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p. 13-20

The article was published in “Aoyama, J.; Mochioka, N.; Otake, T.; Ishikawa, S.; Kawakami, Y.; Castle, P.; Nishida, M. and Tsukamoto, K. : Distribution and dispersal of anguillid leptocephali in the western Pacific Ocean revealed by molecular analysis. Marine Ecology Progress Series, 188, p. 193-200, 1999.”

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Deep-Sea Research I, 53(5), p. 776-794, 2006.”

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Marine and Freshwater Research, 59(12), p. 1035–1047, 2008.”

DOI: 10.1071/MF08041

**Preliminary Report
of
The Hakuho Maru Cruise
KH-95-2
KH-04-5**

KH-95-2: July 07, 1995 - Sep. 27, 1995
(Eel Cruise VII, South Pacific)

KH-04-5: Nov. 29, 2004 - Mar. 22, 2005
(Eel Cruise South Pacific II)

Atmosphere and Ocean Research Institute
The University of Tokyo
2012

**Preliminary Report
of
The Hakuho Maru Cruise
KH-95-2 (EEL VII & South Pacific)
KH-04-5 (EEL South Pacific II)**

KH-95-2: July 07, 1995 - Sep. 27, 1995
KH-04-5: Nov. 29, 2004 - Mar. 22, 2005

Atmosphere and Ocean Research Institute
The University of Tokyo
2012

By
The Scientific Members of the Expeditions

Edited by
Shun Watanabe, Kazuki Yokouchi
and Katsumi Tsukamoto

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Preface

The *Hakuho Maru* KH-95-2 and KH-04-5 cruises that were conducted in the western Pacific Ocean in both the Northern and Southern hemispheres were combined into a single preliminary report, because the survey areas of these two cruises was about the same.

The *Hakuho Maru* KH-95-2 cruise was successfully conducted by the Ocean Research Institute of the University of Tokyo from 7 July 1995 to 27 September 1995 in the western Pacific Ocean on both sides of the equator. This cruise was headed by Prof. Kouichi Owada and was designed based on the recommendations from the symposium for drafting the *Hakuho Maru* research plan during 1995 – 1997 by the three divisions of ORI (biology, fisheries, and physics). In the KH-95-2 cruise, two kinds of observation methods were employed, including (1) long grids with many stations ('small station method') and (2) concentrated observations in limited areas ('large station method'). The grids of stations were used in the area near Okinawa and across the North Equatorial Current to near the Mariana Ridge. Long latitudinal grids of stations were also made in the western South Pacific Ocean. During the cruise, because of the calm sea and fine weather, many sampling and observations were made in these areas as was scheduled.

The *Hakuho Maru* KH-04-5 cruise was successfully conducted by Ocean Research Institute, the University of Tokyo, and the Japan Agency for Marine-Earth Science and Technology (JAMSTEC), from 29 November 2004 to 22 March 2005 (a total of 114 days) in the western Pacific Ocean, including the Antarctic Sea. The cruise consisted of the following five legs: Leg 1: Tokyo, Japan (29 November 2004) to Hobart, Australia (14 December 2004) and Leg 2: Hobart, Australia (18 December 2004) to Auckland, New Zealand (15 January 2005), both led by Prof. Toshitaka Gamo; Leg 3: Auckland, New Zealand (20 January 2005) to Suva, Fiji (11 February 2005), led by Prof. Yuji Sano; Leg 4: Suva, Fiji (16 February 2005) to Pohnpei, Micronesia (11 March 2005) and Leg 5: Pohnpei, Micronesia (15 March 2005) to Tokyo, Japan (22 March 2005), both led by Prof. Kazuhiro Kogure. This cruise was shared by geochemistry groups and biology groups. The main study themes of our eel team in the biology group was to investigate the distribution and phylogenetic analyses of migratory fishes, especially anguillids, in the South Pacific Ocean, and some intensive sampling for leptocephali was conducted using the IKMT during Leg 3, as well as some tows being made during other legs. This cruise was the last cruise affiliated with the DOBIS project (Dynamics of the Ocean Biosystem), which was initiated in April 2000 and covered four major areas, i.e., phylogeny, function, interaction and fluctuation of marine organisms.

On behalf of all the scientists on board these cruises, we sincerely thank the captains and crews of the R/V *Hakuho Maru*, and the administrative staff of JAMSTEC for their support and cooperation during the intensive sampling that covered such a wide range of latitudes in the western Pacific Ocean.

21 March 2012



Katsumi Tsukamoto

KH-95-2 (EEL VII & South Pacific)

Stations and working schedule

Leg.1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
July. 08. 95'																						St.001 UC. 21:36-02:05 30.21.9'N 133.46.9'E		
July. 09. 95'																								
July. 10. 95'																								
July. 11. 95'																								
July. 12. 95'																								
July. 13. 95'																								
July. 14. 95'																								
July. 15. 95'																								
July. 16. 95'																								
July. 17. 95'																								
July. 18. 95'																								
July. 19. 95'																								
July. 20. 95'																								
July. 21. 95'																								
July. 22. 95'																								
July. 23. 95'																								
July. 24. 95'																								
July. 25. 95'																								
July. 26. 95'																								
July. 30. 95'																								

Leg	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
July. 30. 95'																							St.032 CTD 11 50.1N	
July. 31. 95'	23:54-04:15 142 34.4E			St.033 CTD 05:16-09:23 11 39.9N,142.34.7E	Acoustic test				St.034 Current meter 13:15-14:15 11 36.0N,142.33.4E	St.035 CTD 16:00-20:44 11 30.1N,142.34.81					St.036 CTD 21:58-09:05 11 22.2N,142.34.59E								St.036 CTD 21:58-09:05 11 22.2N,142.35.0E	
Aug. 01. 95'									St.037 CM 09:30-12:09 11 22.4N,142.35.2E	Niskin butt fly 13:14-23:35														
Aug. 02. 95'									CTD 07:11-11:49 11 22.1N,142.29.2E						St.038 CM 13:50-14:50 10 59.9N,142.33.7E	St.039 CTD 17:07-20:13 11 10.0N,142.34.59E								
Aug. 03. 95'										St.040 CTD 02:41-06:12 10 59.9N,142.29.5E	Multi core				St.041 CTD 12:23-15:52 10 50.05N,142.34.14E	St.043 IKPT 22:00- 10 40.95N,142.35.06E								
Aug. 04. 95'										St.44 IKPT 10 28.76N,143.12.01	St.45 IKPT 10 23.94N,143.27.02E													
Aug. 05. 95'										Multi core 01:01-02:48	IKPT 03:00-04:04													
Aug. 06. 95'										152 06.18N 06 25.03N,152.36.43E	St.50 IKPT													
Aug. 07. 95'										St.52 IKPT 02:00-02:58 04 03.33N,156.28.03E														
Aug. 08. 95'										St.55 IKPT 02:01-02:56 160 53.88E	01 09.42N,161 21.5E													
Aug. 09. 95'										IKPT 01:33-03:36														
Aug. 10. 95'										169 17.1E	St.60 IKPT 02:00-02:02 02 53.9N,169 44.4E													
Aug. 11. 95'										St.62 IKPT 04 59.8N,174 59.9E	Multi 05:34-08													
Aug. 12. 95'										St.64 IKPT 01:51-04:01 07 00.1N,174 59.9E														
Aug. 13. 95'										St.66 IKPT,ORI 01:41-03:47 09 00.1N,175 00.02E														
Aug. 14. 95'										St.68 IKPT,ORI 02:20-04:28 11 00.1N,175 00.0E														
Aug. 15. 95'										St.70 IKPT 02:03-03:25 13 00.0N,175 00.0E	ORI													
Aug. 16. 95'										St.72 IKPT 02:26-04:33 15 00.1N,174 59.8E														
Aug. 17. 95'										St.73 IKPT 04:14-06:11 16 45.4N,176 00.6E	CTD 06:28-07:38													
Aug. 18. 95'																								
Aug. 24. 95'																								

Aug. 6. 05:00(GMT+11)

Aug. 10. 21:00 (GMT+12)

Fiji (Suva)
Departure

Fiji (Suba)
Arrived at Suba

Leg.3	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
Aug. 25. 95'					St.74 IKPT,ORI 05:45-08:01 17 00.2S,174 59.8E				CTD,08:14-09:13				St.75 CTD,Norpac 13:45-14:50							St.76 CTD,Norpac 20:39-21:39					
Aug. 26. 95'	0:30			St.77 IKPT 04:58-07:31				CTD 07:41-08:43					St.78 IKPT 12:52-13:53 21 00.0S,174 59.8E	Photon						St.79 CTD,Norpac 20:20-21:28					
Aug. 27. 95'	21:36-23:48			St.80 IKPT 05:17-06:26 22 59.8S,175 00.0E									St.81 CTD 10:34-11:33 23 59.9S,174 59.8E	IKPT 11:39-12:43						St.82 IKPT 17:08-18:10				St.183	
Aug. 28. 95'	IKPT 01:12-03:16			St.84 IKPT 07:26-08:27 27 00.2S,175 00.0E								St.85 CTD 12:32-13:25		IKPT 13:30-14:31						St.86 IKPT,ORI 18:43-20:55					
Aug. 29. 95'	St.87 CTD,Norpac 00:40-01:35			St.88 IKPT 07:10-08:07 30 00.1S,174 00.0E								St.89 IKPT 11:20-12:20		St.90 CTD,Norpac 15:31-16:49							Photon,IKPT 16:57-17:01				
Aug. 30. 95'																				St.91 IKPT,ORI 20:56-23:20					
Aug. 31. 95'				St.92 IKPT,ORI 02:47-04:50																St.93 IKPT 08:32-09:40					
Aug. 31. 95'				30 00.0S,163 00.0E	CTD,Norpac 04:58-05:51				St.94 CTD,Norpac 11:23-12:38											St.95 IKPT 16:55-18:18					
Aug. 31. 95'				St.97 IKPT,ORI 01:26-03:32					St.98 IKPT,ORI 05:27-07:38											St.99 IKPT 10:43-12:50					
Aug. 31. 95'				27 29.8S,163 00.1E	26 59.9S,162 59.6E	CTD,Norpac 07:47-08:44	26 30.3S,163 00.2E																		
Sep. 01. 95'																									
Sep. 02. 95'																									
Sep. 03. 95'																									
Sep. 04. 95'	1:34			St.103 IKPT 04:00-07:07																St.104 IKPT 10:30-12:34					
Sep. 04. 95'				13 59.8S,159 00.0E	CTD,Norpac 07:18-07:58															St.105 IKPT 14:56-17:00					
Sep. 05. 95'	0:12			St.107 IKPT 04:17-06:19																					
Sep. 05. 95'				11 00.0S,160 00.0E	CTD,Norpac 06:26-07:40															St.108 CTD 13:55-14:14					
Sep. 06. 95'	IKPT 00:40-02:39			St.110 IKPT 03:21-03:40																St.109 CTD 14:20-16:26					
Sep. 06. 95'				07 59.9N,180 25.0E	06 59.7S,160 00.1E	CTD 08:52-09:44														St.111 CTD,Norpac 19:12-19:55					
Sep. 07. 95'				St.112 IKPT 02:02-04:02																St.113 IKPT 11:00-12:03					
Sep. 07. 95'				04 59.7S,160 00.0E																St.114 IKPT 20:00-21:24					
Sep. 08. 95'	IKPT 22:59-00:01			St.116 IKPT 02:57-04:02																St.115 CTD 04:5S,157 37.3E					
Sep. 08. 95'				01 41.3S,157 19.6E	01 01.2S,155 49.1E															St.116 IKPT 19:58-20:59					
Sep. 09. 95'	22:59-00:00			St.120 IKPT 02:56-04:02																St.117 CTD,Norpac 08:30-10:32					
Sep. 09. 95'				154 09.9E	03 01.7N,153 37.1E															00.00.1N,156 02.4E					
Sep. 10. 95'	23:01			St.123 IKPT																St.121 IKPT 11:05-12:03					
Sep. 10. 95'				06 32.0N,151 01.1E	06 55.1N,150 41.6E															St.122 CTD 20:02-21:00					
Sep. 11. 95'	149 44.7E			St.128 IKPT 02:58-04:01																06 09.6N,151 15.0E					
Sep. 11. 95'				09 40.3N,148 09.9E																St.125 CTD 11:44-15:06					
Sep. 12. 95'																				St.126 IKPT					
Sep. 12. 95'																				08 53.1N,149 04.4E					
Sep. 15. 95'																				St.127 IKPT					
Sep. 15. 95'																				St.128 IKPT 15:00-16:02					
Sep. 15. 95'																				Flow meter 11 08.3N,146 38.9E					
Sep. 15. 95'																				Guam					
Sep. 15. 95'																				Arrived at Guam					
Sep. 15. 95'																				Guam					
Sep. 15. 95'																				Departure					

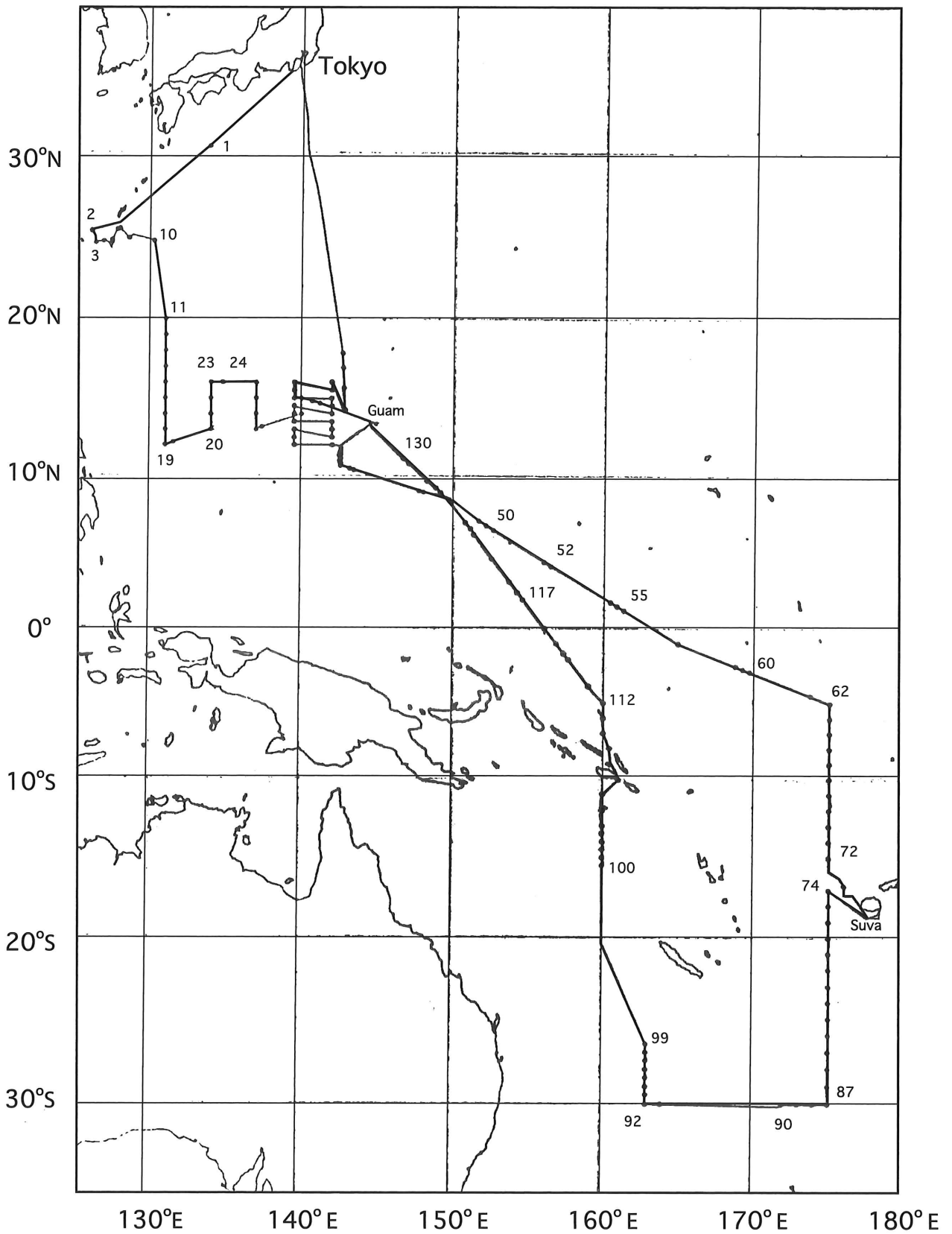
Sep. 06 05:00(GMT+10)

Aug. 29. 20:30(GMT+11)

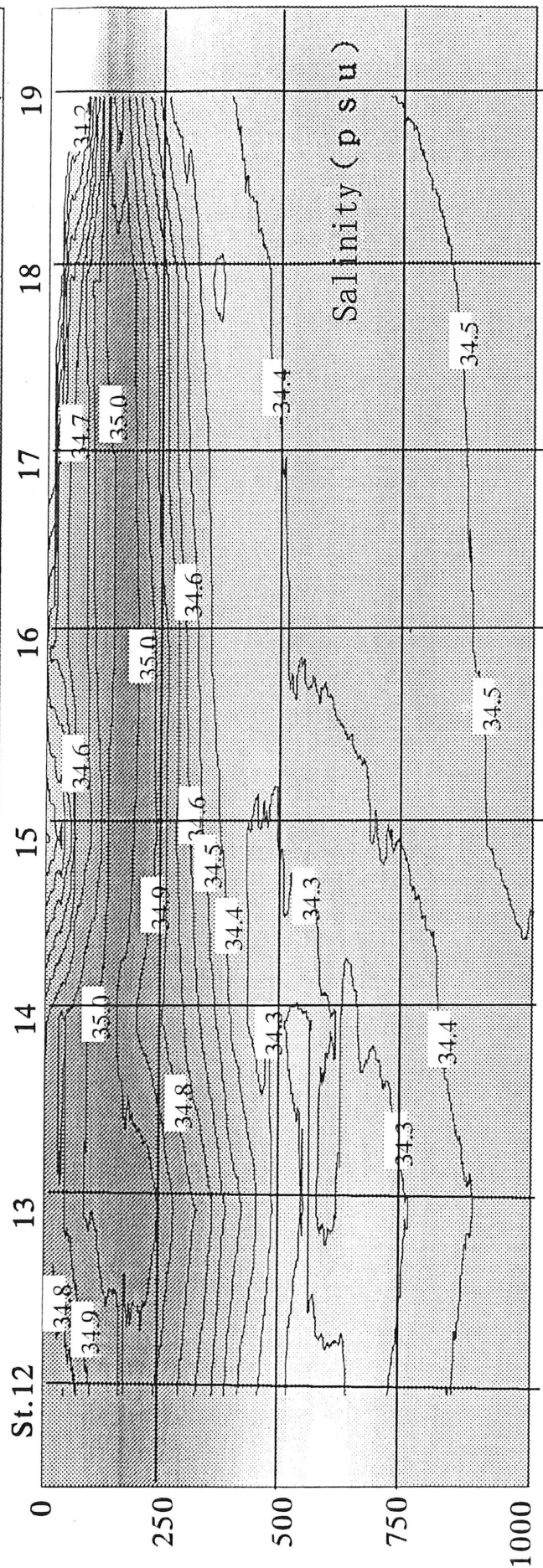
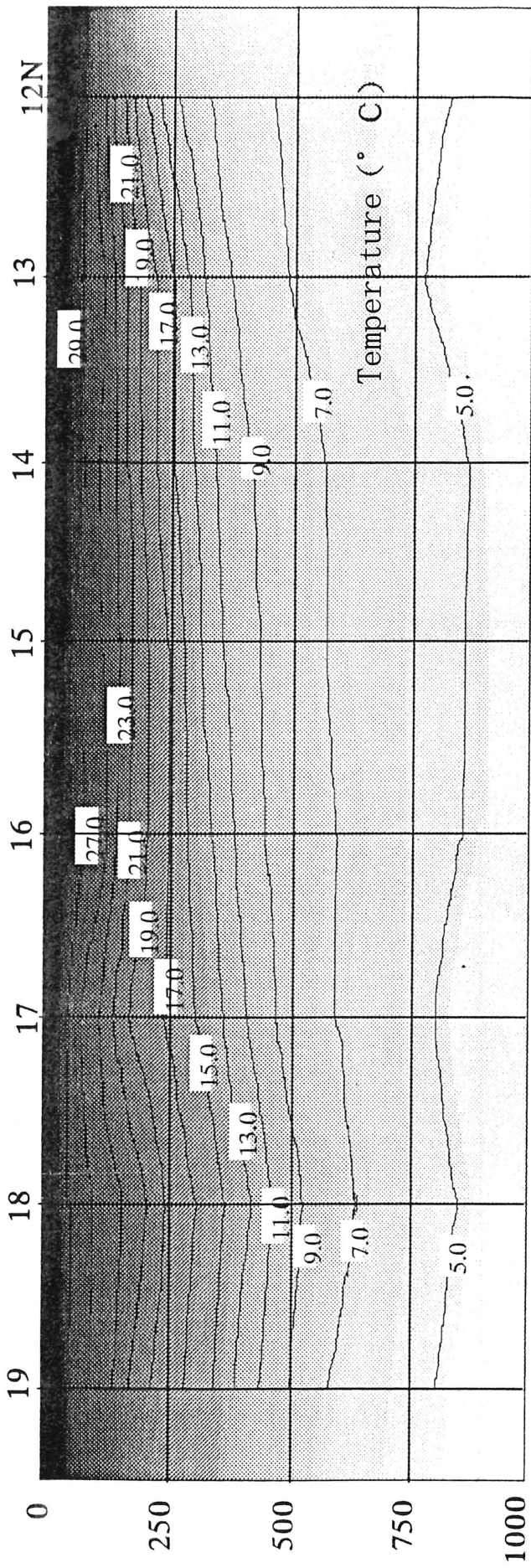
Scientists on board HAKUHO-MARU (KH-95-2)

Name	Affiliation
OWADA Kouichi	Ocean Research Institute, The University of Tokyo
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OHTA Suguru	Ocean Research Institute, The University of Tokyo
KOGURE Kazuhiro	Ocean Research Institute, The University of Tokyo
NISHIDA Shuhei	Ocean Research Institute, The University of Tokyo
OTAKE Tsuguo	Ocean Research Institute, The University of Tokyo
KOMATSU Teruhisa	Ocean Research Institute, The University of Tokyo
KOJIMA Shigeaki	Ocean Research Institute, The University of Tokyo
YANAGIMOTO Daigo	Ocean Research Institute, The University of Tokyo
HASUMOTO Hiroshi	Ocean Research Institute, The University of Tokyo
INAGAKI Tadashi	Ocean Research Institute, The University of Tokyo
TSUCHIDA Eiji	Ocean Research Institute, The University of Tokyo
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TSUCHIYA Yasufumi	Ocean Research Institute, The University of Tokyo
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MIYAZAKI Taeko	Ocean Research Institute, The University of Tokyo
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TANAKA Toshimitsu	Department of Agricultural and Life Sciences, The University of Tokyo
SEINO Satoko	Department of Earth Science and Astronomy, The University of Tokyo

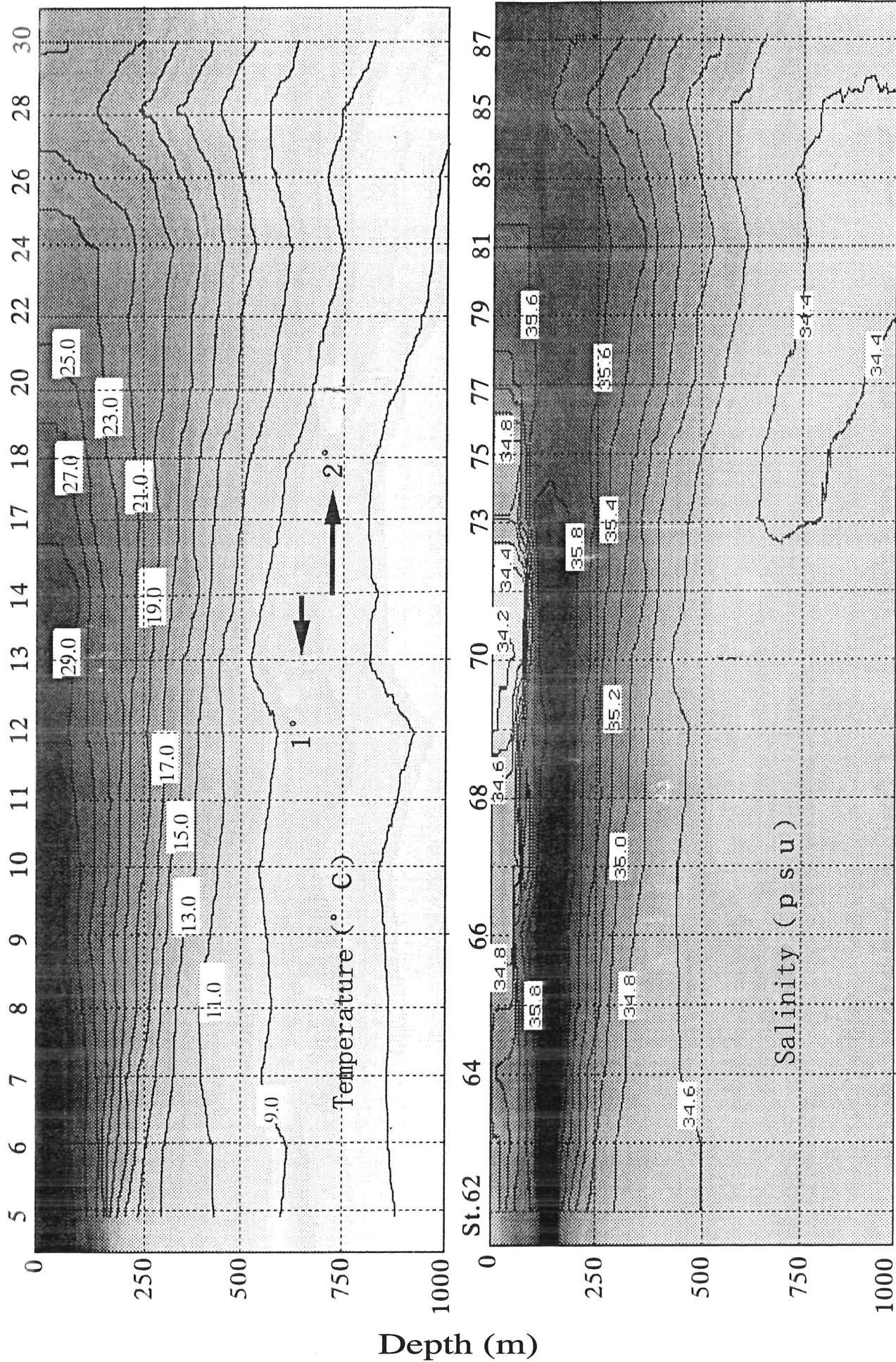
KH-95-2 Track Chart



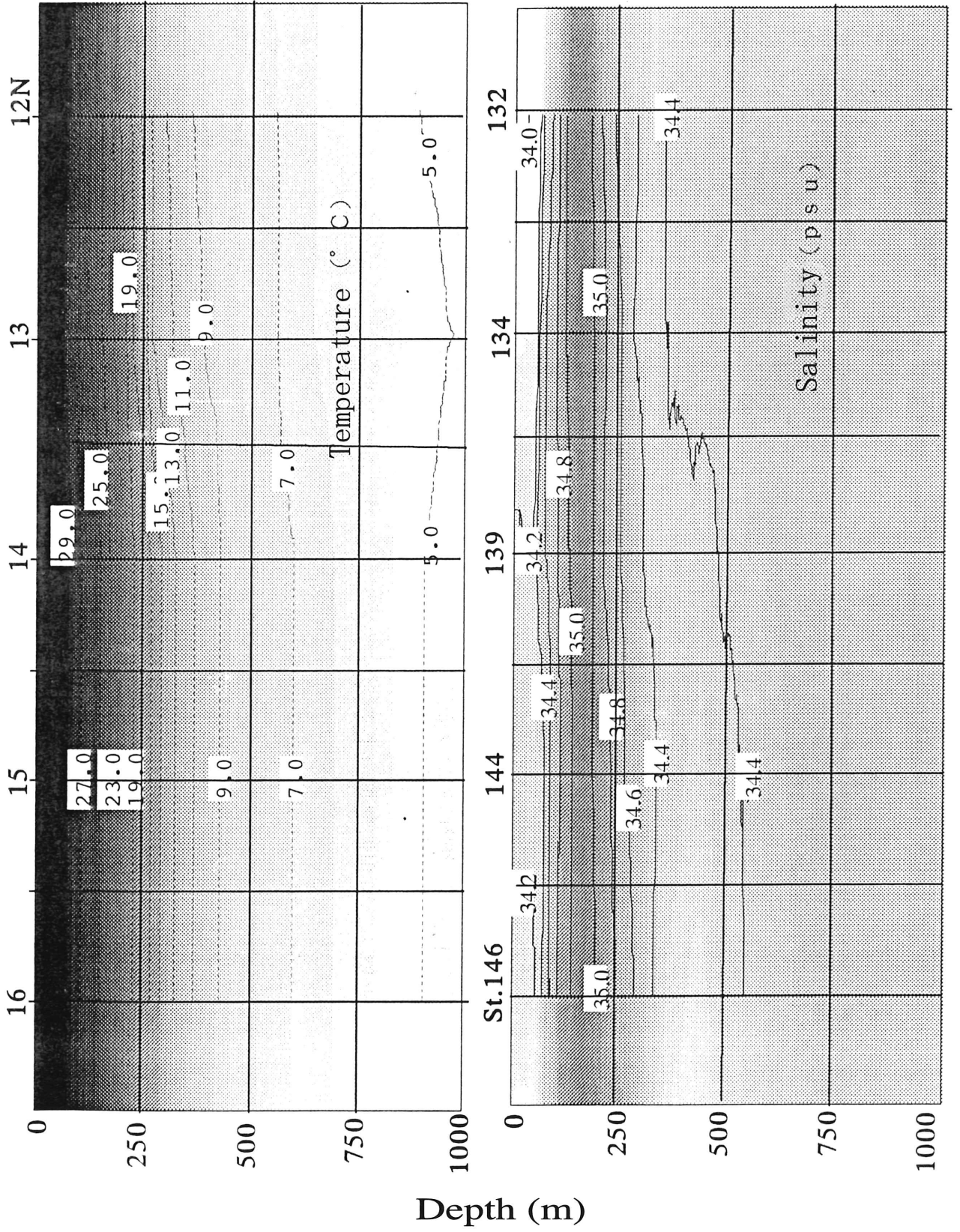
Temperature and salinity profile (Leg.1 : 131°E line)



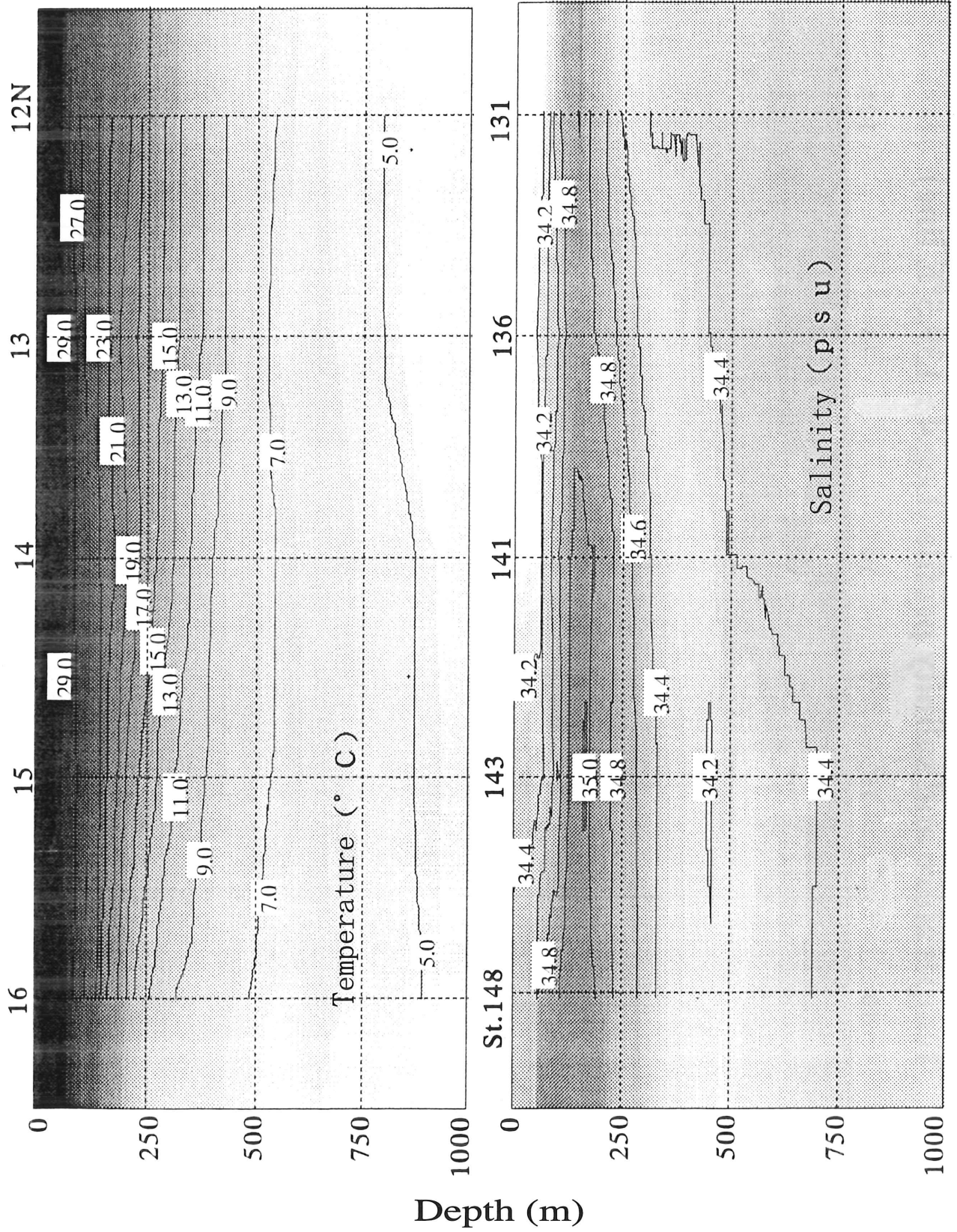
Temperature and salinity profile (Leg. 2 & 3 : 175°E line)



Temperature and salinity profile (Leg.4 : 139.5°E line)



Temperature and salinity profile (Leg.4 : 142°E line)



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Deep-Sea Research I, 53(5), p. 776-794, 2006."

DOI: 10.1016/j.dsr.2006.01.008

Net Record KH-95-2

St.	Lat. In	Lat. Out	Long. In	Long. Out	Date	Time In	Time Out	Net Type	Mesh	Towing	Wire out	Sampling Layer	Volume
012	18.59	18.98	131.00	131.00	950716	20:10	21:03	IK-1	1.0	Obl.	1064	354*	21838
012	18.57	18.95	131.01	131.02	950716	21:14	22:00	IK-2	1.0	Obl.	924	288*	18966
013	18.00	18.00	131.00	131.00	950717	01:42	02:22	IK-1	1.0	Obl.	760	283*	14796
013	18.01	18.02	131.00	131.00	950717	02:32	03:21	IK-2	1.0	Obl.	914	323*	18870
013	18.02	18.03	130.59	130.98	950717	03:34	05:55	IK-3D	1.0	Deep	3000	—	49931
014	17.00	17.00	130.00	130.00	950717	19:59	20:45	IK-1	1.0	Obl.	905	292	19925
014	17.02	17.03	131.00	131.00	950717	20:59	21:37	IK-2	1.0	Obl.	735	303	2139
015	16.00	16.00	131.00	131.00	950718	01:58	02:40	IK-1	1.0	Obl.	809	304	13935
015	16.01	16.02	131.00	131.00	950718	02:49	03:37	IK-2	1.0	Obl.	927	303	24961
015	16.03	16.05	131.00	131.00	950718	03:46	06:17	IK-3D	1.0	Deep	3000	1092	58821
016	15.00	15.00	131.00	131.00	950718	20:00	20:42	IK-1	1.0	Obl.	769	301	12395
016	15.00	15.00	131.01	131.02	950718	20:52	21:34	IK-2	1.0	Obl.	779	294	14322
017	14.00	14.00	131.00	131.00	950719	01:26	02:30	IK-1	1.0	Obl.	1081	296	29339
017	14.03	14.05	131.00	131.00	950719	02:38	03:29	IK-2	1.0	Obl.	994	304	20031
017	14.04	14.07	131.00	131.00	950719	03:39	06:08	IK-3D	1.0	Deep	3000	1169	52957
018	13.00	13.00	131.00	131.00	950719	19:53	20:29	IK-1	1.0	Obl.	689	309	9263
018	12.59	12.98	130.59	130.98	950719	20:40	21:18	IK-2	1.0	Obl.	748	303	11329
019	12.00	12.00	131.00	131.00	950720	01:14	01:58	IK-1	1.0	Obl.	791	307	14115
019	12.01	12.02	131.00	131.00	950720	02:05	03:05	IK-2S	1.0	Step	455	128	29845
019	11.58	11.97	130.59	130.98	950720	03:05	03:55	IK-3	1.0	Obl.	755	296	14200
020	13.01	13.02	134.00	134.00	950720	20:02	20:54	IK-1	1.0	Obl.	981	297	21330
020	13.01	13.02	134.02	134.03	950720	21:03	21:51	IK-2S	1.0	Step	380	113	25936
021	14.00	14.00	134.00	134.00	950721	01:50	02:45	IK-1S	1.0	Step	440	149	25827
021	14.01	14.02	133.57	133.95	950721	02:54	03:45	IK-2S	1.0	Step	343	109	23983
021	14.02	14.03	133.55	133.92	950721	03:55	04:34	IK-3	1.0	Obl.	755	287	822

Net Record KH-95-2

St.	Lat. In	Lat. Out	Long. In	Long. Out	Date	Time In	Time Out	Net Type	Mesh	Towing	Wire out	Sampling Layer	Volume
021	14.02	14.03	133.54	133.90	950721	04:44	07:12	IK-4D	1.0	Deep	2979	1240	2885
022	15.02	15.03	134.00	134.00	950721	15:20	17:52	IK-1D	1.0	Deep	3000	1464	43599
022	15.00	15.00	134.01	134.02	950721	19:02	19:40	IK-2	1.0	Obl.	777	295	13009
022	14.59	14.98	134.01	134.02	950721	19:49	20:47	IK-3S	1.0	Step	446	127	33005
022	15.02	15.03	134.01	134.02	950721	20:56	21:56	IK-4S	1.0	Step	450	110	31727
023	16.00	16.00	134.00	134.00	950722	01:40	02:30	IK-1S	1.0	Step	352	131	21011
023	15.59	15.98	133.59	133.98	950722	02:38	03:30	IK-2	1.0	Obl.	1014	296	28319
024	16.01	16.02	137.01	137.02	950722	18:29	19:47	IK-1D	1.0	Deep	1200	404	24691
024	16.01	16.02	137.02	137.03	950722	19:57	20:51	IK-2	1.0	Obl.	976	302	20602
024	16.01	16.02	137.01	137.02	950722	21:00	21:56	IK-3S	1.0	Step	502	131	29147
025	15.00	15.00	137.00	137.00	950723	01:55	03:06	IK-1S	1.0	Step	—	171	36703
025	15.01	15.02	137.03	137.05	950723	03:13	03:59	IK-2	1.0	Obl.	912	310	21831
025	15.02	15.03	137.01	137.02	950723	04:07	05:06	IK-3S	1.0	Step	—	169	37438
026	14.00	14.00	136.58	136.97	950723	15:34	18:01	IK-1D	1.0	Deep	3000	—	58552
026	13.59	13.98	136.57	136.95	950723	18:53	19:42	IK-2	1.0	Obl.	935	290*	18337
026	14.01	14.02	136.58	136.97	950723	19:50	20:47	IK-3S	1.0	Step	494	150*	28259
026	14.01	14.02	136.55	136.92	950723	20:58	21:00	IK-4S	1.0	Step	507	152*	28851
027	13.00	13.00	137.00	137.00	950724	02:15	03:07	IK-1S	1.0	Step	400	110*	28141
027	13.03	13.05	137.01	137.02	950724	03:16	04:08	IK-2S	1.0	Step	458	125*	26388
027	13.04	13.07	137.03	137.05	950724	04:16	05:02	IK-3	1.0	Obl.	941	297*	17441
028	14.02	14.03	140.00	140.00	950724	19:55	20:49	IK-1	1.0	Obl.	1074	330	20587
028	14.04	14.07	139.59	139.98	950724	20:57	22:06	IK-2S	1.0	Step	—	128	36363
029	15.00	15.00	140.00	140.00	950725	02:49	04:13	IK-1S	1.0	Step	429	105	50471
029	15.00	15.00	140.04	140.07	950725	04:22	05:34	IK-2S	1.0	Step	434	111	39748
029	15.00	15.00	140.09	140.15	950725	05:43	06:45	IK-3D	1.0	Deep	1200	381	22957

Net Record KH-95-2

St.	Lat. In	Lat. Out	Long. In	Long. Out	Date	Time In	Time Out	Net Type	Mesh	Towing	Wire out	Sampling Layer	Volume
030	14.49	14.82	140.44	140.73	950725	11:00	12:34	IK-1D	1.0	Deep	2000	638	40195
031	14.40	14.67	141.14	141.23	950725	14:35	16:14	IK-2D	1.0	Deep	2000	783	35026
043	10.34	10.57	142.58	142.97	950803	22:03	23:02	IK-1S	1.0	Step	561	186	29528
044	10.29	10.48	143.12	143.20	950804	00:01	01:02	IK-1S	1.0	Step	532	193	31057
045	10.24	10.40	143.27	143.45	950804	02:01	03:00	IK-1S	1.0	Step	522	199	24329
046	9.01	9.02	147.42	147.70	950804	20:01	20:55	IK-1S	1.0	Step	524	209	21509
047	8.56	8.93	147.59	147.98	950805	03:00	04:02	IK-1S	1.0	Step	551	258	20527
048	7.01	7.02	151.38	151.63	950805	20:00	20:59	IK-1S	1.0	Step	520	174	30042
049	6.44	6.73	152.60	153.00	950805	23:02	23:53	IK-1S	1.0	Step	473	152	26222
050	6.25	6.42	152.37	152.62	950805	02:01	03:01	IK-1S	1.0	Step	500	164	29941
051	4.21	4.35	156.02	156.03	950806	23:15	00:07	IK-1S	1.0	Step	500	159**	26129
052	4.03	4.05	156.28	156.47	950807	02:01	02:57	IK-1S	1.0	Step	475	150**	25544
053	1.42	1.70	160.28	160.47	950807	20:02	20:57	IK-1S	1.0	Step	500	249	20433
054	1.26	1.43	160.54	160.90	950807	23:01	23:55	IK-1S	1.0	Step	500	237	25353
055	1.09	1.15	161.22	161.37	950808	02:01	02:55	IK-1S	1.0	Step	478	188	21770
117	0.00	0.00	156.03	156.05	950908	10:30	11:35	IK-1	1.0	Obl.	800	144	45613
118	1.51	1.85	154.32	154.53	950908	19:59	20:58	IK-1	1.0	Obl.	800	167	41038
119	2.20	2.33	154.10	154.17	950908	23:00	23:59	IK-1	1.0	Obl.	800	164	42383
120	3.02	3.03	153.37	153.62	950909	02:58	04:01	IK-1	1.0	Obl.	800	203	39234
121	4.32	4.53	152.27	152.45	950909	11:06	12:02	IK-1	1.0	Obl.	800	324	24139
122	6.10	6.17	151.16	151.27	950909	22:00	23:00	IK-1	1.0	Obl.	800	221	20709
123	6.32	6.53	151.01	151.02	950910	00:58	01:55	IK-1	1.0	Obl.	800	312	26226
124	6.55	6.92	150.42	150.70	950910	03:59	04:57	IK-1	1.0	Obl.	800	295	29346
125	8.19	8.32	149.43	149.72	950910	15:19	16:19	IK-1	1.0	Obl.	800	208	35658
126	8.53	8.88	149.04	149.07	950910	20:00	21:02	IK-1	1.0	Obl.	800	222	28128

Net Record KH-95-2

St.	Lat. In	Lat. Out	Long. In	Long. Out	Date	Time In	Time Out	Net Type	Mesh	Towing	Wire out	Sampling Layer	Volume
127	9.12	9.20	148.45	148.75	950910	22:59	24:00	IK-1	1.0	Obl.	800	217	28586
128	9.40	9.67	148.10	148.17	950911	02:58	04:02	IK-1	1.0	Obl.	800	205	36959
129	10.48	10.80	147.00	147.00	950911	10:02	10:58	IK-1	1.0	Obl.	800	232	30049
130	11.08	11.13	146.38	146.63	950911	15:02	16:02	IK-1	1.0	Obl.	800	270	27566
131	12.00	12.00	142.00	142.00	950916	05:02	05:52	IK-1S	1.0	Step	480	163	23641
131	12.00	12.00	141.57	141.95	950916	06:10	07:36	IK-2	0.5	Obl.	1500	588	—
132	12.00	12.00	139.30	139.50	950916	19:30	20:50	IK-1	0.5	Obl.	1500	579	—
132	11.57	11.95	139.29	139.48	950916	20:55	21:45	IK-2S	1.0	Step	480	154	28172
133	12.29	12.48	139.30	139.50	950917	00:09	01:03	IK-1S	1.0	Step	480	171	27212
133	12.32	12.53	139.30	139.50	950917	01:11	02:33	IK-2	0.5	Obl.	1500	631	—
134	13.00	13.00	139.30	139.50	950917	04:23	05:15	IK-1S	1.0	Step	500	199	26421
134	12.58	12.97	139.30	139.50	950917	05:21	06:38	IK-2	0.5	Obl.	1500	940	—
135	12.30	12.50	142.00	142.00	950917	17:23	08:37	IK-1	0.5	Obl.	1500	514	—
135	12.33	12.55	142.01	142.02	950917	18:58	19:48	IK-2S	1.0	Step	476	142	29080
136	13.00	13.00	142.00	142.00	950917	21:37	22:35	IK-1S	1.0	Step	480	148	28489
136	13.02	13.03	142.00	142.00	950917	22:39	23:58	IK-2	0.5	Obl.	1500	557	—
137	13.30	13.50	142.00	142.00	950918	03:22	04:15	IK-1S	1.0	Step	480	204	26491
137	13.31	13.52	141.58	141.97	950918	04:20	05:45	IK-2	0.5	Obl.	1500	643	—
138	13.30	13.50	139.30	139.50	950918	15:17	17:08	IK-1D	0.5	Deep	2000	699	—
138	13.26	13.43	139.28	139.47	950918	17:17	18:44	IK-2	0.5	Obl.	1200	452	—
138	13.24	13.40	139.25	139.42	950918	18:50	19:41	IK-3S	1.0	Step	480	138	28535
139	14.00	14.00	139.30	139.50	950919	00:35	01:28	IK-1S	1.0	Step	476	144	29002
139	13.57	13.95	139.29	139.48	950919	01:35	02:44	IK-2	0.5	Obl.	1200	468	—
140	14.30	14.50	139.30	139.50	950919	05:17	06:13	IK-1S	1.0	Step	480	167	0
140	14.28	14.47	139.28	139.47	950919	06:17	07:50	IK-2	0.5	Obl.	1200	586	—

Net Record KH-95-2

St.	Lat. In	Lat. Out	Long. In	Long. Out	Date	Time In	Time Out	Net Type	Mesh	Towing	Wire out	Sampling Layer	Volume
141	14.00	14.00	142.00	142.00	950919	18:28	19:55	IK-1	0.5	Obl.	1200	453	—
141	13.57	13.95	141.59	141.98	950919	20:00	20:54	IK-2S	1.0	Step	480	135	29975
142	14.30	14.50	142.00	142.00	950919	23:28	00:20	IK-1S	1.0	Step	480	128	30126
142	14.28	14.47	141.59	141.98	950920	00:27	01:56	IK-2	0.5	Obl.	1200	440	—
143	15.00	15.00	142.00	142.00	950920	04:20	05:11	IK-1S	1.0	Step	476	117	30867
143	14.58	14.97	141.58	141.97	950920	05:18	06:43	IK-2	0.5	Obl.	1200	435	—
144	15.00	15.00	139.31	139.52	950920	18:50	20:15	IK-1	0.5	Obl.	1200	541	—
144	14.59	14.98	139.28	139.47	950920	20:20	21:10	IK-2S	1.0	Step	480	137	27389
145	15.30	15.50	139.30	139.50	950920	23:33	00:25	IK-1S	1.0	Step	480	136	25903
145	15.29	15.48	139.29	139.48	950921	00:33	01:59	IK-2	0.5	Obl.	1200	605	—
146	16.00	16.00	139.30	139.50	950921	04:11	05:04	IK-1S	1.0	Step	480	185	26802
146	15.58	15.97	139.28	139.47	950921	05:10	06:38	IK-2	0.5	Obl.	1200	531	—
147	15.30	15.50	142.00	142.00	950921	17:30	18:51	IK-1	0.5	Obl.	1200	427	—
147	15.28	15.47	142.02	142.03	950921	19:00	19:47	IK-2S	1.0	Step	478	132	27612
148	16.00	16.00	142.00	142.00	950921	22:15	23:05	IK-1S	1.0	Step	480	135	31554
148	15.57	15.95	142.01	142.02	950921	23:12	00:15	IK-2	0.5	Obl.	1200	395	—
149	14.14	14.23	142.51	142.85	950922	10:45	11:59	IK-1	0.5	Obl.	1000	390	—
150	14.14	14.23	142.53	142.88	950922	13:19	13:39	IK-1	0.5	Obl.	80	22	—
151	14.14	14.23	142.54	142.90	950922	13:50	14:32	IK-1	0.5	Obl.	500	214	—
152	14.14	14.23	142.52	142.87	950922	15:58	16:20	IK-1	0.5	Obl.	290	148	—
153	14.14	14.23	142.52	142.87	950922	16:29	17:34	IK-1	0.5	Obl.	900	382	—
154	14.12	14.20	142.52	142.87	950922	17:44	19:10	IK-1	0.5	Obl.	1200	521	—
153	14.14	14.23	142.52	142.87	950922	20:20	21:04	IK-2	0.5	Obl.	750	341	—
152	14.14	14.23	142.52	142.87	950922	21:57	22:26	IK-2	0.5	Obl.	500	170	—
150	14.14	14.23	142.53	142.88	950922	22:44	22:51	IK-2	0.5	Obl.	80	19	—

Net Record KH-95-2

St.	Lat. In	Lat. Out	Long. In	Long. Out	Date	Time In	Time Out	Net Type	Mesh	Towing	Wire out	Sampling Layer	Volume
155	15.39	15.65	142.46	142.77	950923	05:38	06:43	IK-1	0.5	Obl.	1200	410	—
155	15.39	15.65	142.47	142.78	950923	07:03	07:35	IK-2	0.5	Obl.	600	178	—
156	17.50	17.83	142.40	142.67	950923	19:05	19:59	IK-1	0.5	Obl.	1000	277	—

St.	ST.04 Date Jul.11			24.44.40N			Depth 2114m			ST.05 Date Jul.11			24.24.04N			Depth 7202m					
	P	T	S	O2	Chl.a	CTD	P	T	S	O2	Chl.a	CTD	P	T	S	O2	Chl.a				
Bottle No.	db	°C	psu	ml/L	µg/L	°C	db	°C	psu	ml/L	µg/L	db	°C	psu	ml/L	µg/L	db	°C	psu		
0	0					2	27.982	34.305	27.982	0	0										
36	10		34.303	4.72	0.58	5	27.984	34.305	27.984	36	0				34.469	4.66	0.12	2	28.511	34.421	21.792
35	10		34.290	4.72	0.54	10	27.985	34.305	27.985	35	0							5	28.540	34.422	21.783
34	20		34.297	4.73	0.52	20	27.964	34.306	27.964	34	10				34.815	4.57	0.10	10	28.518	34.422	21.790
33	20					30	27.548	34.411	27.548	33	20				34.445	4.66	0.11	20	28.519	34.423	21.790
32	50		34.684	5.03	0.91	40	25.292	34.681	25.292	32	50				34.778	5.24	0.09	30	28.079	34.576	22.050
31	50					50	24.146	34.747	24.146	31	75				34.862	4.84	0.12	40	26.424	34.690	22.667
30	75		34.815	5.08	4.53	75	22.596	34.847	22.596	30	100				34.920	4.49	0.06	50	26.103	34.716	22.787
29	75					100	21.566	34.882	21.566	29	125				34.906	4.58	0.08	75	24.443	34.840	23.389
28	100		34.882	4.74	0.05	125	20.692	34.908	20.692	28	150				34.893	4.78	0.04	100	23.073	34.900	23.837
27	100					150	19.587	34.905	19.587	27	175	19.243			34.894	4.86	0.03	125	21.982	34.938	24.176
26	100					175	18.696	34.876	18.696	26	200				34.870	4.58	0.01	150	20.753	34.898	24.483
25	100					200	17.976	34.849	17.976	25	250				34.671	4.66	0.46	175	19.842	34.904	24.730
24	125		34.904	4.65	0.11	250	16.946	34.774	16.946	24	300				34.696	4.47	0.00	200	19.410	34.899	24.838
23	125					300	15.324	34.650	15.324	23	400				34.467	4.17		250	18.341	34.869	25.087
22	125					400	12.375	34.427	12.375	22	500				34.297	3.74		300	17.218	34.795	25.305
21	150		34.888	4.62	0.08	500	10.006	34.282	10.006	21	600				34.237	3.03		400	13.631	34.515	25.889
20	150									20	800							500	11.276	34.354	26.222
19	150									19	1000	3.829			34.399	1.55		600	8.374	34.222	26.606
18	175		34.861	4.55	0.04					18	1000							800	5.362	34.278	27.060
17	175									17	1250							1000	4.139	34.390	27.287
16	175									16	1500				34.491	1.95		1250	2.990	34.494	27.482
15	200									15	2000				34.547	2.20		1500	2.526	34.546	27.565
14	200		34.826	4.57	0.00					14	2500				34.616	2.78		2000	2.022	34.615	27.661
13	200									13	2500				34.252	3.24		2500	1.775	34.644	27.704
12	250		34.764		0.00					12	3000	1.636						3000	1.636	34.660	27.727
11	250									11	3000				34.660	3.32		3500	1.579	34.669	27.739
10	250									10	3500							4000	1.583	34.674	27.742
9	300		34.651	4.26	0.00					9	4000				34.668	3.64		4500	1.611	34.677	27.743
8	300									8	5000				34.673	3.57		5000	1.656	34.678	27.740
7	300									7	5000				34.682	3.86		5500	1.712	34.679	27.737
6	400		34.419	4.00						6	6000							6000	1.779	34.679	27.732
5	400									5	6000				34.677	3.67		6500	1.850	34.673	27.721
4	400									4	7000							7000	1.924	34.922	27.915
3	500									3	7000				34.681	3.65		7400	1.983	34.936	27.922
2	500									2	7482							7482	1.996	34.934	27.919
1	500									1	7482				34.676	3.67					

St.	7 Date		July.13		Lat. 24°49.00'N		Depth 3690m		St.	11 Date		JULY.15		Lat. 19°58.88'N		Depth 5855m									
	P	T	S	O2	psu	ml/L	S	O2		psu	ml/L	P	T	S	O2	psu	ml/L	P	T	S	O2	psu			
Bottle No.	db	°C	psu	ml/L	psu	ml/L	CTD	DOWN	CAST	Bottle No.	db	°C	psu	ml/L	CTD	DOWN	CAST	Bottle No.	db	°C	psu	ml/L	CTD	DOWN	CAST
0	0	28.9			34.413	4.63	2	28.646	34.424	21.749	0	0	30.10		34.811	4.53	0.07	2	30.272	34.806	21.488				
36	0	28.700	34.423				5	28.595	34.423	21.765	36	11	30.160	35.205	34.772	4.39	0.06	5	30.275	34.804	21.485				
35	3	28.714	34.424				10	28.553	34.429	21.783	35	21	30.043	35.209	34.755	4.41	0.06	10	30.268	34.804	21.488				
34	9	28.602	34.417				20	28.347	34.434	21.856	34	31	29.313	35.065	34.755	4.41	0.06	20	30.096	34.793	21.538				
33	9	28.585	34.417				30	27.393	34.622	22.307	33	51	27.732	35.063	34.586	4.83	0.07	30	29.155	34.608	21.718				
32	19	28.395	34.408				40	26.147	34.769	22.813	32	75	26.071	35.451	34.906	5.04	0.12	40	27.893	34.550	22.091				
31	18	28.396	34.408				50	25.588	34.861	23.057	31	99	24.815	35.541	34.947	4.87	0.64	50	27.066	34.671	22.449				
30	49	25.662	34.788				75	24.095	34.874	23.518	30	124	24.286	35.573	34.959	4.71	0.82	75	25.533	34.940	23.133				
29	49	25.667	34.786				100	22.803	34.931	23.938	29	150	23.121	35.641	34.974	4.55	0.48	100	24.668	34.966	23.416				
28	75	24.253	34.851				125	21.197	34.962	24.411	28	174	21.786	35.644	34.941	4.66	0.04	125	23.872	34.984	23.667				
27	75	24.315	34.856				150	20.396	34.961	24.627	27	200	20.852	35.679	34.943	4.73	0.04	150	22.740	34.994	24.004				
26	99	23.237	34.888				175	19.227	34.922	24.903	26	251	18.928	35.707	34.912	4.64	0	175	21.492	34.959	24.328				
25	99	23.228	34.887				200	18.482	34.910	25.083	25	300	17.533	35.668	34.825	4.65	0	200	20.759	34.955	24.525				
24	124	21.512	34.938				250	17.328	34.833	25.308	24	401	14.663	35.521	34.577	4.29		250	18.964	34.929	24.976				
23	123	21.509	34.938				300	16.045	34.726	25.527	23	502	10.940	35.364	34.315	3.98		300	17.679	34.850	25.236				
22	149	20.527	34.934				400	12.998	34.486	25.995	22	598	8.014	35.277	34.157	3.25		400	14.315	34.561	25.781				
21	149	20.523	34.934				500	10.099	34.303	26.391	21	800	4.953	35.462	34.257	1.58		500	11.052	34.332	26.246				
20	176	19.434	34.908				600	7.824	34.234	26.698	20	1000	3.855	35.677	34.422	1.56		600	7.825	34.154	26.635				
19	176	19.399	34.908				800	5.731	34.316	27.046	19	1250	3.072	35.793	34.508	1.81		800	4.922	34.258	27.096				
18	199	18.577	34.886				1000	4.227	34.416	27.298	18	1500	2.612	35.887	34.572	2.41		1000	3.847	34.419	27.34				
17	199	18.576	34.885								17	1998	2.052	35.981	34.625	2.79		1250	3.041	34.507	27.488				
16	249	17.487	34.814								16	1998	2.052	35.981				1500	2.612	34.564	27.572				
15	249	17.488	34.814								15	2501	1.794	36.047	34.652	3.06		2000	2.040	34.618	27.663				
14	299	16.215	34.711								14	2500	1.794	36.047				2500	1.785	34.642	27.702				
13	300	16.235	34.711								13	3000	1.668	36.095	34.663	3.17		3000	1.665	34.655	27.721				
12	399	13.220	34.474								12	3000	1.668	36.095				3500	1.595	34.664	27.733				
11	399	13.225	34.475								11	3501	1.595	36.142	34.668	3.36		4000	1.578	34.669	27.739				
10	499	10.199	34.28								10	3502	1.595	36.142				4500	1.599	34.672	27.74				
9	499	10.191	34.278								9	4001	1.578	36.179	34.671	3.54		5000	1.641	36.219	28.978				
8	600	8.010	34.218								8	4001	1.578	36.179				5500	1.696	36.248	28.997				
7	599	8.077	34.223								7	4999	1.641	36.254	34.671	3.61		6000	1.761	36.319	29.049				
6	800	5.735	34.311								6	4999	1.641	36.254				6003	1.761	36.319	29.049				
5	800	5.760	34.313								5	5499	1.696	36.288	34.673	3.59									
4	800	5.772	34.314								4	5499	1.696	36.288											
3	1015	4.087	34.415								3	5995	1.760	36.332	34.680	3.64									
2	1014	4.089	34.415								2	5995	1.760	36.332											
1	1014	4.090	34.415								1	5995	1.760	36.333											

St.	12 Date			JULY.16			18°59.07'N			Depth 5978m			17°59.40'N			Depth 5943m			
	Time(GM) 9:40-11:00			Time(GM) 21:44-02:41			130°59.73'E			CTD DOWN			130°59.22'E			CTD DOWN			
Bottle No.	P db	T °C	S psu	O2 ml/L	Chl.a µg/L	P db	T °C	S psu	O2 ml/L	Chl.a µg/L	P db	T °C	S psu	O2 ml/L	Chl.a µg/L	P db	T °C	S psu	
																			CAST
0							0	30.9											
36	8	30.394	34.750	3.20	34.806	4.85	0.10									2	30.330	34.882	21.525
35					34.761	4.63	0.07									5	30.326	34.881	21.526
34	19	30.086	34.761	3.21	34.760	4.56	0.07									10	30.088	34.850	21.584
33																20	29.957	34.864	21.639
32	23	30.072	34.760	3.22												30	29.060	34.874	21.949
31																40	28.486	34.868	22.136
30	29	30.046	34.761	3.22	34.751	4.65	0.08									50	27.257	34.918	22.574
29																75	26.048	34.985	23.007
28	50	28.504	34.761	3.50	34.765	4.90	0.09									100	25.242	35.003	23.270
27																125	24.377	35.039	23.559
26	69	26.543	34.797	3.66												150	23.665	35.069	23.792
25																175	22.781	35.082	24.058
24	74	26.258	34.819	3.67	34.841	4.92	0.54									200	21.852	35.085	24.324
23																250	19.052	34.951	24.970
22	79	26.098	34.834	3.65												300	17.317	34.827	25.306
21																400	13.937	34.527	25.835
20	98	25.304	34.894	3.65	34.859	4.76	0.67									500	9.704	34.237	26.406
19																600	8.154	34.316	26.713
18	120	24.309	34.944	3.51	34.953	4.60	1.05									800	5.378	34.344	27.111
17																1000	4.179	34.459	27.337
16	147	23.027	34.917	3.65	34.921	4.82	0.45									1250	3.238	34.538	27.494
15																1500	2.754	34.574	27.567
14																2000	2.167	34.617	27.652
13	198	20.262	34.923	3.53	34.947	4.54	0.05									2500	1.815	34.643	27.700
12																3000	1.677	34.658	27.722
11	247	18.231	34.862	3.60	34.864	4.55	0.17									3500	1.603	34.666	27.735
10	297	16.762	34.753	3.60	34.761	4.31	0.05									4000	1.579	34.672	27.741
9																4500	1.599	34.675	27.742
8					34.428											5000	1.645	34.677	27.740
7																5500	1.702	34.677	27.736
6					34.209											6000	1.766	34.677	27.731
5																6003	1.767	34.677	27.731
4	593	6.810	34.158	1.89	34.165														
3																			
2	783	5.108	34.366	1.19	34.378														
1	1024	3.818	34.494	1.51	34.771														

St.	14 Date		July 17		17°00.16'N		Depth 5751m		15		Date		JULY.17		Lat. 15°57.72'N		Depth 6138m							
	P	T	S	O2	Long. 130°58.90'E	CTD	P	Chl.a	Down	CAST	P	T	S	O2	Long. 130°59.33'E	CTD	P	T	S	O2	CAST			
Botl	No.	db	°C	psu	ml/L	µg/L	db	°C	psu	db	°C	psu	ml/L	µg/L	db	°C	psu	ml/L	µg/L	db	°C	psu	ml/L	
0	0	0	30.4		34.673	4.56	0.01	2	30.101	34.722	3.37	21.483			34.180	4.55	0.07	2	29.909	34.188	3.32	21.149		
36	10	30.038	34.808	3.44	34.837	4.52	0.06	5	30.079	34.779	3.47	21.533				4.48	0.07	5	29.909	34.189	3.47	21.149		
35	20	29.956	34.838	3.47	34.861	4.55	0.03	10	30.028	34.807	3.56	21.572				4.45	0.07	10	29.897	34.196	3.52	21.159		
34	30	29.589	34.875	3.58	34.898	4.78	0.01	20	29.918	34.854	3.55	21.644				4.51	0.08	20	29.807	34.243	3.51	21.224		
33	50	27.715	34.908	3.88	34.922	5.15	0.05	30	29.481	34.897	3.73	21.825				4.86	0.42	30	29.877	34.299	3.54	21.242		
32	76	25.408	34.932	3.98	34.948	5.25	0.88	40	28.384	34.923	3.91	22.211				4.90	0.58	40	29.566	34.365	3.64	21.397		
31	101	23.732	34.996	3.69	35.008	5.20	0.91	50	27.406	34.934	4.03	22.538				4.86	0.88	50	29.073	34.446	3.76	21.624		
30	113	23.237	35.007	3.54				75	25.491	34.953	4.05	23.155				4.54	0.65	75	27.570	34.722	3.91	22.325		
29	113	23.238	35.007	3.53				100	23.805	35.010	3.78	23.706				4.25	0.07	100	26.696	34.811	3.87	22.672		
28	113	23.236	35.007	3.53				125	22.240	35.055	3.51	24.192						125	25.678	34.941	3.73	23.089		
27	113	23.235	35.007	3.54				150	20.481	35.000	3.73	24.634						150	23.179	35.060	3.48	23.927		
26	113	23.232	35.007	3.53				175	19.150	34.941	3.81	24.938						175	21.100	35.042	3.53	24.498		
25	113	23.230	35.006	3.53				200	18.070	34.873	4.00	25.158						200	19.791	34.972	3.60	24.795		
24	113	23.227	35.006	3.54				250	16.900	34.785	4.07	25.373						250	17.297	34.791	3.44	25.283		
23	125	22.370	35.011	3.51	35.023	4.32	0.40	300	15.339	34.649	3.94	25.626						300	14.712	34.592	3.73	25.720		
22	149	20.874	35.012	3.41	35.007	4.27	0.05	400	11.700	34.360	3.75	26.149				4.34	0.33	400	10.437	34.302	3.20	26.332		
21	173	19.683	34.934	3.67	34.954	4.38	0.05	500	8.332	34.196	2.82	26.593				4.39	0.07	500	8.402	34.371	1.81	26.719		
20	200	18.263	34.868	3.72	34.870	4.56	0.01	600	6.955	34.236	1.70	26.871				4.93	0.03	600	6.984	34.351	1.59	26.909		
19	250	16.822	34.763	3.75	34.762	5.06	0.02	800	5.036	34.379	1.47	27.179				4.07	0.00	800	5.307	34.423	1.60	27.182		
18	250	16.812	34.762	3.76				1000	3.992	34.489	1.67	27.381				3.32		1000	4.365	34.507	1.62	27.355		
17	301	15.068	34.611	3.56	34.615	4.38	0.00									2.07		1250	3.422	34.539	1.78	27.478		
16	401	11.642	34.344	3.35	34.347	4.14										1.74		1500	2.891	34.576	1.91	27.557		
15	401	11.636	34.343	3.35														2000	2.188	34.617	2.14	27.650		
14	501	8.161	34.179	2.45	34.182	4.15										2.18		2500	1.801	34.646	2.43	27.704		
13	500	8.153	34.179	2.44														3000	1.668	34.659	2.61	27.724		
12	602	6.941	34.307	1.47	34.307	1.94										2.25		3500	1.584	34.668	2.80	27.738		
11	601	6.947	34.306	1.47												2.41		4000	1.568	34.674	2.88	27.743		
10	801	4.915	34.403	1.39	34.405	1.85										2.70		4500	1.603	34.675	2.92	27.742		
9	800	4.921	34.401	1.39												2.99		5000	1.658	34.676	2.92	27.738		
8	1020	3.841	34.496	1.64	34.5	2.04										3.38		5500	1.721	34.676	2.92	27.733		
7	1020	3.842	34.497	1.65												3.50		6000	1.787	34.676	2.92	27.728		
6	1020	3.843	34.497	1.64												3.54		6003	1.788	34.676	2.92	27.728		
5	1020	3.843	34.496	1.64																				
4	1019	3.849	34.496	1.65																				
3	1019	3.855	34.496	1.65																				
2	1019	3.857	34.497	1.65																				
1	1019	3.858	34.497	1.65																				

St.	23	Date July. 21			16°15.10'N			Depth 5330m			St.	24	Date July. 22			16°00.15'N			Depth 5309m									
		P	T	S	Long.	O ₂	Chl.a	CTD	DOWN	Long.			O ₂	Chl.a	CTD	DOWN	Long.	O ₂	Chl.a	CTD	DOWN							
Bottle No.	db	°C	psu	psu	m/L	μg/L	db	°C	psu	Bottle No.	db	°C	psu	psu	m/L	μg/L	db	°C	psu	Bottle No.	db	°C	psu	m/L	μg/L	db	°C	
0	0	30.30		34.595	4.66	0.10	2	29.401		0	0	29.8			34.409	4.97	0.07											
24							5	29.405		24																		
23	26	21.92					10	29.406		23	25	29.636			34.391	4.68	0.08											
22							20	29.431		22																		
21	51	23.08					30	29.418		21	25	29.656																
20							40	29.368		20																		
19	75	23.55					50	28.883		19	50	29.662			34.465	4.79	0.01											
18	101	24.01					75	27.960		18	76	27.751			34.857	5.09	0.67											
17							100	26.957		17																		
16	126	24.53					125	25.427		16	100	26.816			34.889	5.21	0.90											
15							150	22.763		15																		
14	151	24.91					175	19.594		14	126	25.177			34.970	4.91	0.99											
13	175	25.41					200	17.420		13	151	24.009			35.106	4.58	0.46											
12	175	25.41					250	15.746		12	151	24.003																
11							300	12.944		11																		
10	199	25.60					400	8.744		10	174	22.616			35.127	4.41	0.06											
9							500	7.945		9																		
8	300	26.32					600	6.943		8	198	20.743			35.059	4.32	0.09											
7	500	27.53					800	5.548		7	300	15.414																
6							1000	4.504		6																		
5	752	28.09								5	500																	
4										4																		
3	750	28.09								3	750																	
2	993	28.40								2	1000				34.468	2.02												
1	992	28.40								1	1004	4.365			34.541	2.28												

St.	28 Date July. 24			14°00.87'N			Depth 5025m			29 Date July. 24			14°59.84'N			Depth 4930m				
	Bottle No.	P db	T °C	S psu	Sigma-t	O2 ml/L	Chl.a µg/L	CTD db	T °C	DOWN	Bottle No.	P db	T °C	S psu	Sigma-t	O2 ml/L	Chl.a µg/L	CTD db	T °C	DOWN
0	0							2	29.401		0							6	29.315	
24	24	29.402		34.124		5.04	0.09	5	29.405		24	24	29.351			4.47	0.13	10	29.332	
23	49	28.922		34.130		4.82	0.09	10	29.406		23	47	28.621			4.49	0.13	20	29.337	
22				34.248		4.54	0.11	20	29.431		22					4.80	0.61	30	29.490	
21	74	28.019		34.347		4.61	0.19	30	29.418		21	75	26.046			4.86	0.85	40	29.369	
20	99	27.043		34.453		4.55	0.32	40	29.368		20	99	24.833			4.60	0.99	50	28.024	
19	125	25.342		34.724		4.54	0.79	50	28.883		19	124	23.399			4.49	0.79	75	25.916	
18								75	27.960		18							100	24.780	
17	149	22.767		34.958		4.17	0.54	100	26.957		17	149	21.386			4.40	0.43	125	23.412	
16								125	25.427		16							150	22.090	
15	174	19.725		34.924		3.93	0.14	150	22.763		15	174	20.153			4.38	0.05	175	20.156	
14								175	19.594		14							200	18.914	
13	200	17.518		34.784		4.45	0.04	200	17.420		13	199	18.716			4.55	0.17	250	16.826	
12								250	15.746		12							300	14.675	
11	300	12.261		34.308		3.93	0.00	300	12.944		11	300	14.521			4.09	0.01	400	10.292	
10								400	8.744		10							500	7.511	
9	399	8.696		34.315		2.20		500	7.945		9	401	10.454			3.32		600	6.886	
8								600	6.943		8							800	5.343	
7	500	7.891		34.455		1.48		800	5.548		7	497	7.529			2.13		1000	4.419	
6								1000	4.504		6									
5	599	6.905		34.470		1.73					5	600	6.801			1.54				
4											4									
3	800	5.521		34.487		1.58					3	800	5.238			1.92				
2											2									
1	1000	4.480		34.523		1.90					1	1004	4.365			2.05				

St.	47	Time(GMT) 12:15-14:50			Lat. 8°55.32'N			Depth 2944m			Date Aug. 6			Lat. 4°20.32'N			Depth 3524m				
		P	T	S	Sigma-t	psu	O2	Chla	P	T	DOWN	P	T	S	psu	O2	Chla	P	T	DOWN	
Botlle No.	db	°C	psu		ml/L	µg/L	db	°C	psu		db	°C	psu	db	°C	psu	db	°C	psu		
0	0	30.3			4.69	0.08	2	29.151	34.106	21.343	0	29.8		33.673	4.74	0.09	10	29.796	33.657	20.789	
24	11	29.724	33.559	20.740	34.505	2.34	10	29.908	33.563	20.681	24	29.778	33.648	33.665	4.86	0.08	20	29.802	33.658	20.787	
23	20	29.661	33.579	20.776	34.660	3.42	0.12	20	29.679	33.603	20.788	23	29.788	33.649	33.661	4.81	0.03	30	29.805	33.659	20.788
22	31	29.539	33.726	20.927	34.524	0.07	0.07	30	29.530	33.742	20.942	22	29.788	33.648	33.656	4.89	0.02	50	29.844	33.756	20.847
21	47				34.506	0.02	0.02	50	28.945	34.060	21.377	21	29.862	33.766	33.776	4.60	0.02	75	28.815	34.271	21.578
20	76	27.133	34.401	22.224	34.511	0.02	0.02	75	26.035	34.504	22.648	20	29.090	34.225	34.244	4.95	1.18	100	26.116	34.491	22.614
19	101	24.298	34.597	23.247	34.558	0.01	0.01	100	22.740	34.684	23.768	19	26.753	34.379	34.411	5.79	1.02	125	22.271	34.722	23.931
18	126				34.726	3.77	0.22	125	19.220	34.730	24.759	18	21.768	34.707	34.755	3.75	0.09	150	18.765	34.902	25.006
17	151	17.313	34.683	25.196	34.649	3.41	0.30	150	16.885	34.679	25.295	17	18.756	34.882	34.893	3.62	0.04	175	16.756	34.824	25.437
16	176	12.960	34.514	26.024	34.521	2.72	0.08	175	14.513	34.587	25.759	16	16.615	34.912	34.777	3.07		200	14.949	34.751	25.791
15	201	11.615	34.498	26.272	34.508	2.53	0.02	200	12.193	34.517	26.177	15	15.397	34.777	34.683	3.14	0.03	250	11.157	34.570	26.412
14	251	10.221	34.497	26.522	34.513	2.07	0.02	250	10.071	34.512	26.559	14	11.342	34.547	34.562	2.25	0.00	300	9.602	34.588	26.697
13	302	9.565	34.548	26.672	34.560	1.83	0.02	300	9.398	34.564	26.712	13	9.487	34.585	34.591	1.64	0.00	400	8.323	34.599	26.910
12	402	8.267	34.560	26.888	34.570	1.62		400	8.160	34.561	26.905	12	8.232	34.587	34.591	1.90		500	7.586	34.580	27.005
11	500	7.592	34.541	26.973	34.550	1.75		500	7.441	34.539	26.994	11	7.493	34.560	34.563	2.17		600	6.622	34.545	27.112
10	600	7.075	34.532	27.040	34.542	1.78		600	7.064	34.534	27.043	10	6.458	34.540	34.547	1.46		700	5.912	34.532	27.194
9	799	5.857	34.516	27.188	34.531	1.79		700	6.479	34.522	27.113	9	5.219	34.532	34.540	2.17		800	5.354	34.533	27.263
8	1000	4.783	34.534	27.331	34.531	2.01		800	5.898	34.516	27.183	8	4.501	34.544	34.551	2.22		1000	4.542	34.544	27.365
7	1250	3.671	34.561	27.470	34.569	2.23		1000	4.788	34.534	27.330	7	3.714	34.565	34.575	2.31		1500	3.034	34.590	27.555
6	1500	3.021	34.585	27.552	34.571	2.33		1500	2.904	34.592	27.568	6	3.077	34.587	34.595	2.32		2000	2.151	34.631	27.664
5	2000	2.278	34.621	27.645	34.630	2.44		2000	2.272	34.621	27.646	5	2.179	34.629	34.637	2.75		2500	1.790	34.652	27.709
4	2000	2.277	34.621	27.645				2500	1.800	34.648	27.705	4	1.808	34.650	34.657	3.33		3000	1.605	34.663	27.732
3	2501	1.802	34.648	27.705	34.657	2.69		2947	1.629	34.659	27.727	3	1.606	34.662	34.670	3.39		3500	1.531	34.671	27.744
2	2946	1.628	34.659	27.727								2	1.519	34.672							
1	2946	1.628	34.659	27.727	34.668	3.14						1	1.519	34.672	34.679	3.58					

St.	90 Date Aug.29				30°00.30'S				Date Aug.31				28°59.48'N			
	Time(GMT) 03:55-04:49		S		Depth 4247m		CTE DOWN		Time(GMT) 00:25-01:39		S		Depth 1510m		CTD	
Botlle	P	T	S	Sigma-t	P	T	S	Sigma-t	P	T	S	Sigma-t	P	T	S	Sigma-t
No.	db	°C	psu	psu	db	°C	psu	psu	db	°C	psu	psu	db	°C	psu	psu
0		19.5			4	19.286	35.767	25.534	0	20.1			2	19.877	35.770	25.381
24	10	19.263	35.766	25.539	5	19.288	35.766	25.533	24	9	19.889	35.771	5	19.881	35.770	25.381
23	19	19.265	35.767	25.539	10	19.301	35.766	25.529	23	20	19.855	35.766	10	19.883	35.770	25.380
22					20	19.288	35.768	25.534	22				20	19.863	35.768	25.384
21	29	19.265	35.766	25.538	30	19.283	35.767	25.535	21	29	19.637	35.749	30	19.616	35.751	25.436
20	48	19.272	35.766	25.537	50	19.282	35.766	25.534	20	50	19.468	35.738	50	19.336	35.730	25.493
19					75	18.939	35.748	25.609	19				75	19.132	35.717	25.535
18	74	19.051	35.761	25.59	100	18.648	35.757	25.690	18	72	19.184	35.717	100	19.098	35.720	25.546
17	100	18.554	35.701	25.67	125	18.516	35.759	25.725	17	101	19.129	35.713	125	19.048	35.723	25.561
16					150	18.275	35.734	25.766	16				150	19.027	35.721	25.566
15	124	18.331	35.677	25.708	175	17.695	35.647	25.843	15	124	19.051	35.720	175	18.954	35.719	25.583
14					200	17.488	35.620	25.873	14				200	18.821	35.712	25.611
13	149	18.213	35.722	25.772	250	17.053	35.604	25.965	13	153	19.028	35.720	250	18.095	35.643	25.741
12	175	17.746	35.649	25.831	300	15.721	35.450	26.158	12	174	18.975	35.719	300	17.174	35.555	25.899
11	201	17.409	35.598	25.875	400	13.563	35.206	26.438	11	200	18.811	35.701	400	14.876	35.331	26.255
10	250	17.134	35.611	25.951	500	11.420	34.924	26.639	10	249	18.336	35.658	500	12.259	35.045	26.574
9					600	9.641	34.719	26.794	9				600	9.964	34.776	26.783
8	300	15.852	35.458	26.134	800	7.276	34.500	26.987	8	300	17.318	35.547	800	7.259	34.509	26.996
7	399	13.679	35.209	26.416	1000	5.604	34.429	27.150	7	401	14.914	35.331	1000	5.542	34.443	27.169
6									6							
5	500	11.441	34.923	26.635					5	500	12.215	35.036				
4	599	9.642	34.716	26.791					4	601	10.051	34.783				
3									3							
2	799	7.299	34.496	26.98					2	800	7.315	34.512				
1	1015	5.559	34.430	27.157					1	998	5.535	34.442				

St.	100 Date Sep.03				15°34.03'S				Depth 3358m				11°59. 54'S				Depth 1847m			
	Time(GMT) 01.16-02:32				Long. 160°10.50'E				CTE DOWN				1 60° 00.26'				CTD			
Botlle	P	T	S	Sigma-t	S	O2	Chla	P	T	S	Sigma-t	S	O2	Chla	P	T	S	Sigma-t		
No.	db	°C	psu		psu	ml/L	µg/L	db	°C	psu		psu	ml/L	µg/L	db	°C	psu			
0			34.810				0.10													
24	10.9	26.038	34.785	22.859	34.799		0.09	11	25.989	34.783	22.873				2	27.934	34.691	22.184		
23	20.3	25.962	34.784	22.882	34.801		0.10	20	25.946	34.785	22.888				5	27.938	34.693	22.184		
22								30	25.447	34.868	23.105				10	27.938	34.693	22.184		
21	30.2	25.39	34.869	23.123	34.913		0.12	50	24.912	34.954	23.333				20	27.944	34.694	22.182		
20	50	24.889	34.955	23.341	34.910		0.11	75	24.584	34.979	23.451				30	27.938	34.698	22.188		
19								100	23.823	35.444	24.030				50	27.457	34.633	22.295		
18	72.2	24.587	34.977	23.449	35.048		0.86	125	23.124	35.684	24.416				75	27.065	34.779	22.531		
17	100	23.819	35.447	24.033	35.477		0.41	150	22.539	35.760	24.643				100	26.320	35.210	23.092		
16								175	20.890	35.740	25.087				125	24.448	35.557	23.929		
15	125	23.187	35.663	24.382	35.692		0.10	200	20.086	35.714	25.284				150	22.378	35.666	24.617		
14								250	18.378	35.630	25.660				175	20.533	35.681	25.139		
13	151	22.611	35.757	24.62	35.775		0.61	300	16.704	35.452	25.932				200	19.000	35.574	25.460		
12	176	20.781	35.726	25.107	35.742		0.04	400	12.404	34.982	26.497				250	16.660	35.363	25.874		
11	200	20.064	35.703	25.281	35.714		0.01	500	8.957	34.614	26.823				300	14.207	35.116	26.233		
10	250	18.312	35.608	25.66	35.713		0.00	600	7.058	34.471	26.994				400	10.327	34.739	26.692		
9								800	5.203	34.422	27.193				500	8.077	34.557	26.915		
8	300	16.676	35.438	25.927	35.445		0.00	1000	4.304	34.466	27.330				600	6.807	34.488	27.042		
7	400	12.432	34.975	26.486	34.987										800	5.147	34.466	27.234		
6															1000	4.261	34.499	27.360		
5	500	9.056	34.616	26.808	34.620															
4	600	7.1774	34.474	26.98	34.483															
3																				
2	801	5.1921	34.42	27.193	34.432															
1	1010	4.2148	34.471	27.343	34.484															

St.	107 Date Sep.04			11° 01.96'S			Depth 2147m			112 Date Sep.06			04° 56.89'S			Depth m			
	Time(GMT) 19:30-20:30			Long. 160° 03.76'E			CTD DOWN			Time(GMT)			159° 57.52'E			CTD			
Bottle No.	P	T	S	Sigma-t	O2	Chl.a	P	T	S	Sigma-t	Bottle No.	P	T	S	Sigma-t	P	T	S	
	db	°C	psu		ml/L	µg/L	db	°C	psu			db	°C	psu		db	°C	psu	
0					34.755	1.19	2	28.300	34.735	22.097	0					3	29.652	35.313	22.079
24	10	28.281	34.731	22.100	34.748	1.14	5	28.314	34.733	22.091	24	12	29.651	35.307	22.075	5	29.653	35.313	22.079
23	19	28.279	34.733	22.102	34.753	1.42	10	28.329	34.736	22.088	23	19	29.647	35.306	22.076	10	29.653	35.313	22.079
22							20	28.287	34.749	22.112	22	30	29.650	35.305	22.074	20	29.652	35.314	22.080
21	29	28.234	34.752	22.132	34.788	0.70	30	28.056	34.836	22.253	21	50	29.655	35.309	22.075	30	29.658	35.314	22.078
20	49	27.318	34.974	22.596	35.026	1.26	50	27.107	35.036	22.711	20	75	29.480	35.334	22.154	50	29.633	35.324	22.094
19							75	25.692	35.243	23.313	19					75	29.220	35.368	22.207
18	75	25.705	35.232	23.300	34.760	0.08	100	24.253	35.566	23.994	18	100	29.164	35.421	22.325	100	29.185	35.420	22.318
17	99	24.646	35.492	23.820			125	22.327	35.685	24.646	17	125	28.563	35.470	22.563	125	28.640	35.468	22.536
16							150	20.824	35.680	25.059	16	151	25.434	35.698	23.736	150	26.059	35.677	23.526
15	124	22.366	35.674	24.627	35.690	0.07	175	20.232	35.638	25.187	15					175	21.926	35.853	24.887
14	149	21.053	35.665	24.986	35.673	0.03	200	19.161	35.576	25.420	14	174	21.378	35.807	25.004	200	18.330	35.572	25.628
13	174	20.658	35.666	25.094	35.639	0.01	250	14.880	35.198	26.151	13	200	18.214	35.534	25.628	250	13.719	35.084	26.311
12	198	19.153	35.566	25.415	35.569	0.00	300	13.227	35.030	26.370	12	251	13.618	35.053	26.308	300	10.960	34.824	26.646
11							400	9.557	34.708	26.798	11	301	10.805	34.798	26.653	400	9.507	34.702	26.802
10	249	15.520	35.235	26.037	35.196	0.00	500	8.435	34.613	26.903	10					500	8.381	34.627	26.923
9							600	7.068	34.524	27.034	9	400	9.555	34.699	26.792	600	7.235	34.559	27.039
8	302	12.796	34.978	26.417	34.984		800	5.759	34.484	27.175	8	500	8.513	34.628	26.904	800	5.604	34.501	27.208
7	398	9.359	34.682	26.811			1000	4.446	34.514	27.352	7	600	7.368	34.560	27.021	1000	4.598	34.524	27.343
6											6	800	5.657	34.503	27.203	1250	3.518	34.557	27.482
5	499	8.328	34.606	26.915							5					1500	2.972	34.579	27.552
4	598	6.780	34.503	27.057	34.910						4	1000	4.641	34.524	27.338				
3											3	1249	3.538	34.557	27.480				
2	800	5.710	34.478	27.177	34.490						2	1504	2.971	34.580	27.552				
1	1010	4.324	34.507	27.360	34.521						1								

St.	117 Date Sep.07-08			Lat. 00° 00.16'N			Depth 1952m			St.	122 Date Sep.09			Lat. 06° 09.45'N			Depth 4553m		
	Time(GMT)	P	T	S	sigma-t	Long.	O2	Chi.a	P		T	S	sigma-t	Long.	O2	Chi.a	P	T	S
Bottle	No.	db	°C	psu		psu	ml/L	µg/L	db	°C	psu		psu	ml/L	µg/L	db	°C	psu	
	0			35.406		0.97			2	28.958	35.381	22.364		33.681	0.79	2	29.860	33.667	20.774
	24								5	28.943	35.380	22.369				5	29.860	33.667	20.775
	23	11	28.995	35.376	22.348				10	28.954	35.381	22.366		33.618	0.71	10	29.872	33.670	20.773
	22	21	28.911	35.369	22.371	1.07			20	28.856	35.370	22.390		33.666	0.71	20	29.869	33.668	20.772
	21	32	28.631	35.349	22.449	1.07			30	28.654	35.353	22.444		33.693	0.73	30	29.873	33.669	20.772
	20	51	28.418	35.299	22.482	0.52			50	28.440	35.308	22.481		33.938	0.77	50	29.880	33.783	20.855
	19	76	27.938	35.192	22.559	0.45			75	27.984	35.210	22.558		34.314	0.94	75	28.451	34.233	21.670
	18								100	26.907	35.079	22.807				100	27.073	34.470	22.295
	17	101	26.957	35.081	22.793	0.71			125	24.948	34.853	23.246		34.592	0.99	125	22.309	34.690	23.896
	16	125	25.065	34.880	23.231	0.10			150	21.172	35.095	24.519		34.704	0.46	150	18.929	34.734	24.836
	15	151	21.476	35.052	24.403	0.08			175	17.806	35.182	25.459		34.718	0.07	175	14.543	34.619	25.777
	14								200	17.490	35.322	25.644				200	12.274	34.570	26.202
	13	175	19.225	35.333	25.218	0.01			250	13.731	35.046	26.279		34.601	0.05	250	10.327	34.567	26.558
	12	200	17.218	35.328	25.714	0.01			300	12.467	34.883	26.408		34.566	0.04	300	9.530	34.604	26.722
	11	250	13.380	34.960	26.285	0.00			400	9.277	34.655	26.804		34.577	0.00	400	8.642	34.603	26.864
	10	302	12.419	34.870	26.407	0.00			500	7.994	34.583	26.947		34.616	0.00	500	8.036	34.576	26.935
	9								600	6.761	34.548	27.096				600	7.193	34.546	27.034
	8	401	9.276	34.651	26.800				800	5.287	34.526	27.266		34.611		800	5.671	34.528	27.221
	7	500	8.102	34.584	26.932	34.594			1000	4.509	34.539	27.365		34.585		1000	4.554	34.539	27.360
	6	601	6.808	34.542	27.085	34.556			1250	3.735	34.561	27.464		34.556		1250	3.664	34.563	27.473
	5	800	5.365	34.526	27.256	34.539			1500	3.006	34.588	27.556		34.539		1500	2.975	34.588	27.558
	4	998	4.553	34.538	27.360	34.551								34.554		2000	2.106	34.629	27.666
	3	1249	3.790	34.559	27.457	34.572								34.576					
	2	1500	3.021	34.588	27.554	34.602								34.603					
	1	1904	2.265	34.623	27.648	34.635								34.641					

St.	125 Date Sep.10			09° 01'11"N Depth 2960m			132 Date Sep.16			12° 00.02'N Depth 3024m						
	Time(GMT)	T °C	Sigma-t	Lat.	Long.	CTD Down data	Time(GMT)	T °C	Sigma-t	Lat.	Long.	CTD				
Bottle No.	P db	S psu	Sigma-t	1 49°41.89'E	139° 29.20'E	P db	P db	S psu	S psu	139° 29.20'E	139° 29.20'E	T °C				
				O2 ml/L	Chl.a µg/L	O2 ml/L	O2 ml/L	Chl.a µg/L	O2 ml/L	Chl.a µg/L	P db	S psu				
0						4	29.630	33.615	20.814			3	29.358	34.042	21.225	
24						5	29.623	33.612	20.814			5	29.362	34.042	21.224	
23	9	29.610	33.595	20.805		10	29.629	33.615	20.814			10	29.340	34.042	21.231	
22	21	29.631	33.608	20.808		20	29.632	33.615	20.813			20	29.256	34.050	21.265	
21	30	29.650	33.676	20.850		30	29.668	33.644	20.823			30	29.249	34.063	21.278	
20	51	29.374	33.927	21.134		50	29.489	33.865	21.048			50	29.242	34.077	21.290	
19	73	27.857	34.294	21.910		75	27.453	34.369	22.097			75	28.350	34.391	21.822	
18						100	20.099	34.730	24.530			100	26.606	34.770	22.670	
17	100	20.088	34.690	24.502		125	16.666	34.661	25.333			125	24.631	34.893	23.372	
16	124	16.480	34.640	25.360		150	14.668	34.593	25.731			150	21.224	34.905	24.361	
15	150	14.761	34.579	25.699		175	12.773	34.545	26.085			175	18.392	34.702	25.008	
14						200	11.384	34.515	26.328			200	15.727	34.649	25.539	
13	174	13.086	34.528	26.010		250	10.222	34.561	26.571			250	11.713	34.382	26.163	
12	200	11.315	34.506	26.334		300	9.409	34.592	26.732			300	9.437	34.386	26.567	
11	250	10.214	34.553	26.566		400	8.563	34.576	26.855			400	7.854	34.414	26.835	
10	301	9.521	34.592	26.714		500	7.973	34.561	26.933			500	6.900	34.425	26.979	
9						600	6.811	34.519	27.066			600	6.074	34.465	27.121	
8	400	8.516	34.572	26.859		800	5.828	34.521	27.196			800	5.365	34.498	27.234	
7	500	7.985	34.560	26.930		1000	4.871	34.530	27.317			1000	4.466	34.527	27.360	
6	600	6.983	34.515	27.039		1250	3.627	34.562	27.476							
5	801	5.875	34.521	27.190		1500	2.938	34.586	27.560							
4	1002	4.900	34.530	27.314		2000	2.216	34.623	27.652							
3	1250	3.686	34.560	27.468												
2	1501	2.919	34.587	27.563												
1	2000	2.216	34.623	27.652												

St.	134 Date Sep.16		12° 56.41'N		Depth 4504m		139° 21.11'E		Lat. Long.		12° 00.02'N		Depth 3024m	
	Time(GMT)	Time(GMT)	T	S	P	CTD	Chla	O2	psu	S	psu	Chla	P	CTD
Botl	P	T	T	S	P	T	µg/L	ml/L	sigma-t	S	µg/L	P	T	S
No.	db	°C	°C	psu	db	°C	µg/L	ml/L	Sigma-t	psu	µg/L	db	°C	psu
0			29.389	34.057	3	29.389	0.12		21.226		0.13	2	29.382	34.049
24			29.386	34.057	5	29.386		21.227	21.232		0.10	5	29.382	34.049
23			29.382	34.057	10	29.382	0.11	21.229	21.228		0.11	10	29.368	34.037
22			29.387	34.056	20	29.387	0.11	21.226	21.227		0.11	20	29.380	34.042
21			29.391	34.058	30	29.391	0.11	21.226	21.227		0.11	30	29.383	34.043
20			29.395	34.079	50	29.395	0.52	21.240	21.224		0.11	50	29.403	34.057
19			28.038	34.394	75	28.038	0.90	21.926	21.224		0.11	75	27.948	34.514
18			26.953	34.568	100	26.953	0.95	22.407	21.476		0.79	100	26.576	34.720
17			24.533	34.893	125	24.533	0.68	23.401	22.346		0.92	125	24.697	34.980
16			23.481	34.918	150	23.481	0.45	23.732	23.115		0.95	150	22.937	35.045
15			19.899	34.814	175	19.899	0.45	24.646	23.115		0.95	175	21.407	35.014
14			17.537	34.744	200	17.537	0.13	25.189	23.949		0.41	200	19.900	34.981
13			14.452	34.549	250	14.452	0.13	25.743	23.949		0.41	250	16.173	34.702
12			11.749	34.346	300	11.749	0.04	26.129	24.433		0.05	300	13.796	34.493
11			8.745	34.303	400	8.745	0.02	26.613	24.868		0.06	400	9.051	34.209
10			7.664	34.444	500	7.664	0.00	26.886	25.485		0.00	500	7.517	34.402
9			6.680	34.451	600	6.680		27.030	25.485			600	6.480	34.441
8			5.396	34.483	800	5.396		27.219	25.821		0.00	800	5.321	34.486
7			4.555	34.514	1000	4.555		27.340	26.502		0.00	1000	4.373	34.518
6														
5			7.4141	34.404					26.891					
4			6.4442	34.44					27.053					
3														
2			5.3234	34.486					27.23					
1			4.3626	34.518					27.364					

St.	144 Date Sep 20			14° 59.98'N			Depth 5148m			15° 57.51'N			Depth 5252m						
	Time(GMT)	P	T	O2	Chi.a	P	CTD Down data	O2	Chi.a	P	CTD	DOWN	O2	Chi.a	P				
Lat.	Long.	psi	°C	ml/L	µg/L	db	°C	ml/L	µg/L	db	°C	psi	ml/L	µg/L	db	°C	psi		
Time(GMT)	P	T	S	Sigma-t				Time(GMT)	P	T	S	Sigma-t							
Time(GMT)	P	T	S	Sigma-t	No.	db	°C	psi	Sigma-t	No.	db	°C	psi	Sigma-t	No.	db	°C	psi	
0		29.4			0		29.5												
24	10.9	29.163	34.277	21.467	24	9.47	29.310	34.502	21.586	24	9.47	29.310	34.502	21.586	24	9.47	29.310	34.502	21.586
23	21.3	29.116	34.338	21.528	23	20.1	29.310	34.501	21.585	23	20.1	29.310	34.501	21.585	23	20.1	29.310	34.501	21.585
22					22					22					20	29.323	34.507	21.585	
21	30.3	29.107	34.350	21.540	21	29.4	29.312	34.500	21.585	21	29.4	29.312	34.500	21.585	21	29.4	29.312	34.500	21.585
20	50	28.974	34.363	21.595	20	48.9	29.316	34.498	21.581	20	48.9	29.316	34.498	21.581	20	48.9	29.316	34.498	21.581
19					19					19					75	27.092	34.868	22.589	
18	75.5	28.004	34.498	22.016	18	73.9	27.092	34.856	22.580	18	73.9	27.092	34.856	22.580	18	73.9	27.092	34.856	22.580
17	97.7	25.372	34.673	22.981	17	100	24.941	34.961	23.329	17	100	24.941	34.961	23.329	17	100	24.941	34.961	23.329
16					16					16					150	22.068	35.046	24.234	
15	125	23.843	34.958	23.656	15	126	23.674	35.062	23.785	15	126	23.674	35.062	23.785	15	126	23.674	35.062	23.785
14					14					14					200	20.003	34.988	24.752	
13	150	22.368	35.016	24.127	13	151	21.324	35.026	24.425	13	151	21.324	35.026	24.425	13	151	21.324	35.026	24.425
12	174	20.547	34.990	24.609	12	173	20.523	35.004	24.626	12	173	20.523	35.004	24.626	12	173	20.523	35.004	24.626
11	200	17.982	34.853	25.164	11	200	19.255	34.927	24.900	11	200	19.255	34.927	24.900	11	200	19.255	34.927	24.900
10	251	16.560	34.731	25.411	10	250	16.528	34.725	25.414	10	250	16.528	34.725	25.414	10	250	16.528	34.725	25.414
9					9					9					600	6.180	34.325	26.996	
8	301	14.266	34.529	25.767	8	300	14.652	34.562	25.710	8	300	14.652	34.562	25.710	8	300	14.652	34.562	25.710
7	400	9.866	34.241	26.382	7	401	10.627	34.258	26.264	7	401	10.627	34.258	26.264	7	401	10.627	34.258	26.264
6					6					6					600	6.314	34.295	26.955	
5	500	7.540	34.262	26.761	5	500	7.997	34.208	26.652	5	500	7.997	34.208	26.652	5	500	7.997	34.208	26.652
4	601	6.109	34.330	27.009	4	601	6.449	34.291	26.935	4	601	6.449	34.291	26.935	4	601	6.449	34.291	26.935
3					3					3					800	4.980	34.455	27.245	
2	801	4.904	34.454	27.254	2	801	4.998	34.454	27.243	2	801	4.998	34.454	27.243	2	801	4.998	34.454	27.243
1	1001	4.110	34.515	27.389	1	1002	4.067	34.508	27.388	1	1002	4.067	34.508	27.388	1	1002	4.067	34.508	27.388

St.	B036	St.	C036	Date Aug. 2			Lat.			11°22.20'N			10449m			St.36	Date Aug. 1		
Date Aug. 1		Time(GMT)		T	S	O2	Long.		S	O2	Chl.a	CTD	DOWN	Sigma-T	Nisukin	Depth	Temp.	Time(GMT)	
Time(GMT)		7:05-10:17		°C	psu	ml/L	142°29.00'E		psu	ml/L	µg/L	db	°C	psu		m	°C	14:13-20:37	
Depth 10423m																		14:13-20:37	
Lat. 11°22.07'N																		14:13-20:37	
Long. 142°29.22'E																		14:13-20:37	
P	T	Bottle No.	P	S	O2	S	O2	S	O2	Chl.a	db	°C	psu	Sigma-T	Nisukin	Depth	Temp.	Time(GMT)	
°C	°C		db	psu	ml/L	psu	ml/L	psu	ml/L	µg/L		°C	psu			m	°C	14:13-20:37	
0		0																	
10	29.441	24	10	29.533	33.787			34.302	3.74		2	29.541	33.783	20.97	Nis.	5089			
20	29.395	23	20	29.515	33.787			33.821	4.55		5	29.548	33.781	20.97	Bac.Nis.	5109			
30	29.376	22	30	29.462	33.809			33.820	4.74		10	29.533	33.787	20.98	Nis.	5589	1.57	34.688	
40	29.357	21	50	29.089	34.066			33.938	4.78		20	29.516	33.787	20.98	Nis.	6087		34.696	
50	29.177	20	76	28.481	34.274			34.227	4.94		30	29.460	33.810	21.02	Bac.Nis	6107			
60	29.158	19	100	26.686	34.436			34.398	4.61		40	29.403	33.838	21.06	Nis.	6585		34.694	
70	28.575	18	125	24.400	34.669			34.648	4.75		50	29.080	34.070	21.34	Nis.	7085	1.78	34.691	
80	28.528	17	151	20.786	34.832			34.840	4.12		75	28.565	34.248	21.64	Bac.Nis	7105			
90	28.528	16	176	17.826	34.756			34.775	3.70		100	26.685	34.435	22.39	Nis.	7583		34.690	
100	26.528	15	200	15.133	34.603			34.627	3.94		125	24.351	34.673	23.29	Bac.Nis	8083	1.95	34.693	
125	23.900	14	302	10.016	34.420			34.423	2.45		150	20.827	34.830	24.41	Nis.	8103			
150	20.841	13	404	8.011	34.420			34.428	1.76		175	17.887	34.759	25.12	Nis.	8582		34.693	
175	17.473	12	503	6.855	34.452			34.459	1.87		200	15.114	34.604	25.64					
200	15.299	11	604	6.144	34.464			34.474	1.99		250	11.342	34.432	26.27					
250	12.132	10	804	5.394	34.510			34.519	2.04		300	10.087	34.414	26.48	Nis.	8663	2.18	34.691	
300	10.108	9	1004	4.396	34.535			34.543	2.10		400	8.097	34.422	26.81	Bac.Nis	8683			
400	8.122	8	1254	3.687	34.559			34.565	2.16		500	6.885	34.451	27.00	Nis.	9663	2.31	34.687	
500	6.910	7	1503	2.996	34.579			34.588	2.46		600	6.170	34.464	27.11	Nis.	10163		34.692	
600	6.159	6	2004	2.207	34.623			34.575	2.66		800	5.405	34.509	27.24	Bac.Nis	10183			
700	5.686	5	2505	1.827	34.644			34.651	3.01		1000	4.424	34.536	27.37	Nis.	10203	2.42	34.691	
800	5.324	4	3004	1.645	34.658			34.665	3.27		1250	3.698	34.558	27.47					
1000	4.461	3	4003	1.511	34.674			34.680	3.65		1500	3.000	34.579	27.55					
1500	2.983	2	5003	1.482	34.685						2000	2.213	34.622	27.65					
2000	2.302	1	5500								2500	1.827	34.643	27.70					
2500	1.837		6004	1.582	34.688			34.688	4.18		3000	1.646	34.658	27.73					
3000	1.651							34.696	4.17		3500	1.553	34.668	27.74					
3500	1.554							34.694	4.11		4000	1.511	34.674	27.75					
4000	1.508							34.691	4.09		4500	1.483	34.680	27.76					
4500	1.481							34.690	4.12		5000	1.482	34.685	27.76					
5000	1.483							34.693	4.14		5500	1.523	34.687	27.76					
5500	1.524							34.693	4.14		6000	1.581	34.688	27.75					
6000	1.582							34.691	4.16										
6002	1.582							34.687	3.97										
								34.692	4.15										
								34.691	4.11										

St.	20 Date July. 20			21 Date July. 20			22 Date July. 20			26 Date July. 23					
Time(GMT)	09:12-10:25	Depth	5267m	Time(GMT)	22:50-23:36	Depth	5002m	Time(GMT)	04:59-06:14	Depth	4787m	Time(GMT)	05:15-06:21	Depth	4970m
Lat.	13°00.75'N	Long.	134°00.52'E	Lat.	14°00.37'N	Long.	134°00.05'E	Lat.	15°01.34'N	Long.	133°59.49'E	Lat.	13°59.93'N	Long.	136°58.70'E
Bottle No.	P	T	S	P	T	S	P	T	S	P	T	P	T	S	Sigma-T
	db	°C	psu	db	°C	psu	db	°C	psu	db	°C	db	°C	psu	
	2	29.636		2	29.636		2	29.870		2	29.804	2	29.804		
	5	29.640		5	29.640		5	29.874		5	29.751	5	29.751		
	10	29.643		10	29.643		10	29.766		10	29.479	10	29.479		
	20	29.645		20	29.645		20	29.694		20	29.444	20	29.444		
	30	29.637		30	29.637		30	29.684		30	29.388	30	29.388		
	40	29.592		40	29.592		40	29.360		40	29.342	40	29.342		
	50	29.436		50	29.436		50	28.422		50	29.332	50	29.332		
	75	28.734		75	28.734		75	26.920		75	28.342	75	28.342		
	100	27.257		100	27.257		100	25.935		100	27.351	100	27.351		
	125	24.991		125	24.991		125	24.189		125	25.764	125	25.764		
	150	22.762		150	22.762		150	22.574		150	23.889	150	23.889		
	175	20.876		175	20.876		175	20.797		175	21.831	175	21.831		
	200	17.891		200	17.891		200	19.228		200	19.952	200	19.952		
	250	14.276		250	14.276		250	17.017		250	15.754	250	15.754		
	300	11.617		300	11.617		300	15.057		300	13.187	300	13.187		
	400	9.426		400	9.426		400	10.337		400	9.362	400	9.362		
	500	7.616		500	7.616		500	8.206		500	7.886	500	7.886		
	600	6.545		600	6.545		600	6.470		600	6.863	600	6.863		
	800	5.240		800	5.240		800	5.032		800	5.518	800	5.518		
	1000	4.306		1000	4.306		1000	4.019		1000	4.475	1000	4.475		

St.	Date July. 20			Date July. 20			Date July. 20			Date July. 20			Date July. 20			Date July. 23				
	Time(GMT)	P	T	Depth	P	T	Time(GMT)	P	T	Depth	P	T	Time(GMT)	P	T	Time(GMT)	P	T	Depth	
Bottle No.	15:50-17:22	db	°C	5068m	db	°C	19:15-23:26	db	°C	6459m	db	°C	05:35-10:51	db	°C	12:01-15:02	db	°C	10494m	
Lat.	11°49.50'N			142°34.25'E			11°39.62'N			142°34.32'E			11°29.09'N			11°21.68'N			142°34.48'E	
Long.																				
1	2	29.496	3.654	1250	10	29.377	2500	1.818	10	29.639	2500	1.846	2	29.501	1250	2	29.501	1250	3.628	
2	5	29.499	3.035	1500	20	29.370	3000	1.637	20	29.528	3000	1.652	5	29.496	1500	5	29.496	1500	2.979	
3	10	29.502	2.239	2000	30	29.210	3500	1.541	30	29.328	3500	1.566	10	29.492	2000	10	29.492	2000	2.211	
4	20	29.346	1.851	2500	50	28.676	4000	1.494	50	28.944	4000	1.494	20	29.399	2500	20	29.399	2500	1.837	
5	30	29.324	1.631	3000	75	28.145	4500	1.467	75	27.992	4500	1.464	30	29.289	3000	30	29.289	3000	1.649	
6	40	29.098	1.535	3471	100	26.519	5000	1.483	100	26.603	5000	1.478	40	29.217	3500	40	29.217	3500	1.553	
7	50	29.073			125	24.233	5500	1.524	125	23.216	5500	1.526	50	28.972	4000	50	28.972	4000	1.497	
8	75	28.172			150	21.728	6000	1.582	150	20.732	6000	1.582	75	28.159	4500	75	28.159	4500	1.461	
9	100	26.888			175	19.385	6500	1.649	175	18.156	6500	1.648	100	27.147	5000	100	27.147	5000	1.474	
10	125	23.219			200	15.859	6582	1.660	200	16.026	7000	1.720	125	24.465	5500	125	24.465	5500	1.521	
11	150	21.261			250	11.340			250	11.758	7500	1.797	150	19.500	6000	150	19.500	6000	1.579	
12	175	18.020			300	9.294			300	9.932	8000	1.877	175	16.739	6500	175	16.739	6500	1.647	
13	200	15.938			400	8.346			400	8.149	8500	1.961	200	14.752	7000	200	14.752	7000	1.720	
14	250	11.783			500	6.916			500	6.991	8715	1.998	250	11.548	7500	250	11.548	7500	1.797	
15	300	9.011			600	6.287			600	6.283			300	9.956	8000	300	9.956	8000	1.877	
16	400	8.016			700	5.807			700	5.818			400	7.992	8500	400	7.992	8500	1.960	
17	500	6.770			800	5.421			800	5.452			500	6.902	9000	500	6.902	9000	2.047	
18	600	6.070			1000	4.694			1000	4.674			600	6.102	9500	600	6.102	9500	2.135	
19	800	5.481			1500	3.012			1500	2.958			800	5.405	10000	800	5.405	10000	2.227	
20	1000	4.598			2000	2.249			2000	2.182			1000	4.534		1000	4.534			

St.	Date Aug. 02				Date Aug. 02				Date Aug. 03				Date Aug. 03			
	Time(GMT)	11:35-15:32	Depth	8013m	Time(GMT)	16:40-20:10	Depth	6563m	Time(GMT)	03:05-05:52	Depth	5885m	Time(GMT)	07:30-09:10	Depth	5278m
Lat.	11°10.02'N Long. 142°34.60'E				10°59.94'N Long. 142°29.47'E				10°50.31'N, Long. 142°34.62'E				10°40.96'N, Long. 142°35.07'E			
Bottle No.	P	T	S	Sigma-T	P	T	S	Sigma-T	P	T	S	Sigma-T	P	T	S	Sigma-T
	db	°C	psu		db	°C	psu		db	°C	psu		db	°C	psu	
0	2	29.806	33.660	20.787					1	30.395	33.201	20.244	1	29.887	33.741	20.821
36	10	29.674	33.798	20.936	10	29.559	33.786	20.966	10	29.487	33.800	21.000	10	29.573	33.746	20.931
35	20	29.475	33.791	20.998	20	29.540	33.807	20.988	20	29.431	33.808	21.025	20	29.457	33.784	20.998
34	30	29.457	33.794	21.006	30	29.512	33.801	20.993	30	29.401	33.807	21.034	30	29.418	33.837	21.052
33	50	29.199	33.994	21.242	50	29.418	33.794	21.019	50	29.111	34.059	21.321	50	29.021	34.162	21.428
32	75	28.419	34.318	21.745	75	28.621	34.304	21.668	75	27.972	34.305	21.881	75	28.070	34.295	21.842
31	100	27.459	34.396	22.116	100	27.493	34.393	22.102	100	25.111	34.607	23.010	100	25.240	34.591	22.959
30	125	24.674	34.639	23.167	125	23.427	34.742	23.614	125	22.250	34.848	24.032	125	22.164	34.716	23.956
29	150	20.002	34.868	24.660	150	19.434	34.841	24.788	150	19.252	34.830	24.826	150	18.906	34.809	24.899
28	175	17.116	34.757	25.300	175	16.173	34.687	25.467	175	16.849	34.668	25.295	175	15.620	34.641	25.558
27	200	14.079	34.546	25.820	200	13.550	34.509	25.901	200	15.087	34.607	25.650	200	13.616	34.526	25.901
26	250	11.427	34.440	26.261	250	11.159	34.407	26.285	250	11.605	34.419	26.212	250	10.616	34.437	26.405
25	300	9.862	34.395	26.503	300	9.862	34.440	26.538	300	10.044	34.437	26.505	300	9.489	34.449	26.607
24	400	8.169	34.455	26.820	400	8.091	34.486	26.856	400	7.793	34.467	26.886	400	7.859	34.461	26.872
23	500	6.917	34.430	26.981	500	6.955	34.483	27.017	500	7.057	34.488	27.008	500	6.813	34.477	27.032
22	600	6.208	34.460	27.099	600	6.257	34.480	27.109	600	6.447	34.487	27.089	600	6.347	34.494	27.108
21	700	5.715	34.493	27.188	700	5.755	34.491	27.181	700	5.965	34.486	27.151	700	5.833	34.502	27.180
20	800	5.356	34.513	27.248	800	5.346	34.510	27.246	800	5.552	34.503	27.216	800	5.407	34.507	27.236
19	1000	4.541	34.533	27.357	1000	4.488	34.533	27.362	1000	4.756	34.528	27.329	1000	4.609	34.529	27.346
18	1500	2.948	34.580	27.555	1500	2.906	34.579	27.557	1500	3.034	34.577	27.544	1500	3.059	34.577	27.542
17	2000	2.263	34.618	27.644	2000	2.215	34.618	27.649	2000	2.310	34.615	27.639	2000	2.276	34.617	27.642
16	2500	1.849	34.644	27.698	2500	1.830	34.643	27.699	2500	1.872	34.641	27.694	2500	1.852	34.642	27.697
15	3000	1.651	34.657	27.724	3000	1.645	34.658	27.725	3000	1.637	34.658	27.726	3000	1.638	34.658	27.726
14	3500	1.546	34.669	27.741	3500	1.553	34.668	27.740	3500	1.539	34.669	27.741	3500	1.534	34.669	27.742
13	4000	1.51	34.675	27.748	4000	1.502	34.675	27.749	4000	1.492	34.676	27.750	4000	1.480	34.676	27.752
12	4500	1.493	34.680	27.754	4500	1.491	34.680	27.754	4500	1.502	34.679	27.752	4500	1.478	34.681	27.755
11	5000	1.49	34.685	27.758	5000	1.488	34.685	27.758	5000	1.502	34.684	27.756	5000	1.479	34.685	27.759
10	5500	1.528	34.687	27.756	5500	1.523	34.687	27.757	5500	1.521	34.687	27.757	5500	1.508	34.687	27.758
9	6000	1.583	34.687	27.753	6000	1.581	34.688	27.754	6000	1.581	34.687	27.753				
8	6500	1.648	34.688	27.749	6500	1.647	34.688	27.749	6500	1.599	34.687	27.752				
7	7000	1.721	34.688	27.743	7000	1.678	34.687	27.746								
6	7500	1.798	34.688	27.737												
5	8000	1.878	34.688	27.731												
4	8355	1.937	34.688	27.727												
3																
2																
1																

Bottle No.	63			64			66			68						
	St.	Date Aug.11	St.	Date Aug. 12	St.	Date Aug. 12	St.	Date Aug. 12	St.	Date Aug.13						
	Time(GMT)07:00-07:47Depth5528m Lat.06°00.24'S Long. 174°59.57'E	Time(GMT) 01:05-01:49 Depth 5502 Lat.07°00.23'S Long. 174°59.97'E	Time(GMT)21:05-21:59 Depth 5093 Lat.08°57.17'S, Long.175°01.87'E	Time(GMT)21:05-21:59 Depth 5093 Lat.08°57.17'S, Long.175°01.87'E	Time(GMT)21:35-22:30Depth3578m Lat.11°00.23'S Long. 175°00.22'E											
P	T	S	P	T	S	P	T	S	P	T	S					
db	°C	psu	db	°C	psu	db	°C	psu	db	°C	psu					
		Sigma-t			Sigma-t			Sigma-t			Sigma-t					
1	2	29.584	34.989	21.859	2	30.585	34.123	20.868	3	29.028	34.648	21.790	3	28.960	34.734	21.878
2	5	29.562	34.988	21.866	5	30.356	34.348	21.116	5	29.025	34.648	21.791	5	28.961	34.734	21.877
3	10	29.519	34.986	21.879	10	29.646	35.166	21.971	10	29.030	34.647	21.789	10	28.956	34.733	21.879
4	20	29.431	34.984	21.907	20	29.556	35.232	22.051	20	29.024	34.647	21.791	20	28.952	34.734	21.880
5	30	29.403	35.006	21.934	30	29.477	35.239	22.083	30	29.028	34.647	21.790	30	28.952	34.735	21.881
6	50	29.413	35.198	22.074	50	29.391	35.273	22.137	50	29.035	34.648	21.788	50	28.957	34.737	21.881
7	75	29.214	35.403	22.295	75	29.205	35.407	22.301	75	28.586	35.578	22.636	75	28.765	35.526	22.538
8	100	28.141	35.633	22.825	100	28.318	35.633	22.766	100	27.163	35.900	23.343	100	26.868	35.496	23.134
9	125	26.523	36.007	23.629	125	27.030	35.861	23.357	125	25.563	36.084	23.987	125	25.937	35.841	23.688
10	150	25.069	36.147	24.187	150	24.970	36.131	24.206	150	23.861	36.098	24.514	150	24.239	35.914	24.262
11	175	21.036	35.886	25.159	175	22.852	36.098	24.809	175	22.028	36.001	24.971	175	23.299	35.946	24.565
12	200	18.821	35.605	25.530	200	19.760	35.749	25.397	200	19.836	35.763	25.387	200	21.134	35.886	25.132
13	250	13.949	35.109	26.282	250	14.635	35.165	26.179	250	16.443	35.350	25.915	250	17.738	35.501	25.720
14	300	11.315	34.861	26.610	300	12.387	34.955	26.479	300	13.582	35.049	26.312	300	15.424	35.233	26.057
15	400	9.399	34.696	26.815	400	8.972	34.669	26.863	400	9.394	34.691	26.813	400	10.587	34.754	26.658
16	500	8.179	34.616	26.945	500	7.516	34.578	27.013	500	7.574	34.574	27.002	500	8.175	34.585	26.922
17	600	7.117	34.558	27.054	600	6.522	34.530	27.114	600	6.716	34.531	27.088	600	6.641	34.513	27.084
18	800	5.395	34.521	27.249	800	5.341	34.511	27.248	800	5.260	34.493	27.243	800	5.439	34.489	27.218
19	1000	4.394	34.532	27.372	1000	4.437	34.531	27.367	1000	4.271	34.512	27.369	1000	4.275	34.508	27.366
20																

Bottle No.	68			70			73			74			Date Aug. 16			Date Aug. 24		
	St.	T	S	St.	T	S	St.	T	S	St.	T	S	St.	T	S	St.	T	S
	Time(GMT)21:35-22:30	°C	psu	Time(GMT)00:00-01:00	°C	psu	Time(GMT)18:28-19:38	°C	psu	Time(GMT)20:05-21:13	°C	psu	Time(GMT)16:00-17:00	°C	psu	Time(GMT)18:28-19:38	°C	psu
1	3	28.960	34.734	21.878	2	28.213	34.188	21.715	4	26.671	34.805	22.675	2	26.567	34.594	22.549		
2	5	28.961	34.734	21.877	5	28.192	34.189	21.722	5	26.671	34.804	22.675	5	26.567	34.593	22.549		
3	10	28.956	34.733	21.879	10	28.139	34.180	21.733	10	26.673	34.805	22.675	10	26.564	34.593	22.550		
4	20	28.952	34.734	21.880	20	28.134	34.185	21.738	20	26.670	34.806	22.676	20	26.566	34.593	22.549		
5	30	28.952	34.735	21.881	30	28.115	34.185	21.744	30	26.677	34.806	22.674	30	26.568	34.594	22.549		
6	50	28.957	34.737	21.881	50	28.107	34.195	21.755	50	26.674	34.819	22.685	50	26.578	34.599	22.550		
7	75	28.765	35.526	22.538	75	28.171	34.315	21.823	75	25.868	35.287	23.291	75	26.149	35.557	23.407		
8	100	26.868	35.496	23.134	100	26.467	35.412	23.198	100	25.161	35.720	23.837	100	24.745	35.832	24.048		
9	125	25.937	35.841	23.688	125	24.695	35.879	24.098	125	23.762	35.871	24.372	125	23.753	35.881	24.382		
10	150	24.239	35.914	24.262	150	23.469	35.935	24.507	150	22.375	35.860	24.765	150	22.721	35.931	24.720		
11	175	23.299	35.946	24.565	175	22.175	35.920	24.868	175	21.756	35.820	24.909	175	21.655	35.908	25.005		
12	200	21.134	35.886	25.132	200	21.138	35.862	25.112	200	20.701	35.784	25.172	200	20.641	35.805	25.205		
13	250	17.738	35.501	25.720	250	18.511	35.589	25.596	250	18.849	35.616	25.531	250	18.728	35.610	25.557		
14	300	15.424	35.233	26.057	300	15.803	35.282	26.009	300	16.679	35.381	25.883	300	16.596	35.370	25.894		
15	400	10.587	34.754	26.658	400	11.184	34.808	26.592	400	11.727	34.858	26.531	400	12.461	34.961	26.470		
16	500	8.175	34.585	26.922	500	7.206	34.447	26.955	500	8.897	34.582	26.807	500	8.765	34.572	26.820		
17	600	6.641	34.513	27.084	600	6.212	34.396	27.048	600	6.832	34.418	26.984	600	6.876	34.424	26.982		
18	800	5.439	34.489	27.218	800	5.036	34.449	27.234	800	5.038	34.397	27.193	800	5.048	34.397	27.192		
19	1000	4.275	34.508	27.366	1000	4.103	34.480	27.362	1000	4.092	34.453	27.342	1000	4.172	34.447	27.328		
20																		

Bottle No.	Date Aug. 15				Date Aug. 16				Date Aug. 24				Date Aug. 25			
	70		73		74		75		74		75		75		75	
	P	T	S	Sigma-t	P	T	S	Sigma-t	P	T	S	Sigma-t	P	T	S	Sigma-t
1	2	28.213	34.188	21.715	4	26.671	34.805	22.675	2	26.567	34.594	22.549	2	25.983	34.686	22.802
2	5	28.192	34.189	21.722	5	26.671	34.804	22.675	5	26.567	34.593	22.549	5	25.983	34.686	22.802
3	10	28.139	34.180	21.733	10	26.673	34.805	22.675	10	26.564	34.593	22.550	10	25.985	34.686	22.801
4	20	28.134	34.185	21.738	20	26.670	34.806	22.676	20	26.566	34.593	22.549	20	25.987	34.687	22.801
5	30	28.115	34.185	21.744	30	26.677	34.806	22.674	30	26.568	34.594	22.549	30	25.989	34.687	22.801
6	50	28.107	34.195	21.755	50	26.674	34.819	22.685	50	26.578	34.599	22.550	50	25.984	34.687	22.802
7	75	28.171	34.315	21.823	75	25.868	35.287	23.291	75	26.149	35.557	23.407	75	24.671	35.293	23.663
8	100	26.467	35.412	23.198	100	25.161	35.720	23.837	100	24.745	35.832	24.048	100	23.641	35.641	24.233
9	125	24.695	35.879	24.098	125	23.762	35.871	24.372	125	23.753	35.881	24.382	125	22.881	35.701	24.499
10	150	23.469	35.935	24.507	150	22.375	35.860	24.765	150	22.721	35.931	24.720	150	21.753	35.745	24.854
11	175	22.175	35.920	24.868	175	21.756	35.820	24.909	175	21.655	35.908	25.005	175	20.865	35.743	25.096
12	200	21.138	35.862	25.112	200	20.701	35.784	25.172	200	20.641	35.805	25.205	200	20.120	35.716	25.276
13	250	18.511	35.589	25.596	250	18.849	35.616	25.531	250	18.728	35.610	25.557	250	18.174	35.565	25.662
14	300	15.803	35.282	26.009	300	16.679	35.381	25.883	300	16.596	35.370	25.894	300	16.375	35.389	25.961
15	400	11.184	34.808	26.592	400	11.727	34.858	26.531	400	12.461	34.961	26.470	400	12.531	34.975	26.467
16	500	7.206	34.447	26.955	500	8.897	34.582	26.807	500	8.765	34.572	26.820	500	9.494	34.649	26.763
17	600	6.212	34.396	27.048	600	6.832	34.418	26.984	600	6.876	34.424	26.982	600	7.240	34.450	26.952
18	800	5.036	34.449	27.234	800	5.038	34.397	27.193	800	5.048	34.397	27.192	800	5.113	34.397	27.184
19	1000	4.103	34.480	27.362	1000	4.092	34.453	27.342	1000	4.172	34.447	27.328	1000	4.097	34.447	27.336
20																

Bottle No.	76			77			79			81		
	P	T	S	P	T	S	P	T	S	P	T	S
	db	°C	psu	db	°C	psu	db	°C	psu	db	°C	psu
1	2	24.544	35.120	3	23.918	35.268	2	22.411	35.573	2	22.320	35.541
2	5	24.544	35.120	5	23.918	35.268	5	22.415	35.574	5	22.329	35.541
3	10	24.546	35.120	10	23.916	35.269	10	22.406	35.574	10	22.326	35.542
4	20	24.542	35.121	20	23.920	35.270	20	22.404	35.573	20	22.325	35.542
5	30	24.545	35.126	30	23.921	35.271	30	22.411	35.573	30	22.329	35.542
6	50	24.157	35.314	50	23.638	35.356	50	22.421	35.574	50	22.332	35.542
7	75	23.878	35.539	75	23.098	35.474	75	22.427	35.578	75	22.334	35.542
8	100	22.643	35.674	100	22.875	35.541	100	22.392	35.606	100	21.669	35.701
9	125	21.699	35.736	125	22.309	35.664	125	21.746	35.722	125	21.091	35.772
10	150	20.962	35.746	150	21.426	35.722	150	20.921	35.735	150	20.924	35.788
11	175	20.248	35.720	175	20.489	35.727	175	20.303	35.725	175	20.748	35.782
12	200	19.273	35.658	200	19.638	35.705	200	19.633	35.708	200	20.167	35.751
13	250	17.668	35.535	250	18.308	35.640	250	18.375	35.642	250	18.704	35.689
14	300	16.366	35.426	300	17.248	35.533	300	17.168	35.553	300	17.451	35.587
15	400	12.844	35.045	400	14.210	35.222	400	14.089	35.203	400	14.646	35.241
16	500	10.354	34.760	500	10.806	34.809	500	10.877	34.829	500	11.815	34.936
17	600	7.509	34.462	600	8.301	34.532	600	8.921	34.612	600	9.450	34.675
18	800	5.437	34.383	800	5.622	34.371	800	6.092	34.386	800	6.324	34.383
19	1000	4.339	34.435	1000	4.325	34.424	1000	4.683	34.399	1000	4.817	34.386
20												

Bottle No.	St. 85 Date Aug. 28				St. 87 Date Aug. 28				St. 92 Date Aug. 31				St. 96 Date Aug. 31			
	Time(GMT)00:30-01:25Depth 4050				Time(GMT)12:40-13:31Depth 4020				Time(GMT)04:55-05:56Depth 1210				Time(GMT)22:49-23:39 Depth 1102			
	Lat.27°59.80'S Long. 175°00.50'E				Lat.29°59.87'S, Long.175°00.17'E				Lat.29°53.92'S, Long.163°01.23'E				Lat.19°00.08'N Long. 174°59.36'E			
P	T	S	Sigma-t	P	T	S	Sigma-t	P	T	S	Sigma-t	P	T	S	Sigma-t	
db	°C	psu		db	°C	psu		db	°C	psu		db	°C	psu		
1	2	17.758	35.697	25.866	2	17.800	35.734	25.883	2	19.096	35.727	25.552	2	18.909	35.733	25.605
2	5	17.733	35.698	25.872	5	17.800	35.734	25.884	5	19.094	35.727	25.553	5	18.908	35.736	25.607
3	10	17.648	35.697	25.893	10	17.804	35.735	25.884	10	19.095	35.726	25.552	10	18.919	35.735	25.604
4	20	17.614	35.697	25.901	20	17.812	35.735	25.882	20	19.084	35.725	25.554	20	18.911	35.735	25.606
5	30	17.597	35.696	25.904	30	17.812	35.735	25.882	30	18.974	35.714	25.573	30	18.916	35.736	25.605
6	50	17.577	35.694	25.908	50	17.814	35.735	25.881	50	18.927	35.716	25.588	50	18.905	35.734	25.606
7	75	17.547	35.689	25.911	75	17.820	35.735	25.880	75	18.680	35.690	25.630	75	18.897	35.733	25.608
8	100	17.227	35.669	25.973	100	17.812	35.734	25.881	100	18.275	35.670	25.717	100	18.895	35.733	25.608
9	125	17.185	35.668	25.983	125	17.761	35.722	25.884	125	17.945	35.653	25.786	125	18.865	35.729	25.613
10	150	16.792	35.594	26.020	150	17.117	35.614	25.958	150	17.526	35.603	25.850	150	18.772	35.712	25.624
11	175	16.438	35.545	26.065	175	16.293	35.520	26.080	175	17.401	35.622	25.896	175	18.591	35.676	25.642
12	200	15.897	35.487	26.146	200	15.940	35.484	26.133	200	17.270	35.607	25.916	200	18.418	35.658	25.672
13	250	14.867	35.342	26.265	250	15.206	35.407	26.240	250	16.301	35.513	26.073	250	17.898	35.642	25.789
14	300	13.951	35.225	26.372	300	13.985	35.264	26.394	300	14.737	35.326	26.281	300	16.712	35.519	25.981
15	400	11.741	34.977	26.621	400	11.900	35.000	26.608	400	12.635	35.113	26.553	400	13.799	35.228	26.405
16	500	9.775	34.745	26.791	500	9.917	34.745	26.767	500	10.820	34.881	26.715	500	11.749	34.977	26.619
17	600	8.492	34.597	26.883	600	8.593	34.602	26.871	600	9.369	34.705	26.827	600	9.344	34.700	26.827
18	800	6.556	34.422	27.024	800	6.539	34.421	27.025	800	6.994	34.495	27.021	800	6.880	34.482	27.027
19	1000	5.130	34.394	27.180	1000	5.314	34.396	27.160	1000	5.288	34.455	27.209	1000	5.372	34.446	27.192
20																

Bottle No.	St. 98				Date AUG.31				St. 103				Date Sep.03				St. 108				Date Sep. 05				St. 109				Date Sep. 05						
	Time(GMT) 20:48-21:39 Depth1002				Time(GMT) 20:15-20:57 Depth3046				Time(GMT) 20:15-20:57 Depth3046				Time(GMT) 02:15-03:14 Depth 1844				Time(GMT) 15:52-16:40 Depth 1941				Time(GMT) 15:52-16:40 Depth 1941														
	Lat.26°55.05'S Long. 163°59.90'E				Lat.14°04.98S, LONG.160°06.35E				Lat.14°04.98S, LONG.160°06.35E				Lat.10°03.36'S, Long.161°02.18'E				Lat.07°55.81'S, Long.160°23.83'E				Lat.07°55.81'S, Long.160°23.83'E														
P	T	S	Sigma-t	P	T	S	Sigma-t	P	T	S	Sigma-t	P	T	S	Sigma-t	P	T	S	Sigma-t	P	T	S	Sigma-t	P	T	S	Sigma-t	P	T	S	Sigma-t				
db	°C	psu		db	°C	psu		db	°C	psu		db	°C	psu		db	°C	psu		db	°C	psu		db	°C	psu		db	°C	psu		db	°C	psu	
1	4	20.420	35.778	25.244	2	27.242	34.403	22.190	11	28.365	34.403	21.826	2	28.498	34.384	21.768																			
2	5	20.419	35.778	25.244	5	27.243	34.402	22.190	20	28.358	34.417	21.839	5	28.500	34.387	21.770																			
3	10	20.422	35.780	25.244	10	27.246	34.402	22.189	30	28.350	34.420	21.844	10	28.470	34.407	21.795																			
4	20	20.417	35.777	25.244	20	27.246	34.403	22.189	50	28.855	34.845	21.996	20	28.453	34.434	21.820																			
5	30	20.395	35.776	25.248	30	27.248	34.403	22.188	75	27.652	35.061	22.554	30	28.427	34.443	21.836																			
6	50	19.541	35.744	25.450	50	27.197	34.443	22.235	100	26.152	35.300	23.212	50	28.390	34.438	21.844																			
7	75	19.352	35.755	25.508	75	25.838	34.918	23.022	125	24.396	35.614	23.988	75	28.032	34.593	22.078																			
8	100	19.269	35.750	25.525	100	25.391	35.584	23.663	150	22.122	35.678	24.699	100	27.049	35.344	22.961																			
9	125	19.229	35.749	25.535	125	23.903	35.799	24.276	175	20.740	35.664	25.070	125	24.600	35.621	23.932																			
10	150	19.199	35.743	25.538	150	22.648	35.833	24.667	200	18.786	35.547	25.494	150	24.169	35.870	24.250																			
11	175	19.130	35.734	25.549	175	22.090	35.838	24.829	250	14.185	35.126	26.246	175	21.273	35.808	25.034																			
12	200	18.902	35.716	25.594	200	20.418	35.737	25.212	300	12.897	34.997	26.412	200	19.749	35.666	25.336																			
13	250	18.446	35.724	25.715	250	18.308	35.534	25.604	400	9.994	34.757	26.763	250	16.473	35.351	25.908																			
14	300	17.265	35.555	25.877	300	16.767	35.396	25.873	500	7.906	34.596	26.971	300	13.942	35.095	26.273																			
15	400	14.217	35.249	26.334	400	11.626	34.858	26.549	600	7.140	34.554	27.048	400	9.289	34.696	26.833																			
16	500	12.102	34.999	26.569	500	7.975	34.528	26.907	800	5.778	34.511	27.194	500	7.401	34.563	27.018																			
17	600	9.569	34.721	26.807	600	6.461	34.440	27.051	1000	4.669	34.516	27.329	600	6.654	34.527	27.093																			
18	800	7.245	34.510	26.998	800	5.101	34.463	27.238					800	5.543	34.503	27.217																			
19					1000	4.133	34.497	27.372					1000	4.474	34.513	27.349																			
20																																			

Bottle No.	110 Date Sep.05			111 Date Sep.06			125 Date Sep. 10			131 Date Sep. 15						
	Time(GMT)22:48- 23:42 Depth 2846			Time(GMT)09:10-09:53 Depth 1824			Time(GMT)01:45-02:57 Depth 2948			Time(GMT)21:45-22:35 Depth 4307						
	Lat.06°55.26'S Long. 160° 01.85'E			Lat.06°00.18S, LONG.160°00.38'E			Lat.08°019.86'S, Long.149°40.40'E			Lat.11°59.61'N, Long.141°53.43'E						
P	T	S	P	T	S	P	T	S	P	T	S					
db	°C	psu	db	°C	psu	db	°C	psu	db	°C	psu					
Sigma-t			Sigma-t			Sigma-t			Sigma-t							
1	2	28.422	34.224	21.673	4	29.310	34.868	21.861	2	29.671	33.628	20.810	4	29.100	33.987	21.270
2	5	28.431	34.224	21.670	5	29.314	34.870	21.861	5	29.657	33.615	20.805	5	29.098	33.988	21.272
3	10	28.440	34.226	21.669	10	29.296	34.866	21.864	10	29.678	33.635	20.812	10	29.119	33.989	21.266
4	20	28.454	34.327	21.740	20	29.151	34.829	21.885	20	29.683	33.644	20.817	20	29.107	33.991	21.271
5	30	28.474	34.344	21.746	30	29.103	34.807	21.885	30	29.678	33.665	20.835	30	29.117	33.998	21.273
6	50	28.546	34.395	21.760	50	29.088	34.883	21.947	50	29.438	33.879	21.076	50	29.175	34.052	21.294
7	75	27.911	35.155	22.540	75	29.201	35.042	22.029	75	27.222	34.399	22.194	75	27.939	34.440	21.993
8	100	26.313	35.713	23.473	100	28.483	35.313	22.471	100	21.166	34.716	24.232	100	26.055	34.697	22.788
9	125	24.084	35.635	24.097	125	26.819	35.683	23.290	125	15.741	34.641	25.530	125	24.401	35.047	23.557
10	150	22.344	35.697	24.650	150	24.461	35.893	24.180	150	14.283	34.579	25.802	150	22.655	35.102	24.110
11	175	20.451	35.691	25.169	175	22.168	35.917	24.868	175	12.912	34.543	26.056	175	20.645	35.020	24.605
12	200	18.978	35.596	25.482	200	18.007	35.541	25.685	200	11.509	34.508	26.299	200	17.799	34.813	25.178
13	250	15.025	35.207	26.126	250	13.547	35.071	26.336	250	10.576	34.550	26.501	250	14.054	34.526	25.809
14	300	12.011	34.916	26.522	300	11.027	34.833	26.641	300	9.619	34.596	26.700	300	10.881	34.387	26.320
15	400	9.607	34.709	26.791	400	9.633	34.711	26.788	400	8.536	34.576	26.859	400	8.374	34.431	26.770
16	500	8.434	34.624	26.913	500	8.541	34.635	26.905	500	8.044	34.564	26.925	500	7.472	34.455	26.923
17	600	7.397	34.561	27.017	600	7.416	34.562	27.015								
18	800	5.609	34.504	27.210	800	5.506	34.500	27.219								
19	1000	4.500	34.526	27.356	1000	4.639	34.508	27.326								
20																

Bottle No.	136 Date Sep.17				141 Date Sep.19				143 Date Sep. 19				148 Date Sep. 21			
	St.		Time(GMT)		St.		Time(GMT)		St.		Time(GMT)		St.		Time(GMT)	
	P	T	S	Sigma-t	P	T	S	Sigma-t	P	T	S	Sigma-t	P	T	S	Sigma-t
1	2	29.131	34.054	21.310	2	29.293	34.238	21.394	4	29.186	34.239	21.430	2	29.287	34.170	21.345
2	5	29.136	34.055	21.309	5	29.294	34.238	21.394	5	29.187	34.239	21.430	5	29.281	34.169	21.346
3	10	29.142	34.055	21.308	10	29.296	34.238	21.393	10	29.197	34.238	21.427	10	29.220	34.166	21.365
4	20	29.144	34.059	21.309	20	29.221	34.221	21.406	20	29.196	34.240	21.428	20	29.173	34.163	21.378
5	30	29.110	34.065	21.326	30	29.140	34.205	21.420	30	29.201	34.240	21.426	30	29.170	34.165	21.381
6	50	29.099	34.072	21.335	50	29.138	34.243	21.450	50	29.204	34.240	21.426	50	29.164	34.174	21.389
7	75	27.496	34.601	22.258	75	27.905	34.600	22.125	75	28.865	34.412	21.668	75	28.436	34.472	21.855
8	100	26.372	34.831	22.790	100	27.150	34.717	22.457	100	27.198	34.689	22.420	100	27.144	34.712	22.455
9	125	24.840	35.016	23.402	125	25.422	34.959	23.181	125	26.057	34.882	22.927	125	26.164	34.956	22.949
10	150	22.903	35.089	24.029	150	23.404	35.080	23.877	150	24.017	35.064	23.684	150	24.817	35.067	23.448
11	175	21.053	35.030	24.502	175	21.955	35.068	24.282	175	21.774	35.072	24.336	175	22.417	35.067	24.151
12	200	19.350	34.930	24.878	200	18.332	34.876	25.095	200	19.462	34.944	24.860	200	20.727	34.982	24.554
13	250	15.099	34.605	25.646	250	14.984	34.606	25.672	250	15.909	34.677	25.520	250	17.438	34.782	25.242
14	300	11.362	34.382	26.228	300	12.512	34.419	26.039	300	13.917	34.508	25.824	300	14.288	34.538	25.770
15	400	8.634	34.428	26.728	400	9.354	34.364	26.563	400	9.632	34.316	26.480	400	9.785	34.264	26.413
16	500	7.485	34.450	26.917	500	7.321	34.416	26.914	500	7.735	34.373	26.821	500	7.908	34.368	26.791
17	600	6.573	34.465	27.055	600	6.455	34.457	27.065	600	6.534	34.424	27.028	600	6.932	34.433	26.981
18	800	5.564	34.501	27.213	800	5.443	34.491	27.219	800	5.442	34.482	27.212	800	5.574	34.475	27.191
19	1000	4.837	34.515	27.310	1000	4.593	34.518	27.339	1000	4.566	34.510	27.336	1000	4.573	34.507	27.333
20																

Bottle No.	149 Date Sep.21				151 Date Sep.22				150 Date Sep.22				152 Date Sep. 22			
	Time(GMT) 23:45- 00:35 Depth 1244				Time(GMT)04:48-05:00 Depth 67				Time(GMT) 05:05-05:17 Depth 53				Time(GMT)11:30-11:55 Depth 214			
	Lat.14°14.37'N Long. 142°50.82'E				Lat.14°13.80'N, LONG.142°53.52'E				Lat.14°13.74'N, Long.142°53.24'E				Lat.14°13.82'N, Long.142°52.17'E			
P	T	S	Sigma-t	P	T	S	Sigma-t	P	T	S	Sigma-t	P	T	S	Sigma-t	
db	°C	psu		db	°C	psu		db	°C	psu		db	°C	psu		
1	2	29.552	34.241	21.309	2	29.671	34.205	21.242	4	29.688	34.208	21.238	3	29.582	34.205	21.272
2	5	29.523	34.242	21.319	5	29.600	34.203	21.264	5	29.669	34.206	21.243	5	29.585	34.205	21.271
3	10	29.510	34.243	21.325	10	29.614	34.204	21.261	10	29.505	34.200	21.294	10	29.589	34.205	21.270
4	20	29.461	34.242	21.341	15	29.415	34.200	21.324	15	29.418	34.196	21.321	15	29.585	34.205	21.271
5	30	29.453	34.246	21.347	20	29.405	34.202	21.329	20	29.424	34.205	21.325	20	29.571	34.205	21.275
6	50	29.365	34.239	21.371	25	29.401	34.203	21.331	25	29.426	34.211	21.329	25	29.540	34.203	21.284
7	75	28.406	34.486	21.875	30	29.413	34.211	21.334	30	29.413	34.213	21.335	30	29.525	34.202	21.289
8	100	27.363	34.723	22.393	35	29.411	34.213	21.335	35	29.389	34.214	21.344	35	29.483	34.200	21.302
9	125	25.704	34.989	23.117	40	29.391	34.210	21.340	40	29.355	34.230	21.368	40	29.377	34.198	21.336
10	150	23.131	35.026	23.915	45	29.384	34.213	21.344					45	29.359	34.201	21.344
11	175	21.372	34.993	24.387	50	29.324	34.248	21.391					50	29.355	34.202	21.346
12	200	19.479	34.941	24.853	55	29.288	34.262	21.414					55	29.339	34.206	21.355
13	250	15.991	34.691	25.512									75	29.303	34.218	21.376
14	300	13.175	34.466	25.944									100	27.400	34.693	22.358
15	400	9.115	34.313	26.562									125	25.846	34.980	23.066
16	500	7.610	34.374	26.839									150	24.660	35.019	23.459
17	600	6.788	34.445	27.011									175	21.973	35.012	24.234
18	800	5.413	34.487	27.220									200	18.983	34.892	24.943
19	1000	4.748	34.509	27.315												
20																

Bottle No.	St. 153 Date Sep.22						St. 155 Date Sep.22						St.							
	Time(GMT) 09: 40-10:13 Depth 575						Time(GMT) 21:40-22:17 Depth 2240						St.							
	Lat.14°13.71'N Long. 142°51.96'E						Lat.15°40.36'N, LONG.142°46.78'E						St.							
P	T	S	Sigma-t	P	T	S	Sigma-t	P	T	S	Sigma-t	P	T	S	Sigma-t	P	T	S	Sigma-t	
db	°C	psu		db	°C	psu		db	°C	psu		db	°C	psu		db	°C	psu		
1	3	29.594	34.203	21.266	3	29.278	34.197	21.368												
2	5	29.599	34.205	21.266	5	29.278	34.197	21.368												
3	10	29.609	34.204	21.263	10	29.281	34.198	21.368												
4	15	29.572	34.204	21.275	15	29.285	34.201	21.369												
5	20	29.402	34.197	21.327	20	29.286	34.202	21.370												
6	25	29.392	34.197	21.330	25	29.278	34.212	21.380												
7	30	29.383	34.197	21.333	30	29.277	34.225	21.390												
8	35	29.379	34.198	21.335	35	29.279	34.234	21.395												
9	40	29.370	34.199	21.339	40	29.276	34.234	21.397												
10	45	29.355	34.202	21.346	45	29.273	34.233	21.397												
11	50	29.350	34.204	21.350	50	29.266	34.232	21.399												
12	55	29.334	34.212	21.361	55	29.238	34.236	21.411												
13	75	27.665	34.646	22.237	75	28.194	34.414	21.890												
14	100	26.245	34.949	22.918	100	27.524	34.657	22.291												
15	125	25.594	34.986	23.149	125	26.713	34.845	22.692												
16	150	24.561	35.026	23.493	150	25.037	35.020	23.345												
17	175	22.945	35.023	23.967	175	23.057	35.045	23.952												
18	200	21.135	34.980	24.442	200	21.133	34.985	24.446												
19	250	16.708	34.748	25.390	250	17.656	34.787	25.193												
20	300	13.534	34.495	25.893	300	13.567	34.495	25.887												
	400	9.437	34.292	26.493	400	9.555	34.324	26.498												
	500	7.597	34.385	26.850	500	7.651	34.351	26.815												