.045	-34.0047	EP Corer in water. Tension: 1.57t
02/04/2006 09:04	92	-53.045	-34.0047	EP Clear to deploy. Winches working
				PC464: On core site. Depth 3032m (EM120).
02/04/2006 08:37	92	-53.0452	-34.0048	EP Core barrel 12m.
				PC463 recovered 9m of piston core and 1m trigger core plus TC core catcher. No piston core catcher. Section 1 of PC463 - lowest 8cm fell out
01/04/2006 20:00	91	-53.4111	-34.6866	EP of base of section
01/04/2006 19:12	91	-52.1549	-34.0901	EP Corer attached.
01/04/2006 19:04	91	-52.1549	-34.0901	EP Core barrel at surface (vertical)
				Corer at surface (trigger) -8m cable. EM120
01/04/2006 18:48	91	-52.1549	-34.0901	EP depth: 3715m.
01/04/2006 17:50	91	-52.1549	-34.0901	EP Corer released (near bottom). Tension: 2.74t
01/04/2006 16:40	91	-52.1549	-34.0901	EP Corer in water. Tension: 1.41t
01/04/2006 16:37	97	-52.1549	-34.0901	EP Attaching trigger core. (Corer vertical 16:32)
01/04/2006 16:29	91	-52.1549	-34.0901	EP Clear to deploy. 16:30 - winches working
				PC463: On core site. EM120 depth: 3719m.
01/04/2006 16:28	91	-52.1549	-34.0901	EP Core barrel size: 12m
				PC462 recovered approximately 9m of piston
01/04/2006 12:00	91	-52.5541	-33.9924	EP core and 40cm of trigger core
01/04/2006 11:48	91	-52.5541	-33.9924	CA Corer attached
01/04/2006 11:37	91	-52.5541	-33.9924	CA Corer on board
01/04/2006 11:20	91	-52.554	-33.9924	CA Corer at surface
01/04/2006 10:21	91	-52.554	-33.9924	CA Corer released; 10:22 corer being recovered
				Corer in water; Tension 1.34t; Cable out -5m;
01/04/2006 09:18	91	-52.554	-33.9924	CA EM120 depth 3279m (following JR149_XBT02)
				Clear to deploy; 09:05 Winches working;
01/04/2006 09:04	91	-52.554	-33.9924	CA 09:07 Gantry out; 09:08 Attaching trigger
01/04/2006 08:36	91	-52.5543	-33.992	CA At core site; depth 3322m; 12m core barrel
				On core site waiting for deployment of XBT
01/04/2006 08:36	91	-52.5543	-33.992	CA to verify depth readings and then deploy piston corer
				Coring completed at South Orkney site as not enough time to cruise to northern sites and have time to core before nightfall therefore
16/03/2006 18:00	75	-60.8562	-50.6694	CA heading for JR144 transcent to Signy.
				PC461: Recovered approx 9m of sediment in piston core section and approx 1m of sediment in Trigger core section of PC461. Core catchers
16/03/2006 17:00	75	-60.8154	-50.9851	EP for both also.
16/03/2006 16:14	75	-60.8153	-50.9851	EP Corer attached
16/03/2006 15:48	75	-60.8154	-50.9851	EP Corer at surface. Cable out: -9m

16/03/2006 14:58	75	-60.8154	-50.9851	EP Piston corer off seabed
16/03/2006 14:53	75	-60.8154	-50.9851	EP Corer being recovered
16/03/2006 14:51	75	-60.8154	-50.9851	EP Corer released. 2469m NB. at 2450m speed reduced
16/03/2006 14:02	75	-60.8154	-50.9851	EP Corer in water. Cable 4m
16/03/2006 13:58	75	-60.8154	-50.9851	EP Attaching chain and trigger
16/03/2006 13:49	75	-60.8153	-50.9851	EP Clear to deploy
				PC461 - on core station. Depth 2519 (EM120)
				2556m(EA600). Position 60 deg 48.92S
16/03/2006 13:04	75	-60.8153	-50.9851	EP 50 deg 59.10W 12m core barrel (4x3m sections)
				PC460: Recovered approx 10m of sediment in
				piston core section and approx 80cm of sediment
				in trigger core section of PC460. Core catchers
16/03/2006 12:30	75	-60.8091	-51.0337	EP for both also.
16/03/2006 12:04	75	-60.8092	-51.0337	EP Corer attached/on board. Cable out 6m
16/03/2006 11:53	75	-60.8091	-51.0337	EP Weight removed
16/03/2006 11:35	75	-60.8091	-51.0338	EP Corer at surface
16/03/2006 10:50	57	-60.8092	-51.0337	EP Corer off the seabed
16/03/2006 10:48	75	-60.8091	-51.0338	EP Corer being recovered
				Corer released. NB. 2500m speed reduced until
				core triggered. Shape of tension spike indicates
16/03/2006 10:47	75	-60.8091	-51.0338	EP soft sediments.s
16/03/2006 10:47	75	-60.8091	-51.0338	EP Corer near bottom. Cable out : 2538m (-22 start)
16/03/2006 09:56	75	-60.7123	-50.8721	CA Core at surface. 12m core barrel.
16/03/2006 09:33	75	-60.8091	-51.0338	CA Winches working 09:33
16/03/2006 08:49		-60.8091	-51.0337	CA stop recording file 060316063644.raw
				On site 460 ready to deploy piston corer.
				Winch operator not up - small delay waiting
16/03/2006 08:43	75	-60.8153	-50.9851	CA but otherwise all set. Depth on EM120 = 2594m
				FROM 02:35 GMT (IN CENTRAL PORTION
				OF SOUTHERN BASIN) BEAUTIFUL SEDIMENTS
				.. IF I WAS DR CLAIRE ALLEN (ONE CAN
16/03/2006 02:43	75	-60.8254	-51.0569	AH ONLY HOPE!) I WOULD COME BACK HERE!
				NICE SEDIMENT IN SOUTHERN BASIN
				FROM 00:37 GMT TO 00:57 GMT – POSSIBLE
16/03/2006 01:26	75	-60.8679	-51.0918	AH CORING SITE
				Speed reduced because of V. low visability –
				unlikely to make a survey round the full triangle.
				Probably end up going adjacent to exisiting
				data line - to maximise sediment search in the
16/03/2006 00:05	75	-60.7383	-50.8304	CA two regions.
				Overnight survey for sediments: (-60 20' -50 20')
15/03/2006 23:39	74	-60.7027	-50.7576	AH to (-60 35' -50 20') to (-60 45' -50 50') to (60 40' -51 30')
15/03/2006 21:37	74	-60.5174	-50.4249	CA Potential coring site Roll 3 21:37-21:42
15/03/2006 21:25	74	-60.5133	-50.4199	CA Potential coring site Roll 3 21:25-21:30

8.1.5. WCB acoustics and RMT fishing

Time	Event	Lat	Lon	Comment
10/04/2006 18:17		-53.8547	-37.5909	XBT deployed - complete transect 4.2
10/04/2006 17:13		-53.6807	-37.6552	xbt deployed
10/04/2006 16:08		-53.5018	-37.7134	xbt deployed
10/04/2006 15:02		-53.3246	-37.7747	XBT deployed
10/04/2006 13:57	WCB 4.2	-53.1485	-37.8319	XBT deployed - commence transect 4.2
10/04/2006 13:19		-53.1643	-37.964	XBT deployed - complete transect 4.1

10/04/2006 12:16		-53.336	-37.904	XBT deployed
10/04/2006 11:09		-53.5169	-37.8474	XBT deployed
10/04/2006 10:03		-53.6925	-37.7893	XBT deployed
10/04/2006 08:58	WCB 4.1	-53.8667	-37.7283	Commence transect 4.1
10/04/2006 08:58		-53.8653	-37.7288	XBT deployed
10/04/2006 00:20		-53.7721	-38.0372	RMT recovered
10/04/2006 00:01		-53.7748	-38.0124	RMT at depth
09/04/2006 23:50	RMT 8	-53.7767	-37.9983	RMT deployed
09/04/2006 23:28		-53.7726	-38.0245	RMT recovered
09/04/2006 22:54		-53.7868	-37.9892	RMT at depth
09/04/2006 22:40	RMT 7	-53.7923	-37.973	RMT deployed
09/04/2006 22:37		-53.7924	-37.9726	V/L in position ready for deployment
09/04/2006 22:28		-53.7927	-37.972	V/L repositioning for next deployment
09/04/2006 22:27		-53.7833	-37.9923	RMT recovered
09/04/2006 22:03		-53.7748	-38.0163	RMT at depth
09/04/2006 21:58	RMT 6	-53.7716	-38.0251	RMT deployed
09/04/2006 21:49		-53.7714	-38.0312	RMT recovered
09/04/2006 21:17		-53.7828	-37.9939	RMT at depth
09/04/2006 21:02	RMT 5	-53.7889	-37.9771	RMT deployed
09/04/2006 18:56		-53.8909	-37.9052	XBT deployed - Complete transect at WP 3.2S
09/04/2006 17:56		-53.7221	-37.9625	XBT deployed
09/04/2006 17:53		-53.7132	-37.9658	XBT deployed - Failed
09/04/2006 16:50		-53.5405	-38.0254	XBT deployed
09/04/2006 15:45		-53.3625	-38.0845	XBT deployed
09/04/2006 14:41	WCB 3.2	-53.1869	-38.1425	Commence transect 3.2
09/04/2006 14:41		-53.1878	-38.1422	XBT deployed
09/04/2006 13:22		-53.2212	-38.4485	XBT deployed
09/04/2006 13:22	WCB 3.1	-53.2219	-38.4483	Complete transect 3.1
09/04/2006 12:16		-53.3974	-38.3907	XBT deployed
09/04/2006 11:11		-53.5738	-38.3354	XBT deployed
09/04/2006 10:03		-53.6198	-38.3196	XBT deployed
09/04/2006 08:58		-53.9249	-38.2209	XBT deployed
09/04/2006 08:57	WCB 3.1	-53.9258	-38.2205	Commence transect 3.1
09/04/2006 06:11		-53.9412	-38.211	V/L on DP ready for 0600 start
09/04/2006 01:00		-53.7897	-37.9768	RMT recovered
09/04/2006 00:28		-53.7872	-38.131	RMT at depth
09/04/2006 00:21	RMT 4	-53.7897	-38.1236	RMT deployed
09/04/2006 00:18		-53.7906	-38.1203	V/l in position ready to deploy RMT
09/04/2006 00:05		-53.7791	-38.1402	v/l moving off station
09/04/2006 00:01		-53.7805	-38.141	RMT recovered
08/04/2006 23:28		-53.7925	-38.105	RMT at depth
08/04/2006 23:10	RMT 3	-53.7984	-38.0858	RMT deployed
08/04/2006 23:04		-53.8	-38.08	On station for RMT
08/04/2006 22:43		-53.8002	-38.0793	Relocating 2.5miles to SE
08/04/2006 22:42		-53.8003	-38.0787	RMT recovered
08/04/2006 22:37		-53.7686	-38.134	Commence recovering RMT
08/04/2006 22:20		-53.7741	-38.116	RMT at depth
08/04/2006 22:13		-53.7766	-38.1084	RMT deployed
08/04/2006 22:10	RMT 2	-53.7775	-38.1051	Commence deploying RMT
08/04/2006 21:57		-53.7613	-38.0853	RMT recovered
08/04/2006 21:54		-53.7616	-38.084	Commence recovering RMT

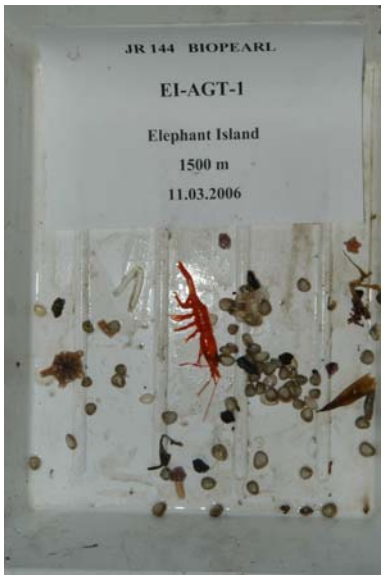
08/04/2006 21:25		-53.7708	-38.0458	RMT at depth
08/04/2006 21:09		-53.7774	-38.0264	RMT deployed
08/04/2006 21:03	RMT 1	-53.7801	-38.0198	Commence deploying RMT
08/04/2006 20:52		-53.7798	-38.0204	V/l in position ready to deploy RMT
08/04/2006 18:47		-53.954	-38.5296	End of transect 2.2
08/04/2006 18:46		-53.9521	-38.5309	XBT deployed
08/04/2006 17:46		-53.7856	-38.583	XBT deployed
08/04/2006 16:42		-53.6094	-38.6397	XBT deployed
08/04/2006 15:37		-53.4336	-38.6959	XBT deployed
08/04/2006 14:32	WCB 2.2	-53.2553	-38.751	Commence transect 2.2
08/04/2006 14:32		-53.2556	-38.7509	XBT deployed
08/04/2006 13:16		-53.2843	-39.0367	End of transect 2.1
08/04/2006 13:15		-53.2872	-39.0358	XBT deployed
08/04/2006 12:13		-53.4614	-38.9856	XBT deployed
08/04/2006 11:08		-53.6391	-38.9294	XBT deployed
08/04/2006 10:03		-53.8162	-38.8761	XBT deployed
08/04/2006 08:59		-53.9882	-38.8087	XBT deployed
08/04/2006 08:58	WCB 2.1	-53.9923	-38.8073	Commence transect 2.1
08/04/2006 08:46		-54.001	-38.8165	V/L moving to start WCB
08/04/2006 08:45		-54.0009	-38.8169	***** Western Core box******

8.2. AGT catch photos

8.2.1. Falkland Trough (FT)

8.2.2. Livingston Island (LI)

8.2.3. Elephant Island (EI)



8.2.4. Powell Basin (PB)

8.2.5. Southern Thule (ST)

8.2.6. South Georgia (SG)

8.2.7. Shag Rocks (SR)

8.3. Zoobenthos samples

8.3.1. AGT samples

STATION	VIAL_ID	CLASS	FAMILY	GENUS	SPECIES	NO	WEIGHT
FT-AGT-1	060001	Malacostraca	Isopoda*			1	0
FT-AGT-1	060002	Miscellaneous	FT-AGT-1				0
FT-AGT-1B	060003	Malacostraca	Isopoda*				0
FT-AGT-1B	060004	Stelleroidea	Ophiolepidae	*Ophiuroglypha*	*lymani*	1	0
FT-AGT-1B	060005	Anthozoa	Primnoidae	*Thouarella (Euthouarella)*			0
FT-AGT-1B	060006	Decapoda*	UNKNOWN Decapoda*	*Eurypodius*	*latreillei*	1	0
FT-AGT-1B	060007	Stelleroidea	Gorgonocephalidae	*Astrotoma*	*agassizii*	1	0
FT-AGT-1B	060008	Stelleroidea	Ophiacanthidae	*Ophiacantha*	*vivipara*	1	0
FT-AGT-1B	060009	Malacostraca	Amphipoda*			1	0
FT-AGT-1B	060010	Stelleroidea	Asteroidea*			1	0
FT-AGT-1B	060011	Stelleroidea	Asteroidea*			1	0
FT-AGT-1B	060012	Crinoidea	Antedonidae	**Promachocrinus*		1	0
FT-AGT-1B	060013	Stelleroidea	Asteroidea*			1	0
FT-AGT-1B	060014	Anthozoa				1	0
FT-AGT-1B	060015	Holothuroidea				1	0
FT-AGT-1B	060016	Gastropoda (Non-Shelled)	Doridiidae	*Austrodoris*	*kerguelenensis*	1	0
FT-AGT-1B	060017	Stelleroidea	Asteroidea*			1	0
FT-AGT-1B	060018	Nemertea*				1	0
FT-AGT-1B	060019	Stelleroidea	Asteroidea*			1	0
FT-AGT-1B	060020	Stelleroidea	Asteroidea*			1	0
FT-AGT-1B	060021	Stelleroidea	Asteroidea*			1	0
FT-AGT-1B	060022	Hydrozoa	Stylasteridae			1	0
FT-AGT-1B	060023	Articulata				1	0
FT-AGT-1B	060024	Anthozoa	Actinidae	*Anisodora*	*albida*	1	0
FT-AGT-1B	060025	Gastropoda (Shelled)	Volutidae	*Harpovoluta*	*charcoti*	1	0
FT-AGT-1B	060026	Hydrozoa				1	0
FT-AGT-1B	060027	Echinoidea	Echinidae	*Sterechinus*	*agassizii*	1	0
FT-AGT-1B	060028	Echinoidea	Cidaridae			1	0
FT-AGT-1B	060029	Gymnolaemata	Flustridae	**Carbasea*	*ovoidea*	1	0
FT-AGT-1B	060030	Nemertea*				1	0
FT-AGT-1B	060031	Malacostraca	Cirolanidae	*Natatolana*		1	0
FT-AGT-1B	060032	Malacostraca	Serolidae	*Septemserolis*	*septemcarinata*	1	0
FT-AGT-1B	060033	Gastropoda (Shelled)	Lamellariidae	*Marseniopsis*		1	0
FT-AGT-1B	060034	Cirripedia	Scalpellidae			1	0
FT-AGT-1B	060035	Demospongiae				1	0
FT-AGT-1B	060036	Hexactinellidae					0
FT-AGT-1B	060037	Ascidiacea					0
FT-AGT-1B	060038	Echinoidea	Irregularia*	*Tripylaster*	*Philippi*	1	0
FT-AGT-1B	060039	Gymnolaemata				1	0
FT-AGT-1B	060040	Stelleroidea	Asteroidea*			1	0
FT-AGT-1B	060041	Gastropoda (Non-Shelled)					0
FT-AGT-1B	060042	Gymnolaemata	Flustridae	*Austroflustra*		1	0
FT-AGT-1B	060043	Stelleroidea	Asteroidea*				0
FT-AGT-1B	060043	Stelleroidea	Asteroidea*				0
FT-AGT-1B	060043	Stelleroidea	Asteroidea*				0

FT-AGT-1B	060043	Stelleroidea	Asteroidea*				0
FT-AGT-1B	060043	Stelleroidea	Asteroidea*				0
FT-AGT-1B	060043	Stelleroidea	Asteroidea*				0
FT-AGT-1B	060043	Stelleroidea	Asteroidea*			18	0.29
FT-AGT-1B	060044	Echinoidea	Regularia*			56	2
FT-AGT-1B	060044	Echinoidea	Regularia*				0
FT-AGT-1B	060045	Echinoidea	Regularia*				0
FT-AGT-1B	060046	Holothuroidea	Cucumariidae	*Cucumaria*		24	0.01
FT-AGT-1B	060047	Anthozoa				19	0.6
FT-AGT-1B	060047	Anthozoa	Primnoidae				0
FT-AGT-1B	060048	Stelleroidea	Ophiolepidae	*Ophiuroglypha*	*lymani*	550	0.91
FT-AGT-1B	060048	Stelleroidea	Ophiacanthidae	*Ophiacantha*	*vivipara*		0
FT-AGT-1B	060048	Stelleroidea	Gorgonocephalidae	*Astrotoma*	*agassizii*		0
FT-AGT-1B	060050	Anthozoa	Caryophylliidae	*Desmophyllum*		47	0.11
FT-AGT-1B	060051	Demospongiae					0
FT-AGT-1B	060052	Polychaeta	Sedentaria*			400	0.29
FT-AGT-1B	060053	Crinoidea	Antedonidae	**Promachocrinus*		19	0.02
FT-AGT-1B	060054	Decapoda*	UNKNOWN Decapoda*	*Eurypodius*	*latreillei*	4	0.02
FT-AGT-1B	060055	Cirripedia	Scalpellidae			3	0.01
FT-AGT-1B	060056	Pycnogona				11	0.01
FT-AGT-1B	060057	Hydrozoa	Stylasteridae			70	0.5
FT-AGT-1B	060058	Gastropoda (Non-Shelled)					0
FT-AGT-1B	060058	Gastropoda (Non-Shelled)					0
FT-AGT-1B	060058	Gastropoda (Non-Shelled)					0
FT-AGT-1B	060058	Gastropoda (Non-Shelled)				6	0.01
FT-AGT-1B	060059	Hydrozoa					0
FT-AGT-1B	060060	Gastropoda (Shelled)					0
FT-AGT-1B	060060	Gastropoda (Shelled)					0
FT-AGT-1B	060060	Gastropoda (Shelled)					0
FT-AGT-1B	060060	Gastropoda (Shelled)					0
FT-AGT-1B	060060	Gastropoda (Shelled)					0
FT-AGT-1B	060060	Gastropoda (Shelled)					0
FT-AGT-1B	060060	Gastropoda (Shelled)					0
FT-AGT-1B	060060	Gastropoda (Shelled)				31	0.02
FT-AGT-1B	060061	Gymnolaemata					0
FT-AGT-1B	060061	Gymnolaemata					0
FT-AGT-1B	060061	Gymnolaemata					0
FT-AGT-1B	060061	Gymnolaemata					0
FT-AGT-1B	060061	Gymnolaemata				60	0.37
FT-AGT-1B	060062	Stenolaemata					0.01
FT-AGT-1B	060063	Polychaeta	Errantia*			54	0.01
FT-AGT-1B	060064	Demospongiae				25	0.62
FT-AGT-1B	060065	Ascidiacea				160	0.35
FT-AGT-1B	060066	Bivalvia	Thraciidae	*Thracia*	*meridionalis*	6	0.01
FT-AGT-2	060067	Malacostraca	Serolidae	*Acutiserolis*		1	0
FT-AGT-2	060068	Pycnogona				2	0.01
FT-AGT-2	060069	Anthozoa	Caryophylliidae	*Desmophyllum*		4	0.05
FT-AGT-2	060070	Anthozoa	Caryophylliidae	*Desmophyllum*			0
FT-AGT-2	060071	Stelleroidea	Asteroidea*			1	0

FT-AGT-2	060071	Stelleroidea	Asteroidea*			1	0.26
FT-AGT-2	060072	Stelleroidea	Ophiuroidea*			1	0
FT-AGT-2	060072	Stelleroidea	Ophiuroidea*			2	0.01
FT-AGT-2	060073	Crinoidea	Antedonidae			1	0.01
FT-AGT-2	060074	Malacostraca				2	0.01
FT-AGT-2	060075	Gastropoda (Non-Shelled)				1	0.01
FT-AGT-2	060075	Gastropoda (Shelled)				2	0.01
FT-AGT-2	060076	Anthozoa					0
FT-AGT-2	060077	Malacostraca	Cirolanidae	*Natatolana*			0
FT-AGT-2	060077	Malacostraca	Isopoda*				0
FT-AGT-2	060077	Malacostraca	Isopoda*			4	0.01
FT-AGT-2	060078	Hydrozoa					0
FT-AGT-2	060079	Polychaeta	Errantia*			2	0.01
FT-AGT-2	060080	Gymnolaemata				7	0.01
FT-AGT-2	060081	Hydrozoa				76	0.11
FT-AGT-2	060082	Ascidiacea					0
FT-AGT-2	060083	Demospongiae				35	0.07
FT-AGT-2	060084	Anthozoa				1	0.01
FT-AGT-3	060085	Malacostraca	Munnidae	*Munnida*	*subrigosa*	1	0
FT-AGT-3	060086	Gastropoda (Shelled)				1	0
FT-AGT-3	060087	Demospongiae				1	0
FT-AGT-3	060088	Demospongiae				1	0
FT-AGT-3	060089	Hexactinellidae				1	0
FT-AGT-3	060090	Demospongiae				1	0
FT-AGT-3	060091	Stelleroidea	Asteroidea*			1	0
FT-AGT-3	060092	Anthozoa	Caryophylliidae	*Desmophyllum*		1	0
FT-AGT-3	060093	Holothuroidea				3	0.08
FT-AGT-3	060094	Malacostraca	Amphipoda*				0
FT-AGT-3	060094	Malacostraca	Amphipoda*			5	0.01
FT-AGT-3	060094	Malacostraca	Isopoda*			1	0
FT-AGT-3	060094	Malacostraca	Isopoda*			2	0.01
FT-AGT-3	060094	Malacostraca	Munnidae	*Munnida*	*subrigosa*	3	0.01
FT-AGT-3	060095	Gastropoda (Non-Shelled)				1	0
FT-AGT-3	060096	Crinoidea	Antedonidae	**Promachocrinus*		6	0.01
FT-AGT-3	060097	Fish*				1	0.07
FT-AGT-3	060098	Stelleroidea	Ophiolepidae	*Ophiomastus*			0
FT-AGT-3	060098	Stelleroidea	Ophiomyxidae	*Ophioscolex (Ophiolycus)*	*nutrix*	5	0.01
FT-AGT-3	060099	Stelleroidea	Asteroidea*			1	0.01
FT-AGT-3	060099	Stelleroidea	Asteroidea*			1	0.01
FT-AGT-3	060100	Demospongiae				1	0
FT-AGT-3	060101	Anthozoa	Isidae	*Mopsea*		1	0
FT-AGT-3	060102	Demospongiae				205	0.75
FT-AGT-3	060102	Calcarea				3	0.01
FT-AGT-3	060103	Gymnolaemata				44	0.02
FT-AGT-3	060104	Polychaeta	Errantia*			1	0.01
FT-AGT-3	060104	Polychaeta	Errantia*			1	0.01
FT-AGT-3	060105	Anthozoa					0
FT-AGT-3	060105	Anthozoa				51	0.18
FT-AGT-3	060106	Anthozoa					0

FT-AGT-3	060106	Anthozoa					0
FT-AGT-3	060106	Anthozoa					0
FT-AGT-3	060106	Anthozoa					0
FT-AGT-3	060106	Anthozoa				104	0.12
FT-AGT-3	060107	Hydrozoa					0
FT-AGT-3	060107	Hydrozoa					0
FT-AGT-3	060107	Hydrozoa				9	0.01
FT-AGT-3	060108	Malacostraca	Amphipoda*				0
FT-AGT-3	060109	Pycnogona					0
FT-AGT-3	060109	Pycnogona				5	0.01
FT-AGT-3	060110	Ascidiacea					0
FT-AGT-3	060110	Ascidiacea				4	0.02
FT-AGT-3	060111	Miscellaneous				11	0.03
FT-AGT-3	060112	Gastropoda (Shelled)	Lamellariidae	*Lamellaria*		1	0.01
FT-AGT-4B	060113	Articulata	Dallinidae	*Dallina*	*eltanini*	1	0.01
FT-AGT-4B	060114	Malacostraca	Isopoda*			2	0.01
FT-AGT-4B	060115	Demospongiae				1	0
FT-AGT-4B	060115	Demospongiae				2	0.01
FT-AGT-4B	060116	Salps*				2	0.01
FT-AGT-4B	060117	Foraminifera*				1	0
FT-AGT-1B	060118	Hydrozoa					0
FT-AGT-1B	060119	Anthozoa					0
FT-AGT-1B	060119	Anthozoa				7	0
FT-AGT-1B	060120	Gastropoda*				1	0
FT-AGT-1B	060120	Gastropoda*				1	0
FT-AGT-1B	060120	Gastropoda*				1	0
FT-AGT-1B	060120	Gastropoda*				1	0
FT-AGT-1B	060120	Gastropoda*				1	0
FT-AGT-1B	060120	Gastropoda*				1	0
FT-AGT-1B	060120	Gastropoda*				1	0
FT-AGT-1B	060120	Gastropoda*				1	0
FT-AGT-1B	060120	Gastropoda*				1	0
FT-AGT-1B	060120	Gastropoda*				1	0
FT-AGT-1B	060120	Gastropoda*				2	0
FT-AGT-1B	060121	Demospongiae					0
FT-AGT-1B	060122	Ascidiacea					0
FT-AGT-1B	060123	Malacostraca	Isopoda*				0
FT-AGT-1B	060123	Malacostraca	Isopoda*				0
FT-AGT-1B	060123	Malacostraca	Isopoda*				0
FT-AGT-1B	060123	Malacostraca	Isopoda*				0
FT-AGT-1B	060123	Malacostraca	Isopoda*				0
FT-AGT-1B	060123	Malacostraca	Isopoda*			16	0
FT-AGT-1B	060124	Malacostraca	Stenetriidae	*Stenetrium*		1	0
FT-AGT-1B	060125	Stelleroidea	Ophiuroidea*				0
FT-AGT-1B	060125	Stelleroidea	Ophiuroidea*			9	0
FT-AGT-1B	060126	Cirripedia					0
FT-AGT-1B	060126	Cirripedia				4	0
FT-AGT-1B	060127	Stelleroidea	Asteroidea*				0
FT-AGT-1B	060127	Stelleroidea	Asteroidea*				0

FT-AGT-1B	060127	Stelleroidea	Asteroidea*			7	0
FT-AGT-1B	060128	Stelleroidea	Ophiuroidea*				0
FT-AGT-1B	060128	Stelleroidea	Ophiuroidea*			9	0
FT-AGT-1B	060129	Nemertea*				2	0
FT-AGT-1B	060130	Polychaeta				100	0
FT-AGT-1B	060131	Stenolaemata					0
FT-AGT-1B	060131	Stenolaemata					0
FT-AGT-1B	060132	Gymnolaemata					0
FT-AGT-1B	060133	Malacostraca	Amphipoda*			2	0
FT-AGT-1B	060134	Pycnogona				7	0
FT-AGT-1B	060135	Bivalvia					0
FT-AGT-1B	060135	Bivalvia					0
FT-AGT-1B	060135	Bivalvia					0
FT-AGT-1B	060136	Echinoidea					0
FT-AGT-1B	060136	Echinoidea				17	0
LI-AGT-1	060137	Stelleroidea	Ophiolepidae	*Ophionotus*	*victoriae*	4	0.02
LI-AGT-1	060138	Stelleroidea	Asteroidea*			1	0.03
LI-AGT-1	060139	Anthozoa	Flabellidae	*Flabellum (F.)*		4	0.03
LI-AGT-1	060140	Polychaeta	Opheliidae	*Travisia*		2	0.01
LI-AGT-1	060141	Polychaeta	Nephtyidae	*Aglaophamus*		1	0
LI-AGT-1	060142	Polychaeta				1	0.01
LI-AGT-1	060143	Stelleroidea	Asteroidea*			1	0.01
LI-AGT-1	060144	Anthozoa	Actinidae			1	0.03
LI-AGT-1	060145	Anthozoa	Flabellidae	*Flabellum (F.)*		1	0
LI-AGT-1	060146	Anthozoa	Actinidae			1	0
LI-AGT-1	060147	Holothuroidea				1	0.01
LI-AGT-1	060148	Fish*				1	0
LI-AGT-1	060149	Miscellaneous				2	0.01
LI-AGT-2	060150	Stelleroidea	Asteroidea*			1	0.01
LI-AGT-2	060151	Pycnogona				1	0
LI-AGT-2	060152	Malacostraca	Isopoda*			1	0
LI-AGT-2	060153	Gastropoda (Shelled)	Turridae	*Aforia*	*magnifica*	1	0
LI-AGT-2	060154	Priapulida	Priapulidae	*Priapulus*		1	0.01
LI-AGT-2	060155	Polychaeta					0.01
LI-AGT-2	060156	Polychaeta	Sedentaria*			500	0.03
LI-AGT-2	060157	Gastropoda (Shelled)				1	0
LI-AGT-2	060157	Gastropoda (Shelled)				1	0
LI-AGT-2	060157	Gastropoda (Shelled)				1	0.02
LI-AGT-2	060157	Gastropoda (Shelled)	Buccinidae	*Chlanidota*			0
LI-AGT-2	060158	Stelleroidea	Asteroidea*			1	0.01
LI-AGT-2	060159	Gastropoda (Shelled)				1	0
LI-AGT-2	060160	Sipunculidae				2	0
LI-AGT-2	060161	Polychaeta	Errantia*			39	0.02
LI-AGT-2	060162	Echiurida*				1	0.01
LI-AGT-2	060163	Sipunculidae				1	0
LI-AGT-2	060164	Crinoidea				1	0.01
LI-AGT-2	060165	Polychaeta	Ampharetidae			1	0
LI-AGT-2	060166	Stelleroidea	Ophiuroidea*				0
LI-AGT-2	060166	Stelleroidea	Ophiuroidea*			4	0.01

LI-AGT-2	060167	Anthozoa				1	0.01
LI-AGT-2	060168	Echinoidea	Irregularia*			1	0.01
LI-AGT-2	060169	Polychaeta	Terebellidae	*Hauchiella*		1	0.01
LI-AGT-2	060170	Demospongiae				5	0.01
LI-AGT-2	060171	Miscellaneous					0
LI-AGT-2	060172	Sipunculidae					0
LI-AGT-3	060173	Malacostraca	Isopoda*			1	0
LI-AGT-3	060174	Pycnogona					0
LI-AGT-3	060174	Pycnogona				8	0.01
LI-AGT-3	060175	Stelleroidea	Amphiuridae	*Amphioplus*	*peregrinator*	1	0.01
LI-AGT-3	060176	Malacostraca	Isopoda*			8	0.04
LI-AGT-3	060176	Malacostraca	Serolidae	*Ceratoserolis*	*dinae*	1	0
LI-AGT-3	060177	Stelleroidea	Amphiuridae	*Amphioplus*	*peregrinator*	15	0.02
LI-AGT-3	060178	Nemertea*				1	0
LI-AGT-3	060179	Echinoidea	Irregularia*			1	0.01
LI-AGT-3	060180	Nemertea*					0
LI-AGT-3	060180	Nemertea*				5	0.02
LI-AGT-3	060181	Sipunculidae				4	0.02
LI-AGT-3	060182	Demospongiae				3	0.01
LI-AGT-3	060183	Sipunculidae				1	0
LI-AGT-3	060184	Polychaeta	Polynoidae	**Polyeunoa*	*laevis*	1	0.01
LI-AGT-3	060185	Polychaeta	Sedentaria*				0
LI-AGT-3	060185	Polychaeta	Sedentaria*			51	0.04
LI-AGT-3	060186	Anthozoa	Actinidae	*Anisodora*	*albida*	1	0.01
LI-AGT-3	060187	Gastropoda (Shelled)	Volutidae	*Harpovoluta*	*charcoti*	1	0.03
LI-AGT-3	060188	Crinoidea				1	0.01
LI-AGT-3	060189	Bryozoa*				1	0.01
LI-AGT-3	060190	Gastropoda (Shelled)				1	0
LI-AGT-3	060190	Gastropoda (Shelled)				1	0.03
LI-AGT-3	060191	Priapulida					0
LI-AGT-3	060192	Polychaeta				3	0.01
LI-AGT-3	060193	Hydrozoa				4	0.01
LI-AGT-4	060194	Malacostraca	Gammarellidae	*Paraceradocus*		1	0.01
LI-AGT-4	060195	Malacostraca	Isopoda*			1	0.01
LI-AGT-4	060196	Decapoda*				1	0
LI-AGT-4	060197	Pycnogona	Colossendeidae	*Colossendeis*	*megalonyx*	1	0.01
LI-AGT-4	060198	Cirripedia				1	0
LI-AGT-4	060199	Pycnogona				1	0
LI-AGT-4	060200	Malacostraca	Amphipoda*			1	0
LI-AGT-4	060201	Malacostraca	Amphipoda*			1	0
LI-AGT-4	060202	Polychaeta	Sabellidae	*Euchone*		1	0.01
LI-AGT-4	060203	Decapoda*					0
LI-AGT-4	060204	Pycnogona				53	0.004
LI-AGT-4	060204	Pycnogona					0
LI-AGT-4	060204	Pycnogona	Colossendeidae	*Colossendeis*	*megalonyx*		0
LI-AGT-4	060205	Stelleroidea	Amphiuridae	*Amphioplus*	*peregrinator*	17	0.014
LI-AGT-4	060206	Cirripedia				1	0.01
LI-AGT-4	060207	Porifera*					0
LI-AGT-4	060208	Stelleroidea	Asteroidea*			1	0

LI-AGT-4	060209	Stelleroidea	Amphiuridae	*Amphioplus*	*peregrinator*	1	0.01
LI-AGT-4	060210	Bivalvia	Limopsidae	*Limopsis*	*lilliei*	1	0.01
LI-AGT-4	060211	Hydrozoa				1	0
LI-AGT-4	060212	Anthozoa				1	0
LI-AGT-4	060213	Nemertea*					0
LI-AGT-4	060214	Malacostraca	Amphipoda*				0
LI-AGT-4	060214	Malacostraca	Amphipoda*				0
LI-AGT-4	060214	Malacostraca	Amphipoda*			14	0
LI-AGT-4	060215	Hydrozoa					0
LI-AGT-4	060215	Hydrozoa					0.012
LI-AGT-4	060216	Ascidiacea					0
LI-AGT-4	060216	Ascidiacea					0
LI-AGT-4	060216	Ascidiacea				11	0
LI-AGT-4	060217	Polychaeta				44	0.022
LI-AGT-4	060217	Polychaeta					0
LI-AGT-4	060217	Polychaeta					0
LI-AGT-4B	060218	Malacostraca	Isopoda*			1	0
LI-AGT-4B	060219	Scaphopoda				1	0
LI-AGT-4B	060220	Bivalvia				1	0.06
LI-AGT-4B	060221	Malacostraca	Isopoda*			1	0
LI-AGT-4B	060222	Echiurida*				1	0
LI-AGT-4B	060223	Malacostraca	Isopoda*			1	0
LI-AGT-4B	060224	Polychaeta	Capitellidae			1	0.01
LI-AGT-4B	060225	Polychaeta	Polynoidae	**Polyeunoa*	*laevis*	1	0
LI-AGT-4B	060226	Anthozoa	Actinidae			1	0
LI-AGT-4B	060227	Priapulida				1	0
LI-AGT-4B	060228	Polychaeta	Polynoidae	*Eulagisca*	*gigantea*		0.167
LI-AGT-4B	060229	Polychaeta					0
LI-AGT-4B	060230	Echinoidea				1	0
LI-AGT-4B	060231	Malacostraca	Amphipoda*				0.067
LI-AGT-4B	060232	Decapoda*				1	0
LI-AGT-4B	060233	Mollusca*					0.06
LI-AGT-4B	060234	Pycnogona	Ammotheidae	*Ammothea*			0
LI-AGT-4B	060235	Pycnogona	Colossendeidae	*Colossendeis*	*megalonyx*		0
LI-AGT-4B	060236	Malacostraca	Isopoda*				0
LI-AGT-4B	060237	Porifera*				2	0.013
LI-AGT-4B	060238	Bryozoa*					0
LI-AGT-4B	060239	Decapoda*					0
DI-AGT-1	060241	Stelleroidea	Ophiolepidae	*Ophionotus*	*victoriae*	50	0.305
DI-AGT-1	060242	Stelleroidea	Ophiolepidae	*Ophionotus*	*victoriae*	100	0.495
DI-AGT-1	060242	Stelleroidea	Ophiolepidae	*Ophionotus*	*victoriae*		1.123
DI-AGT-1	060243	Echinoidea	Echinidae	*Sterechinus*		16	0.924
DI-AGT-1	060244	Malacostraca	Mysidacea*				0.481
DI-AGT-1	060245	Demospongiae					1.188
DI-AGT-1	060246	Gastropoda (Non-Shelled)				6	0.01
DI-AGT-1	060247	Bivalvia				88	0.033
DI-AGT-1	060248	Ascidiacea	Stylidae	*Cnemidocarpa*	*verrucosa*	80	5.422
DI-AGT-1	060249	Stelleroidea	Asteroidea*			1	0.02
DI-AGT-1	060250	Anopla	Lineidae	**Paraborlasia*	*corrugatus*	3	0.39

DI-AGT-1	060251	Polychaeta					0
DI-AGT-1	060251	Polychaeta					0
DI-AGT-1	060251	Polychaeta				94	0.18
DI-AGT-1	060252	Malacostraca	Amphipoda*			3	0.01
DI-AGT-1	060253	Hydrozoa				1	0.01
EI-AGT-1	060363	Bivalvia	Limidae	*Limatula*	*cf hodgsoni*		0
EI-AGT-1	060364	Malacostraca	Nematocarcinidae	*Nematocarcinus*	*longirostris*	1	0
EI-AGT-1	060365	Stelleroidea	Ophiolepidae	*Ophionotus*	*victoriae*		0
EI-AGT-1	060366	Polychaeta	Opheliidae	*Travisia*		1	0
EI-AGT-1	060367	Polychaeta	Errantia*				0
EI-AGT-1	060368	Sagittoidea	Sagittidae	*Pseudosagitta*	*gazellae?*	1	0.01
EI-AGT-1	060369	Gymnolaemata	Flustridae				0
EI-AGT-2	060370	Malacostraca	Epimeriidae	*Epimeria*			0.01
EI-AGT-2	060371	Malacostraca	Epimeriidae	*Epimeria*			0
EI-AGT-2	060372	Malacostraca	Epimeriidae	*Epimeria*			0
EI-AGT-2	060373	Malacostraca	Epimeriidae	*Epimeria*			0
EI-AGT-2	060374	Malacostraca	Isopoda*				0
EI-AGT-2	060375	Malacostraca	Epimeriidae	*Epimeria*			0
EI-AGT-2	060376	Malacostraca	Epimeriidae	*Epimeria*			0
EI-AGT-2	060377	Malacostraca	Amphipoda*				0
EI-AGT-2	060378	Malacostraca	Epimeriidae	*Epimeria*		1	0
EI-AGT-2	060379	Stelleroidea	Asteroidea*				0
EI-AGT-2	060380	Holothuroidea					0
EI-AGT-2	060381	Holothuroidea					0
EI-AGT-2	060382	Polychaeta	Aphroditidae			1	0
EI-AGT-2	060383	Holothuroidea	Psolidae	*Psolus*		1	0
EI-AGT-2	060384	Holothuroidea	Psolidae	*Psolus*		1	0
EI-AGT-2	060385	Stelleroidea	Asteroidea*				0
EI-AGT-2	060386	Gastropoda (Shelled)	Volutidae			1	0
EI-AGT-2	060387	Malacostraca	Nematocarcinidae	*Nematocarcinus*			0
EI-AGT-2	060388	Echinoidea	Irregularia*			1	0
EI-AGT-2	060389	Miscellaneous				1	0
EI-AGT-2	060390	Brachiopoda*					0
EI-AGT-2	060391	Malacostraca	Lysianassoidea			1	0
EI-AGT-2	060392	Echinoidea	Cidaridae			1	0
EI-AGT-2	060393	Malacostraca	Cirolanidae	*Natatolana*		1	0
EI-AGT-2	060394	Anthozoa				1	0
EI-AGT-2	060395	Stelleroidea	Ophiolepidae	*Ophionotus*	*victoriae*	1	0
EI-AGT-2	060396	Stelleroidea	Asteroidea*			1	0.07
EI-AGT-2	060397	Stelleroidea	Pterasteridae	*Pteraster*		1	0.02
EI-AGT-2	060398	Stelleroidea	Asteroidea*			1	0.01
EI-AGT-2	060399	Stelleroidea	Asteroidea*			5	0
EI-AGT-2	060399	Stelleroidea	Asteroidea*			2	0
EI-AGT-2	060399	Stelleroidea	Asteroidea*			1	0
EI-AGT-2	060399	Stelleroidea	Asteroidea*			1	0
EI-AGT-2	060399	Stelleroidea	Asteroidea*			2	0.06
EI-AGT-2	060400	Gymnolaemata	Flustridae			0	0
EI-AGT-2	060401	Pycnogona	Pycnogonidae	*Pentapycnon*		6	0.01
EI-AGT-2	060402	Pycnogona	Ammotheidae			7	0.01

EI-AGT-2	060403	Pycnogona	Pycnogonidae			4	0.01
EI-AGT-2	060404	Holothuroidea				35	0.19
EI-AGT-2	060405	Holothuroidea				2	0.01
EI-AGT-2	060406	Holothuroidea				1	0.01
EI-AGT-2	060407	Holothuroidea	Cucumariidae			1	0.01
EI-AGT-2	060408	Holothuroidea				1	0.01
EI-AGT-2	060409	Holothuroidea				1	0.01
EI-AGT-2	060410	Echinoidea	Cidaridae			2	0
EI-AGT-2	060411	Malacostraca	Natantia*			7	0
EI-AGT-2	060412	Anthozoa	Actinidae			73	2.03
EI-AGT-2	060413	Polychaeta	Sedentaria*				0
EI-AGT-2	060414	Polychaeta	Errantia*				0
EI-AGT-2	060414	Polychaeta	Errantia*				0
EI-AGT-2	060414	Polychaeta	Errantia*				0
EI-AGT-2	060414	Polychaeta	Errantia*				0
EI-AGT-2	060414	Polychaeta	Errantia*			18	0
EI-AGT-2	060415	Bivalvia				2	0.01
EI-AGT-2	060416	Scaphopoda	Dentaliida	*Dentalium*	*majorinum*	1	0.01
EI-AGT-2	060417	Gastropoda (Shelled)					0
EI-AGT-2	060418	Gastropoda (Shelled)					0
EI-AGT-2	060419	Holothuroidea					0
EI-AGT-2	060420	Bivalvia	Limidae	*Limatula*	*cf hodgsoni*		2.16
EI-AGT-2	060421	Holothuroidea	Psolidae	*Psolus*		1	0.01
EI-AGT-2	060422	Gastropoda (Shelled)	Buccinidae	*Buccinidae*		1	0.01
EI-AGT-2	060423	Stelleroidea	Asteroidea*			8	0.01
EI-AGT-2	060424	Ascidiacea					0
EI-AGT-2	060425	Polychaeta	Errantia*			1	0.01
EI-AGT-2	060426	Malacostraca	Amphipoda*			1	0.01
EI-AGT-2	060427	Echiurida*				1	0.01
EI-AGT-2	060428	Echiurida*				1	0.01
EI-AGT-2	060429	Bivalvia				1	0.01
EI-AGT-2	060430	Stelleroidea	Ophiuroidea*				0
EI-AGT-2	060431	Stelleroidea	Ophiuroidea*			1	0.01
EI-AGT-2	060432	Polychaeta	Errantia*			1	0.01
EI-AGT-2	060433	Holothuroidea				1	0.01
EI-AGT-2	060434	Gastropoda (Shelled)				1	0.01
EI-AGT-2	060435	Cirripedia				1	0.01
EI-AGT-2	060436	Empty	Empty	*Empty*	*Empty*		0
EI-AGT-2	060437	Empty	Empty	*Empty*	*Empty*		0
EI-AGT-2	060438	Empty	Empty	*Empty*	*Empty*		0
EI-AGT-2	060439	Anthozoa	Caryophylliidae	*Desmophyllum*		3	0
EI-AGT-2	060440	Demospongiae					0
EI-AGT-2	060441	Cirripedia				11	0.01
EI-AGT-4	060442	Malacostraca	Epimeriidae			1	0.01
EI-AGT-4	060443	Malacostraca	Eusiridae			1	0
EI-AGT-4	060444	Anthozoa	Actinidae				0
EI-AGT-4	060445	Anthozoa	Actinidae			1	0.01
EI-AGT-4	060446	Stelleroidea	Asteroidea*				0
EI-AGT-4	060447	Stelleroidea	Asteroidea*			1	0

EI-AGT-4	060448	Pycnogona					0
EI-AGT-4	060449	Gastropoda (Shelled)	Buccinidae	*Chlanidota*			0
EI-AGT-4	060450	Bivalvia				1	0.01
EI-AGT-4	060451	Anthozoa	Actinidae				0
EI-AGT-4	060452	Bivalvia	Philobryidae	*Adacnarca*		1	0.01
EI-AGT-4	060453	Malacostraca	Epimeriidae			1	0.01
EI-AGT-4	060454	Echinoidea	Irregularia*			1	0.01
EI-AGT-4	060455	Echinoidea	Cidaridae			1	0.01
EI-AGT-4	060456	Polychaeta	Polynoidae			1	0.01
EI-AGT-4	060457	Nemertea*					0.01
EI-AGT-4	060458	Stelleroidea	Asteroidea*				0.01
EI-AGT-4	060459	Stelleroidea	Asteroidea*			1	0
EI-AGT-4	060460	Echinoidea	Cidaridae				0
EI-AGT-4	060461	Gastropoda (Shelled)	Lamellariidae	*Marseniopsis*		1	0.01
EI-AGT-4	060462	Stelleroidea	Asteroidea*			1	0.01
EI-AGT-4	060463	Gastropoda (Shelled)	Buccinidae	*Buccinidae*		1	0.01
EI-AGT-4	060464	Malacostraca	Arcturidae			1	0.01
EI-AGT-4	060465	Gastropoda (Shelled)	Lamellariidae	*Marseniopsis*		1	0.01
EI-AGT-4	060466	Echinoidea	Cidaridae			1	0.01
EI-AGT-4	060467	Malacostraca	Epimeriidae			15	0.01
EI-AGT-4	060468	Malacostraca	Eusiridae	*Eusirus*		14	0.01
EI-AGT-4	060469	Malacostraca	Arcturidae				0
EI-AGT-4	060470	Malacostraca	Serolidae			25	0
EI-AGT-4	060471	Hydrozoa					0.88
EI-AGT-4	060472	Echinoidea	Schizasteridae	*Abatus*		56	1.45
EI-AGT-4	060473	Anthozoa	Actinidae			3	0
EI-AGT-4	060474	Malacostraca	Serolidae			36	0.03
EI-AGT-4	060475	Polychaeta	Polynoidae			5	0.02
EI-AGT-4	060476	Pycnogona					0
EI-AGT-4	060477	Echinoidea	Cidaridae			11	0.16
EI-AGT-4	060478	Anthozoa	Primnoidae	*Thouarella (Euthouarella)*			0.13
EI-AGT-4	060478	Anthozoa					0
EI-AGT-4	060479	Stelleroidea	Ophiuroidea*				0
EI-AGT-4	060479	Stelleroidea	Ophiuroidea*				0
EI-AGT-4	060479	Stelleroidea	Ophiuroidea*			640	1.41
EI-AGT-4	060480	Malacostraca	Mysidacea*			77	0.04
EI-AGT-4	060481	Stelleroidea	Labidiasteridae	*Labidiaster*	*radiosus*	3	1.67
EI-AGT-4	060482	Stelleroidea	Asteroidea*			1	0.34
EI-AGT-4	060483	Stelleroidea	Ganeriidae	*Perknaster*		1	0.37
EI-AGT-4	060484	Stelleroidea	Asteroidea*			15	0
EI-AGT-4	060485	Hexactinellidae				40	20
EI-AGT-4	060486	Ascidiacea					0
EI-AGT-4	060486	Ascidiacea					0
EI-AGT-4	060486	Ascidiacea					0
EI-AGT-4	060486	Ascidiacea				40	1.64
EI-AGT-4	060487	Malacostraca					0
EI-AGT-4	060487	Malacostraca					0
EI-AGT-4	060487	Malacostraca					0
EI-AGT-4	060487	Malacostraca					0

EI-AGT-4	060487	Malacostraca					0
EI-AGT-4	060487	Malacostraca					0
EI-AGT-4	060487	Malacostraca					0
EI-AGT-4	060487	Malacostraca					0
EI-AGT-4	060487	Malacostraca					0
EI-AGT-4	060487	Malacostraca					0
EI-AGT-4	060487	Malacostraca					0
EI-AGT-4	060487	Malacostraca					0
EI-AGT-4	060487	Malacostraca					0
EI-AGT-4	060487	Malacostraca					0
EI-AGT-4	060487	Malacostraca					0
EI-AGT-4	060487	Malacostraca					0
EI-AGT-4	060487	Malacostraca					0
EI-AGT-4	060487	Malacostraca					0
EI-AGT-4	060487	Malacostraca					0
EI-AGT-4	060487	Malacostraca				60	0
EI-AGT-4	060488	Gastropoda (Shelled)	Prosobranchia*			9	0.01
EI-AGT-4	060488	Gastropoda (Shelled)	Turridae	*Aforia*	*magnifica*	1	0
EI-AGT-4	060488	Gastropoda (Shelled)	Naticidae	*Naticidae*		1	0
EI-AGT-4	060488	Gastropoda (Shelled)	Turridae	*Turridae*		1	0
EI-AGT-4	060489	Holothuroidea					0
EI-AGT-4	060489	Holothuroidea					0
EI-AGT-4	060489	Holothuroidea				6	0.02
EI-AGT-4	060490	Bivalvia					0
EI-AGT-4	060490	Bivalvia				22	0.02
EI-AGT-4	060491	Bryozoa*					0
EI-AGT-4	060491	Bryozoa*					0
EI-AGT-4	060491	Bryozoa*					0
EI-AGT-4	060491	Bryozoa*					0
EI-AGT-4	060491	Bryozoa*					0
EI-AGT-4	060491	Bryozoa*					0
EI-AGT-4	060491	Bryozoa*					0
EI-AGT-4	060491	Bryozoa*					2.57
EI-AGT-4	060492	Nemertea*				1	0.01
EI-AGT-4	060492	Nemertea*				1	0.01
EI-AGT-4	060493	Polychaeta	Errantia*			10	0.01
EI-AGT-4	060494	Polychaeta	Sedentaria*			1	0.01
EI-AGT-4	060495	Polyplacophora	Ischnochitonidae	*Nuttallochiton*	*mirandus*	1	0.04
EI-AGT-3	060496	Malacostraca	Anthruridae			5	0
EI-AGT-3	060496	Malacostraca	Munnopsidae			2	0
EI-AGT-3	060497	Anthozoa	Actinidae			5	0.1
EI-AGT-3	060498	Stelleroidea	Asteroidea*			2	0.04
EI-AGT-3	060499	Echinoidea	Irregularia*			1	0.06
EI-AGT-3	060500	Sipunculidae				4	0
EI-AGT-3	060501	Malacostraca	Ischnomesidae			1	0.01
EI-AGT-3	060502	Stelleroidea	Ophiuroidea*				0
EI-AGT-3	060502	Stelleroidea	Ophiuroidea*				0.18
EI-AGT-3	060503	Pycnogona					0
EI-AGT-3	060503	Pycnogona					0.02

EI-AGT-3	060504	Polychaeta	Sedentaria*				2.96
EI-AGT-3	060505	Malacostraca	Isopoda*				0
EI-AGT-3	060506	Malacostraca	Isopoda*				0
EI-AGT-3	060507	Polychaeta	Polynoidae			11	0
EI-AGT-3	060508	Malacostraca	Amphipoda*				0
EI-AGT-3	060509	Polychaeta	Errantia*			13	0.03
EI-AGT-3	060510	Gastropoda (Shelled)	Buccinidae	*Chlanidota*		6	0.01
EI-AGT-3	060510	Gastropoda (Shelled)	Turridae	*Pontiothauma*	*ergata*	2	0.01
EI-AGT-3	060510	Gastropoda (Shelled)	Volutomitridae	*Volutomitra*		1	0.01
EI-AGT-3	060510	Bivalvia	Siliculidae	*Propeleda*	*longicaudata*	3	0.01
EI-AGT-3	060510	Bivalvia	Limidae	*Limatula*		1	0.01
EI-AGT-3	060510	Bivalvia	Poromyidae	*Poromya*		1	0.01
EI-AGT-3	060510	Scaphopoda	Gadilidae	*Siphodentalium*	*dalli forma antarcticus*	3	0.01
EI-AGT-3	060510	Scaphopoda	Dentaliida	*Dentalium*	*majorinum*	2	0.01
EI-AGT-3	060511	Gymnolaemata	Flustridae				0
EI-AGT-3	060512	Polychaeta	Opheliidae	*Travisia*		7	0.01
EI-AGT-3	060513	Holothuroidea				1	0
EI-AGT-3	060513	Holothuroidea				1	0
EI-AGT-3	060513	Holothuroidea				1	0.02
EI-AGT-3	060514	Hexactinellidae				5	0.06
EI-AGT-3	060515	Polychaeta	Sedentaria*				0
EI-AGT-3	060516	Miscellaneous					0
PB-AGT-1	060543	Polychaeta	Sedentaria*			57	0.03
PB-AGT-1	060544	Malacostraca	Mysidacea*				0
PB-AGT-1	060545	Anthozoa	Actinidae			1	0.04
PB-AGT-1	060546	Echinoidea				3	0
PB-AGT-1	060547	Stelleroidea	Ophiolepidae	*Ophionotus*		22	0.03
PB-AGT-1	060548	Miscellaneous					0
PB-AGT-1	060549	Polychaeta	Errantia*			1	0.01
PB-AGT-1	060550	Malacostraca	Amphipoda*			1	0.01
PB-AGT-1	060550	Malacostraca	Amphipoda*			1	0.01
PB-AGT-1	060551	Malacostraca	Gammarellidae	*Paraceradocus*			0
PB-AGT-1	060552	Pycnogona				3	0
PB-AGT-1	060553	Malacostraca	Serolidae	*Serolis*		1	0.01
PB-AGT-1	060554	Holothuroidea				4	0.01
PB-AGT-1	060555	Hydrozoa				1	0.01
PB-AGT-1	060556	Bryozoa*					0
PB-AGT-1	060557	Demospongiae				1	0.01
PB-AGT-1	060558	Ascidiacea				1	0.02
PB-AGT-1	060559	Anthozoa				1	0.01
PB-AGT-1B	060560	Anthozoa				1	0.183
PB-AGT-1B	060561	Stelleroidea	Ophiolepidae	*Ophionotus*	*victoriae*	5	0.01
PB-AGT-1B	060561	Stelleroidea	Ophiuroidea*			3	0.01
PB-AGT-1B	060562	Stelleroidea	Asteroidea*			1	0
PB-AGT-1B	060562	Stelleroidea	Asteroidea*			1	0
PB-AGT-1B	060562	Stelleroidea	Asteroidea*			1	0.09
PB-AGT-1B	060563	Malacostraca	Nematocarcinidae	*Nematocarcinus*	*longirostris*	11	0.154
PB-AGT-1B	060564	Polychaeta	Opheliidae	*Travisia*		1	0.01
PB-AGT-1B	060565	Pycnogona				1	0.01

PB-AGT-1B	060565	Pycnogona				1	0.01
PB-AGT-1B	060566	Holothuroidea				2	0.01
PB-AGT-1B	060567	Ascidiacea				1	0
PB-AGT-1B	060567	Ascidiacea				10	0
PB-AGT-1B	060568	Malacostraca	Munnopsidae			1	0.01
PB-AGT-2	060569	Anthozoa	Dendrophyllidae			9	0.14
PB-AGT-2	060570	Holothuroidea	Synallactidae	*Bathyplotes*		3	0.49
PB-AGT-2	060571	Malacostraca	Nematocarcinidae	*Nematocarcinus*	*longirostris*	17	0.15
PB-AGT-2	060572	Anthozoa	Actinidae			1	0.15
PB-AGT-2	060573	Echinoidea	Cidaridae	*Ctenocidaris*		5	0.24
PB-AGT-2	060574	Malacostraca	Epimeriidae			9	0.01
PB-AGT-2	060574	Malacostraca	Epimeriidae			2	0.01
PB-AGT-2	060575	Polychaeta	Opheliidae	*Travisia*		5	0.02
PB-AGT-2	060576	Holothuroidea				28	0.09
PB-AGT-2	060577	Echinoidea				1	0
PB-AGT-2	060578	Pycnogona				135	0
PB-AGT-2	060579	Gastropoda (Shelled)					0
PB-AGT-2	060579	Gastropoda (Shelled)	Buccinidae	*Chlanidota*		5	0.01
PB-AGT-2	060580	Missing	Missing	*Missing*			0
PB-AGT-2	060581	Holothuroidea	Cucumariidae			9	0.01
PB-AGT-2	060582	Polychaeta	Errantia*			1	0.01
PB-AGT-2	060583	Stelleroidea	Ophiuroidea*			5	0.01
PB-AGT-2	060584	Stelleroidea	Ophiuroidea*			12	0.01
PB-AGT-2	060585	Stelleroidea	Ophiuroidea*			11	0.01
PB-AGT-2	060586	Echiurida*				2	0.01
PB-AGT-2	060587	Crinoidea				3	0.01
PB-AGT-2	060588	Fish*				1	0
PB-AGT-2	060589	Echinoidea				1	0.01
PB-AGT-2	060590	Polychaeta	Errantia*			7	0.01
PB-AGT-2	060591	Sipunculidae				3	0.01
PB-AGT-2	060592	Malacostraca	Mysidacea*			1	0.01
PB-AGT-2	060592	Miscellaneous				1	0.01
PB-AGT-1	060593	Holothuroidea	Psolidae	*Psolus*		1	0.01
PB-AGT-3	060594	Anthozoa	Actinidae			10	0.91
PB-AGT-3	060595	Stelleroidea	Asteroidea*			11	0.29
PB-AGT-3	060595	Stelleroidea	Asteroidea*			2	0
PB-AGT-3	060595	Stelleroidea	Asteroidea*			1	0
PB-AGT-3	060596	Articulata	Terenratulidae	*Liothyrella*	*uva*	1	0.01
PB-AGT-3	060597	Bivalvia				1	0.01
PB-AGT-3	060598	Anthozoa	Umbellulidae	*Umbellula*		1	0.02
PB-AGT-3	060599	Anthozoa	Primnoidae	*Thouarella (Euthouarella)*		1	0.01
PB-AGT-3	060600	Echinoidea	Cidaridae	*Ctenocidaris*		11	0.22
PB-AGT-3	060601	Anthozoa	Primnoidae	*Primnoella*		2	0.01
PB-AGT-3	060602	Echinoidea	Irregularia*			2	0.02
PB-AGT-3	060603	Malacostraca	Amphipoda*			11	0
PB-AGT-3	060603	Malacostraca	Amphipoda*			1	0
PB-AGT-3	060603	Malacostraca	Mysidacea*			3	0
PB-AGT-3	060604	Gastropoda (Shelled)				5	0.01
PB-AGT-3	060604	Gastropoda (Shelled)	Buccinidae	*Chlanidota*			0

PB-AGT-3	060604	Gastropoda (Shelled)	Trochidae	*Antimargarita*	*dulcis*		0
PB-AGT-3	060605	Hexactinellidae				21	0.55
PB-AGT-3	060606	Stelleroidea	Asteroidea*			2	0
PB-AGT-3	060606	Stelleroidea	Asteroidea*			4	0
PB-AGT-3	060606	Stelleroidea	Asteroidea*			8	0
PB-AGT-3	060607	Stelleroidea	Ophiolepidae	*Ophiurolepis*		6	0.01
PB-AGT-3	060608	Stelleroidea	Ophiuroidea*			79	0.01
PB-AGT-3	060609	Stelleroidea	Ophiuroidea*			9	0.01
PB-AGT-3	060610	Polychaeta	Sedentaria*				0.14
PB-AGT-3	060611	Holothuroidea	Psolidae	*Psolus*		8	0
PB-AGT-3	060612	Pycnogona	Colossendeidae	*Colossendeis*	*megalonyx*	1	0
PB-AGT-3	060612	Pycnogona				2	0
PB-AGT-3	060612	Pycnogona				1	0
PB-AGT-3	060612	Pycnogona				24	0
PB-AGT-3	060613	Hydrozoa				5	0.01
PB-AGT-3	060614	Demospongiae				1	0.01
PB-AGT-3	060615	Anthozoa				1	0.01
PB-AGT-3	060616	Gastropoda (Shelled)				1	0.01
PB-AGT-3	060617	Polychaeta	Polynoidae			1	0.01
PB-AGT-3	060618	Holothuroidea				4	0.01
PB-AGT-3	060619	Bryozoa*					0
PB-AGT-4	060620	Stelleroidea	Astropectinidae	**Psilaster*		1	0.16
PB-AGT-4	060621	Holothuroidea	Synallactidae	*Bathyplotes*		4	3.15
PB-AGT-4	060622	Stelleroidea	Ophiuroidea*			1	0.01
PB-AGT-4	060623	Anthozoa	Primnoidae	*Thouarella (Euthouarella)*		1	0.03
PB-AGT-4	060624	Echinoidea	Irregularia*	*Tripylaster*		18	0.01
PB-AGT-4	060625	Echinoidea	Schizasteridae	*Abatus*		21	0.13
PB-AGT-4	060626	Holothuroidea	Cucumariidae			1	0.09
PB-AGT-4	060627	Gymnolaemata	Sclerodomidae	*Cellarinella*			0
PB-AGT-4	060628	Stelleroidea	Ophiuroidea*			2	0.01
PB-AGT-4	060629	Echinoidea	Irregularia*	*Tripylaster*		4	0
PB-AGT-4	060630	Echinoidea	Schizasteridae	*Abatus*		2	0.01
PB-AGT-4	060631	Anthozoa				1	0
PB-AGT-4	060632	Miscellaneous					0
PB-AGT-4	060633	Anthozoa				2	0
PB-AGT-4	060633	Demospongiae					0
PB-AGT-4	060634	Crinoidea				9	0.03
PB-AGT-4	060635	Stelleroidea	Odontasteridae	**Odontaster*		1	0.01
PB-AGT-4	060636	Stelleroidea	Ophiuroidea*			12	0.02
PB-AGT-4	060637	Malacostraca	Arcturidae			11	0
PB-AGT-4	060637	Malacostraca	Epimeriidae			3	0
PB-AGT-4	060637	Malacostraca	Serolidae			13	0
PB-AGT-4	060637	Malacostraca	Cirolanidae	*Natatolana*		3	0
PB-AGT-4	060638	Polychaeta	Errantia*			13	0.01
PB-AGT-4	060639	Malacostraca	Crangonidae	*Notocrangon*	*antarcticus*	21	0.02
PB-AGT-4	060640	Polychaeta	UNKNOWN Polychaeta			1	0
PB-AGT-4	060641	Malacostraca	Mysidacea*				0.19
PB-AGT-4	060642	Gastropoda (Shelled)	Turridae	*Pontiothauma*	*ergata*	2	0.01
PB-AGT-4	060642	Gastropoda (Shelled)	Buccinidae	*Chlanidota*		5	0.01

PB-AGT-4	060642	Scaphopoda	Gadilidae	*Siphodentalium*	*dalli forma antarcticus*	8	0.01
PB-AGT-4	060642	Mollusca*				1	0.01
PB-AGT-4	060642	Gastropoda (Shelled)	Volutomitridae	*Volutomitra*		6	0.01
PB-AGT-4	060642	Gastropoda (Non-Shelled)	Doridiidae	*Austrodoris*	*kerguelenensis*	1	0.01
PB-AGT-4	060642	Gastropoda (Non-Shelled)	Tritoniidae	*Tritonia*		1	0.01
PB-AGT-4	060643	Ascidiacea					0.08
PB-AGT-4	060644	Polychaeta	Opheliidae	*Travisia*		9	0.01
PB-AGT-4	060645	Bryozoa*					0.11
PB-AGT-4	060646	Bryozoa*					0.19
PB-AGT-4	060647	Polychaeta				49	0.02
PB-AGT-4	060648	Malacostraca	Amphipoda*			18	0.01
PB-AGT-4	060649	Scaphopoda	Gadilidae	*Siphodentalium*	*dalli forma antarcticus*	3	0.01
PB-AGT-4	060649	Bivalvia	Siliculidae	*Propeleda*	*longicaudata*	10	0.01
PB-AGT-4	060649	Bivalvia	Limidae	*Limatula*	*hodgsoni*	1	0.01
PB-AGT-4	060649	Bivalvia	Philobryidae	*Philobrya*	*sublaevis*	1	0.01
PB-AGT-4	060649	Bivalvia	Sareptidae	*Yoldia*		22	0.01
PB-AGT-4	060650	Pycnogona				3	0.01
PB-AGT-4	060651	Demospongiae					10
ST-AGT-4	060688	Stelleroidea	Ophiolepidae	*Ophionotus*	*victoriae*	1	0.01
ST-AGT-4	060689	Stelleroidea	Odontasteridae	**Odontaster*	*validus*	1	0.01
ST-AGT-4	060690	Stelleroidea	Ophiolepidae	*Ophionotus*	*victoriae*	16	0.18
ST-AGT-4	060691	Stelleroidea	Asteroidea*			1	0.05
ST-AGT-4	060691	Stelleroidea	Asteroidea*			3	0
ST-AGT-4	060691	Stelleroidea	Asteroidea*			3	0
ST-AGT-4	060692	Stelleroidea	Asteriidae	*Diplasterias*		1	0.01
ST-AGT-4	060693	Stelleroidea	Odontasteridae	**Odontaster*		4	0.02
ST-AGT-4	060694	Anthozoa	Actinidae			4	0.38
ST-AGT-4	060695	Crinoidea				6	0.14
ST-AGT-4	060696	Anthozoa	Umbellulidae	*Umbellula*		1	0.02
ST-AGT-4	060697	Decapoda*				1	0.02
ST-AGT-4	060698	Stelleroidea	Ophiuroidea*			1	0.01
ST-AGT-4	060699	Pycnogona				3	0
ST-AGT-4	060700	Holothuroidea	Cucumariidae	*Cucumaria*		5	0.13
ST-AGT-4	060701	Pycnogona				100	0.08
ST-AGT-4	060702	Ascidiacea	Stylidae	**Cnemidocarpa*	*verrucosa*		0.02
ST-AGT-4	060703	Malacostraca	Arcturidae	*Antarcturus*		1	0.01
ST-AGT-4	060704	Malacostraca	Amphipoda*			26	0.01
ST-AGT-4	060705	Ascidiacea	Stylidae	**Cnemidocarpa*	*verrucosa*	14	2.42
ST-AGT-4	060706	Decapoda*				7	0.01
ST-AGT-4	060707	Ascidiacea	Pyrosomes*			8	0.25
ST-AGT-4	060708	Malacostraca	Amphipoda*			7	0.01
ST-AGT-4	060709	Nemertea*				3	0.01
ST-AGT-4	060710	Polychaeta	Polynoidae			12	0.08
ST-AGT-4	060711	Polychaeta	Nephtyidae	*Aglaophamus*		1	0.01
ST-AGT-4	060712	Gastropoda (Shelled)	Philinidae	*Philine*		2	0.01
ST-AGT-4	060713	Ascidiacea				56	3.67
ST-AGT-4	060714	Bivalvia				2	0.01
ST-AGT-4	060715	Gastropoda (Shelled)				2	0.01
ST-AGT-4	060716	Gastropoda (Shelled)	Philinidae	*Philine*		2	0.01

ST-AGT-4	060717	Gastropoda (Shelled)	Lamellariidae	*Marseniopsis*		3	0.01
ST-AGT-4	060718	Polychaeta				14	0.01
ST-AGT-4	060719	Bryozoa*					0.01
ST-AGT-3	060720	Stelleroidea	Labidiasteridae	*Labidiaster*		1	0.93
ST-AGT-3	060721	Ascidiacea	Stylidae	*Cnemidocarpa*		15	3.13
ST-AGT-3	060722	Polychaeta	Nephtyidae	*Aglaophamus*		1	0.02
ST-AGT-3	060723	Anthozoa	Actinidae			2	0.07
ST-AGT-3	060724	Polychaeta	Polynoidae			6	0.07
ST-AGT-3	060725	Anopla	Lineidae	*Parborlasia*		2	0.01
ST-AGT-3	060726	Stelleroidea	Ophiuroidea*			20	0.09
ST-AGT-3	060726	Stelleroidea	Ophiuroidea*			5	0
ST-AGT-3	060727	Priapulida	Priapulidae			2	0.01
ST-AGT-3	060728	Demospongiae				1	0.04
ST-AGT-3	060729	Pycnogona					0
ST-AGT-3	060730	Crinoidea				2	0.02
ST-AGT-3	060731	Gastropoda (Shelled)				1	0.01
ST-AGT-3	060732	Ascidiacea				7	0.01
ST-AGT-3	060733	Ascidiacea	Pyrosomes*			5	0.05
ST-AGT-3	060734	Stelleroidea	Asteroidea*			7	0.01
ST-AGT-3	060735	Malacostraca	Amphipoda*			1	0.01
ST-AGT-3	060736	Malacostraca	Mysidacea*			1	0.01
ST-AGT-3	060737	Holothuroidea				1	0.01
ST-AGT-3	060738	Hydrozoa				1	0.01
ST-AGT-3	060738	Hydrozoa				1	0.01
ST-AGT-3	060739	Polychaeta	Errantia*			2	0.01
ST-AGT-2	060740	Anthozoa	Actinidae			1	0.26
ST-AGT-2	060741	Stelleroidea	Asteroidea*			2	0.19
ST-AGT-2	060741	Stelleroidea	Asteroidea*			2	0
ST-AGT-2	060742	Stelleroidea	Ophiuroidea*			14	0.04
ST-AGT-2	060743	Gymnolaemata	Flustridae			1	0.01
ST-AGT-2	060744	Echinoidea	Irregularia*			3	0.03
ST-AGT-2	060745	Holothuroidea				1	0.07
ST-AGT-2	060746	Holothuroidea				1	0.08
ST-AGT-2	060747	Decapoda*				21	0.11
ST-AGT-2	060748	Holothuroidea	Cucumariidae			2	0.02
ST-AGT-2	060749	Holothuroidea				64	2.87
ST-AGT-2	060750	Holothuroidea				1	0.05
ST-AGT-2	060751	Pycnogona				11	0.01
ST-AGT-2	060752	Sipunculidae				1	0.01
ST-AGT-2	060753	Polychaeta	Polynoidae			3	0.01
ST-AGT-2	060754	Bivalvia				2	0.01
ST-AGT-2	060755	Nemertea*				1	0.01
ST-AGT-2	060756	Polychaeta	Errantia*			2	0.01
ST-AGT-2	060757	Mollusca*				2	0.01
ST-AGT-2	060758	Demospongiae				2	0.01
ST-AGT-2	060759	Crinoidea				1	0.01
ST-AGT-2	060760	Ascidiacea				1	0.01
ST-AGT-2	060761	Ascidiacea	Pyrosomes*			1	0.01
ST-AGT-2	060762	Sagittoidea	Sagittidae	*Pseudosagitta*	*gazellae?*	1	0.01

ST-AGT-1	060763	Stelleroidea	Astropectinidae	**Psilaster*		1	0.07
ST-AGT-1	060764	Stelleroidea	Pterasteridae	*Pteraster*		4	0
ST-AGT-1	060765	Decapoda*				1	0
ST-AGT-1	060766	Holothuroidea				1	0
ST-AGT-1	060767	Holothuroidea					1.64
ST-AGT-1	060768	Stelleroidea	Asteroidea*			1	0
ST-AGT-1	060769	Decapoda*				90	0.36
ST-AGT-1	060770	Holothuroidea				1	0
ST-AGT-1	060771	Holothuroidea				9	0.12
ST-AGT-1	060772	Stelleroidea	Ophiolepidae	*Ophionotus*	*victoriae*	46	0.14
ST-AGT-1	060773	Pycnogona	Nymphonidae	*Sexanyphon*	*mirabilis*	2	0.01
ST-AGT-1	060774	Gastropoda (Shelled)	Volutidae	*Harpovoluta*	*charcoti*	3	0
ST-AGT-1	060775	Miscellaneous				1	0.01
ST-AGT-1	060776	Polychaeta	Polynoidae	**Barrukia*	*cristata*		0.08
SG-AGT-4	060779	Stelleroidea	Gorgonocephalidae	*Astrotoma*	*agassizii*	2	0.32
SG-AGT-4	060780	Hexactinellidae	Rosellidae	**Rosella*	*racovitzae*	1	0.44
SG-AGT-4	060781	Echinoidea	Echinidae	*Sterechinus*	*antarcticus*	19	0.49
SG-AGT-4	060782	Echinoidea	Cidaridae	*Ctenocidaris*		23	0.38
SG-AGT-4	060782	Bivalvia	Philobryidae	*Lissarca*	*notorcadensis*		0
SG-AGT-4	060783	Stelleroidea	Labidiasteridae	*Labidiaster*	*radiosus*	1	0.01
SG-AGT-4	060784	Anthozoa	Actinidae			4	0.1
SG-AGT-4	060785	Anthozoa	Actinidae			2	0.03
SG-AGT-4	060786	Demospongiae				1	0.08
SG-AGT-4	060787	Anthozoa	Primnoidae	*Thouarella (Euthouarella)*		1	0.01
SG-AGT-4	060788	Anthozoa				1	0.01
SG-AGT-4	060788	Anthozoa				1	0.01
SG-AGT-4	060789	Stelleroidea	Ophiuroidea*			16	0.01
SG-AGT-4	060790	Malacostraca	Crangonidae	*Notocrangon*	*antarcticus*	5	0.01
SG-AGT-4	060791	Malacostraca	Serolidae	*Serolis*		4	0.01
SG-AGT-4	060792	Malacostraca	Lithodidae	*Paralomis*	*spinosissima*	2	0.51
SG-AGT-4	060793	Pycnogona				1	0.01
SG-AGT-4	060793	Pycnogona				1	0.01
SG-AGT-4	060794	Bryozoa*					0.01
SG-AGT-4	060794	Bryozoa*					0.01
SG-AGT-4	060794	Bryozoa*					0.01
SG-AGT-4	060795	Polychaeta				12	0.01
SG-AGT-4	060796	Malacostraca	Mysidacea*			178	0.08
SG-AGT-4	060797	Ascidiacea				67	1.32
SG-AGT-4	060798	Stelleroidea	Ophiuroidea*			37	0.01
SG-AGT-4	060799	Anthozoa				2	0.01
SG-AGT-4	060800	Demospongiae				14	0.09
SG-AGT-4	060801	Holothuroidea					0.01
SG-AGT-3	060802	Echinoidea	Echinidae	*Sterechinus*	*antarcticus*	5	0
SG-AGT-3	060803	Echinoidea	Echinidae	*Sterechinus*	*antarcticus*	174	4.92
SG-AGT-3	060804	Gastropoda (Non-Shelled)				1	0.01
SG-AGT-3	060805	Miscellaneous				2	0.01
SG-AGT-3	060806	Malacostraca	Serolidae	*Serolis*		1	0.01
SG-AGT-3	060807	Malacostraca	Arcturidae	*Antarcturus*		3	0.01
SG-AGT-3	060808	Ascidiacea				31	0.025

SG-AGT-3	060809	Demospongiae					0.197
SG-AGT-3	060810	Anthozoa					0.03
SG-AGT-3	060811	Polychaeta	Errantia*			1	0.01
SG-AGT-3	060812	Malacostraca	Amphipoda*			1	0.01
SG-AGT-3	060813	Malacostraca	Mysidacea*			1	0.01
SG-AGT-3	060814	Ascidiacea				1	0.01
SG-AGT-2	060815	Fish*					0
SG-AGT-2	060816	Fish*					0
SG-AGT-2	060817	Malacostraca	Lithodidae	*Neolithodes*	*diomedea*	1	1.86
SG-AGT-2	060818	Anthozoa	Primnoidae	*Thouarella (Euthouarella)*		15	0.16
SG-AGT-2	060819	Malacostraca	Arcturidae	*Antarcturus*		1	0.01
SG-AGT-2	060819	Malacostraca	Amphipoda*			1	0.01
SG-AGT-2	060819	Malacostraca	Serolidae	*Serolis*		2	0.01
SG-AGT-2	060820	Demospongiae					0.03
SG-AGT-2	060821	Polychaeta				3	0.01
SG-AGT-2	060821	Polychaeta	Opheliidae	*Travisia*		3	0.01
SG-AGT-2	060822	Malacostraca	Mysidacea*			16	0.04
SG-AGT-2	060823	Echiurida*				1	0.02
SG-AGT-1	060824	Malacostraca	Isopoda*			2	0.01
SG-AGT-1	060825	Polychaeta	Errantia*			3	0.01
SG-AGT-1	060826	Malacostraca	Mysidacea*			3	0.01
SG-AGT-1	060827	Fish*				2	0
SG-AGT-5	060836	Stelleroidea	Asteroidea*			4	0.05
SG-AGT-5	060837	Stelleroidea	Asteroidea*			2	0.03
SG-AGT-5	060838	Malacostraca	Isopoda*			5	0.01
SG-AGT-5	060839	Malacostraca	Euphausiidae	*Euphausia*		6	0.01
SG-AGT-5	060840	Bivalvia	Siliculidae	*Propeleda*	*longicaudata*	31	0.01
SG-AGT-5	060841	Anthozoa	Actinidae			1	0.01
SG-AGT-5	060842	Polychaeta	Nephtyidae	*Aglaophamus*		4	0.01
SG-AGT-5	060843	Decapoda*					0.94
SG-AGT-5	060844	Polychaeta	Sedentaria*				0.08
SG-AGT-5	060845	Stelleroidea	Ophiuroidea*			31	0.02
SG-AGT-5	060846	Priapulida				3	0.01
SG-AGT-5	060847	Gastropoda (Shelled)				0	0
SR-AGT-4	060856	Echinoidea	Echinidae	*Sterechinus*		59	1.18
SR-AGT-4	060857	Pycnogona				9	0.01
SR-AGT-4	060858	Echinoidea	Irregularia*			1	0.01
SR-AGT-4	060859	Anthozoa	Gorgonidae			1	0
SR-AGT-4	060860	Anthozoa					0
SR-AGT-4	060861	Malacostraca	Arcturidae	*Antarcturus*		18	0.02
SR-AGT-4	060862	Anthozoa				1	0
SR-AGT-4	060863	Crinoidea				4	0.02
SR-AGT-4	060864	Anthozoa				1	0.01
SR-AGT-4	060865	Anthozoa				1	0.01
SR-AGT-4	060866	Demospongiae				1	0.02
SR-AGT-4	060867	Demospongiae					2
SR-AGT-4	060868	Anthozoa	Primnoidae	*Thouarella (Euthouarella)*			0.57
SR-AGT-4	060869	Anthozoa				1	0.01
SR-AGT-4	060870	Stelleroidea	Gorgonocephalidae	*Astrotoma*	*agassizii*	52	1.87

SR-AGT-4	060871	Stelleroidea	Gorgonocephalidae	*Gorgonocephalus*	*chilensis*	12	2.07
SR-AGT-4	060872	Miscellaneous				1	0
SR-AGT-4	060873	Gastropoda (Shelled)				1	0.01
SR-AGT-4	060874	Cirripedia					0.01
SR-AGT-4	060875	Brachiopoda*				6	0.01
SR-AGT-4	060876	Gastropoda (Shelled)				1	0.01
SR-AGT-4	060877	Gastropoda (Shelled)				8	0.01
SR-AGT-4	060878	Bivalvia				1	0.01
SR-AGT-4	060879	Holothuroidea	Psolidae	*Psolus*		1	0.01
SR-AGT-4	060880	Stelleroidea	Asteroidea*			1	0
SR-AGT-4	060881	Stelleroidea	Asteroidea*			1	0.01
SR-AGT-4	060882	Stelleroidea	Labidiasteridae	*Labidiaster*	*radiosus*	1	0.01
SR-AGT-4	060883	Stelleroidea	Ophiuroidea*			20	0
SR-AGT-4	060884	Malacostraca	Serolidae	*Serolis*		2	0.01
SR-AGT-4	060885	Stelleroidea	Ophiuroidea*			50	0.03
SR-AGT-4	060886	Calcarea				1	0.01
SR-AGT-4	060887	Anthozoa				7	0.01
SR-AGT-4	060888	Stelleroidea	Gorgonocephalidae	*Astrotoma*	*agassizii*	17	0.07
SR-AGT-4	060889	Stelleroidea	Asteroidea*			11	0.01
SR-AGT-4	060890	Stelleroidea	Asteroidea*			6	0.01
SR-AGT-4	060891	Stelleroidea	Asteroidea*			2	0.01
SR-AGT-4	060892	Stelleroidea	Ophiuroidea*			2	0.01
SR-AGT-4	060893	Anthozoa	Primnoidae	*Primnoella*		10	0
SR-AGT-4	060894	Stelleroidea	Ophiuroidea*			10	0
SR-AGT-4	060895	Echinoidea	Cidaridae	*Ctenocidaris*		7	0.47
SR-AGT-4	060896	Anthozoa				4	0.01
SR-AGT-4	060897	Ascidiacea				5	0.28
SR-AGT-4	060898	Ascidiacea				2	0.1
SR-AGT-4	060899	Anthozoa	Actinidae			1	0.06
SR-AGT-4	060900	Anthozoa					0.1
SR-AGT-4	060901	Anthozoa					0.07
SR-AGT-4	060902	Anthozoa					0.17
SR-AGT-4	060903	Polychaeta					0
SR-AGT-4	060904	Demospongiae					0.36
SR-AGT-4	060905	Anthozoa				3	0.01
SR-AGT-4	060906	Demospongiae				1	0
SR-AGT-4	060907	Anthozoa				3	0.05
SR-AGT-4	060908	Bryozoa*					0.02
SR-AGT-4	060909	Hydrozoa					0.45
SR-AGT-4	060910	Anthozoa				1	0.05
SR-AGT-4	060911	Hydrozoa					0.01
SR-AGT-4	060912	Ascidiacea				2	0.01
SR-AGT-4	060913	Demospongiae					0.7
SR-AGT-3	060914	Echinoidea	Echinidae	*Sterechinus*	*antarcticus*	1	0.01
SR-AGT-3	060915	Echinoidea	Cidaridae	*Ctenocidaris*		2	0.02
SR-AGT-3	060916	Hexactinellidae				1	0.23
SR-AGT-3	060917	Demospongiae					0
SR-AGT-3	060918	Stelleroidea	Gorgonocephalidae	*Gorgonocephalus*	*chilensis*	1	0.05
SR-AGT-3	060919	Gastropoda (Shelled)	Trochidae	*Venustatrochus*	*georfianus*	3	0.02

SR-AGT-3	060920	Brachiopoda*					0.07
SR-AGT-3	060921	Demospongiae				13	0.03
SR-AGT-3	060922	Decapoda*					0.18
SR-AGT-3	060923	Stelleroidea	Asteroidea*			1	0.01
SR-AGT-3	060923	Stelleroidea	Asteroidea*			1	0.01
SR-AGT-3	060923	Stelleroidea	Asteroidea*			1	0.01
SR-AGT-3	060924	Malacostraca	Arcturidae	*Antarcturus*		1	0.01
SR-AGT-3	060925	Stelleroidea	Ophiuroidea*			21	0
SR-AGT-3	060926	Polychaeta	Errantia*			8	0.01
SR-AGT-3	060927	Holothuroidea	Psolidae	*Psolus*		1	0.01
SR-AGT-3	060928	Crinoidea				2	0.01
SR-AGT-3	060929	Bryozoa*					0.01
SR-AGT-3	060930	Anthozoa					0.08
SR-AGT-3	060931	Anthozoa	Dendrophyllidae				0.34
SR-AGT-3	060932	Anthozoa					0.06
SR-AGT-3	060933	Anthozoa					0.18
SR-AGT-3	060934	Hydrozoa					0.06
SR-AGT-3	060935	Miscellaneous				1	0.01
SR-AGT-1	060936	Decapoda*				8	0.06
SR-AGT-1	060937	Anthozoa				1	0.01
SR-AGT-5	060938	Malacostraca	Lithodidae	*Paralomis*	*anamerae*	1	0.181
SR-AGT-5	060939	Malacostraca	Lithodidae	*Paralomis*	*spinosissima*	1	0.416
SR-AGT-5	060940	Malacostraca	Serolidae	*Serolis*			0.01
SR-AGT-5	060941	Miscellaneous					0.079
SR-AGT-5	060942	Miscellaneous				2	0.01
SR-AGT-5	060943	Anthozoa					0.01
SR-AGT-6	060944	Malacostraca	Lithodidae	*Paralomis*	*anamerae*	2	0.284
SR-AGT-6	060945	Demospongiae				1	0.01
SR-AGT-6	060945	Polychaeta	Serpulidae	**Serpula*	*narconensis*	1	0.01
SR-AGT-6	060946	Hydrozoa				5	0.01
SR-AGT-6	060947	Miscellaneous					0.014
SR-AGT-6	060948	Polychaeta	Serpulidae	**Serpula*	*narconensis*		0.05
SR-AGT-6	060949	Miscellaneous				1	0
SR-AGT-6	060949	Anthozoa				1	0.01
SR-AGT-6	060950	Polychaeta					0.01
SR-AGT-6	060951	Demospongiae				2	0.01
SR-AGT-6	060952	Ascidiacea				3	0.01
SR-AGT-6	060953	Gastropoda (Shelled)				1	0.01
SR-AGT-6	060954	Bryozoa*				1	0.001
SR-AGT-6	060955	Malacostraca	Amphipoda*			4	0.01

8.3.2. RBOT samples

STATION	VIAL_ID	CLASS	FAMILY	GENUS	SPECIES	NO
DI-RBOT-1	060254	Pycnogona	Colossendeidae	*Decolopoda*	*australis*	1
DI-RBOT-1	060255	Pycnogona				
DI-RBOT-1	060256	Pycnogona				
DI-RBOT-1	060257	Pycnogona	Colossendeidae	*Colossendeis*	*robusta*	1
DI-RBOT-1	060258	Pycnogona	Ammotheidae	*Ammothea*	*gigantea*	1
DI-RBOT-1	060259	Gastropoda (Non-Shelled)	Tritoniidae			
DI-RBOT-1	060261	Gastropoda (Shelled)	Lamellariidae	*Marseniopsis*		
DI-RBOT-1	060262	Gastropoda*				
DI-RBOT-1	060263	Ascidiacea				
DI-RBOT-1	060264	Anthozoa	Umbellulidae	*Umbellula*		
DI-RBOT-1	060265	Decapoda*				
DI-RBOT-1	060266	Missing	Missing	*Missing*	*Missing*	
DI-RBOT-1	060267	Anthozoa				
DI-RBOT-1	060268	Echinoidea	Irregularia*			
DI-RBOT-1	060269	Echinoidea				
DI-RBOT-1	060270	Pycnogona				
DI-RBOT-1	060271	Pycnogona				
DI-RBOT-1	060272	Echinoidea	Regularia*			
DI-RBOT-1	060273	Echinoidea	Irregularia*			
DI-RBOT-1	060274	Malacostraca	Isopoda*			
DI-RBOT-1	060275	Stelleroidea	Labidiasteridae	*Labidiaster*		
DI-RBOT-1	060276	Holothuroidea	Synallactidae	*Bathyplotes*	*bongraini*	
DI-RBOT-1	060277	Pycnogona				
DI-RBOT-1	060278	Bivalvia	Limopsidae	*Limopsis*	*marionensis*	
DI-RBOT-1	060279	Pycnogona				
DI-RBOT-1	060280	Stelleroidea	Asteroidea*			
DI-RBOT-1	060281	Stelleroidea	Asteroidea*			
DI-RBOT-1	060282	Stelleroidea	Asteroidea*			
DI-RBOT-1	060283	Anthozoa				
DI-RBOT-1	060284	Stelleroidea	Asteroidea*			
DI-RBOT-1	060285	Stelleroidea	Asteroidea*			
DI-RBOT-1	060286	Mollusca*				
DI-RBOT-1	060287	Crustacea*				
DI-RBOT-1	060288	Pycnogona				
DI-RBOT-1	060289	Polychaeta	Aphroditidae	*Laetmonice*	*producta producta*	1
DI-RBOT-1	060290	Stelleroidea	Amphiuridae	*Amphioplus*	*peregrinator*	
DI-RBOT-1	060291	Stelleroidea	Asteroidea*			
DI-RBOT-1	060292	Gastropoda (Non-Shelled)				
DI-RBOT-1	060293	Anthozoa	Actinidae			
DI-RBOT-1	060294	Ascidiacea				
DI-RBOT-1	060295	Gastropoda (Non-Shelled)				
DI-RBOT-1	060296	Bryozoa*				
DI-RBOT-1	060297	Echinoidea	Cidaridae			
DI-RBOT-1	060298	Echinoidea	Cidaridae			
DI-RBOT-1	060299	Demospongiae				
KGI-RBOT-1	060300	Pycnogona				
KGI-RBOT-1	060301	Pycnogona				

KGI-RBOT-1	060302	Pycnogona				
KGI-RBOT-1	060303	Malacostraca	Chaetiliidae	**Glyptonotus*		21
KGI-RBOT-1	060304	Echinoidea	Echinidae	*Sterechinus*		15
KGI-RBOT-1	060305	Pycnogona				1
KGI-RBOT-1	060306	Demospongiae				1
KGI-RBOT-1	060307	Stelleroidea	Asteroidea*			1
KGI-RBOT-1	060308	Malacostraca	Cirolanidae	*Natatolana*		1
KGI-RBOT-1	060309	Hydrozoa				1
KGI-RBOT-1	060310	Stelleroidea	Asteroidea*			1
KGI-RBOT-1	060311	Demospongiae				1
KGI-RBOT-1	060312	Anthozoa	Primnoidae	*Thouarella (Euthouarella)*		1
KGI-RBOT-1	060313	Anthozoa				1
KGI-RBOT-1	060314	Polyplacophora	Ischnochitonidae	*Nuttallochiton*	*mirandus*	1
KGI-RBOT-1	060315	Polychaeta				1
KGI-RBOT-1	060316	Gastropoda (Shelled)	Volutidae	*Harpovoluta*	*charcoti*	1
KGI-RBOT-1	060317	Demospongiae				1
KGI-RBOT-1	060318	Stelleroidea	Ganeriidae	*Perknaster*		1
KGI-RBOT-1	060319	Stelleroidea	Asteroidea*			1
KGI-RBOT-1	060320	Holothuroidea	Psolidae	*Psolus*		1
KGI-RBOT-1	060321	Ascidiacea				1
KGI-RBOT-1	060322	Stelleroidea	Ophiuroidea*			1
KGI-RBOT-1	060323	Holothuroidea				1
KGI-RBOT-1	060324	Holothuroidea				1
KGI-RBOT-1	060325	Crinoidea				1
KGI-RBOT-1	060326	Stelleroidea	Ophiuroidea*			1
KGI-RBOT-1	060327	Ascidiacea				
KGI-RBOT-1	060328	Ascidiacea				
KGI-RBOT-1	060329	Demospongiae				
KGI-RBOT-1	060330	Ascidiacea				
KGI-RBOT-1	060331	Holothuroidea				1
KGI-RBOT-1	060332	Holothuroidea				
KGI-RBOT-1	060333	Stelleroidea	Ophiuroidea*			
KGI-RBOT-1	060334	Malacostraca	Chaetiliidae	**Glyptonotus*		1
KGI-RBOT-1	060335	Polychaeta	Nereidae			1
KGI-RBOT-1	060336	Ascidiacea				
KGI-RBOT-1	060337	Gastropoda (Shelled)	Lamellariidae	*Marseniopsis*	*antarctica*	1
KGI-RBOT-1	060338	Anthozoa	Actinidae			1
KGI-RBOT-1	060339	Holothuroidea				1
KGI-RBOT-1	060340	Nemertea*				1
KGI-RBOT-1	060341	Anthozoa				
KGI-RBOT-1	060342	Holothuroidea				1
KGI-RBOT-1	060343	Holothuroidea	Psolidae	*Psolus*		12
KGI-RBOT-1	060344	Pycnogona				1
KGI-RBOT-1	060345	Gastropoda (Shelled)	Lamellariidae	*Marseniopsis*	*antarctica*	6
KGI-RBOT-1	060346	Gastropoda (Shelled)	Volutidae	*Harpovoluta*	*charcoti*	2
KGI-RBOT-1	060347	Crinoidea				6
KGI-RBOT-1	060348	Polychaeta	Nereidae			2
KGI-RBOT-1	060348	Polychaeta	Aphroditidae			2
KGI-RBOT-1	060349	Pycnogona				

KGI-RBOT-1	060350	Pycnogona				
KGI-RBOT-1	060351	Stelleroidea	Ganeriidae	*Perknaster*		7
KGI-RBOT-1	060352	Stelleroidea	Ganeriidae	*Perknaster*		4
KGI-RBOT-1	060353	Stelleroidea	Asteroidea*			2
KGI-RBOT-1	060354	Stelleroidea	Odontasteridae	*Acodontaster*		2
KGI-RBOT-1	060355	Stelleroidea	Asteriidae	*Diplasterias*		1
KGI-RBOT-1	060356	Stelleroidea	Asteroidea*			1
KGI-RBOT-1	060357	Anthozoa	Actinidae			4
KGI-RBOT-1	060358	Polyplacophora	Ischnochitonidae	*Nuttallochiton*	*mirandus*	17
KGI-RBOT-1	060359	Stelleroidea	Ophiuroidea*			
KGI-RBOT-1	060359	Stelleroidea	Ophiuroidea*			40
KGI-RBOT-1	060360	Gastropoda (Non-Shelled)	Doridiidae	*Austrodoris*	*kerguelenensis*	2
KGI-RBOT-1	060360	Gastropoda (Shelled)	Trochidae	*Antimargarita*	*dulcis*	1
KGI-RBOT-1	060360	Gastropoda (Shelled)	Trochidae	*Margarites*	*refulgens*	1
KGI-RBOT-1	060361	Anthozoa	Primnoidae	*Thouarella (Euthouarella)*		1
KGI-RBOT-1	060362	Anthozoa	Actinidae			
EI-RBOT-1	060517	Malacostraca	Serolidae			25
EI-RBOT-1	060518	Stelleroidea	Asteroidea*			25
EI-RBOT-1	060519	Stelleroidea	Asteroidea*			1
EI-RBOT-1	060520	Stelleroidea	Odontasteridae	**Odontaster*	*validus*	8
EI-RBOT-1	060521	Gastropoda (Shelled)	Volutidae	*Harpovoluta*	*charcoti*	1
EI-RBOT-2	060522	Malacostraca	Chaetiliidae	**Glyptonotus*	*antarcticus*	1
EI-RBOT-2	060523	Gastropoda (Shelled)	Volutidae	*Harpovoluta*		2
EI-RBOT-2	060523	Gastropoda (Shelled)	Buccinidae	*Chlanidota*		1
EI-RBOT-3	060524	Echinoidea	Irregularia*			40
EI-RBOT-3	060525	Polychaeta				1
EI-RBOT-3	060525	Miscellaneous				1
EI-RBOT-3	060526	Gastropoda (Shelled)	Volutidae	*Harpovoluta*	*charcoti*	75
EI-RBOT-3	060527	Pycnogona	Colossendeidae	*Colossendeis*	*megalonyx*	70
EI-RBOT-3	060527	Pycnogona	Colossendeidae	*Decolopoda*		8
EI-RBOT-3	060527	Pycnogona	Ammotheidae	*Ammothea*		8
EI-RBOT-3	060528	Pycnogona	Ammotheidae	*Ammothea*		2
EI-RBOT-3	060528	Cirripedia				
EI-RBOT-3	060528	Demospongiae				
EI-RBOT-4	060529	Malacostraca	Amphipoda*			4
EI-RBOT-4	060530	Anthozoa	Flabellidae	*Flabellum (F.)*		6
EI-RBOT-4	060531	Anthozoa	Primnoidae	*Thouarella (Euthouarella)*		1
EI-RBOT-4	060532	Echinoidea	Cidaridae			7
EI-RBOT-4	060533	Echinoidea	Irregularia*			1
EI-RBOT-4	060534	Stelleroidea	Asteroidea*			6
EI-RBOT-4	060535	Gastropoda (Shelled)	Volutidae	*Harpovoluta*	*charcoti*	6
EI-RBOT-4	060536	Stelleroidea	Astropectinidae			1
EI-RBOT-4	060537	Hexactinellidae				1
EI-RBOT-4	060538	Pycnogona				8
EI-RBOT-4	060539	Anthozoa	Actinidae			11
EI-RBOT-4	060540	Anthozoa	Actinidae			11
EI-RBOT-5	060541	Malacostraca	Gammarellidae	*Paraceradocus*		2
EI-RBOT-5	060541	Malacostraca	Epimeriidae	*Epimeria*		1
EI-RBOT-5	060542	Demospongiae				

SG-RBOT-1	060651.1	Anthozoa				
SG-RBOT-1	060651.1	Pycnogona				
SG-RBOT-1	060652	Pycnogona				1
SG-RBOT-1	060652	Pycnogona				5
SG-RBOT-1	060653	Echinoidea	Irregularia*			23
SG-RBOT-1	060654	Gastropoda (Non-Shelled)				1
SG-RBOT-1	060654	Gastropoda (Non-Shelled)				1
SG-RBOT-1	060654	Gastropoda (Non-Shelled)				1
SG-RBOT-1	060654	Gastropoda (Non-Shelled)				1
SG-RBOT-1	060655	Gastropoda (Shelled)	Turridae	*Aforia*	*magnifica*	2
SG-RBOT-1	060655	Gastropoda (Shelled)	Volutidae	*Harpovoluta*	*charcoti*	1
SG-RBOT-1	060655	Gastropoda (Shelled)	Buccinidae	*Chlanidota*		1
SG-RBOT-1	060655	Bivalvia	Limidae	*Limatula*	*hodgsoni*	2
SG-RBOT-1	060655	Bivalvia	Philobryidae	*Lissarca*	*notorcadensis*	2
SG-RBOT-1	060656	Decapoda*				5
SG-RBOT-1	060657	Malacostraca	Arcturidae			2
SG-RBOT-1	060657	Malacostraca	Serolidae			2
SG-RBOT-1	060658	Stelleroidea	Ophiuroidea*			4
SG-RBOT-1	060658	Stelleroidea	Ophiuroidea*			
SG-RBOT-1	060659	Echinoidea	Cidaridae			2
SG-RBOT-1	060660	Stelleroidea	Asteroidea*			1
SG-RBOT-2	060661	Brachiopoda*				
SG-RBOT-2	060662	Anthozoa	Dendrophyllidae			1
SG-RBOT-2	060663	Malacostraca	Hippolytidae	*Chorismus*		3
SG-RBOT-2	060664	Echinoidea	Irregularia*			14
SG-RBOT-2	060665	Stelleroidea	Asteroidea*			2
SG-RBOT-2	060666	Gastropoda (Non-Shelled)	Tritoniidae	*Tritonia*		1
SG-RBOT-2	060666	Gastropoda (Non-Shelled)	Tritoniidae	*Tritonia*		4
SG-RBOT-2	060667	Gastropoda (Shelled)	Pleurobranchidae	*Bathyberthella*		4
SG-RBOT-2	060668	Gastropoda (Shelled)	Pleurobranchidae	*Bathyberthella*		3
SG-RBOT-2	060669	Gastropoda (Shelled)	Lamellariidae	*Marseniopsis*		1
SG-RBOT-2	060669	Gastropoda (Shelled)	Lamellariidae	*Marseniopsis*		1
SG-RBOT-2	060669	Gastropoda (Shelled)	Lamellariidae	*Marseniopsis*		1
SG-RBOT-2	060670	Stelleroidea	Asteroidea*			3
SG-RBOT-3	060671	Anthozoa	Dendrophyllidae			11
SG-RBOT-3	060672	Brachiopoda*				12
SG-RBOT-3	060673	Pycnogona				1
SG-RBOT-3	060673	Pycnogona				2
SG-RBOT-3	060674	Echinoidea	Cidaridae			11
SG-RBOT-3	060674	Demospongiae				
SG-RBOT-3	060675	Gastropoda (Shelled)	Pleurobranchidae	*Bathyberthella*		12
SG-RBOT-3	060676	Gastropoda (Shelled)	Pleurobranchidae	*Bathyberthella*		4
SG-RBOT-3	060677	Holothuroidea	Psolidae	*Psolus*		15
SG-RBOT-3	060678	Echinoidea	Irregularia*			40
SG-RBOT-3	060679	Echinoidea	Irregularia*			1
SG-RBOT-3	060680	Gastropoda (Shelled)	Turridae	*Aforia*	*magnifica*	1
SG-RBOT-3	060680	Gastropoda (Shelled)	Buccinidae	*Neobuccinum*	*eatoni*	1
SG-RBOT-3	060680	Bivalvia	Limidae	*Limatula*	*hodgsoni*	2
SG-RBOT-3	060680	Polyplacophora	Ischnochitonidae	*Nuttallochiton*	*mirandus*	1

SG-RBOT-3	060680	Gastropoda (Shelled)	Lamellariidae	*Marseniopsis*		1
SG-RBOT-3	060680	Gastropoda (Shelled)	Turridae	*Pontiothauma*	*ergata*	1
SG-RBOT-3	060681	Malacostraca	Arcturidae			1
SG-RBOT-3	060682	Gastropoda (Non-Shelled)	Tritoniidae	*Tritonia*		10
SG-RBOT-3	060683	Gastropoda (Non-Shelled)	Dorididae	*Austrodoris*	*kerguelenensis*	2
SG-RBOT-3	060684	Gastropoda (Non-Shelled)	Tritoniidae			3
SG-RBOT-3	060685	Bryozoa*				
SG-RBOT-3	060685	Holothuroidea				
SG-RBOT-3	060686	Stelleroidea	Asteroidea*			1
SG-RBOT-3	060687	Bryozoa*				
SG-RBOT-3	060687	Bryozoa*				
SG-RBOT-3	060687	Hydrozoa				1