

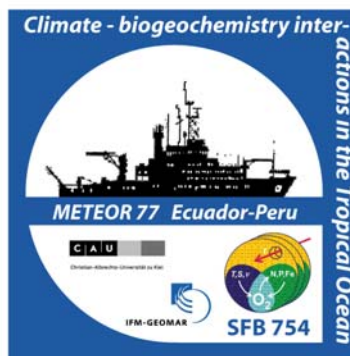
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Short Report

METEOR Cruise No. 77 Leg 3

Guayaquil (Ecuador) – Callao (Peru): 27.12.2008 – 24.1.2009



**Climate- Biogeochemistry interactions in the tropical ocean
of the SE-American oxygen minimum zone**

Chief Scientist: Prof. Martin Frank

Captain: Niels Jacobi

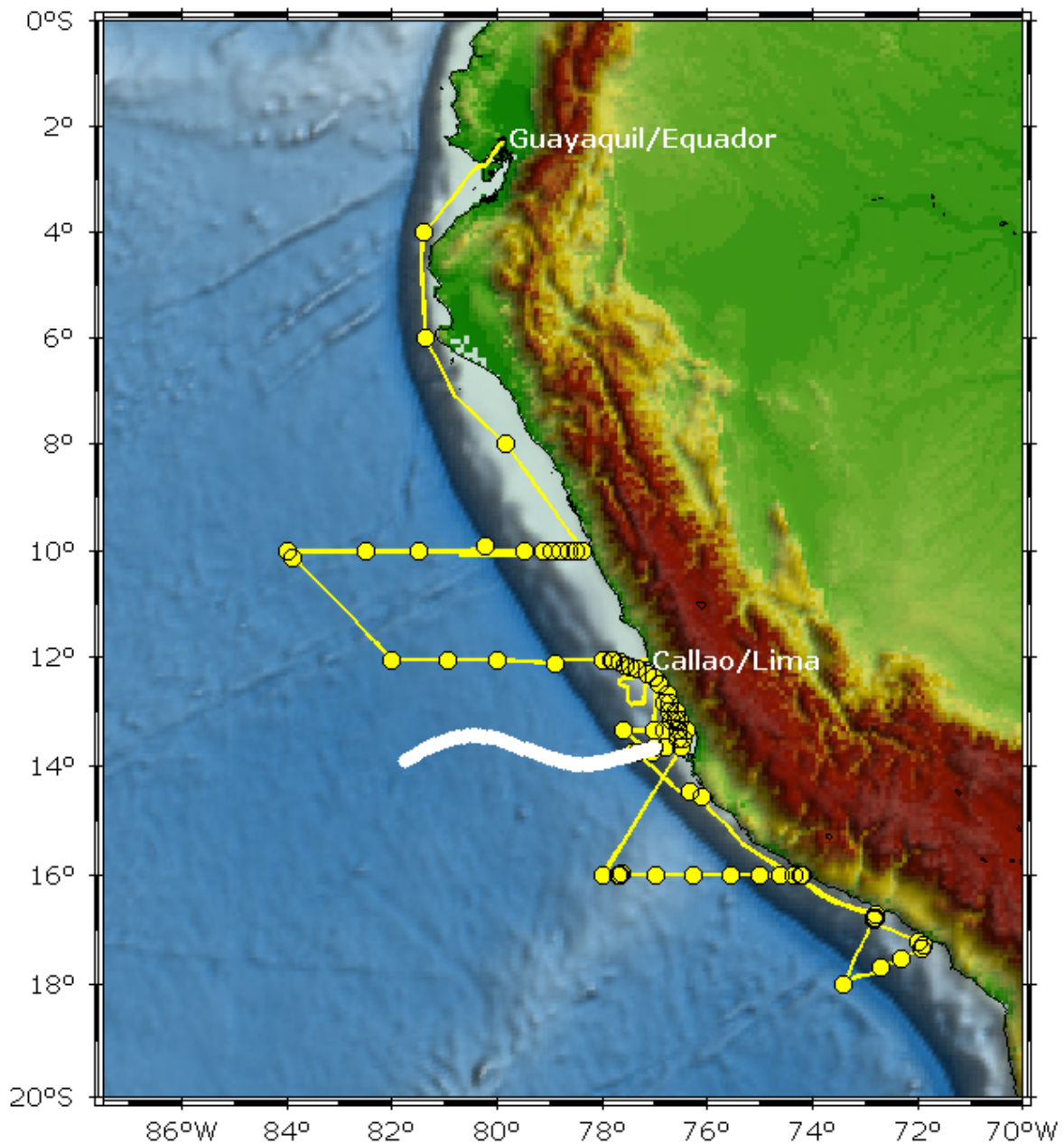


Fig. 1: Cruise track of METEOR 77/3. The white line marks the track of the glider that was released during the cruise.

1. Objectives of the cruise

Main research topic of the third leg of M77 to the south-eastern tropical Pacific was the investigation of the factors controlling extent and strength of the oxygen minimum zone (OMZ) in the water column of the coastal upwelling areas off Peru. This research is carried out in the context of the new Sonderforschungsbereich 754 at the

University of Kiel, “Climate – Biogeochemistry Interactions in the Tropical Ocean” which started in 2008 and is funded by the German Research Council (DFG).

The first objective of M77/3 was a better understanding of the supply pathways of oxygen and nutrients and their processing in the coastal upwelling area. This was tackled by a detailed investigation of the water mass structure applying physical, geochemical and isotopic methods together with oxygen and nutrient measurements along four sections perpendicular to the coastline at 10°S, 12°S, 16°S and 18°S in order to cover the main oxygen and nutrient gradients from the centres of the coastal upwelling cells into the open ocean. This was complemented by the determination of the concentration and speciation of trace metals (mainly Fe, but also Cd, Mn,) together with phosphate in order to better understand their supply pathways (such as remobilization from reducing sediments) and the mechanisms controlling their concentrations. Some of these metals act as biolimiting micronutrients and thus can in turn influence bioproductivity and redox conditions.

The second major objective was the systematic investigation of the nitrogen cycle, which includes the mechanisms controlling nitrogen loss and nutrient regeneration, as well as nitrogen fixation. The main part of the investigations was based on a high resolution sampling of the water column using a PUMP-CTD accompanied by the collection of particulate samples using in-situ pumps. These water samples were used to conduct a large amount of on board incubation experiments with isotopically labeled compounds involved in the nitrogen cycle. In addition, the relationship between pelagic community structure and nutrient composition (variable N:P ratios caused by enhanced P supply in the low oxygen waters) was investigated in a series of board mesocosm experiments.

2. Narrative

Cruise M77/3 started in Guayaquil/Ecuador, where the scientists from the IFM-GEOMAR in Kiel and the MPI for Marine Microbiology in Bremen arrived on the morning of the 26th December and were directly transferred to the ship. One additional scientist from the MBARI in Monterey, U.S.A. had already arrived on the 24th December and one scientist from the cooperative partner institute of IFM-GEOMAR in Peru, the IMARPE in Callao also arrived on the 26th December. The air freight had arrived almost completely and the containers were already on board so that unpacking and moving of equipment into the laboratories started immediately. Meteor left at 3:00 UTC on the 27th December to remain at anchor near the harbor of Guayaquil for another 6 hours in order to finalize the installation and testing of the PUMP-CTD of the MPI-Bremen. At 8:00 this work was finished and the technician from IOW in Warnemünde left with the customs boat.

The ship then steamed towards the endpoint of the first planned section at 10°S, 78°23'W. On the way to this station there were 3 stops (4°S, 6°S, and 8°S) to deploy the first 6 CTD casts for the collection of the water samples using the Niskin bottles

attached to the CTD-rosette and GO-FLO bottles on separate plastic-coated wire for trace metal clean sampling. The ship arrived at the endpoint of the first transect at 10°S, 78°23'W on the shelf at 7 a.m. on the 30th December, where during the following almost 24 hours a detailed sampling of the water column was undertaken using CTD rosette, PUMP-CTD and GO-FLO, as well as in situ pumps and plankton nets for the particulate fraction. On this and the following PUMP-CTD stations, which lasted between 6 and 9 hours each, the microbiologists collected a large amount of water samples to carry out incubation experiments to investigate the nitrogen cycle (nitrogen loss and nitrogen fixation). The GO-FLO casts on that day served to collect trace metal clean samples to measure the diurnal cycle of the concentrations of reduced Fe as a function of the availability of hydrogen peroxide. In addition, the on board mesocosms of the plankton biologists were for the first time filled with 900 litres of surface water from the CTD rosette to conduct cultivation experiments with different N:P ratios. On 31st December we then continued to sample 5 more stations along 10°S with a 10 nm spacing down the continental slope (Fig. 1) using CTD rosettes and 1 PUMP-CTD until a water depth of 350 m was reached. Between 21:00 on 31st December and 13:40 on the 1st of January a detailed profile of the surface water parameters was taken with the ship's CTD system and the 75 kHz ADCP in order to investigate the highly variable surface current system in this region. The section at 10°S was then continued with further 5 stations at a spacing between 20 and 90 nm until the endpoint was reached at 84°W and a water depth of 4540 m at 1:00 on 4th January (Fig. 1). Altogether 11 stations were sampled on this section including 19 CTD casts, 4 PUMP-CTD casts, 9 GO-FLO casts, 6 in situ pumps, and 7 plankton nets. There were electric problems with the cables on winches 2 and 3, which required two 3 hour test stations on 3rd and 4th January.

At 19:30 on January 5th the second section at 12°02'S started at the outermost station at 82°W. The section was continued at 12°02'S with a spacing of 30 to 90 nm until 77°47'W was reached at a water depth of 350 m (Fig. 1). Due to the minimum 5 nm distance from the coast, the section was continued from there to 12°22'S, 77°W with a closer spacing of stations of about 10 nm. The end point of the section was reached on 10th January at 3:20. Altogether 13 stations were sampled on this section including 25 CTD casts, 4 PUMP-CTD casts, 4 GO-FLO casts, 3 in situ pumps, and 5 plankton nets. For the second mesocosm experiment of the plankton biologists 900 litres of surface water from the CTD rosette were provided on the 8th January and the GO-FLOs were used to collect samples for a second set of measurements of the diurnal cycle of reduced Fe/hydrogen on that day. In addition, the towed fish was used to provide clean water for the incubation experiments of the microbiologists and one further test of the cable on winch 2 was conducted.

On the transit to the section at 16°S a glider was successfully deployed and tested at 13°40'S, 77°W between 13:30 and 18:30 on the 10th January. The glider successfully operated in autonomous mode from deployment until pick up on the following 4th leg of M77.

Work on the third section at 16°S started at 78°W on January 11th and continued until 17:00 on January 15th. The mesocosm experiments were filled with 900 litres of water for the third set of experiments on 14th January. Similar spacing of the stations on the shelf and in the open ocean as on the previous two sections resulted in 16 stations on this section (Fig. 1). 4 additional CTD casts and a plankton net on this transect were carried out to sample the water column and the plankton in a bloom of ciliates that the ship met on 11th January at 16°S, 77°40'W. In total 19 CTD casts, 3 PUMP-CTD casts, 5 GO-FLO casts, 3 in situ pumps, and 10 plankton nets were operated on the 16°S section. Two more cable tests revealed that the relatively new cable on winch 2 was broken and therefore it was suggested that the cable should be replaced by a new one in Callao in order to guarantee operations for the following 4th leg.

The ship then steamed south to the starting point of the fourth shorter section at 17°13.3'S, 72°W. On the transit three additional CTD casts and 2 plankton nets were operated to sample the narrow shelf. The section work started at 18:00 on 16th January and continued to the end point of the section at 18°S, 73°25'W at 19:00 on the 17th January. On this section 6 stations including 6 CTD casts, 1 PUMP-CTD, 3 plankton nets and 3 GO-FLO profiles were operated. The ship then steamed back to the coast in northeasterly direction to re-occupy a previous station with the PUMP-CTD but it turned out that an intrusion of open Pacific waters had completely removed all previously observed patterns including a deep chlorophyll maximum. The ship then steamed back in the direction of Callao to investigate the deep chlorophyll maximum observed by the glider at ~14°N with 2 PUMP-CTD and 2 in situ pump stations, which was carried out between 17:00 on 19th January and 23:00 on the 20th January. These casts were bracketed by a set of GO-FLO casts to collect samples for a third set of measurements of the diurnal cycle of reduced Fe/hydrogen. On the way back to shelf it was found that large areas of the water column contained H₂S and it was decided to spend the rest of the available station time for a detailed mapping of the H₂S occurrence on the shelf between 13°30'S and 12°20'S, which was done by 15 more shallow CTD stations and 2 more PUMP CTD stations between the 10:00 on the 21st January and 18:00 on the 22nd January.

The ship reached the harbor of Callao on January 23rd in the afternoon (local time) and the cruise ended with the disembarking of the scientists between late afternoon and evening of the 24th of January. However, several scientists of M77/3 were still active with organizing the shipment of frozen samples through harbour authorities, customs and airport authorities until the evening of the 26th January.

3. Participants METEOR 77 Leg 3, scientific party

| Name | Expertise | Institution |
|-------------------------------|---|--------------------|
| 1. Frank, Martin | <i>Chief scientist</i> | IFM-GEOMAR |
| 2. Baars, Oliver | <i>Trace metals</i> | IFM-GEOMAR |
| 3. Behrens, Erik | <i>CTD-ADCP watch</i> | IFM-GEOMAR |
| 4. Contreras Quintana, Sergio | <i>Nitrogen loss</i> | MPI-Bremen |
| 5. Dammshäuser, Anna | <i>Trace metals</i> | IFM-GEOMAR |
| 6. Ellrott, Andreas | <i>Pump-CTD operator</i> | MPI-Bremen |
| 7. Franz, Jasmin | <i>POM/DOM, HPLC/pelagic comm.</i> | IFM-GEOMAR |
| 8. Friederich, Gernot | <i>pCO₂/tCO₂</i> | MBARI |
| 9. Fritsche, Peter | <i>Nutrients</i> | IFM-GEOMAR |
| 10. Grasse, Patricia | <i>Si/Nd isotopes</i> | IFM-GEOMAR |
| 11. Großkopf, Tobias | <i>Nitrogen fixation</i> | IFM-GEOMAR |
| 12. Hauss, Helena | <i>Pelagic communities</i> | IFM-GEOMAR |
| 13. Kalvelage, Tim | <i>Nitrogen loss</i> | MPI-Bremen |
| 14. Klockgether, Gabriele | <i>O₂, nutrients</i> | MPI-Bremen |
| 15. Krahnemann, Gerd | <i>Glider, CTD</i> | IFM-GEOMAR |
| 16. LaRoche, Julie | <i>Nitrogen fixation</i> | IFM-GEOMAR |
| 17. Lavik, Gaute | <i>Nitrogen loss</i> | MPI-Bremen |
| 18. Leon, Violeta | <i>O₂, chlorophyll, productivity</i> | IMARPE |
| 19. Link, Rudolf | <i>CTD technics</i> | IFM-GEOMAR |
| 20. Löscher, Carolin | <i>Nitrogen Fixation, N₂O</i> | IFM-GEOMAR |
| 21. Nunes, Nuno | <i>CTD-ADCP watch</i> | IFM-GEOMAR |
| 22. Paulmier, Aurelien | <i>Nitrogen loss</i> | MPI-Bremen |
| 23. Schlosser, Christian | <i>Trace metals</i> | IFM-GEOMAR |
| 24. Schunck, Harald | <i>Nitrogen Fixation</i> | IFM-GEOMAR |
| 25. Schwarzkopf, Franziska | <i>CTD-ADCP watch</i> | IFM-GEOMAR |
| 26. Sommer Ulrich | <i>Pelagic communities</i> | IFM-GEOMAR |
| 27. Stumpf, Roland | <i>Si/Nd isotopes</i> | IFM-GEOMAR |
| 28. Vogt, Martin | <i>CTD-ADCP watch</i> | IFM-GEOMAR |
| 29. Sonnabend, Hartmut | <i>Meteorology</i> | DWD |
| 30. Ochsenhirt, Wolf | <i>Meteorology</i> | DWD |

4. Participating Institutions

DWD

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www.dwd.de

IFM-GEOMAR

Leibniz-Institut für Meereswissenschaften

an der Universität Kiel

Wischhofstr. 1-3

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IMARPE

Instituto del Mar del Peru

Esquina Gamarra y General Valle s/n

Chucuito – Callao, Peru

www.imarpe.gop.de

MPI-Bremen

Max-Planck Institut für Marine Mikrobiologie

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28199 Bremen

www.mpi-bremen.de

MBARI

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Moss Landing, CA 95039, U.S.A.

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5. Station list

Gear acronyms in the Station list:

| | |
|---------|----------------------------------|
| CTD/RO | CTD-Rosette water sampler |
| PCTD/RO | Pump-CTD-Rosette water sampler |
| GO-FLO | GO-FLO water sampler |
| IFISH | Towed Fish surface water sampler |
| ISP | In-situ pumping system |
| WP-2 | Plankton net |
| GLIDER | Autonomous glider |

| Station No. | Gear No. | Date 2008/09 | Position start | | Time [UTC] | Depth [m] | Position end | | Time [UTC] | Depth [m] |
|-------------|-----------|-----------------|----------------|------------|---------------|--------------|--------------|------------|---------------|--------------|
| | | | Lat. [°S] | Long. [°W] | | | Lat. [°S] | Long. [°W] | | |
| 804-1 | CTD/RO-1 | 28.12. | 3°59,98' | 81°23,52' | 09:05 | 1079 | 4°00,02' | 81°23,48' | 10:07 | 1081 |
| 804-2 | CTD/RO-2 | 28.12. | 4°00,00' | 81°23,48' | 11:00 | 1082 | 4°00,02' | 81°23,48' | 11:26 | 1085 |
| 805-1 | CTD/RO-3 | 28.12. | 6°00,01' | 81°21,70' | 22:35 | 1001 | 6°00,02' | 81°21,67' | 22:41 | 998 |
| 805-2 | CTD/RO-4 | 28.12. | 6°00,01' | 81°21,67' | 23:09 | 999 | 6°00,01' | 81°21,67' | 23:58 | 999 |
| 805-3 | CTD/RO-5 | 29.12. | 6°00,01' | 81°21,67' | 00:57 | 995 | 6°00,01' | 81°21,67' | 01:52 | 989 |
| 805-4 | GO-FLO-0 | 29.12. | 6°00,01' | 81°21,67' | 02:13 | 992 | 6°00,01' | 81°21,67' | 03:08 | 991 |
| 806-1 | CTD/RO-6 | 29.12. | 8°00,02' | 79°50,70' | 17:06 | 138 | 8°00,03' | 79°50,69' | 17:23 | 137 |
| 806-2 | IFISH-1 | 29.12. | 8°00,07' | 79°50,67' | 17:32 | 138 | 8°00,25' | 79°46,68' | 18:04 | 130 |
| 807-1 | CTD/RO-7 | 30.12. | 10°00,00' | 78°22,89' | 07:02 | 110 | 10°00,01' | 78°22,85' | 07:16 | 113 |
| 807-2 | GO-FLO-1 | 30.12. | 10°00,01' | 78°22,82' | 08:04 | 111 | 10°00,01' | 78°22,82' | 08:36 | 112 |
| 807-3 | PCTD/RO-1 | 30.12. | 10°00,01' | 78°22,82' | 09:24 | 111 | 10°00,01' | 78°22,82' | 17:01 | 111 |
| 807-4 | GO-FLO-2 | 30.12. | 10°00,05' | 78°22,82' | 17:16 | 111 | 10°00,06' | 78°22,82' | 17:40 | 110 |
| 807-5 | CTD/RO-8 | 30.12. | 10°00,06' | 78°22,82' | 17:51 | 111 | 10°00,05' | 78°22,82' | 18:07 | 111 |
| 807-6 | CTD/RO-9 | 30.12. | 10°00,05' | 78°22,82' | 18:22 | 111 | 10°00,05' | 78°22,82' | 18:27 | 111 |
| 807-7 | CTD/RO-10 | 30.12. | 10°00,06' | 78°22,82' | 18:42 | 111 | 10°00,05' | 78°22,82' | 18:47 | 111 |
| 807-8 | CTD/RO-11 | 30.12. | 10°00,05' | 78°22,82' | 18:58 | 112 | 10°00,05' | 78°22,82' | 19:03 | 111 |
| 807-9 | CTD/RO-12 | 30.12. | 10°00,05' | 78°22,82' | 19:15 | 111 | 10°00,05' | 78°22,82' | 19:19 | 111 |
| 807-10 | WP2-1 | 30.12. | 10°00,05' | 78°22,82' | 19:48 | 111 | 10°00,05' | 78°22,82' | 19:58 | 111 |
| 807-11 | GO-FLO-3 | 30.12. | 10°00,05' | 78°22,82' | 20:08 | 111 | 10°00,05' | 78°22,82' | 20:36 | 112 |
| 807-12 | ISP-1 | 30.12. | 10°00,05' | 78°22,82' | 20:52 | 111 | 10°00,05' | 78°22,82' | 23:37 | 112 |
| 807-13 | GO-FLO-4 | 30.12. | 10°00,05' | 78°22,82' | 23:45 | 112 | 10°00,05' | 78°22,82' | 00:10 | 111 |
| 807-14 | ISP-2 | 31.12. | 10°00,05' | 78°22,82' | 00:55 | 112 | 10°00,05' | 78°22,82' | 03:40 | 112 |
| 807-15 | GO-FLO-5 | 31.12. | 10°00,05' | 78°22,82' | 03:44 | 112 | 10°00,05' | 78°22,82' | 04:13 | 112 |
| 807-16 | WP2-2 | 31.12. | 10°00,05' | 78°22,82' | 04:20 | 111 | 10°00,07' | 78°22,81' | 04:39 | 111 |
| 808-1 | CTD/RO-13 | 31.12. | 10°00,00' | 78°29,94' | 05:33 | 147 | 10°00,0' | 78°29,90' | 05:51 | 148 |
| 809-1 | CTD/RO-14 | 31.12. | 10°00,01' | 78°37,98' | 06:45 | 149 | 10°00,00' | 78°37,98' | 08:19 | 149 |
| 810-1 | CTD/RO-15 | 31.12. | 9°59,98' | 78°48,03' | 09:36 | 151 | 9°59,97' | 78°48,02' | 09:52 | 147 |
| 811-1 | CTD/RO-16 | 31.12. | 9°59,99' | 78°58,01' | 11:56 | 138 | 10°00,01' | 78°58,00' | 12:14 | 139 |
| 811-2 | PCTD/RO-2 | 31.12. | 10°00,01' | 78°58,00' | 13:30 | 138 | 10°00,01' | 78°58,00' | 19:08 | 138 |
| 811-3 | CTD/RO-17 | 31.12. | 10°00,02' | 78°58,00' | 19:23 | 138 | 10°00,01' | 78°57,98' | 19:37 | 137 |
| 812-1 | CTD/RO-18 | 31.12. | 9°59,98' | 79°08,00' | 20:40 | 331 | 9°59,98' | 79°08,00' | 21:13 | 333 |
| 001-1 | GO-FLO-6 | 01.01. | 9°59,99' | 79°28,01' | 13:40 | 1659 | 10°00,01' | 79°28,00' | 14:21 | 1657 |
| 001-2 | CTD/RO-19 | 01.01. | 10°00,01' | 79°28,00' | 14:27 | 1662 | 10°00,01' | 79°28,00' | 16:23 | 1657 |
| 001-3 | GO-FLO-7 | 01.01. | 10°00,01' | 79°28,00' | 16:31 | 1668 | 10°00,01' | 79°28,00' | 17:36 | 1661 |
| 001-4 | WP2-3 | 01.01. | 10°00,01' | 79°28,00' | 17:42 | 1655 | 10°00,01' | 79°28,00' | 17:50 | 1669 |
| 001-5 | WP2-4 | 01.01. | 10°00,01' | 79°28,00' | 18:00 | 1658 | 10°00,01' | 79°28,01' | 18:10 | 1662 |
| 002-1 | CTD/RO-20 | 02.01. | 9°55,31' | 80°13,44' | 01:44 | 6296 | 9°55,31' | 80°13,44' | 03:08 | 6317 |
| 002-2 | CTD/RO-21 | 02.01. | 9°55,31' | 80°13,44' | 03:30 | 6296 | 9°55,31' | 80°13,44' | 03:44 | 6303 |
| 003-1 | CTD/RO-22 | 02.01. | 10°00,03' | 81°30,10' | 10:53 | 4713 | 10°00,03' | 81°30,10' | 12:02 | 4708 |
| 003-2 | ISP-3 | 02.01. | 10°00,02' | 81°30,01' | 13:18 | 4714 | 10°00,00' | 81°30,00' | 18:04 | 4695 |

| Station No. | Gear No. | Date 2008/09 | Position start | | Time [UTC] | Depth [m] | Position end | | Time [UTC] | Depth [m] |
|-------------|-----------|-----------------|----------------|------------|---------------|--------------|--------------|------------|---------------|--------------|
| | | | Lat. [°S] | Long. [°W] | | | Lat. [°S] | Long. [°W] | | |
| 003-3 | WP2-5 | 02.01. | 10°00,00' | 81°30,00' | 18:10 | 4695 | 10°00,00' | 81°30,00' | 18:16 | 4695 |
| 003-4 | WP2-6 | 02.01. | 10°00,00' | 81°30,00' | 18:22 | 4695 | 10°00,07' | 81°30,06' | 18:32 | 4713 |
| 003-5 | PCTD/RO-3 | 02.01. | 10°00,10' | 81°30,12' | 18:50 | 4695 | 10°00,13' | 81°30,14' | 01:57 | 4698 |
| 003-6 | ISP-4 | 03.01. | 10°00,13' | 81°30,14' | 05:42 | 4697 | 10°00,13' | 81°30,14' | 10:11 | 4697 |
| 003-7 | ISP-5 | 03.01. | 10°00,06' | 81°30,50' | 13:14 | 4716 | 10°00,06' | 81°30,50' | 16:45 | 4697 |
| 003-8 | ISP-6 | 03.01. | 10°00,06' | 81°30,50' | 17:14 | 4696 | 10°00,06' | 81°30,51' | 21:00 | 4699 |
| 004-1 | CTD/RO-23 | 04.01. | 9°59,99' | 82°29,99' | 02:27 | 4444 | 10°00,00' | 82°30,00' | 04:19 | 4438 |
| 004-2 | CTD/RO-24 | 04.01. | 10°00,00' | 82°30,00' | 04:49 | 4453 | 10°00,00' | 82°30,01' | 05:08 | 4451 |
| 005-1 | GO-FLO-8 | 04.01. | 10°00,01' | 84°00,01' | 13:00 | 4523 | 10°00,01' | 84°00,01' | 14:08 | 4534 |
| 005-2 | CTD/RO-25 | 04.01. | 10°00,01' | 84°00,01' | 14:11 | 4537 | 10°00,01' | 84°00,01' | 15:36 | 4537 |
| 005-3 | GO-FLO-9 | 04.01. | 10°00,01' | 84°00,01' | 15:53 | 4532 | 10°00,01' | 84°00,01' | 16:33 | 4538 |
| 005-4 | WP2-7 | 04.01. | 10°00,01' | 84°00,01' | 16:43 | 4530 | 10°00,03' | 83°59,99' | 16:50 | 4527 |
| 005-5 | WP2-8 | 04.01. | 10°00,02' | 84°00,00' | 16:55 | 4531 | 10°00,05' | 83°59,99' | 17:03 | 4528 |
| 005-6 | PCTD/RO-4 | 04.01. | 10°00,03' | 84°00,01' | 17:22 | 4521 | 10°00,03' | 84°00,01' | 22:38 | 4529 |
| 006-1 | CTD/RO-26 | 05.01. | 10°07,53 | 83°52,83 | 00:00 | 4550 | 10°07,53 | 83°52,83 | 03:40 | 4550 |
| 007-1 | WP2-9 | 05.01. | 12°01,95' | 82°00,01' | 19:32 | 4744 | 12°01,94' | 82°00,01' | 19:38 | 4752 |
| 007-2 | GO-FLO-10 | 05.01. | 12°01,98' | 81°59,97' | 19:48 | 4751 | 12°01,98' | 81°59,99' | 21:10 | 4760 |
| 007-3 | CTD/RO-27 | 05.01. | 12°01,98' | 81°59,99' | 21:15 | 4749 | 12°01,98' | 81°59,99' | 22:36 | 4749 |
| 007-4 | GO-FLO-11 | 05.01. | 12°01,98' | 81°59,99' | 23:30 | 4748 | 12°01,98' | 81°59,99' | 00:15 | 4746 |
| 007-5 | IFISH-2 | 06.01. | 12°02,67' | 81°59,98' | 00:35 | 4750 | 12°01,97' | 80°56,80' | 08:56 | 4687 |
| 008-1 | CTD/RO-28 | 06.01. | 12°01,97' | 80°56,80' | 09:00 | 4683 | 12°02,00' | 80°56,79' | 10:29 | 4683 |
| 008-2 | CTD/RO-29 | 06.01. | 12°02,00' | 80°56,79' | 10:55 | 4677 | 12°02,00' | 80°56,80' | 11:15 | 4685 |
| 008-3 | ISP-7 | 06.01. | 12°02,00' | 80°56,80' | 11:51 | 4679 | 12°02,00' | 80°56,80' | 14:02 | 4684 |
| 008-4 | WP2-10 | 06.01. | 12°02,00' | 80°56,80' | 14:13 | 4679 | 12°02,00' | 80°56,80' | 14:22 | 4679 |
| 008-5 | WP2-11 | 06.01. | 12°02,00' | 80°56,79' | 14:25 | 4687 | 12°02,00' | 80°56,80' | 14:33 | 4678 |
| 008-6 | PCTD/RO-5 | 06.01. | 12°02,00' | 80°56,80' | 15:10 | 4677 | 12°02,00' | 80°56,80' | 20:52 | 4679 |
| 009-1 | CTD/RO-30 | 07.01. | 12°02,00' | 80°00,00' | 02:00 | 4765 | 12°02,00' | 80°00,00' | 03:40 | 4756 |
| 010-1 | CTD/RO-31 | 07.01. | 12°07,02' | 78°54,02' | 10:00 | 6030 | 12°07,00' | 78°54,00' | 11:22 | 6029 |
| 010-2 | CTD/RO-32 | 07.01. | 12°07,00' | 78°54,00' | 12:00 | 6038 | 12°07,00' | 78°54,00' | 13:12 | 6029 |
| 010-3 | WP2-12 | 07.01. | 12°07,00' | 78°54,00' | 13:17 | 6033 | 12°07,00' | 78°54,01' | 13:23 | 6033 |
| 010-4 | WP2-13 | 07.01. | 12°07,00' | 78°54,01' | 13:30 | 6037 | 12°07,00' | 78°54,02' | 13:36 | 6026 |
| 010-5 | CTD/RO-33 | 07.01. | 12°07,00' | 78°54,01' | 13:51 | 6035 | 12°07,00' | 78°54,00' | 18:08 | 6032 |
| 011-1 | GO-FLO-12 | 08.01. | 12°02,00' | 78°00,00' | 00:55 | 1768 | 12°02,00' | 78°00,00' | 02:11 | 1766 |
| 011-2 | CTD/RO-34 | 08.01. | 12°02,00' | 78°00,00' | 02:18 | 1766 | 12°02,00' | 78°00,01' | 03:39 | 1768 |
| 011-3 | GO-FLO-13 | 08.01. | 12°02,00' | 78°00,01' | 03:46 | 1767 | 12°02,00' | 78°00,00' | 04:24 | 1765 |
| 011-4 | CTD/RO-35 | 08.01. | 12°02,00' | 78°00,01' | 04:28 | 1764 | 12°02,01' | 78°00,00' | 05:47 | 1761 |
| 012-1 | CTD/RO-36 | 08.01. | 12°02,04' | 77°48,91' | 07:14 | 734 | 12°02,02' | 77°48,93' | 08:00 | 724 |
| 013-1 | CTD/RO-37 | 08.01. | 12°02,03' | 77°47,34' | 08:34 | 355 | 12°02,03' | 77°47,34' | 09:11 | 352 |
| 013-2 | PCTD/RO-6 | 08.01. | 12°02,03' | 77°47,34' | 10:25 | 354 | 12°02,05' | 77°47,34' | 16:40 | 352 |
| 013-3 | CTD/RO-38 | 08.01. | 12°02,05' | 77°47,33' | 16:58 | 350 | 12°02,06' | 77°47,34' | 17:32 | 353 |

| Station No. | Gear No. | Date 2008/09 | Position start | | Time [UTC] | Depth [m] | Position end | | Time [UTC] | Depth [m] |
|-------------|-----------|-----------------|----------------|------------|---------------|--------------|--------------|------------|---------------|--------------|
| | | | Lat. [°S] | Long. [°W] | | | Lat. [°S] | Long. [°W] | | |
| 013-4 | WP2-14 | 08.01. | 12°02,06' | 77°47,34' | 17:40 | 353 | 12°02,06' | 77°47,34' | 17:48 | 354 |
| 013-5 | WP2-15 | 08.01. | 12°02,06' | 77°47,34' | 17:52 | 354 | 12°02,06' | 77°47,33' | 17:58 | 352 |
| 013-6 | CTD/RO-39 | 08.01. | 12°02,06' | 77°47,33' | 18:06 | 351 | 12°02,05' | 77°47,33' | 18:12 | 351 |
| 013-7 | CTD/RO-40 | 08.01. | 12°02,05' | 77°47,33' | 18:26 | 351 | 12°02,05' | 77°47,33' | 18:30 | 349 |
| 013-8 | CTD/RO-41 | 08.01. | 12°02,06' | 77°47,33' | 18:42 | 351 | 12°02,06' | 77°47,33' | 18:48 | 352 |
| 013-9 | CTD/RO-42 | 08.01. | 12°02,06' | 77°47,33' | 18:58 | 350 | 12°02,06' | 77°47,33' | 19:03 | 350 |
| 013-10 | CTD/RO-43 | 08.01. | 12°02,06' | 77°47,33' | 20:13 | 352 | 12°02,06' | 77°47,33' | 20:38 | 352 |
| 013-11 | CTD/RO-44 | 08.01. | 12°02,05' | 77°47,33' | 23:22 | 353 | 12°02,06' | 77°47,33' | 00:00 | 351 |
| 013-12 | PCTD/RO-7 | 09.01. | 12°02,06' | 77°47,32' | 00:29 | 350 | 12°02,05' | 77°47,32' | 02:15 | 351 |
| 013-13 | ISP-8 | 09.01. | 12°02,06' | 77°47,33' | 03:00 | 350 | 12°02,09' | 77°47,32' | 05:15 | 354 |
| 013-14 | ISP-9 | 09.01. | 12°02,09' | 77°47,32' | 06:26 | 354 | 12°02,14' | 77°47,32' | 10:00 | 355 |
| 014-1 | CTD/RO-45 | 09.01. | 12°05,28' | 77°40,22' | 11:00 | 424 | 12°05,27' | 77°40,23' | 11:15 | 417 |
| 015-1 | CTD/RO-46 | 09.01. | 12°07,82' | 77°33,93' | 12:16 | 166 | 12°07,84' | 77°33,92' | 12:35 | 165 |
| 016-1 | CTD/RO-47 | 09.01. | 12°10,40' | 77°27,68' | 13:28 | 152 | 12°10,40' | 77°27,66' | 13:47 | 151 |
| 017-1 | CTD/RO-48 | 09.01. | 12°12,93' | 77°21,35' | 14:43 | 132 | 12°12,94' | 77°21,34' | 15:03 | 132 |
| 018-1 | CTD/RO-49 | 09.01. | 12°18,16' | 77°08,75' | 16:30 | 100 | 12°18,16' | 77°08,75' | 16:51 | 100 |
| 019-1 | CTD/RO-50 | 09.01. | 12°21,76' | 77°00,09' | 18:02 | 100 | 12°21,79' | 77°00,05' | 18:20 | 101 |
| 019-2 | WP2-16 | 09.01. | 12°21,80' | 77°00,06' | 18:30 | 99 | 12°21,80' | 77°00,05' | 18:38 | 100 |
| 019-3 | PCTD/RO-8 | 09.01. | 12°21,81' | 77°00,01' | 21:05 | 100 | 12°21,81' | 77°00,01' | 02:53 | 100 |
| 019-4 | CTD/RO-51 | 10.01. | 12°21,81' | 77°00,01' | 03:02 | 101 | 12°21,81' | 77°00,01' | 03:17 | 100 |
| 020-1 | GLIDER-1 | 10.01. | 13°39,95' | 77°00,04' | 13:34 | 879 | 13°41,02' | 77°01,14' | 18:30 | 1294 |
| 020-2 | CTD/RO-52 | 10.01. | 13°40,50' | 77°00,91' | 15:50 | 1008 | 13°40,50' | 77°00,91' | 16:30 | 1008 |
| 021-1 | CTD/RO-53 | 10.01. | 13°39,97' | 76°47,09' | 20:06 | 337 | 13°40,00' | 76°47,10' | 20:38 | 337 |
| 021-2 | WP2-17 | 10.01. | 13°40,00' | 76°47,10' | 20:42 | 338 | 13°40,00' | 76°47,10' | 20:50 | 339 |
| 021-3 | WP2-18 | 10.01. | 13°40,00' | 76°47,10' | 21:00 | 339 | 13°40,00' | 76°47,10' | 21:08 | 339 |
| 022-1 | CTD/RO-54 | 10.01. | 13°39,99' | 76°30,81' | 22:58 | 128 | 13°40,00' | 76°30,80' | 23:27 | 131 |
| 023-1 | WP2-19 | 11.01. | 15°59,98' | 78°00,00' | 15:30 | 3425 | 15°59,90' | 78°00,04' | 15:48 | 3437 |
| 023-2 | CTD/RO-55 | 11.01. | 16°00,00' | 78°00,04' | 16:20 | 3420 | 15°59,90' | 78°00,04' | 17:43 | 3445 |
| 024-1 | CTD/RO-56 | 11.01. | 16°00,28' | 77°39,85' | 19:47 | 2868 | 16°00,27' | 77°39,84' | 19:52 | 2868 |
| 025-1 | CTD/RO-57 | 11.01. | 16°00,04' | 77°40,16' | 20:35 | 2907 | 15°59,98' | 77°40,15' | 20:54 | 2905 |
| 025-2 | WP2-20 | 11.01. | 16°00,14' | 77°40,16' | 21:14 | 2893 | 16°00,12' | 77°40,17' | 21:17 | 2908 |
| 026-1 | CTD/RO-58 | 11.01. | 16°01,14' | 77°42,60' | 21:47 | 2822 | 16°01,17' | 77°42,57' | 22:06 | 2832 |
| 027-1 | CTD/RO-59 | 11.01. | 15°59,00' | 77°38,23' | 22:57 | 2628 | 15°59,00' | 77°38,23' | 23:17 | 2612 |
| 028-1 | GO-FLO-14 | 12.01. | 15°59,99' | 77°00,02' | 02:47 | 2362 | 16°00,09' | 76°59,72' | 04:03 | 2349 |
| 028-2 | CTD/RO-60 | 12.01. | 15°59,96' | 76°59,95' | 04:16 | 2354 | 15°59,96' | 76°59,93' | 05:42 | 2357 |
| 028-3 | GO-FLO-15 | 12.01. | 15°59,96' | 76°59,93' | 05:48 | 2353 | 16°00,00' | 76°59,84' | 06:58 | 2348 |
| 028-4 | PCTD/RO-9 | 12.01. | 16°00,00' | 76°59,84' | 07:30 | 2352 | 16°00,00' | 76°59,84' | 13:55 | 2351 |
| 028-5 | CTD/RO-61 | 12.01. | 16°00,00' | 76°59,84' | 14:06 | 2353 | 16°00,00' | 77°00,00' | 16:05 | 2359 |
| 028-6 | ISP-10 | 12.01. | 16°00,00' | 77°00,00' | 16:13 | 2359 | 16°00,00' | 77°00,00' | 20:16 | 2365 |
| 028-7 | WP2-21 | 12.01. | 16°00,00' | 77°00,00' | 20:19 | 2361 | 16°00,00' | 77°00,00' | 20:25 | 2360 |

| Station No. | Gear No. | Date 2008/09 | Position start | | Time [UTC] | Depth [m] | Position end | | Time [UTC] | Depth [m] |
|-------------|------------|--------------|----------------|------------|------------|-----------|--------------|------------|------------|-----------|
| | | | Lat. [°S] | Long. [°W] | | | Lat. [°S] | Long. [°W] | | |
| 028-8 | WP2-22 | 12.01. | 16°00,00' | 77°00,00' | 20:27 | 2357 | 16°00,00' | 77°00,00' | 20:34 | 2359 |
| 028-9 | ISP-11 | 12.01. | 16°00,00' | 77°00,00' | 20:44 | 2357 | 16°00,00' | 77°00,00' | 00:37 | 2359 |
| 029-1 | CTD/RO-62 | 13.01. | 15°59,95' | 76°16,05' | 07:32 | 3315 | 15°59,96' | 76°16,08' | 08:57 | 3313 |
| 030-1 | CTD/RO-63 | 13.01. | 16°00,00' | 75°33,00' | 13:01 | 6164 | 16°00,00' | 75°33,00' | 14:26 | 6169 |
| 030-2 | CTD/RO-64 | 13.01. | 16°00,00' | 75°33,00' | 15:13 | 6165 | 16°00,00' | 75°33,00' | 16:45 | 6164 |
| 030-3 | CTD/RO-65 | 13.01. | 16°00,00' | 75°33,00' | 17:18 | 6166 | 16°00,00' | 75°33,00' | 21:13 | 6166 |
| 030-4 | WP2-23 | 13.01. | 16°00,00' | 75°33,00' | 21:19 | 6161 | 16°00,00' | 75°32,99' | 21:27 | 6159 |
| 030-5 | WP2-24 | 13.01. | 16°00,00' | 75°32,99' | 21:30 | 6167 | 15°59,99' | 75°32,96' | 21:35 | 6168 |
| 030-6 | CTD/RO-66 | 13.01. | 15°59,98' | 75°32,93' | 21:52 | 6166 | 15°59,95' | 75°32,93' | 22:15 | 6162 |
| 031-1 | CTD/RO-67 | 14.01. | 16°00,00' | 74°36,64' | 04:07 | 1501 | 16°00,06' | 74°36,55' | 05:19 | 1462 |
| 032-1 | CTD/RO-68 | 14.01. | 15°59,96' | 74°20,92' | 06:51 | 706 | 15°59,98' | 74°20,93' | 07:53 | 706 |
| 033-1 | CTD/RO-69 | 14.01. | 15°59,92' | 74°14,69' | 08:54 | 250 | 15°59,92' | 74°14,69' | 09:22 | 250 |
| 033-2 | CTD/RO-70 | 14.01. | 15°59,92' | 74°14,69' | 09:43 | 253 | 15°59,92' | 74°14,69' | 10:10 | 249 |
| 033-3 | GO-FLO-16 | 14.01. | 15°59,92' | 74°14,69' | 10:30 | 250 | 15°59,92' | 74°14,69' | 11:13 | 249 |
| 034-1 | CTD/RO-71 | 14.01. | 16°00,01' | 74°10,97' | 11:49 | 116 | 16°00,01' | 74°10,97' | 12:03 | 116 |
| 034-2 | WP2-25 | 14.01. | 16°00,01' | 74°10,97' | 12:08 | 116 | 16°00,01' | 74°10,97' | 12:14 | 116 |
| 034-3 | WP2-26 | 14.01. | 16°00,01' | 74°10,97' | 12:19 | 116 | 16°00,01' | 74°10,97' | 12:26 | 116 |
| 035-1 | RO-1 | 14.01. | 16°00,01' | 74°37,04' | 14:45 | 1622 | 16°00,01' | 74°37,04' | 14:49 | 1624 |
| 035-2 | RO-2 | 14.01. | 16°00,01' | 74°37,04' | 15:01 | 1622 | 16°00,01' | 74°37,04' | 15:05 | 1624 |
| 035-3 | RO-3 | 14.01. | 16°00,01' | 74°37,04' | 15:14 | 1622 | 16°00,01' | 74°37,04' | 15:18 | 1624 |
| 035-4 | RO-4 | 14.01. | 16°00,01' | 74°37,04' | 15:28 | 1622 | 16°00,01' | 74°37,04' | 15:32 | 1624 |
| 036-1 | CTD/RO-72 | 14.01. | 16°00,02' | 74°59,95' | 18:40 | 2801 | 16°00,03' | 74°59,98' | 19:40 | 2856 |
| 036-2 | PCTD/RO-10 | 14.01. | 16°00,01' | 75°00,00' | 20:10 | 2835 | 16°00,01' | 75°00,00' | 02:04 | 2845 |
| 036-3 | GO-FLO-17 | 15.01. | 16°00,01' | 75°00,00' | 02:24 | 2854 | 16°00,05' | 74°59,83' | 03:08 | 2780 |
| 037-1 | ISP-12 | 15.01. | 16°00,02' | 74°11,00' | 08:01 | 116 | 16°00,02' | 74°10,99' | 11:11 | 115 |
| 037-2 | CTD/RO-73 | 15.01. | 16°00,02' | 74°11,00' | 11:27 | 115 | 16°00,01' | 74°11,00' | 11:41 | 118 |
| 038-1 | PCTD/RO-11 | 15.01. | 16°00,00' | 74°14,70' | 13:01 | 252 | 16°00,00' | 74°14,70' | 16:17 | 252 |
| 038-2 | WP2-27 | 15.01. | 16°00,00' | 74°14,70' | 16:30 | 254 | 16°00,00' | 74°14,69' | 16:37 | 250 |
| 038-3 | WP2-28 | 15.01. | 16°00,00' | 74°14,69' | 16:38 | 250 | 16°00,00' | 74°14,67' | 16:46 | 246 |
| 039-1 | CTD/RO-74 | 16.01. | 16°43,58' | 72°47,53' | 10:37 | 135 | 16°43,59' | 72°47,50' | 10:47 | 127 |
| 040-1 | CTD/RO-75 | 16.01. | 16°46,30' | 72°49,17' | 11:24 | 121 | 16°46,38' | 72°49,14' | 11:38 | 122 |
| 041-1 | CTD/RO-76 | 16.01. | 16°49,14' | 72°50,49' | 12:13 | 255 | 16°49,21' | 72°50,34' | 12:40 | 251 |
| 041-2 | WP2-29 | 16.01. | 16°49,21' | 72°50,34' | 12:49 | 251 | 16°49,21' | 72°50,34' | 12:56 | 254 |
| 041-3 | WP2-30 | 16.01. | 16°49,21' | 72°50,34' | 12:58 | 253 | 16°49,21' | 72°50,34' | 13:03 | 248 |
| 042-1 | CTD/RO-77 | 16.01. | 17°13,36' | 72°00,08' | 18:02 | 163 | 17°13,36' | 72°00,10' | 18:20 | 165 |
| 043-1 | CTD/RO-78 | 16.01. | 17°17,71' | 71°54,21' | 19:30 | 121 | 17°17,71' | 71°54,21' | 19:44 | 121 |
| 044-1 | CTD/RO-79 | 16.01. | 17°20,69' | 71°56,39' | 20:24 | 277 | 17°20,71' | 71°56,42' | 20:50 | 284 |
| 044-2 | WP2-31 | 16.01. | 17°20,71' | 71°56,42' | 20:54 | 280 | 17°20,71' | 71°56,42' | 21:00 | 281 |
| 044-3 | PCTD/RO-12 | 16.01. | 17°20,71' | 71°56,42' | 22:05 | 284 | 17°20,71' | 71°56,39' | 02:05 | 256 |
| 045-1 | CTD/RO-80 | 17.01. | 17°31,51' | 72°19,15' | 05:10 | 1546 | 17°31,52' | 72°19,15' | 06:21 | 1548 |

| Station No. | Gear No. | Date 2008/09 | Position start | | Time [UTC] | Depth [m] | Position end | | Time [UTC] | Depth [m] |
|-------------|------------|-----------------|----------------|------------|---------------|--------------|--------------|------------|---------------|--------------|
| | | | Lat. [°S] | Long. [°W] | | | Lat. [°S] | Long. [°W] | | |
| 046-1 | CTD/RO-81 | 17.01. | 17°41,98' | 72°41,98' | 08:48 | 3231 | 17°41,98' | 72°41,99' | 10:13 | 3240 |
| 046-2 | IFISH-3 | 17.01. | 17°42,61' | 72°42,35' | 10:30 | 3790 | 17°59,94' | 73°24,89' | 15:05 | 4850 |
| 047-1 | GO-FLO-18 | 17.01. | 18°00,00' | 73°25,01' | 15:16 | 4841 | 18°00,00' | 73°25,01' | 16:32 | 4841 |
| 047-2 | CTD/RO-82 | 17.01. | 18°00,00' | 73°25,01' | 16:34 | 4836 | 18°00,00' | 73°25,01' | 17:58 | 4842 |
| 047-3 | GO-FLO-19 | 17.01. | 18°00,00' | 73°25,01' | 18:08 | 4851 | 18°00,00' | 73°25,01' | 18:44 | 4841 |
| 047-4 | WP2-32 | 17.01. | 18°00,00' | 73°25,01' | 18:50 | 4839 | 18°00,00' | 73°25,01' | 18:56 | 4837 |
| 047-5 | WP2-33 | 17.01. | 18°00,00' | 73°25,01' | 18:58 | 4841 | 18°00,00' | 73°25,01' | 19:05 | 4840 |
| 048-1 | CTD/RO-83 | 18.01. | 16°49,04' | 72°50,55' | 10:00 | 257 | 16°49,03' | 72°50,55' | 10:18 | 254 |
| 049-1 | CTD/RO-84 | 18.01. | 16°46,30' | 72°49,00' | 11:26 | 119 | 16°46,30' | 72°48,98' | 11:39 | 119 |
| 050-1 | WP2-34 | 18.01. | 16°09,32' | 74°08,04' | 19:08 | 766 | 16°09,31' | 74°08,04' | 19:13 | 765 |
| 051-1 | CTD/RO-85 | 19.01. | 14°34,97' | 76°06,04' | 07:39 | 137 | 14°34,95' | 76°06,01' | 07:54 | 129.0 |
| 052-1 | CTD/RO-86 | 19.01. | 14°29,26' | 76°20,58' | 09:30 | 247 | 14°29,26' | 76°20,59' | 09:56 | 248 |
| 053-1 | CTD/RO-87 | 19.01. | 13°45,01' | 77°20,04' | 17:20 | 3389 | 13°45,02' | 77°20,05' | 17:45 | 3390 |
| 053-2 | WP2-35 | 19.01. | 13°45,01' | 77°20,03' | 17:52 | 3399 | 13°45,02' | 77°20,06' | 18:00 | 3390 |
| 053-3 | WP2-36 | 19.01. | 13°45,02' | 77°20,05' | 18:08 | 3387 | 13°45,02' | 77°20,07' | 18:14 | 3390 |
| 054-1 | CTD/RO-88 | 19.01. | 13°45,10' | 77°02,05' | 20:03 | 1890 | 13°45,11' | 77°02,05' | 20:30 | 1896 |
| 054-2 | PCTD/RO-13 | 19.01. | 13°45,10' | 77°02,05' | 21:18 | 1892 | 13°45,10' | 77°02,05' | 02:25 | 1888 |
| 054-3 | CTD/RO-89 | 20.01. | 13°45,10' | 77°02,05' | 02:32 | 1888 | 13°45,10' | 77°02,05' | 02:54 | 1889 |
| 055-1 | CTD/RO-90 | 20.01. | 13°45,00' | 77°25,34' | 05:15 | 3967 | 13°45,01' | 77°25,35' | 07:46 | 3966 |
| 056-1 | CTD/RO-91 | 20.01. | 13°45,03' | 77°02,02' | 10:06 | 1886 | 13°45,00' | 77°02,00' | 10:19 | 1887 |
| 056-2 | ISP-13 | 20.01. | 13°45,00' | 77°02,00' | 10:43 | 1894 | 13°44,99' | 77°01,97' | 14:17 | 1878 |
| 056-3 | CTD/RO-92 | 20.01. | 13°44,99' | 77°01,96' | 14:22 | 1884 | 13°44,99' | 77°01,97' | 14:44 | 1877 |
| 056-4 | CTD/RO-93 | 20.01. | 13°44,99' | 77°01,97' | 15:04 | 1877 | 13°44,99' | 77°01,97' | 16:07 | 1879 |
| 056-5 | PCTD/RO-14 | 20.01. | 13°44,99' | 77°01,97' | 16:28 | 1877 | 13°44,99' | 77°01,97' | 18:46 | 1877 |
| 056-6 | CTD/RO-94 | 20.01. | 13°44,99' | 77°01,97' | 19:02 | 1881 | 13°44,99' | 77°01,97' | 19:20 | 1878 |
| 056-7 | WP2-37 | 20.01. | 13°44,99' | 77°01,96' | 19:26 | 1876 | 13°44,99' | 77°01,96' | 19:34 | 1877 |
| 056-8 | WP2-38 | 20.01. | 13°44,99' | 77°01,95' | 19:38 | 1876 | 13°44,99' | 77°01,94' | 19:46 | 1877 |
| 056-9 | ISP-14 | 20.01. | 13°45,00' | 77°01,95' | 20:30 | 1874 | 13°45,01' | 77°01,95' | 23:40 | 1878 |
| 057-1 | CTD/RO-95 | 21.01. | 13°20,99' | 77°35,02' | 03:25 | 3071 | 13°20,99' | 77°35,02' | 04:47 | 3070 |
| 058-1 | CTD/RO-96 | 21.01. | 13°20,97' | 77°00,05' | 07:52 | 1165 | 13°21,00' | 77°00,02' | 08:50 | 1175 |
| 059-1 | CTD/RO-97 | 21.01. | 13°20,77' | 76°48,36' | 10:29 | 250 | 13°20,77' | 76°48,37' | 10:54 | 250 |
| 060-1 | CTD/RO-98 | 21.01. | 13°20,99' | 76°34,00' | 12:24 | 121 | 13°20,99' | 76°34,00' | 12:38 | 121 |
| 061-1 | CTD/RO-99 | 21.01. | 13°21,01' | 76°23,38' | 13:59 | 164 | 13°21,01' | 76°23,38' | 14:12 | 154 |
| 061-2 | WP2-39 | 21.01. | 13°21,01' | 76°23,38' | 14:14 | 159 | 13°21,01' | 76°23,37' | 14:20 | 162 |
| 061-3 | WP2-40 | 21.01. | 13°21,01' | 76°23,37' | 14:24 | 162 | 13°21,01' | 76°23,37' | 14:30 | 161 |
| 062-1 | PCTD/RO-15 | 21.01. | 13°21,00' | 76°44,89' | 17:04 | 160 | 13°21,00' | 76°44,90' | 21:28 | 160 |
| 063-1 | CTD/RO-100 | 21.01. | 13°29,98' | 76°34,01' | 23:16 | 127 | 13°29,98' | 76°34,01' | 23:31 | 127 |
| 064-1 | CTD/RO-101 | 22.01. | 13°29,98' | 76°27,51' | 00:21 | 107 | 13°29,98' | 76°27,50' | 00:34 | 108 |
| 065-1 | PCTD/RO-16 | 22.01. | 13°20,99' | 76°30,00' | 01:43 | 108 | 13°21,00' | 76°30,00' | 04:43 | 110 |
| 066-1 | CTD/RO-102 | 22.01. | 13°09,96' | 76°31,03' | 06:03 | 96 | 13°09,98' | 76°31,00' | 06:16 | 93 |

| Station No. | Gear No. | Date 2008/09 | Position start | | Time [UTC] | Depth [m] | Position end | | Time [UTC] | Depth [m] |
|-------------|------------|-----------------|----------------|------------|---------------|--------------|--------------|------------|---------------|--------------|
| | | | Lat. [°S] | Long. [°W] | | | Lat. [°S] | Long. [°W] | | |
| 067-1 | CTD/RO-103 | 22.01. | 13°09,99' | 76°35,99' | 06:51 | 114 | 13°10,00' | 76°36,00' | 07:04 | 115 |
| 068-1 | CTD/RO-104 | 22.01. | 13°09,99' | 76°42,02' | 07:46 | 129 | 13°09,98' | 76°42,00' | 07:58 | 130 |
| 069-1 | CTD/RO-105 | 22.01. | 13°00,04' | 76°44,02' | 09:11 | 130 | 13°00,04' | 76°44,02' | 09:25 | 130 |
| 070-1 | CTD/RO-106 | 22.01. | 13°00,08' | 76°36,54' | 10:19 | 105 | 13°00,08' | 76°36,54' | 10:31 | 104 |
| 071-1 | CTD/RO-107 | 22.01. | 12°49,98' | 76°43,00' | 11:47 | 113 | 12°49,97' | 76°43,00' | 12:00 | 115 |
| 072-1 | CTD/RO-108 | 22.01. | 12°49,99' | 76°50,01' | 12:45 | 142 | 12°49,99' | 76°50,01' | 13:00 | 141 |
| 073-1 | CTD/RO-109 | 22.01. | 12°40,00' | 76°46,01' | 14:20 | 102 | 12°39,99' | 76°46,01' | 14:34 | 104 |
| 073-2 | WP2-41 | 22.01. | 12°39,99' | 76°46,01' | 14:41 | 106 | 12°39,99' | 76°46,01' | 14:49 | 103 |
| 073-3 | WP2-42 | 22.01. | 12°39,99' | 76°46,01' | 14:50 | 100 | 12°39,99' | 76°46,01' | 14:55 | 104 |
| 074-1 | CTD/RO-110 | 22.01. | 12°30,01' | 76°55,02' | 16:27 | 120 | 12°30,01' | 76°55,01' | 16:42 | 115 |
| 075-1 | CTD/RO-111 | 22.01. | 12°21,77' | 77°00,00' | 17:48 | 100 | 12°21,78' | 76°59,97' | 18:00 | 100 |