



CRUISE REPORT ON RESEARCH ACTIVITY

M.V.SEAFDEC 2 Cruise No. 21-5/2006

27 September– 19 October 2006

Fisheries resource survey in the Philippines

TD/RP/101

This report is based on preliminary data

For readers who may need data in the report, please contact to:

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Survey Cruise Report

Cruise no.: M.V.SEAFFDEC2 No.21-5/2006
Period: 27 Sept – 19 Oct 2006
Area: Sulu sea, The philippines
Port of call: Puerto Princesa, Palawan, Philippines
Objective: Fisheries resource survey in the Philippines
Main activity: 1. Fisheries resource survey by Pelagic longline and automatic squid jigging.
 2. Oceanographic survey using Integrated Conductivity Temperature and Depth measuring instrument (ICTD), Thermosalinograph-fluorometer (TSG), Vandorn water sampler and Bongo net

List of personal on board:

Ship personnel

| No. | Position | Name | E-mail |
|-----|-------------------|-----------------------------|-----------------------|
| 1 | Captain | Mr. Tossaporn Sukhapindha | tossaporn@seafdec.org |
| 2 | Chief engineer | Mr. Veerachai Chettasumon | veerachai@seafdec.org |
| 3 | Second officer | Mr. Suren Pruksarat | |
| 4 | Third officer | Mr. Somphote Vudthipanyo | |
| 5 | Second engineer | Mr. Komson Sangphuek | |
| 6 | Fishing Assistant | Mr. Aussawin Buachuay | |
| 7 | Boatswain | Mr. Vudthirat Vudthipanyo | |
| 8 | Steerman | Mr. Pradit Kui-prasert | |
| 9 | " | Mr. Tana Rungjoy | |
| 10 | Able seaman | Mr. Somkiat Phetrasatien | |
| 11 | Fitter | Mr. Nuttapong Chaitanavisut | |
| 12 | Oiler | Mr. Plew Shodok | |
| 13 | " | Mr. Boontarin Wara-in | |
| 14 | " | Mr. Watchara Panasri | |
| 15 | Cook | Mr. Saichol Kornnoom | |
| 16 | Ship's boy | Mr. Somsak Phangkumhuk | |

SEAFDEC Researchers

| No. | Position | Name | E-mail |
|-----|-----------------|-------------------------|--|
| 17 | Chief/Scientist | Mr. Isara Chanrachkij | isara@seafdec.org |
| 18 | Researcher | Mr. Sukchai Arnupaoboon | sukchai@seafdec.org |
| 19 | " | Mr. Sayan Promjinda | sayan@seafdec.org |
| 20 | " | Mr. Yuta Maruoka | pisces1412004@hotmail.co.jp |

Philippine scientist

| No. | Position | Name | E-mail |
|-----|-------------------|-----------------------|--|
| 20 | Materfisherman | Mr. Remar Asuncion | Have no e-mail |
| 21 | Gear technologist | Mr. Joeren Yleana | joerenyleana@yahoo.com |
| 22 | “ | Mr. Joseph C. Rayos | josephrayos@yahoo.com |
| 23 | Oceanographer | Mr. Euryphides Osorio | yuriganda@yahoo.com |
| 24 | Researcher | Ms. Jennifer Viron | jennyiron@yahoo.com |
| 25 | “ | Ms. Rhoda Servidad | jadesummer21@yahoo.com |
| 26 | Fisherman | Mr. Sulverio Rico* | Have no e-mail |
| 27 | Biologist | Mr. Val Borja* | borj_val@yahoo.com |

Remark: For Philippine scientist, * from NFRDI (National fisheries research and development institute) and the others came from BFAR (Bureau of fisheries and aquatic resources).

Oceanographic survey summary

Oceanographic observations were carried out from 27 September – 19 October 2006 by M.V.SEAFFDEC2 at 14 stations with two added stations(03A and 09A) in Sulu sea, Palawan. Each station conducted with two main activities composing of physical and biological oceanographic survey. The equipments that were used in each station were shown in **table no. 1**.

iCTD (SeaBird 911)

M.V.SEAFFDEC2, iCTD systems equipped with three main sensors for conductivity, temperature and depth and four auxiliary sensors for dissolved oxygen, pH, chlorophyll fluorometer and PAR in order to obtain the vertical profiles of water characters. Additionally, twelve carousel water sample (1.7 liter Niskin Bottles) which is a part of CTD system were used to collect water sample from standard depth



iCTD was deployed from the sea surface to approximately 5m above sea bottom or maximum at 400m depth in first six station and maximum at 300m depth after station number seven with constant velocity 0.4-0.5 m/s and retrieved to the surface at a similar speed. All parameters in each station were divided into down cast and upper cast and average into every 1m interval. However, some station up cast data showed irregular pattern so they were deleted(St. 06, 07, and 09). Some profile of parameters in down cast including temperature, salinity, oxygen, pH and fluorescence chlorophyll-a in each station are shown in **Apx. I**.

Water samplings were collected during retrieving iCTD from bottom to surface at standard depth. They then were filtered through Whatman GFC filter paper and stored in the freezer at -25 °C for nutrient analysis (nitrite, nitrate, phosphate and silicate) at SEAFDEC/Training Department laboratory. 180 samples were taken. All samples will be analyzed within two month. Then data will be sent to Philippines national coordinator.

Remark: The cause of which up cast data were irregular pattern was perhaps spark occurring in the connecting area between oceanographic winch and iCTD transmitter-line when iCTD was placed under high pressure layer. Thus, after station 07 iCTD was placed at depth as 300m only.

Van Dorn water sampler



Water sampling from surface and scattering layer were taken by using Van Dorn water sample. The water (10 lit) was filtered through Phytoplankton net 20 μ m. for study species composition and phytoplankton abundant. The sampling was immediately preserved by 3% of formalin with adding sodium borate buffer to counteract the acidity of plankton in formalin. All samplings were sent to phytoplankton-expert for identifying at DOF/Thailand laboratory. The sample identify will be finish within four month. Then data will be sent to Philippine national coordinator.

Thermosalinograph with Fluorometer (TSG-Fluorometer)

TSG – Fluorometer were operated during MV.SEAFDEC2 was sailing along the cruise track. The system was designed to continuously record three parameters including temperature, salinity and fluorescence chlorophyll-a, at approximately 5 meters below the sea surface. The data were average every 6 second. Operating summary is shown in **table 2**.

Bongo net equipped with flowmeter:

Bongo net consisted of two circular frames, each 60 cm in diameter, fitted with zooplankton and larvae net with mesh size of 330 μ m and 500 μ m, respectively. A flow meter was mounted in the aperture of each net to provide data on the water volume passing through during each tow. Each station bongo net was operated with oblique method and towed at slow ship speed 1.5 knots approximately and angel of towing wire was maintained at 45° angle. This provides a minimum of variation in the biases caused by uneven filtration per unit depth, avoidance of the net, and escapement or extrusion of larvae through the meshes. The wire length was release from surface to 100 m with wire speed of 0.3 m/s in both of releasing and retrieving (maximum speed of ship's winch).



The plankton samplings were immediately preserved in 5% formalin with adding sodium borate buffer.

Number of revolution, and quality of water (m^3) per one flow meter revolution in front of zooplankton and larvae net is shown in **table 3**.

Table 1. Partial detail of oceanographic survey station of cruise no.21-5/2006

| St.No. | Date | Time (Philippines) | Lat | Long | Oceanographic instruments | | | | Transparency | | Bottom Depth(m) | Remark |
|------------|-----------|-----------------------|------------|-------------|---------------------------|-----|---------|-------|--------------------|----------------|-----------------|-------------------|
| | | | | | SBE CTD | TSG | Vandorn | Bongo | Secchi disc (m) | Foral scale | | |
| 1(Phi01) | 5-Oct-06 | 13:41 | 09_59.95 N | 119_30.00 E | | ✓ | ✓ | ✓ | 14 | 7 | 261 | |
| 2(Phi02) | 6-Oct-06 | 11:53 | 10_00.04 N | 120_00.07 E | ✓ | ✓ | ✓ | ✓ | 5 | 13.5 | 1600 | |
| 3(Phi03A) | 7-Oct-06 | 10:51 | 09_59.97 N | 120_30.10 E | ✓ | ✓ | ✓ | ✓ | 4 | 26 | >2000 | |
| 4(Phi03) | 7-Oct-06 | 15:20 | 09_59.46 N | 120_59.94 E | ✓ | ✓ | ✓ | ✓ | 4 | 2 | >2000 | |
| 5(Phi04) | 8-Oct-06 | 05:55 | 10_00.49 N | 122_00.11 E | ✓ | ✓ | ✓ | ✓ | N/A | N/A | >2000 | night time survey |
| 6(Phi05) | 8-Oct-06 | 13:44 | 08_59.26 N | 122_00.26 E | ✓ | ✓ | ✓ | ✓ | 3 | 23 | >2000 | |
| 7(Phi06) | 9-Oct-06 | 13:19 | 08_59.82 N | 120_59.92 E | ✓ | ✓ | ✓ | ✓ | 3 | 24 | >2000 | |
| 8(Phi07) | 10-Oct-06 | 12:36 | 08_59.47 N | 120_01.89 E | ✓ | ✓ | ✓ | ✓ | 4 | 23 | >2000 | |
| 9(Phi08) | 12-Oct-06 | 11:12 | 08_59.97 N | 119_00.52 E | ✓ | ✓ | ✓ | ✓ | 3 | 16 | >2000 | |
| 10(Phi09) | 13-Oct-06 | 13:37 | 07_59.73 N | 118_59.90 E | ✓ | ✓ | ✓ | ✓ | 4 | 22 | >2000 | |
| 11(Phi09A) | 13-Oct-06 | 20:37 | 08_06.95 N | 119_46.64 E | ✓ | ✓ | ✓ | x | N/A | N/A | >2000 | night time survey |
| 12(Phi10) | 14-Oct-06 | 14:22 | 07_59.86 N | 120_00.17 E | ✓ | ✓ | ✓ | ✓ | 4 | 26 | >2000 | |
| 13(Phi11) | 15-Oct-06 | 12:00 | 08_80.79 N | 121_00.10 E | ✓ | ✓ | ✓ | ✓ | 4 | 26 | >2000 | |
| 14(Phi12) | 15-Oct-06 | 16:03 | 07_31.03 N | 121_00.36 E | ✓ | ✓ | ✓ | ✓ | 4 | 24 | >2000 | |
| 15(Phi13) | 16-Oct-06 | 07:30 | 07_33.73 N | 119_53.07 E | ✓ | ✓ | ✓ | ✓ | 3 | 37 | >2000 | |
| 16(Phi13A) | 16-Oct-06 | 17:05 | 07_30.13 N | 119_25.01 E | ✓ | ✓ | ✓ | ✓ | 3 | 24 | >2000 | |

Table 2. Operation summary of Thermosalinograph with Fluorometer (TSG-Fluorometer)

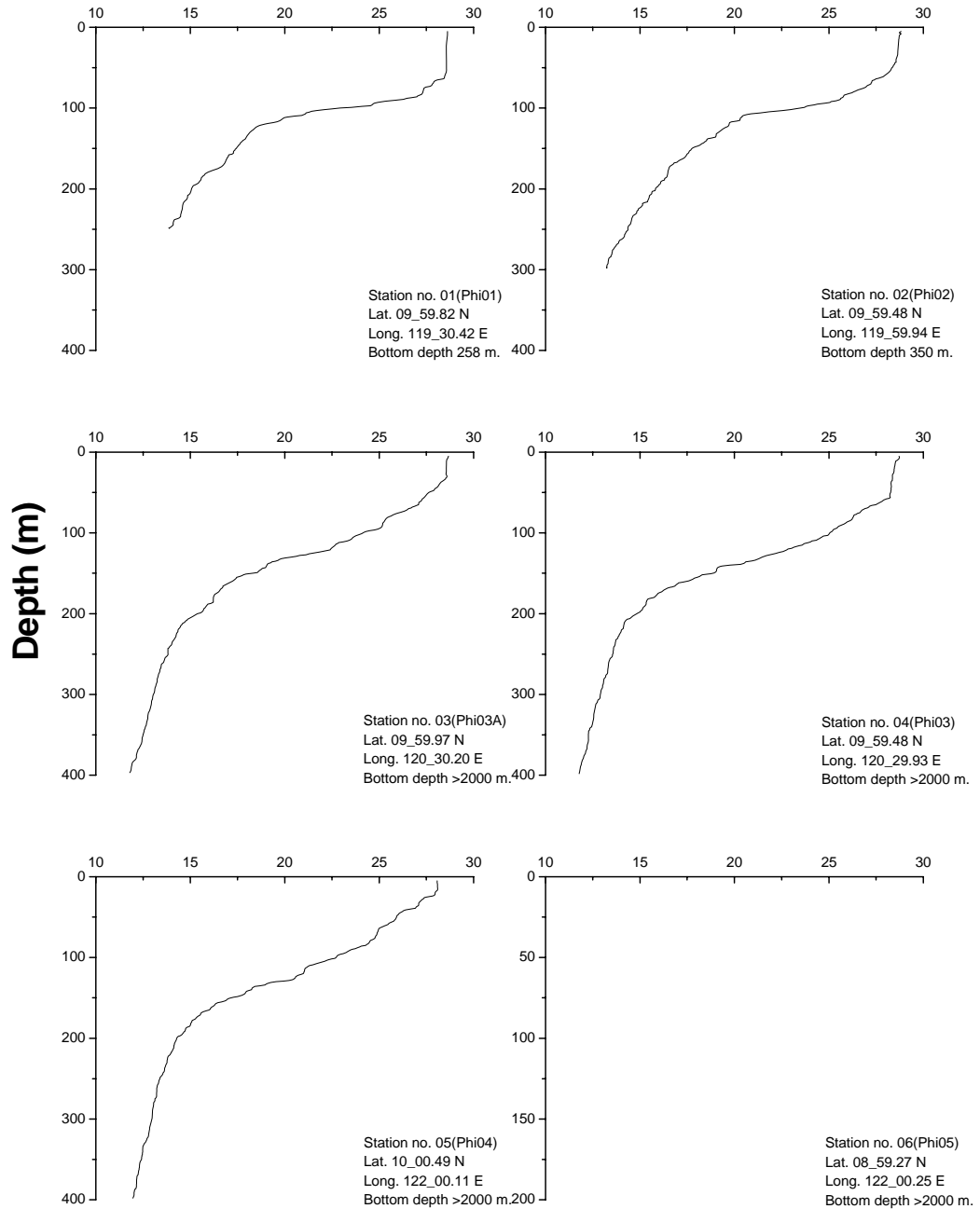
| Date | File_name | Start | destination |
|-----------|-------------|---------------|-----------------|
| 05-Oct-06 | 20061005(1) | Palawan | St.01(Phi01) |
| 05-Oct-06 | 20061005(2) | St.01(Phi01) | St.02(Phi02) |
| 06-Oct-06 | 20061006(1) | St.02(Phi02) | St.03(Phi03A) |
| 07-Oct-06 | 20061007(1) | St.03(Phi03A) | St.04(Phi03) |
| 07-Oct-06 | 20061007(2) | St.04(Phi03) | St.05(Phi04) |
| 08-Oct-06 | 20061008(1) | St.05(Phi04) | St.06(Phi05) |
| 08-Oct-06 | 20061009(1) | St.06(Phi05) | St.07(Phi06) |
| 09-Oct-06 | 20061010(1) | St.07(Phi06) | St.08(Phi07) |
| 10-Oct-06 | 20061010(2) | St.08(Phi07) | Panacan |
| 12-Oct-06 | 20061012(1) | St.09(Phi08) | St.10(Phi09) |
| 13-Oct-06 | 20061013(1) | St.10(Phi09) | St.11(Phi09A) |
| 14-Oct-06 | 20061014(1) | St.11(Phi09A) | St.12(Phi10) |
| 14-Oct-06 | 20061014(2) | St.12(Phi10) | St.13(Phi11) |
| 15-Oct-06 | 20061015(1) | St.13(Phi11) | St.14(Phi12) |
| 15-Oct-06 | 20061015(2) | St.14(Phi12) | St.15(Phi13) |
| 16-Oct-06 | 20061016(1) | St.15(Phi13) | St.16(Phi13A) |
| 16-Oct-06 | 20061016(2) | St.16(Phi13A) | Puerto Princesa |

Tabel 3. Summary of flow meter in every bongo net survey station

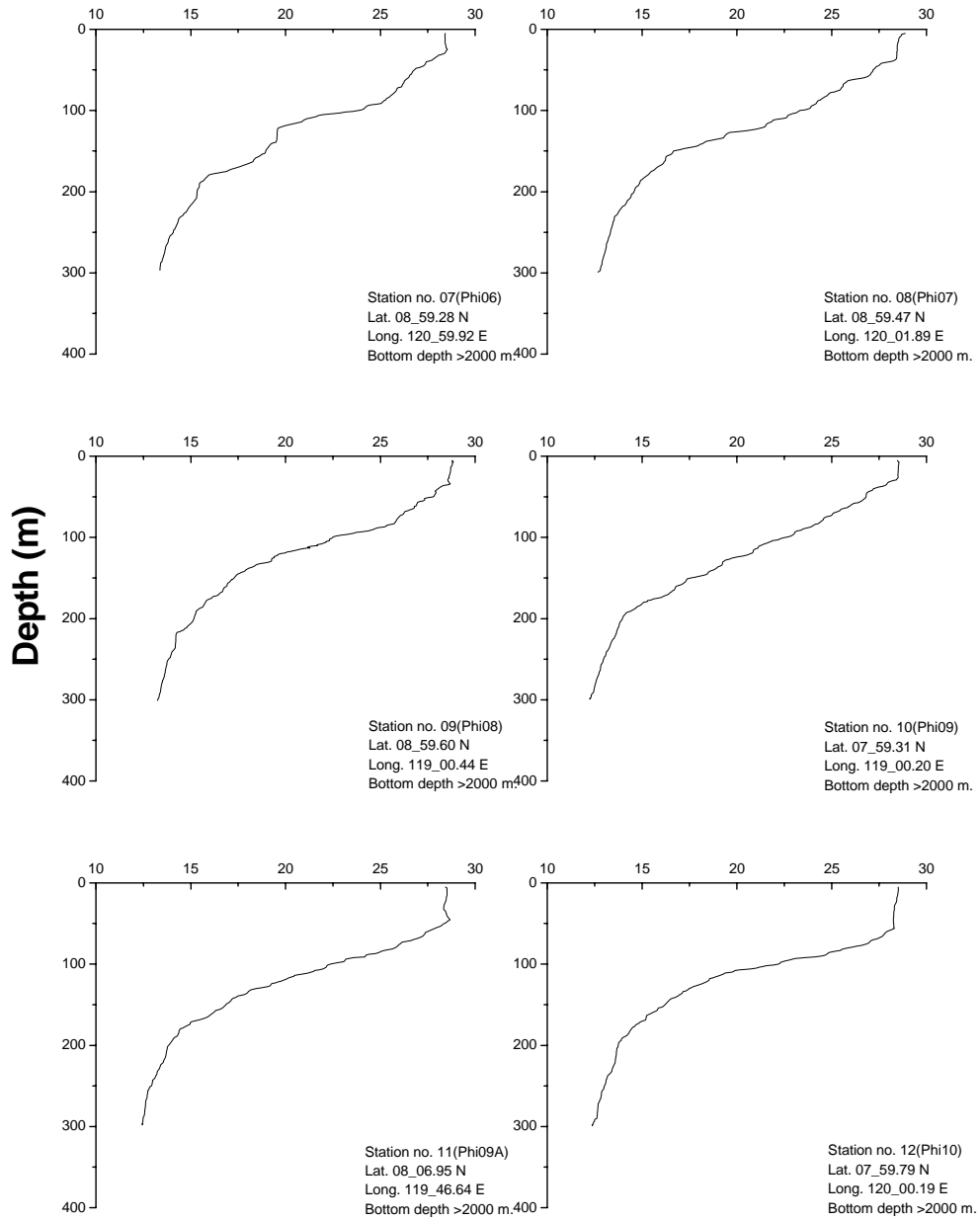
| Station | Larvae net | | Zooplankton | |
|---------|----------------------|-------------------------------------|----------------------|-------------------------------------|
| | Number of revolution | Calibration (cycle/m ³) | Number of revolution | Calibration (cycle/m ³) |
| 1 | 2990 | 0.0848 | 2900 | 0.0848 |
| 2 | 3309 | “ | 3208 | “ |
| 3 | 3009 | “ | 2812 | “ |
| 4 | 3240 | “ | 3003 | “ |
| 5 | 3180 | “ | 2596 | “ |
| 6 | 3373 | “ | 3181 | “ |
| 7 | 3079 | “ | 2843 | “ |
| 8 | 3211 | “ | 2933 | “ |
| 9 | 2826 | “ | 2711 | “ |
| 10 | 2989 | “ | 2788 | “ |
| 11 | Don't survey | | Don't survey | “ |
| 12 | 3295 | “ | 3043 | “ |
| 13 | 3444 | “ | 3237 | “ |
| 14 | 3508 | “ | 3198 | “ |
| 15 | 3683 | “ | 3217 | “ |
| 16 | 3963 | “ | 2580 | “ |

Appendix I

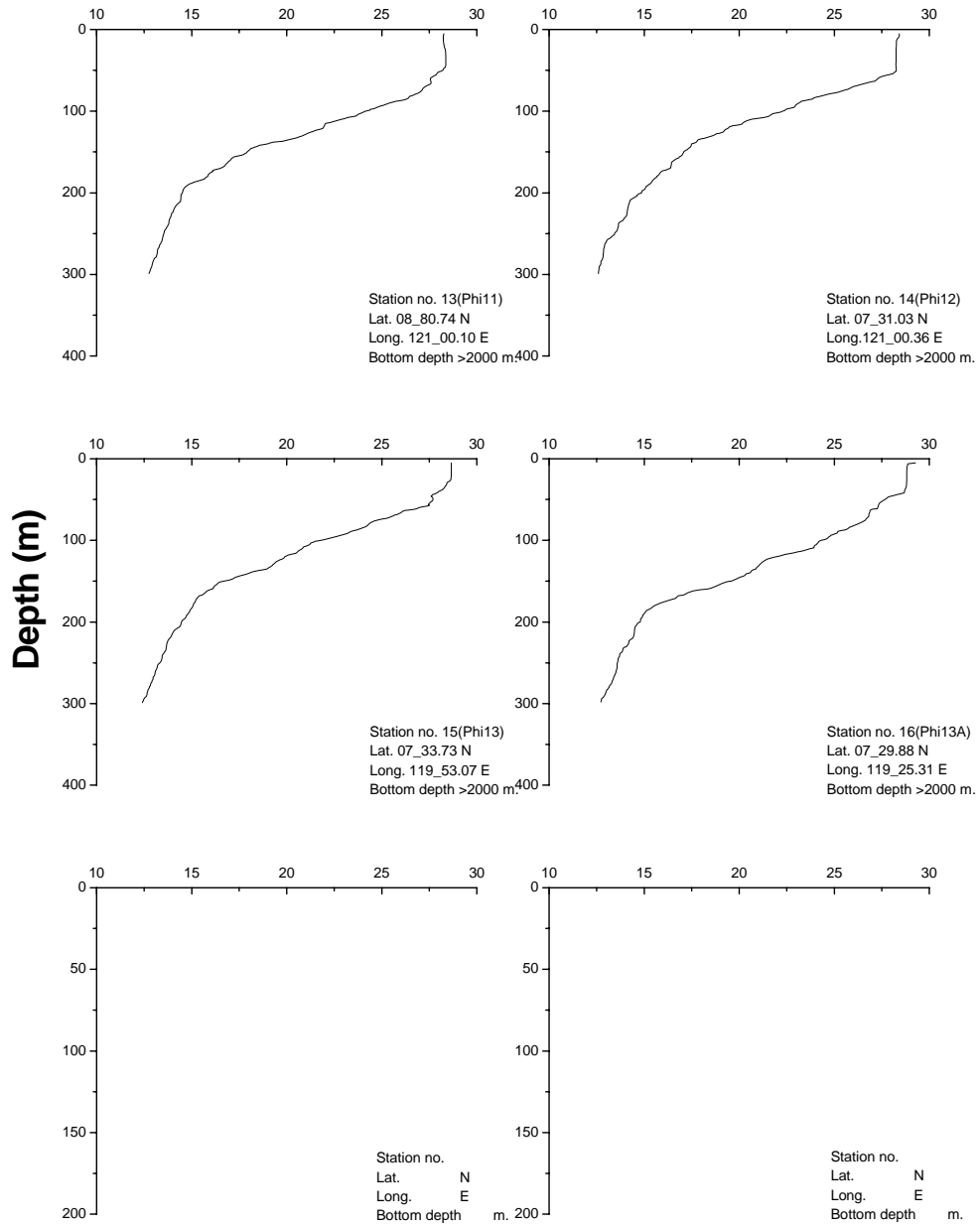
Temperature (°C)



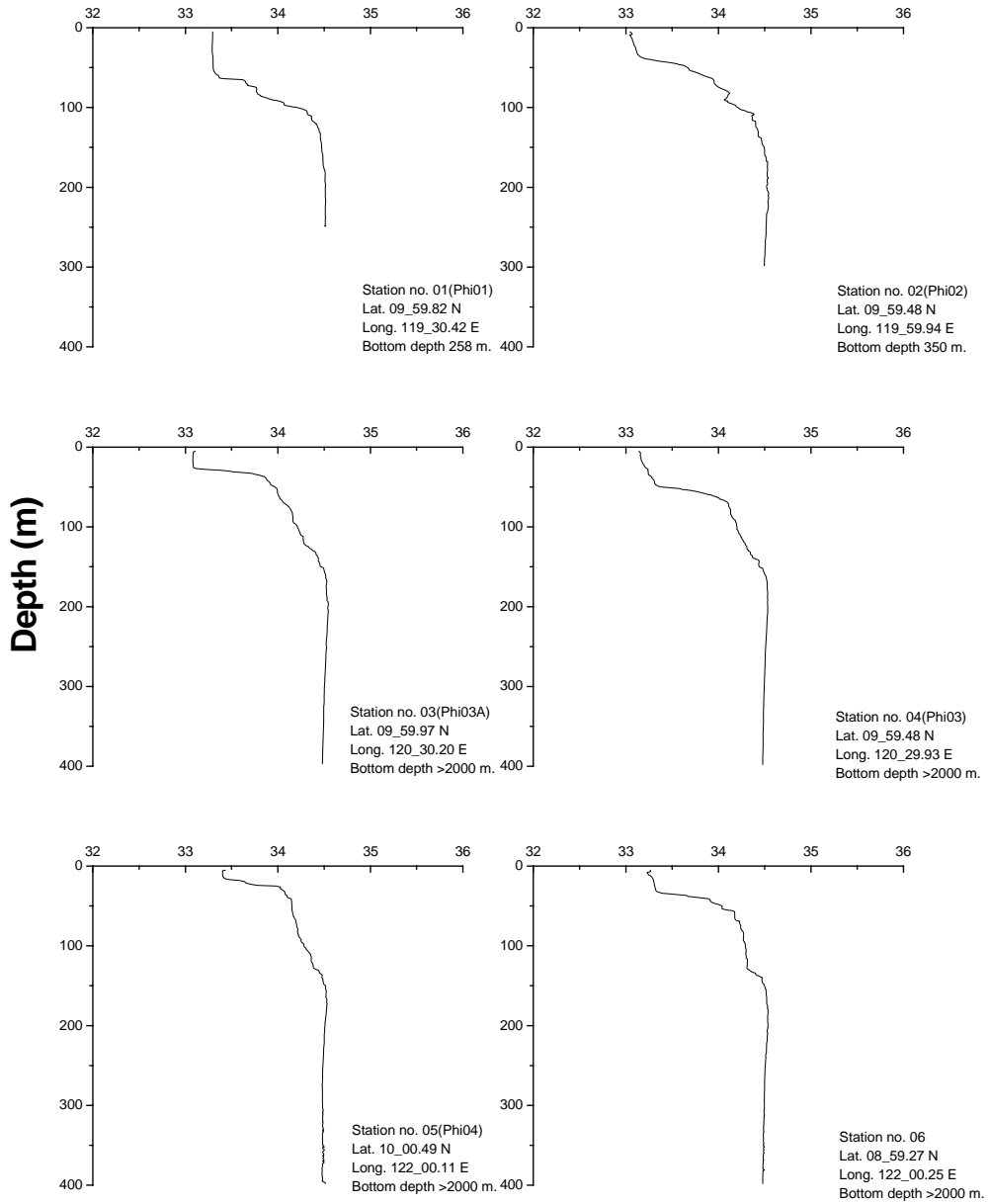
Temperature (°C)



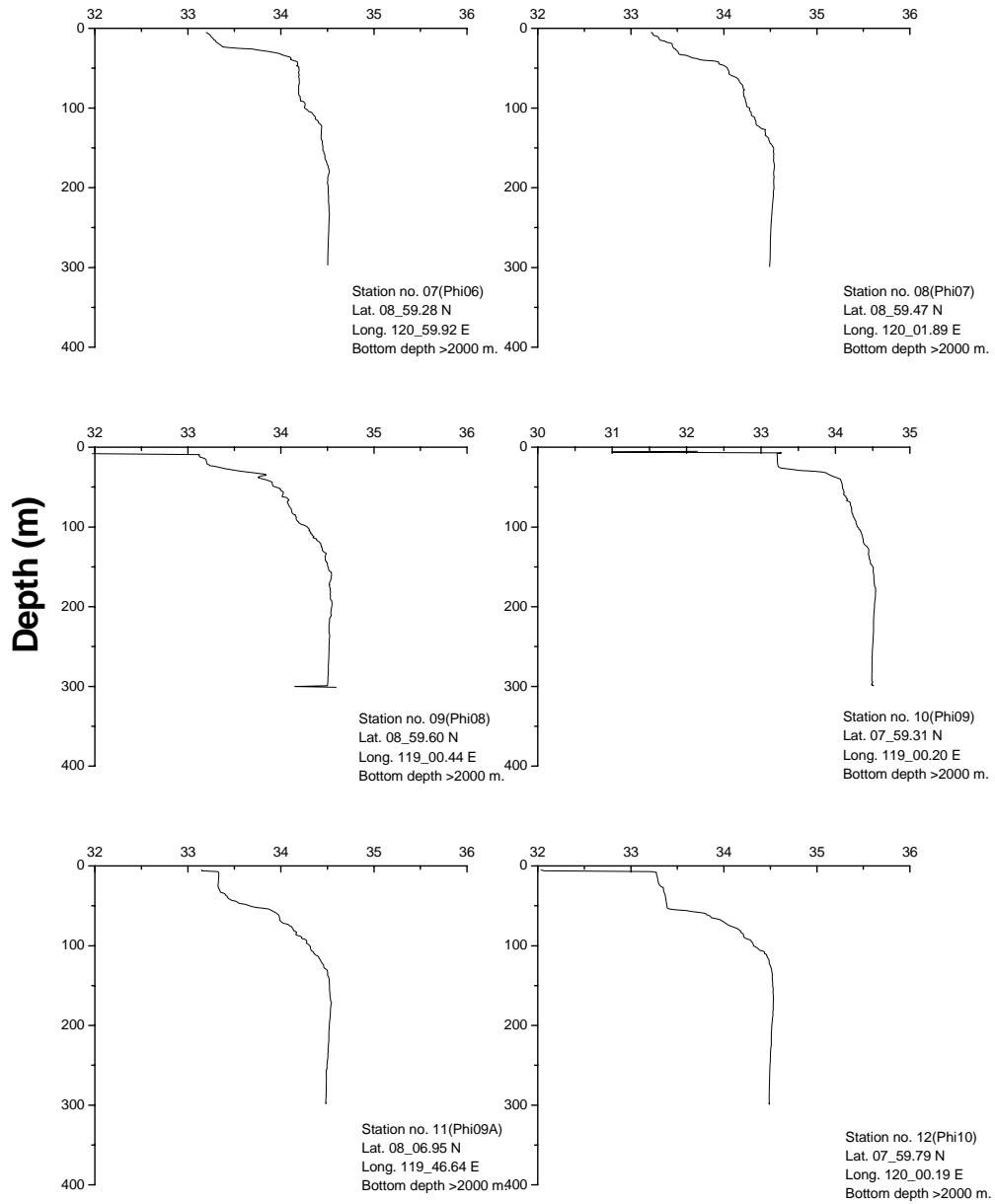
Temperature (°C)



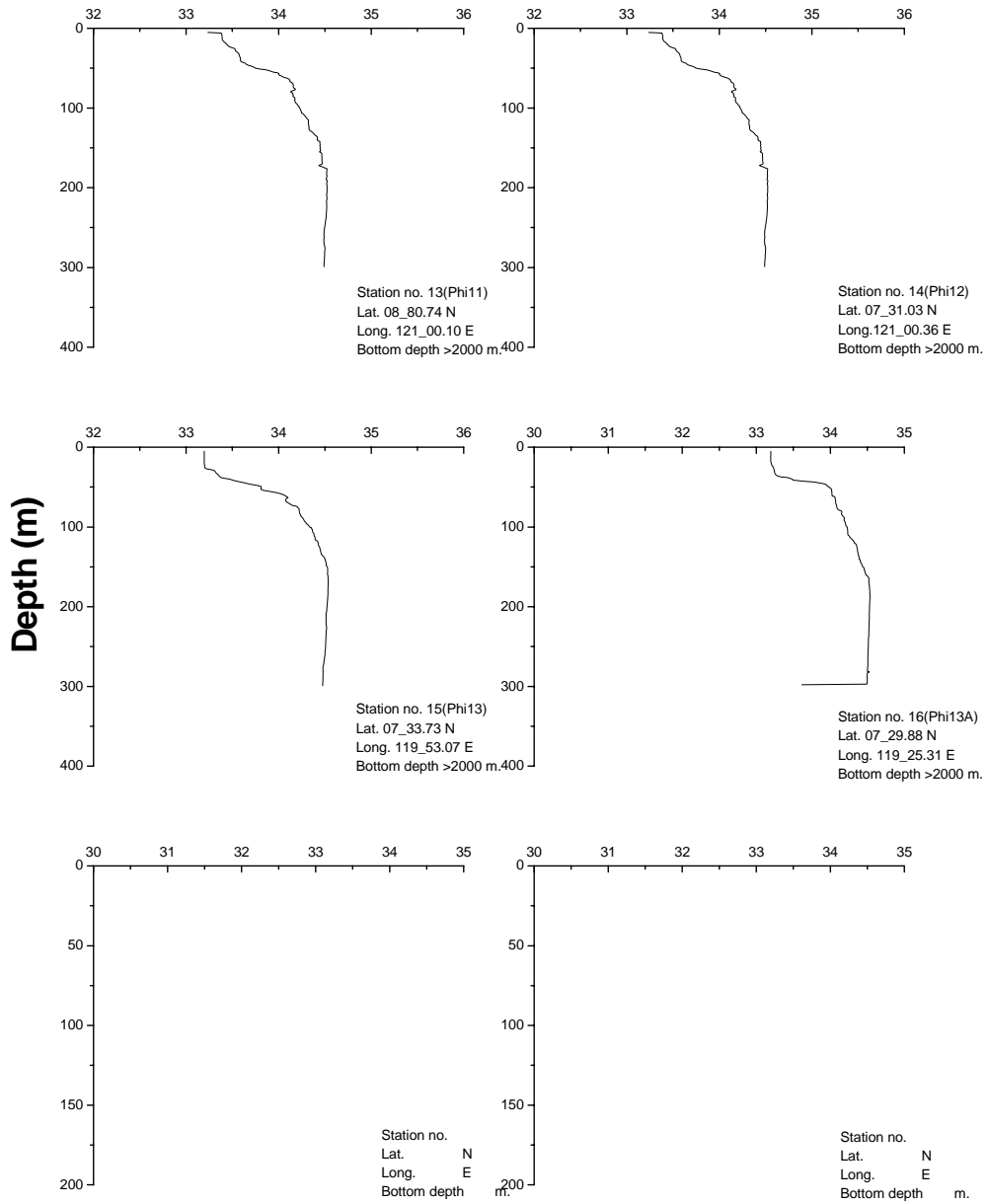
Salinity (PSU)



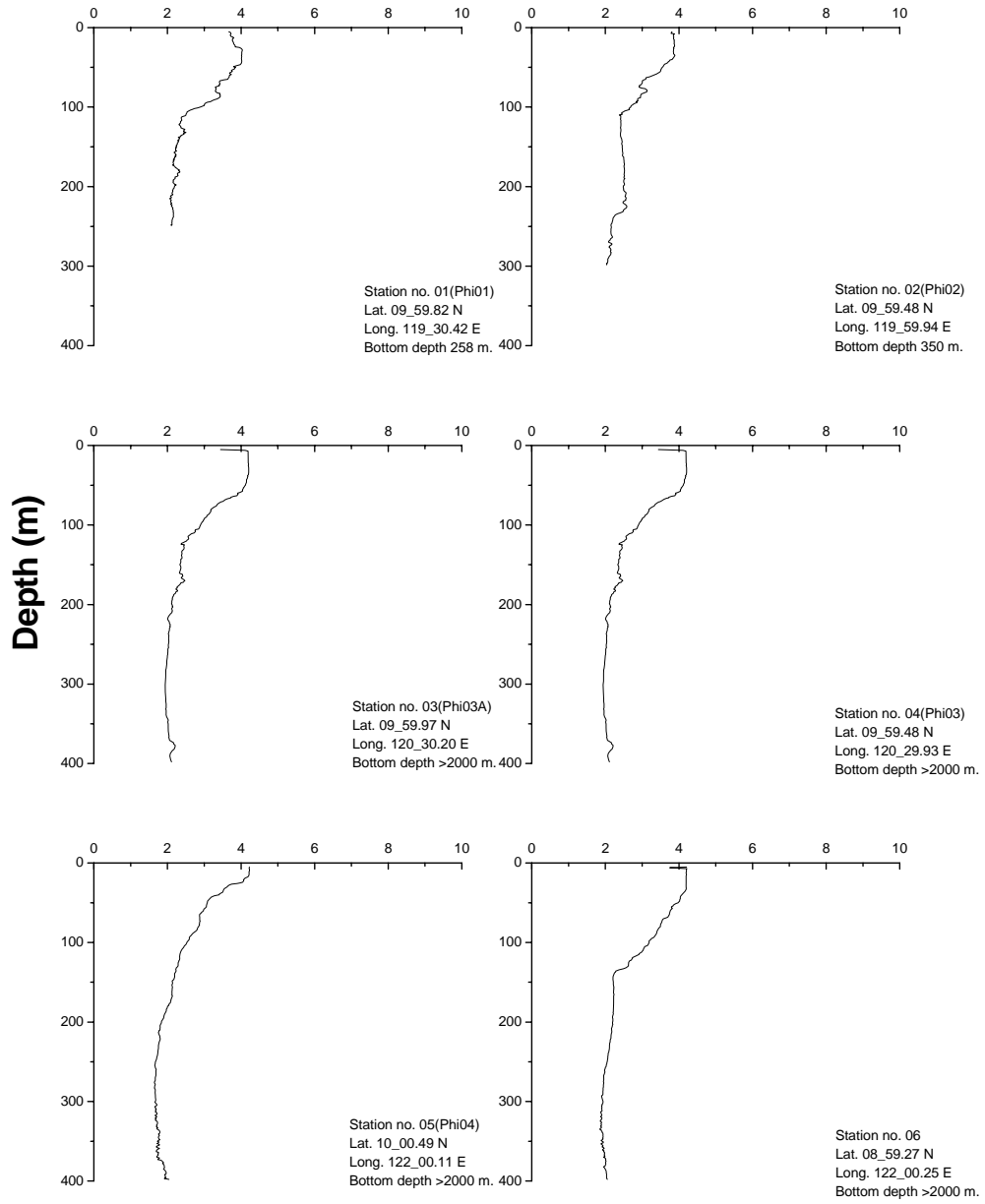
Salinity (PSU)



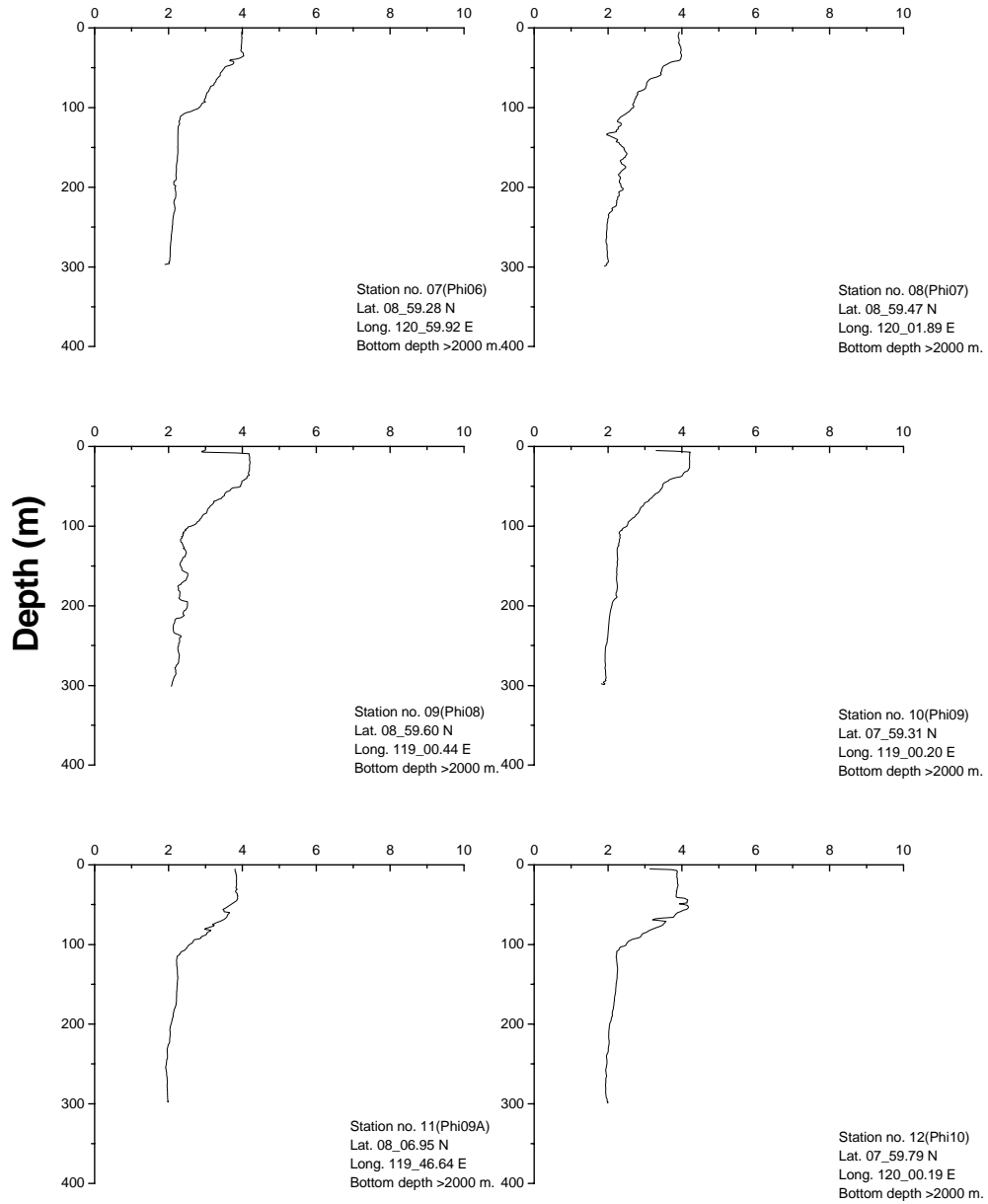
Salinity (PSU)



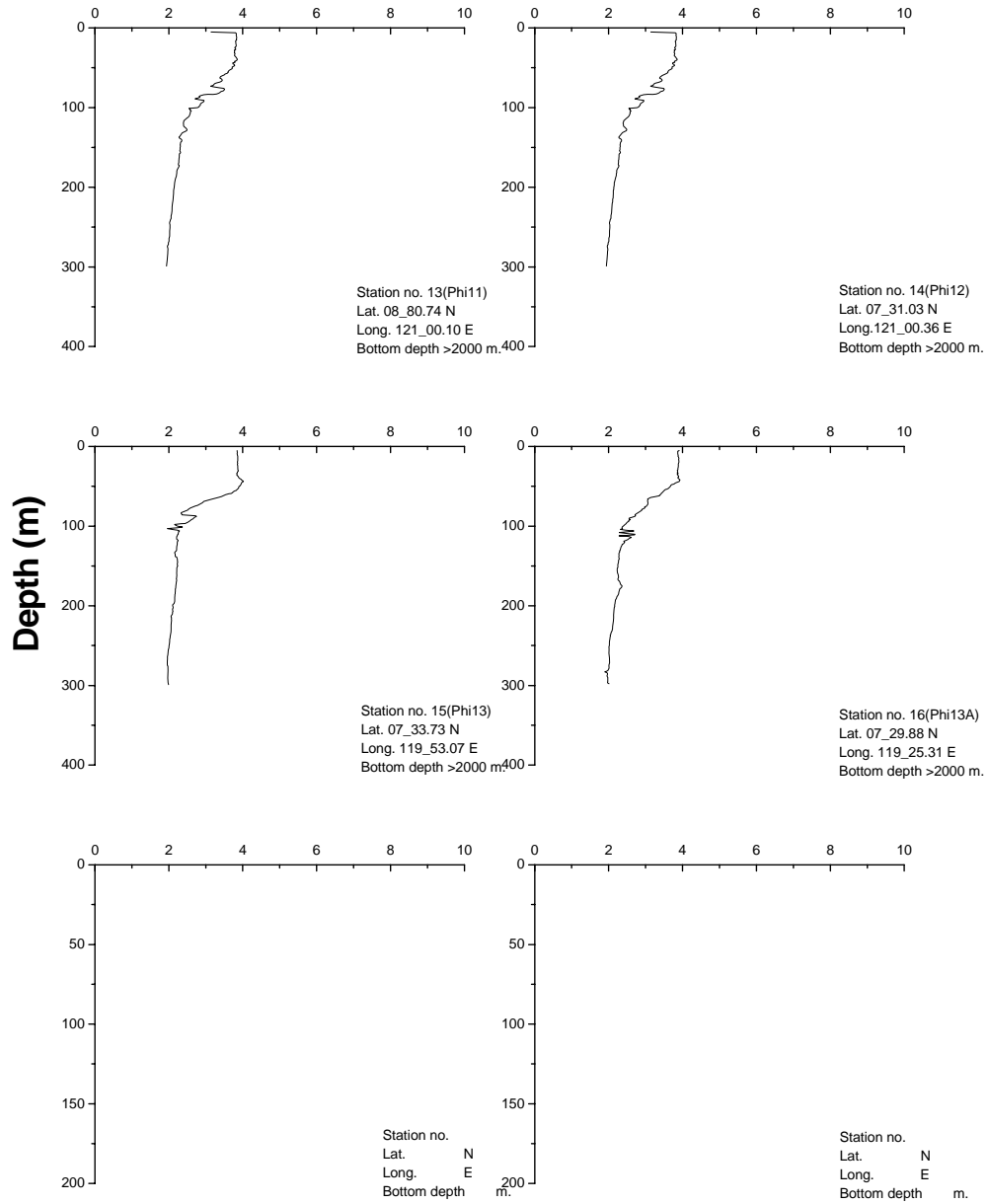
Oxygen (ml/l)



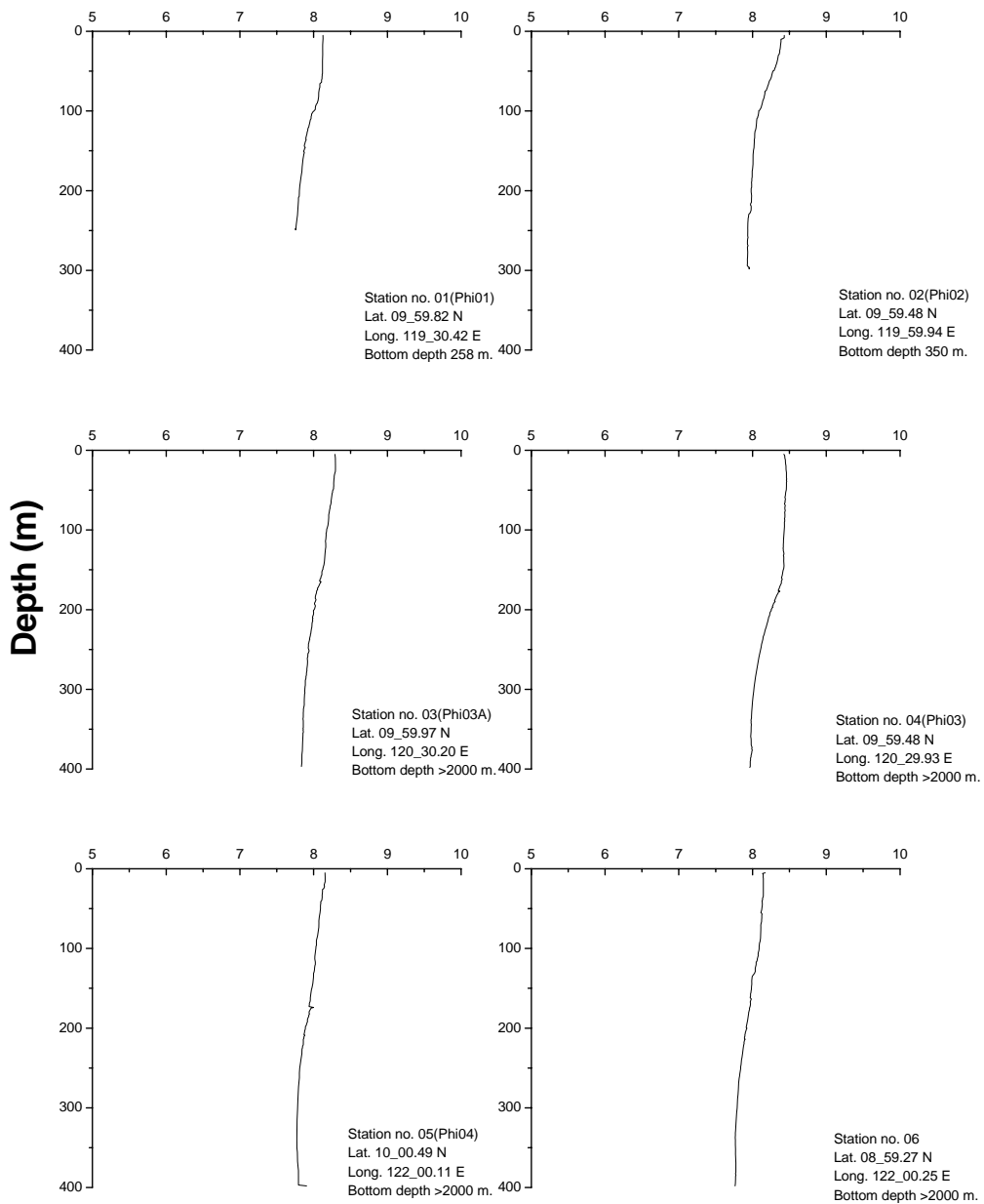
Oxygen (ml/l)



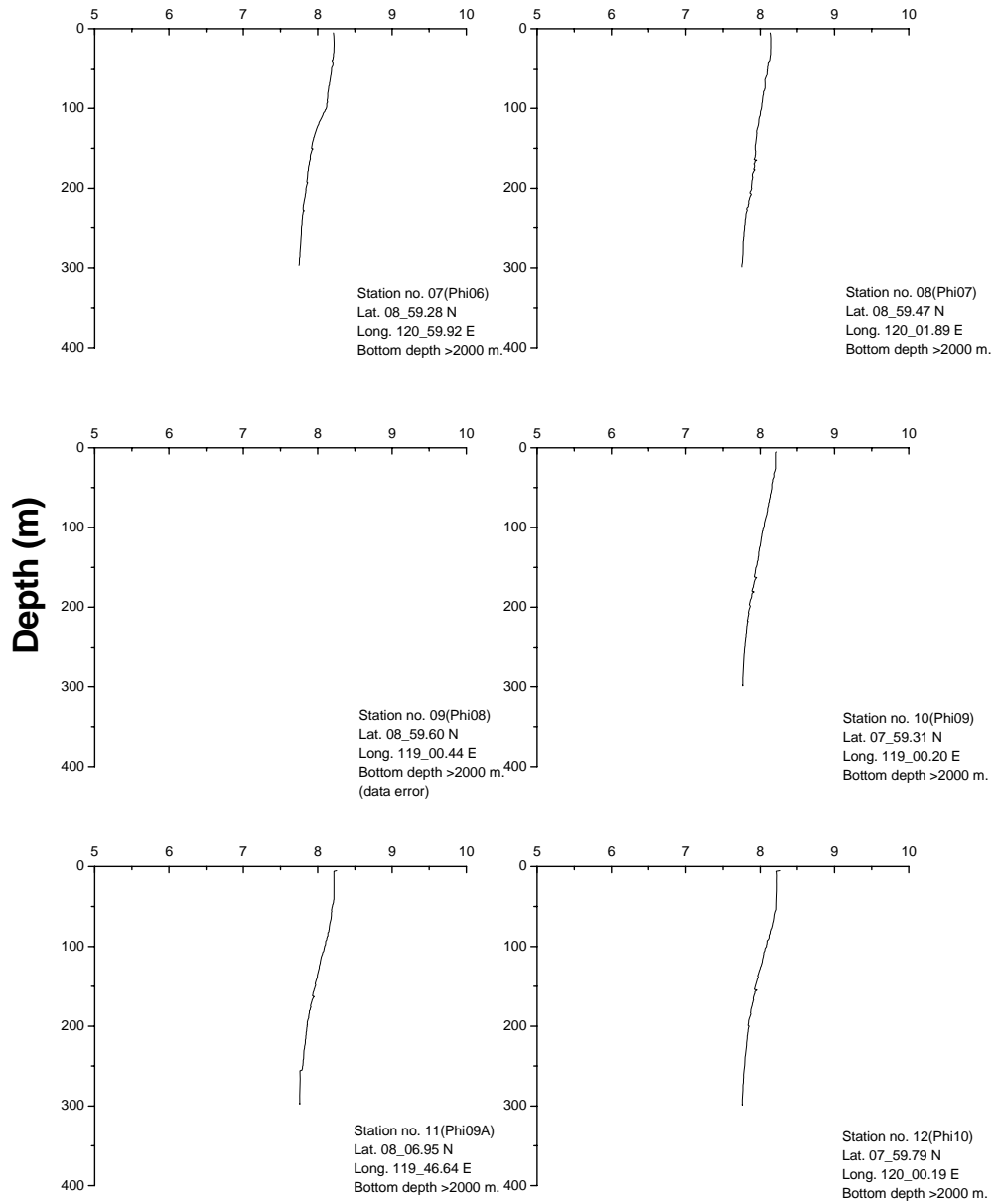
Oxygen (ml/l)



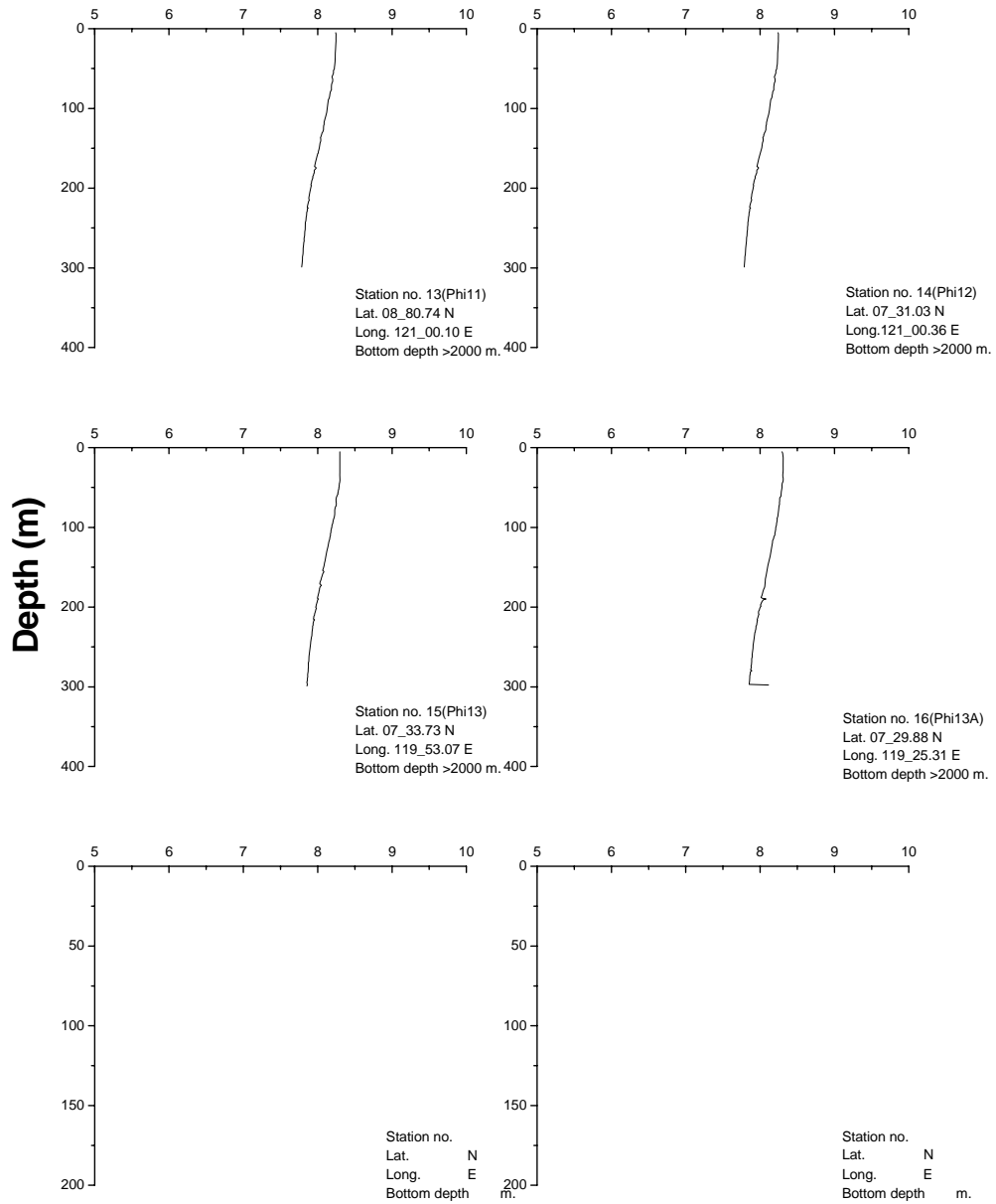
pH



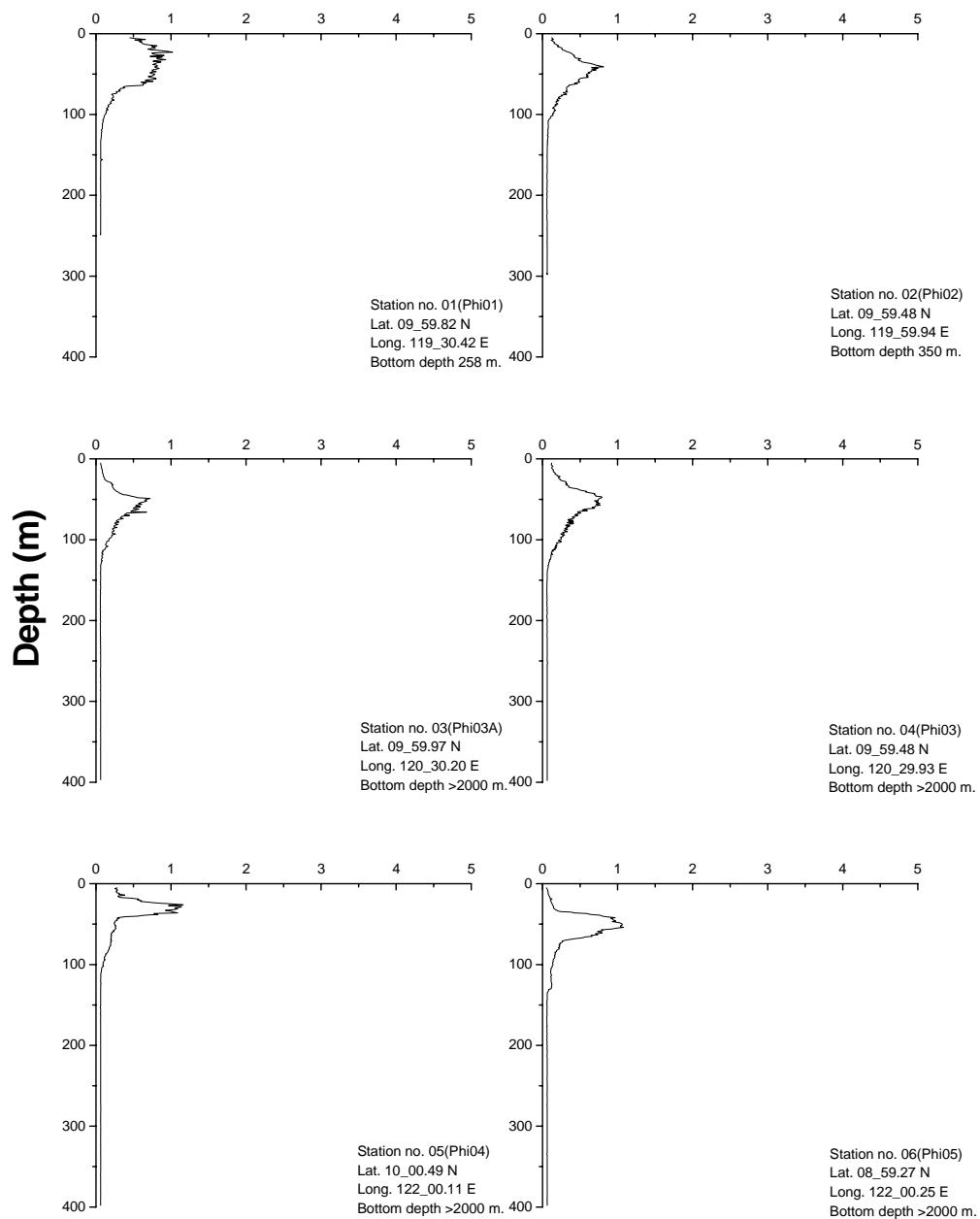
pH



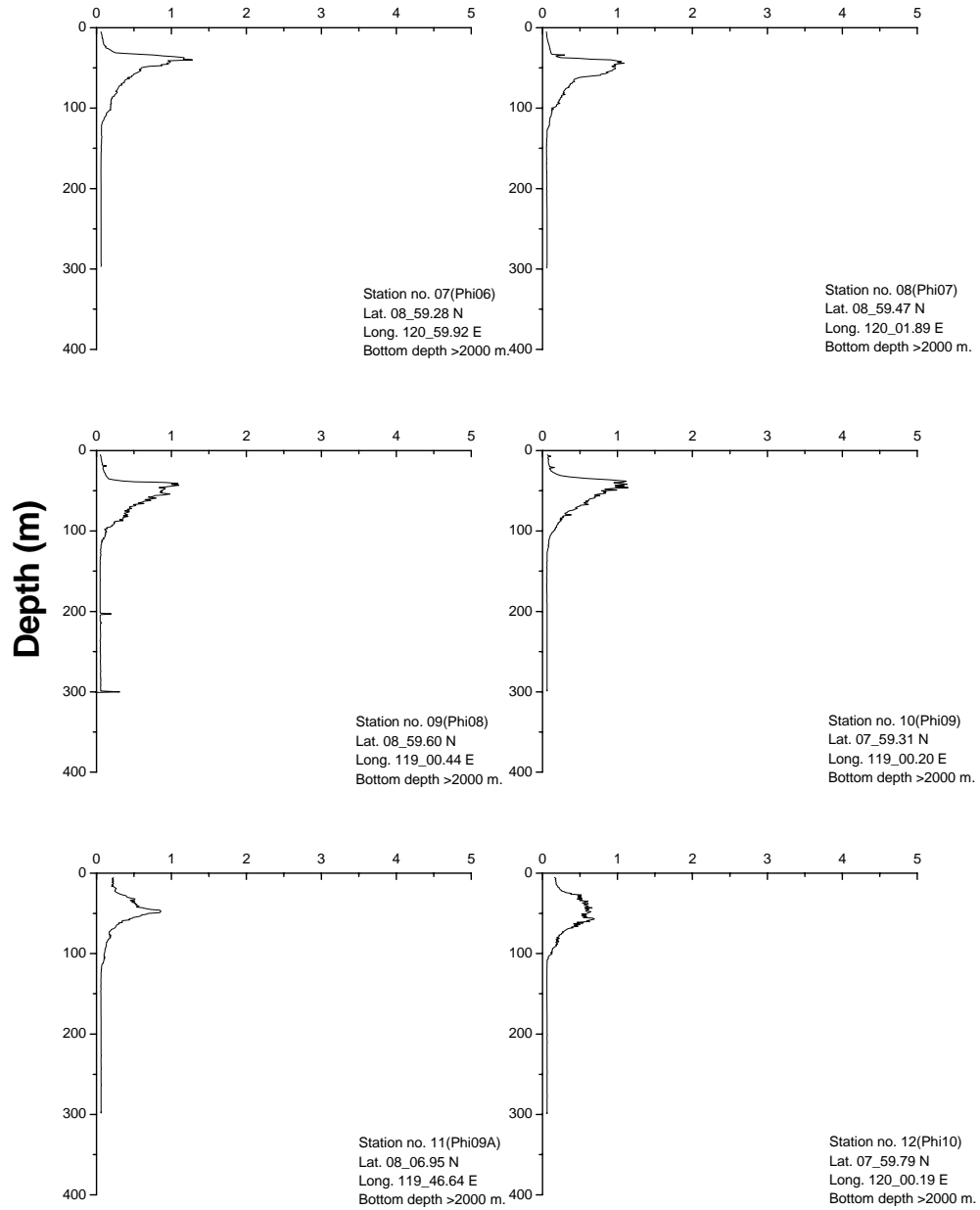
pH



Fluorescence



Fluorescence



Fluorescence

