



## **CRUISE REPORT ON RESEARCH ACTIVITIES**

**M.V.SEAFDEC 2 Cruise No. 10-4/2005**

**25 May– 13 June 2005**

**Fisheries Resources Survey, Sarawak, Malaysia**

**TD/RP/88**

This report is base on preliminary data

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

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## Cruise Report on Research Activities

### 1. Cruise Summary

**Vessel name:** M.V. SEAFDEC 2  
**Cruise no.:** 10-4/2005      **Leg no:** -  
**Project Title:** Malaysia national research survey on Sarawak Coast  
**Duration:** 25 May – 13 June 2005 (20 days)  
**Covered water:** Malaysian waters  
Latitude 03°37'.20 N-05°40'.85 N  
Longitude 110°37'.00 E-112°50'.41 E  
**Port of call:** Miri, Bintulu and Kuching  
**Objective:** National Research Survey of Malaysian waters  
1. Fisheries resource survey by crab trap, bottom vertical longline and trawl net.  
2. Oceanographic survey using Integrated Conductivity Temperature and Depth measuring instrument (iCTD), Thermosalinograph-fluorometer (TSG), Bongo net

### 2. List of personal on board

#### Ship personnel

No.	Position	Name
1	Captain	Mr. Tossaporn Sukhapindha
2	Chief engineer	Mr. Veerachai Chettasumon
3	Second officer	Mr. Suren Pruksarat
4	Apprentice navigator	Mr. Anurak Loog-on
5	Third officer	Mr. Somphote Vudthipanyo
6	Second engineer	Mr. Komson Sangphuek
7	Boatswain	Mr. Vudthirat Vudthipanyo
8	Steerman	Mr. Pradit Kui-prasert
9	Steerman	Mr. Tana Rungjoy
10	Able seaman	Mr. Somkiat Phetrasatien
11	Fitter	Mr. Vallop Phimroom
12	Oiler	Mr. Plew Shodok
13	Oiler	Mr. Boontarin Wara-in
14	Cook	Mr. Saichol Kornnoom
15	Ship's boy	Mr. Phaithoon Sriratanaphon
16	Assist. Master fisherman	Mr. Aussawin Buachuay

#### Researcher from SEAFDEC/TD

No.	Position	Name
16	Chief/Scientist	Mr. Isara Chanrachkij
17	Researcher	Mr. Naroong Ruangsivakul
18	Assist. Researcher	Mr. Sukchai Arnupapboon
19	Assist. Researcher	Mr. Nakaret Yasook

Researcher from SEAFDEC/TD

No.	Position	Name
20	Researcher	Mr. Alfas Man
21	Researcher	Mr. Mohd Faisal bin Saleeh
22	Researcher	Mr. Duad Awang
23	Researcher	Mr. Azait Abd Rahman
24	Researcher	Mr. Ramli Abu Balcar
25	Researcher	Mr. Malek Daud
26	Researcher	Mr. Rajendram
27	Researcher	Mr. Zakarian Munihidi
28	Researcher	Mr. Deanmond Hassan
29	Researcher	Mr. Hady bin Asek
30	Researcher	Mr. Pesry bin Palec
31	Researcher	Mr. Awangku Azman bin Abdul Razak
32	Researcher	Mr. Samsudin Basir
33	Researcher	Mr. Albert Chuan Gam Bang
34	Researcher	Ms. Mazalina Ali
35	Researcher	Ms. Norhanida Daud
36	Researcher	Mr. Noridan bt Abd Han
37	Researcher	Mr. Makmai Abd Rahman Majid
38	Researcher	Mr. Makmal Mohd Nawab Arshad
39	Researcher	Ms. Makmal Annie Kim Pek Khiosk
40	Researcher	Mr. Peter Lim Kul Peh
41	Researcher	Mr. Juramudi Denis bin Salus
42	Researcher	Local Fisherman
43	Researcher	Local Fisherman

### 3. Observation Summary

#### **Oceanographic survey summary**

Thirteen oceanographic stations along Malaysian water were conducted through this cruise. Each station conducted with 2 main activities including physical and biological oceanographic survey. The equipments that were used in each station and data file name were shown in **Table 1**.

#### ***iCTD (SeaBird 911)***

M.V. SEAFDEC 2 iCTD systems compose with main three sensor for conductivity, temperature and depth, and four auxiliary sensor for dissolved oxygen, pH, chlorophyll fluorometer and PAR. The iCTD was lowered from the ship through the water from surface to 10 m. above sea bottom approximately with constant velocity 0.5 m/s and retrieved to sea surface at the same speed.



**Fig. 1** Deploying of iCTD

All iCTD data were average into every 1 meter interval. Data in each station were divided into down cast and up cast.

During retrieved iCTD, Carousel water sample (Niskin Bottles) which is a part of CTD system were used to collect water sample from standard depth. The water sample were filter through Whatman GFC filter paper then store in the freezer at -40 °C for nutrient (nitrite, nitrate, phosphate and silicate) analysis at SEAFDEC/Training Department laboratory, All samples will be analyzed as soon as it is possible. Then data will be sent to Malaysian national coordinator.

**Remark:** Profiles of the physical oceanographic data were plotted from down cast except oxygen data. Due to most of oxygen data from down cast showing a bit of irregular pattern, thus oxygen data for plotting profile were chosen by up cast.

#### ***Thermosalinograph with Fluorometer (TSG-Fluorometer)***

TSG – Fluorometer were operated when MV.SEAFFDEC2 cruising along the cruise track. Its system was designed to continuously record three parameters including temperature, salinity and fluorescence chlorophyll-a from underway vessel at approximately 5 meters below the sea surface. The data were average every 6 second.

#### ***Bongo net equipped with flowmeter***

Plankton net consisted of zoo plankton net and larvae net with mesh size were 330  $\mu\text{m}$  and 500  $\mu\text{m}$ , respectively. They were attached to 60 cm. diameter bongo frames. A flowmeter was attached at the aperture of net to measure the water volume passing throw the net.

Quality of water ( $\text{m}^3$ ) per one flowmeter revolution in front of zooplankton at station number 1-7 was 0.0092  $\text{rpm}^3$  and station number 9-13 was 0.0336  $\text{rpm}^3$ , and Quality of water ( $\text{m}^3$ ) per one flowmeter revolution in front of larvae was 0.0094  $\text{rpm}^3$  in all station.

At each station a 30 minutes oblique tow of the bongo net was made with the ship speed was approximately 1.5 knots. The depth of haul was 10-20 meters above the sea bottom for the station at which the depth less than 155 meters and 150 meters for the station which was too deep, exceed 155 meters. The samples were preserved in 10% buffered formalin-seawater immediately.

Owing to dilapidation of flowmeter attached in front of zooplankton net before changing new flowmeter at station number nine, revolutions of zooplankton net, which

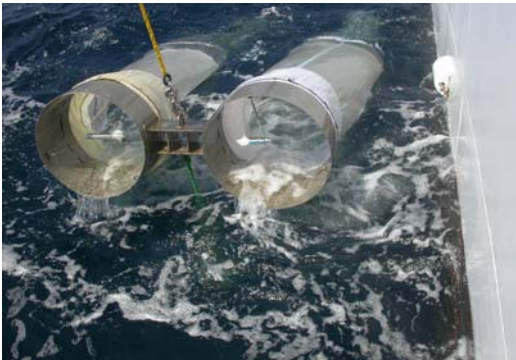
are shown in **table 2**. were calculated by converting from linear transformation base on flowmeter attached in front of larvae net as below formula.

$$Y = (30.1945/29.500)X$$

Y: Revolution of flowmeter attached in front of zooplankton net

X: Revolution of flowmeter attached in front of larvae net

*Remark: This formula was calculated by usage previous calibration value*



**Fig. 2** Bongo net operation

**Table 1.** Partial detail of oceanographic survey station of cruise no.10-4/2005

St.No. (SEAFDEC)	St.No. (Malaysia)	Date	Time (Malaysia)	Lat	Long	Oceanographic instruments		Transparency		Bottom Depth(m)	Remark
						SBE CTD	TSG	Secchi disc (m)	Foral scale		
1	A01	31-May-05	08:15	05_40.27 N	112_19.57 E	s2d10001,s2u10001	20050531(1)	✓	✓	175	
2	A02	31-May-06	16:25	05_31.32 N	112_19.25 E	s2d10002,s2u10002	20050531(2)	✓	✓	144	
3	A03	1-Jun-05	07:22	05_22.92 N	112_30.07 E	s2d10003,s2u10003	20050601(1)	✓	✓	125	
4	A04	1-Jun-05	16:00	05_18.54 N	112_35.88 E	s2d10004,s2u10004	20050601(2)	✓	✓	138	
5	A05	2-Jun-05	07:47	05_10.47 N	112_24.36 E	s2d10005,s2u10005	20050602(1)	✓	✓	118	
6	A06	2-Jun-05	16:16	04_50.75 N	112_24.10 E	s2d10006,s2u10006	20050602(2)	✓	✓	85	
7	A07	3-Jun-05	07:30	04_26.49 N	112_48.80 E	s2d10007,s2u10007	20050603(1)	✓	✓	80	
8	A08	3-Jun-05	16:08	04_08.15 N	112_41.02 E	s2d10008,s2u10008	20050603(2)	✓	✓	61	
9	A09	4-Jun-05	07:33	03_55.27 N	112_37.11 E	s2d10009,s2u10009	20050604(1)	✓	✓	50	Changing flow meter
10	A10	4-Jun-05	15:05	03_37.38 N	112_38.38 E	s2d10010,s2u10010	20050604(1)	✓	✓	40	
11	C11	5-Jun-05	11:12	05_06.38 N	110_37.00 E	s2d10011,s2u10011	200506008(1)	✗	✗	132	
12	C12	5-Jun-05	10:05	05_15.76 N	110_52.08 E	s2d10012,s2u10012	20050609(1)	✓	✓	141	

**Table 2.** Summary bongo net operation

St. No.		Date	Bottom	Towing	Towing	No. at flow meter		No. at flow meter	
SEAFDEC	Philippines		depth (m)	depth (m)	speed (knots)	Fish larvae	rpm <sup>3</sup>	Zooplankton	rpm <sup>3</sup>
01	A01	31-May-05	186	0-150	1.5	50,428	0.0094	51,615	0.0092
02	A02	31-May-05	144	0-140	1.5	54,687	0.0094	55,974	0.0092
03	A03	1-Jun-05	138	0-120	1.5	56,553	0.0094	57,884	0.0092
04	A04	1-Jun-05	138	0-120	1.5	44,147	0.0094	45,186	0.0092
05	A05	2-Jun-05	118	0-100	1.5	54,357	0.0094	55,655	0.0092
06	A06	2-Jun-05	97	0-80	1.5	27,251	0.0094	27,893	0.0092
07	A07	3-Jun-05	80	0-55	1.5	54,049	0.0094	55,321	0.0092
08	A08	3-Jun-05	-	-	-	-	-	-	-
09	A09	4-Jun-05	50	0-42	1.5	16,929	0.0094	4,620	0.0336
10	A10	4-Jun-05	40	0-30	1.5	20,075	0.0094	5,470	0.0336
11	C11	8-Jun-05	132	0-105	1.5	46,995	0.0094	11,830	0.0336
12	C12	9-Jun-05	141	0-105	1.5	38,491	0.0094	9,630	0.0336

### **Fishing survey summary**

In this survey, 3 kinds of fishing gear were used for sampling.

#### ***Bottom Trawl***

This survey was operated bottom trawl total 6 stations. The maximum catch was about 71.43 kg. at operation no. 04 (station no. 12).

#### ***Bottom Vertical Longline***

This survey was operated bottom vertical longline total 10 stations. The maximum catch was about 52.55 kg. at operation no. 08 (station no. 08). The summary of bottom vertical longline operation is shown in **Table 3**.

**Table 3.** Summary information of Bottom Vertical Long line operation

St. No.	Date	Shooting			Immersion time hrs:min	No.of hook	Total catch (kg)
		Time	Latitude	Longitude			
1	5/31/2005	0629	05°40'.40 N	112°21'.47 E	2:16	819	18.00
2	5/31/2005	1449	05°30'.70 N	112°18'.70 E	3:12	840	0.15
3	6/1/2005	0607	05°23'.76 N	112°30'.05 E	3:10	840	33.80
4	6/1/2005	1513	05°19'.50 N	112°34'.00 E	2:12	840	4.50
5	6/2/2005	0608	05°09'.24 N	112°25'.72 E	3:09	840	2.14
6	6/2/2005	1519	04°52'.30 N	112°23'.50 E	2:05	840	15.27
7	6/3/2005	0616	04°26'.37 N	112°50'.41 E	3:10	693	6.40
8	6/3/2005	1445	04°08'.70 N	112°42'.30 E	2:50	840	52.55
9	6/4/2005	0600	03°57'.41 N	112°37'.13 E	3:08	840	13.82
10	6/4/2005	1449	03°37'.90 N	112°37'.80 E	3:10	840	20.45

#### ***Trap***

This survey was operated crab trap total 10 stations. The maximum catch was about 15 kg. at operation no. 02 (station no. 02). The summary of crab trap operation is shown in **Table 4**.



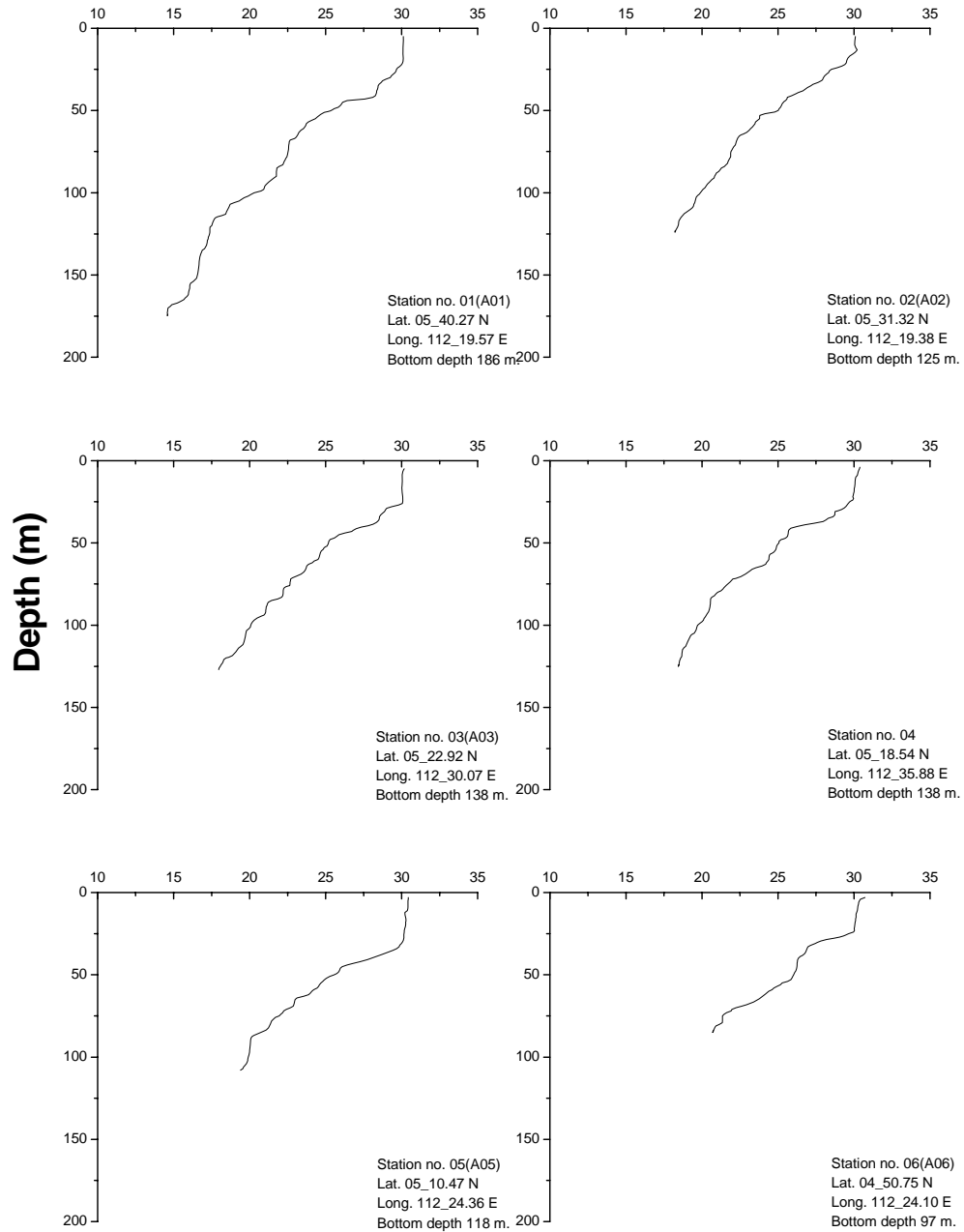
**Table 4.** Summary information of crab trap operation

St. No.	Date	Shooting			Immersion time hrs:min	No. of Trap	Total catch (kg)
		Time	Latitude	Longitude			
1	5/31/2005	0535	05°40'.85 N	112°19'.75 E	5:49	100	6.40
2	5/31/2005	1530	05°29'.30 N	112°19'.20 E	3:22	96	15.00
3	6/1/2005	0528	05°22'.33 N	112°30'.60 E	4:50	99	3.80
4	6/1/2005	1442	05°20'.40 N	112°32'.60 E	4:12	95	2.03
5	6/2/2005	0533	05°08'.25 N	112°27'.08 E	4:36	92	4.15
6	6/2/2005	1446	04°53'.70 N	112°22'.90 E	4:08	99	4.39
7	6/3/2005	0538	04°26'.64 N	112°50'.40 E	4:27	101	2.61
8	6/3/2005	1445	04°09'.20 N	112°43'.60 E	2:50	101	4.10
9	6/4/2005	0525	03°55'.94 N	112°37'.15 E	5:07	100	2.75
10	6/4/2005	1517	03°37'.20 N	112°39'.00 E	4:38	98	2.76

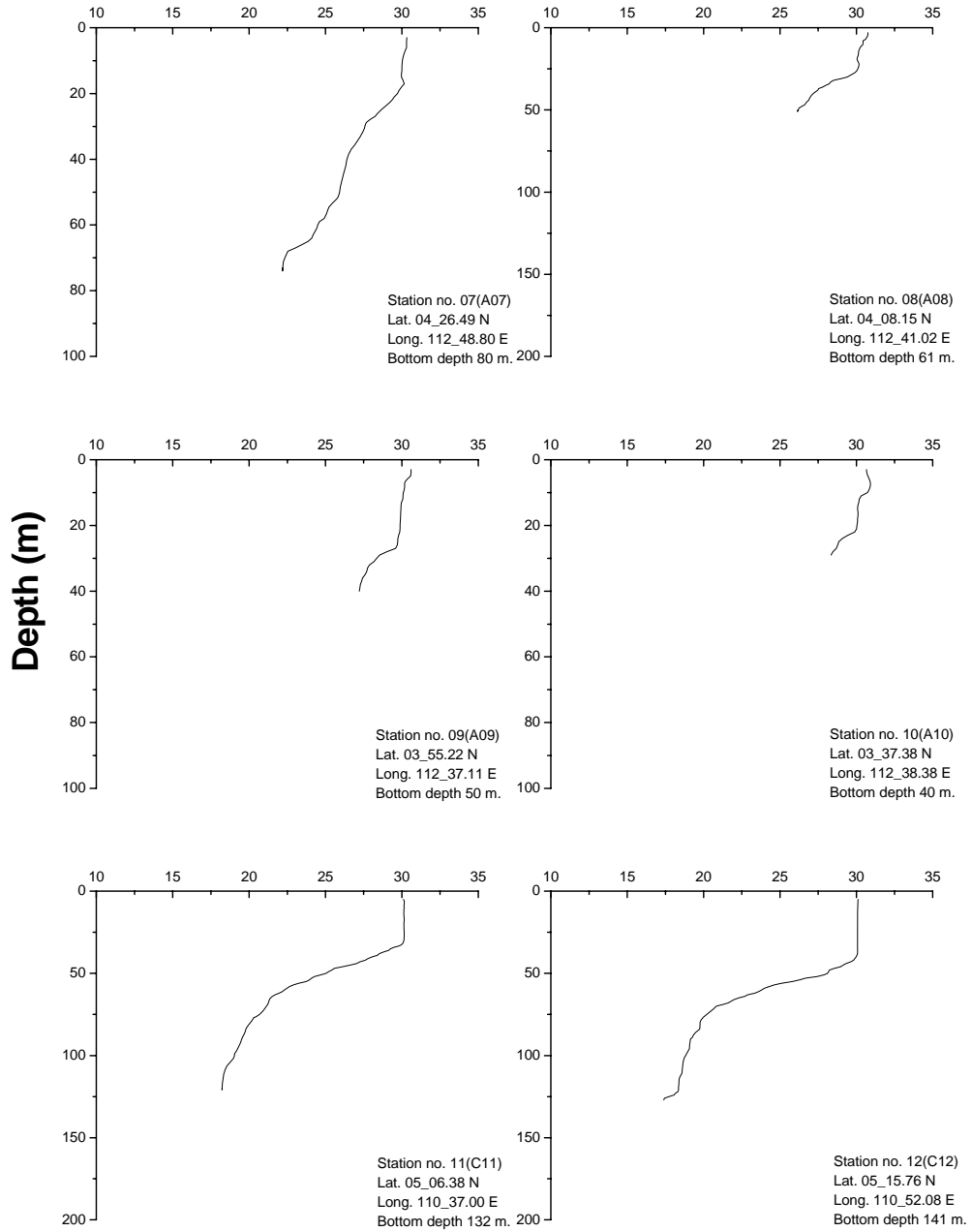
The detail of fishing operation had shown in fishing logsheet.

## **Appendix I**

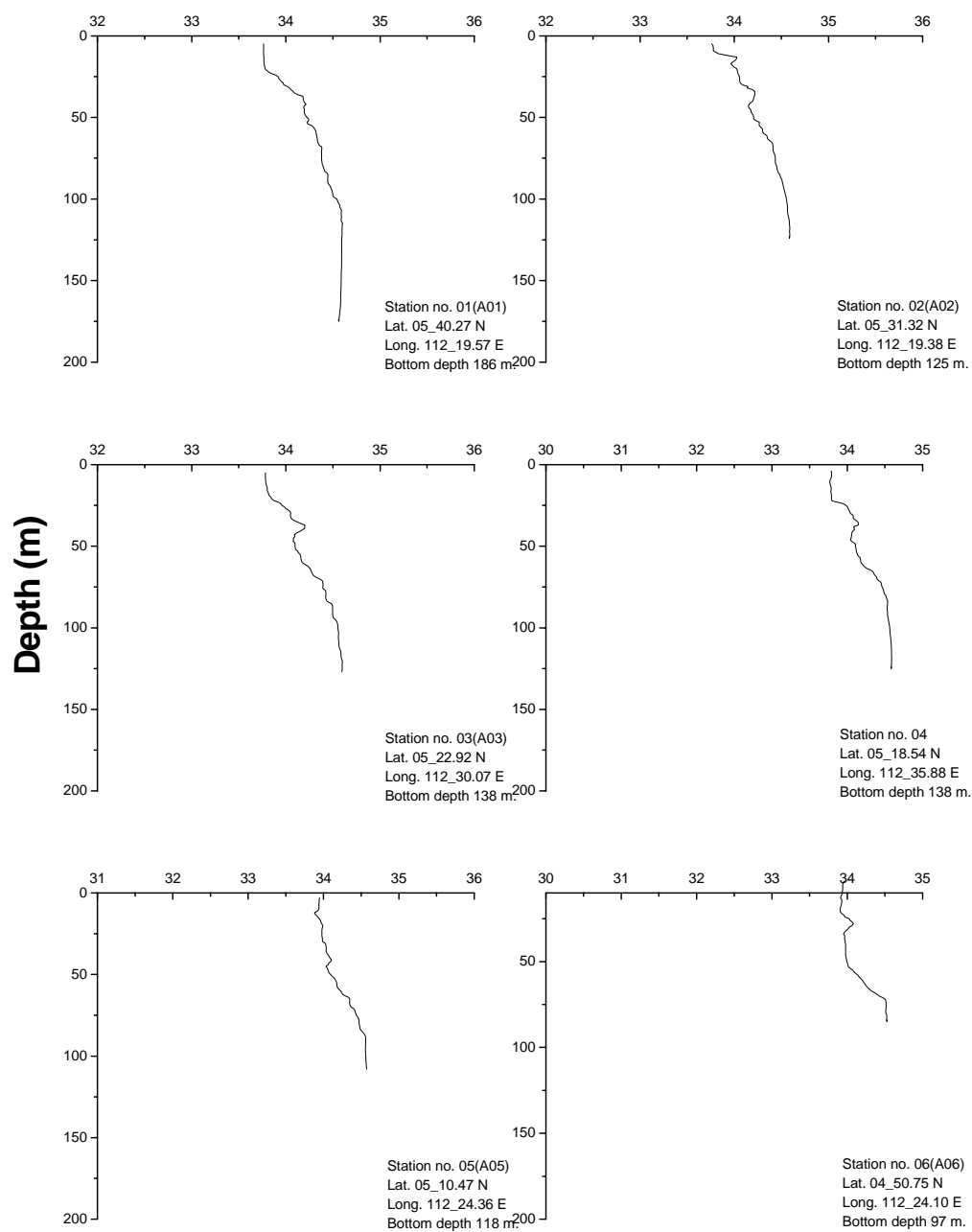
# Temperature (°C)



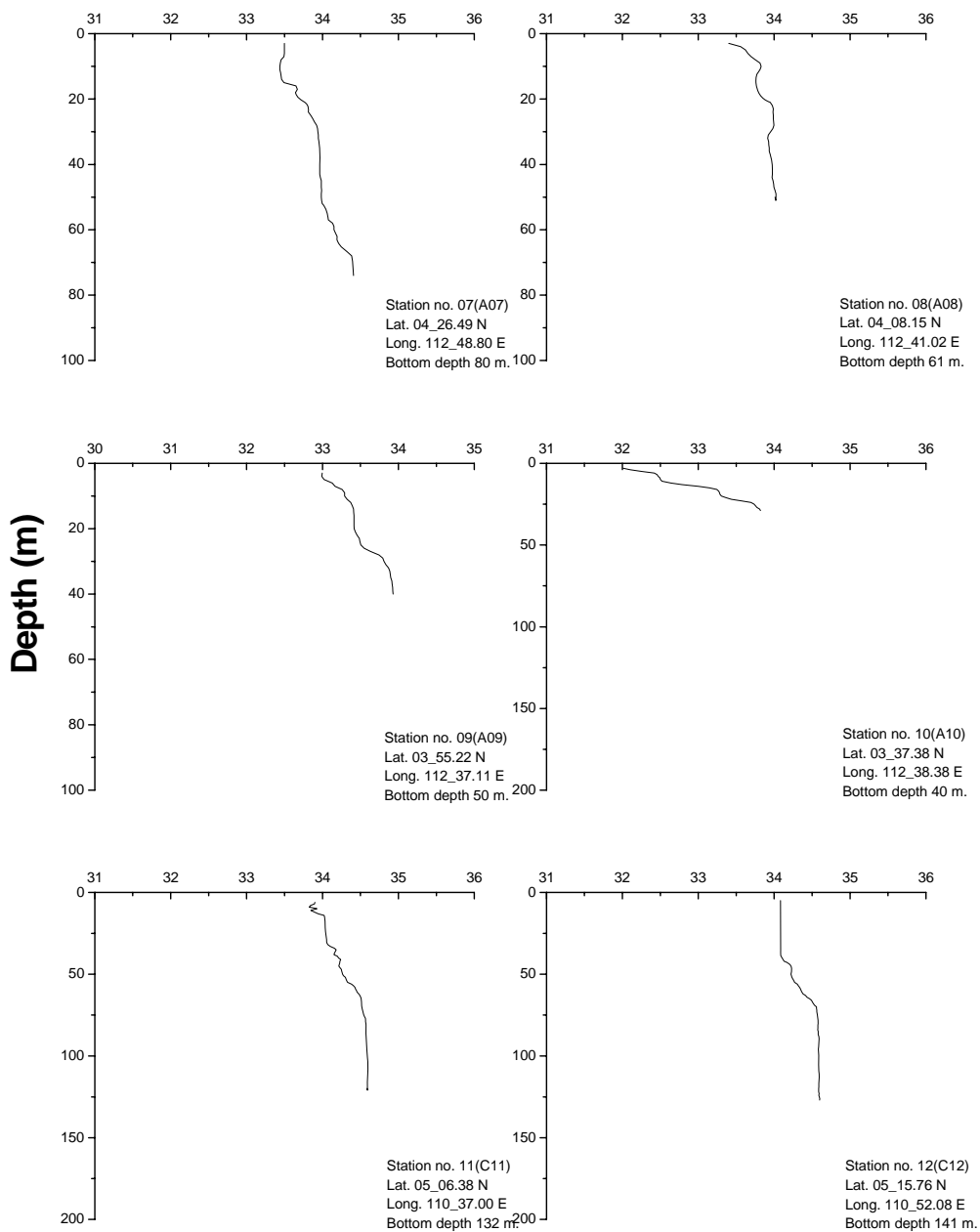
# Temperature (°C)



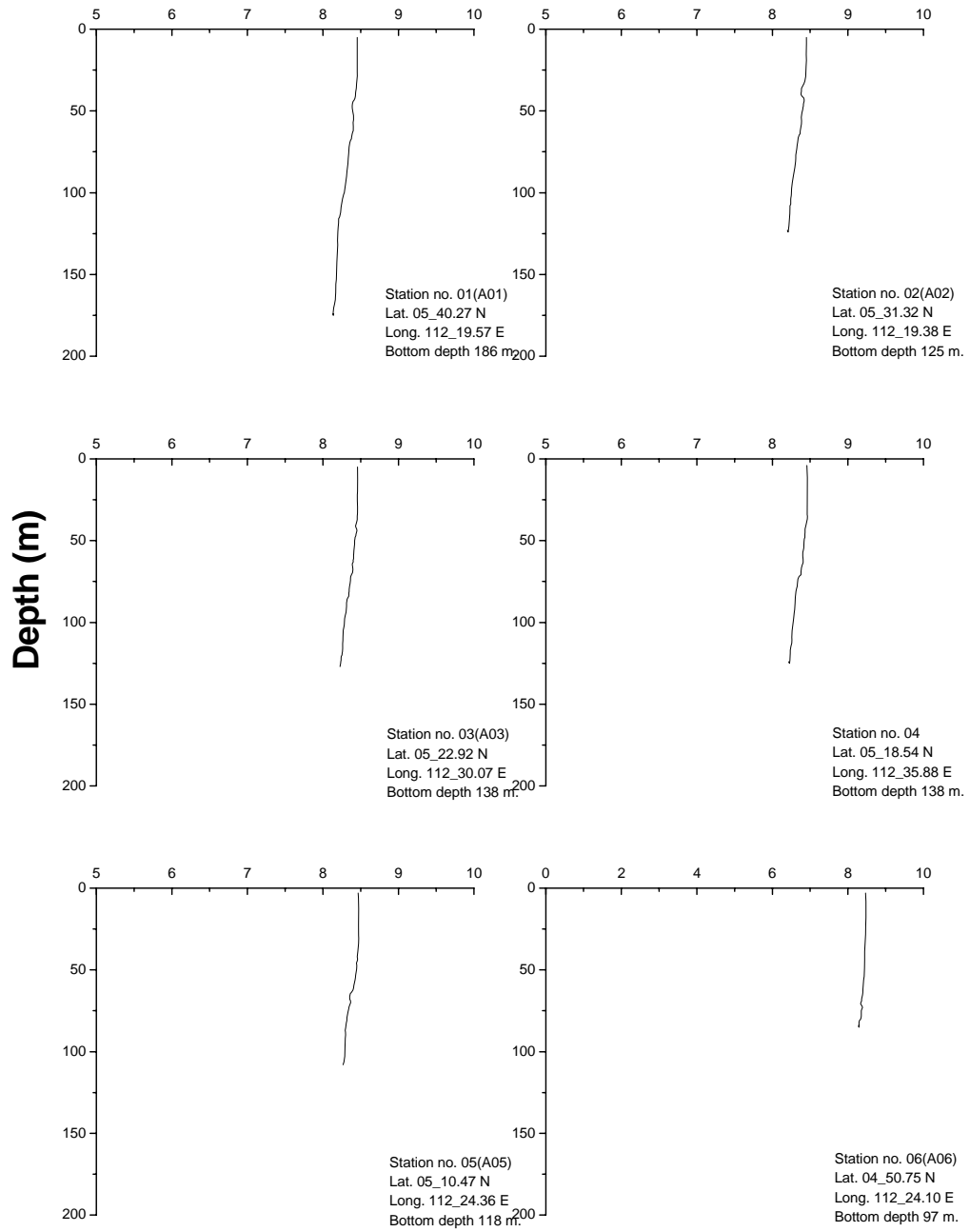
## Salinity (PSU)



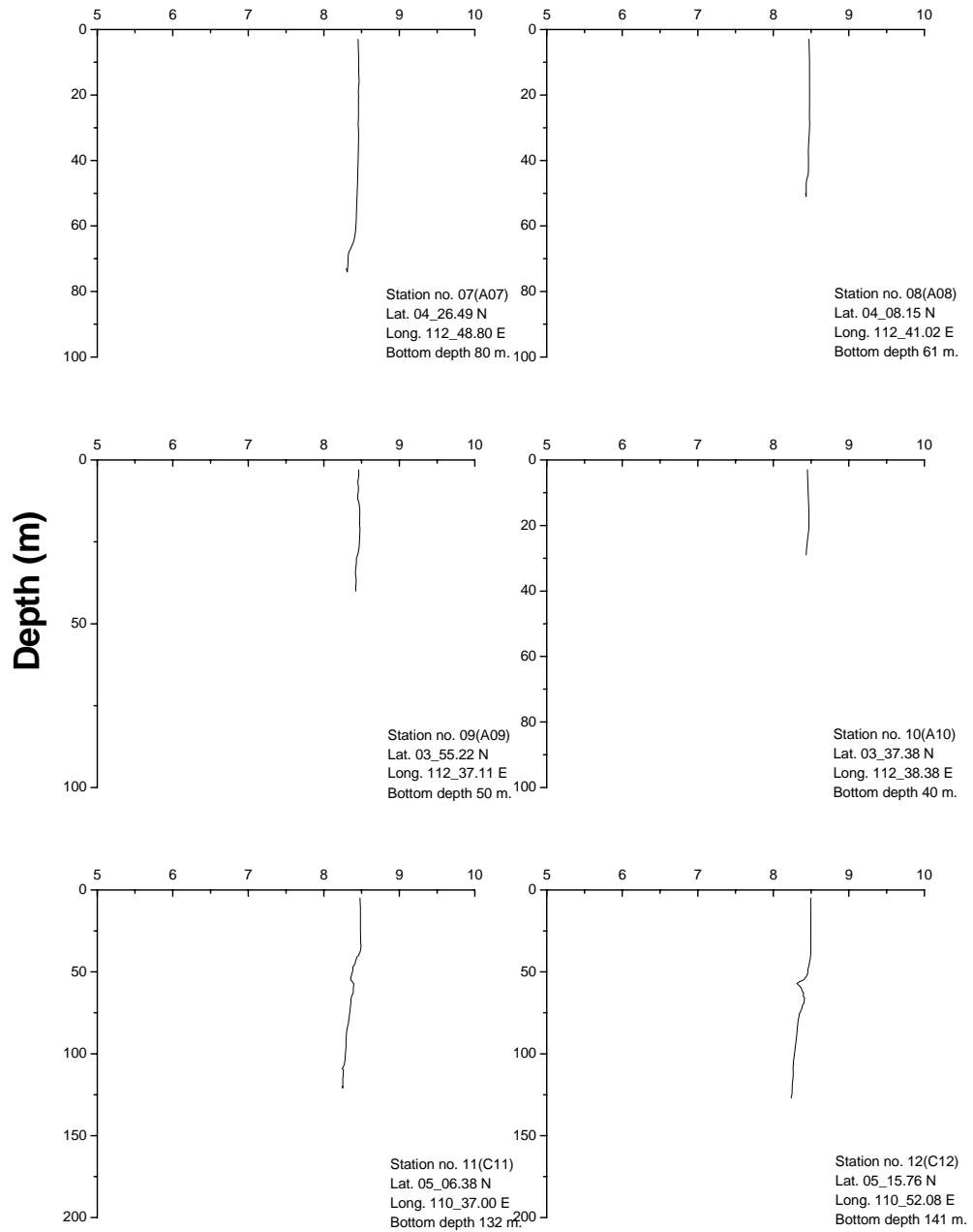
## Salinity (PSU)



# pH

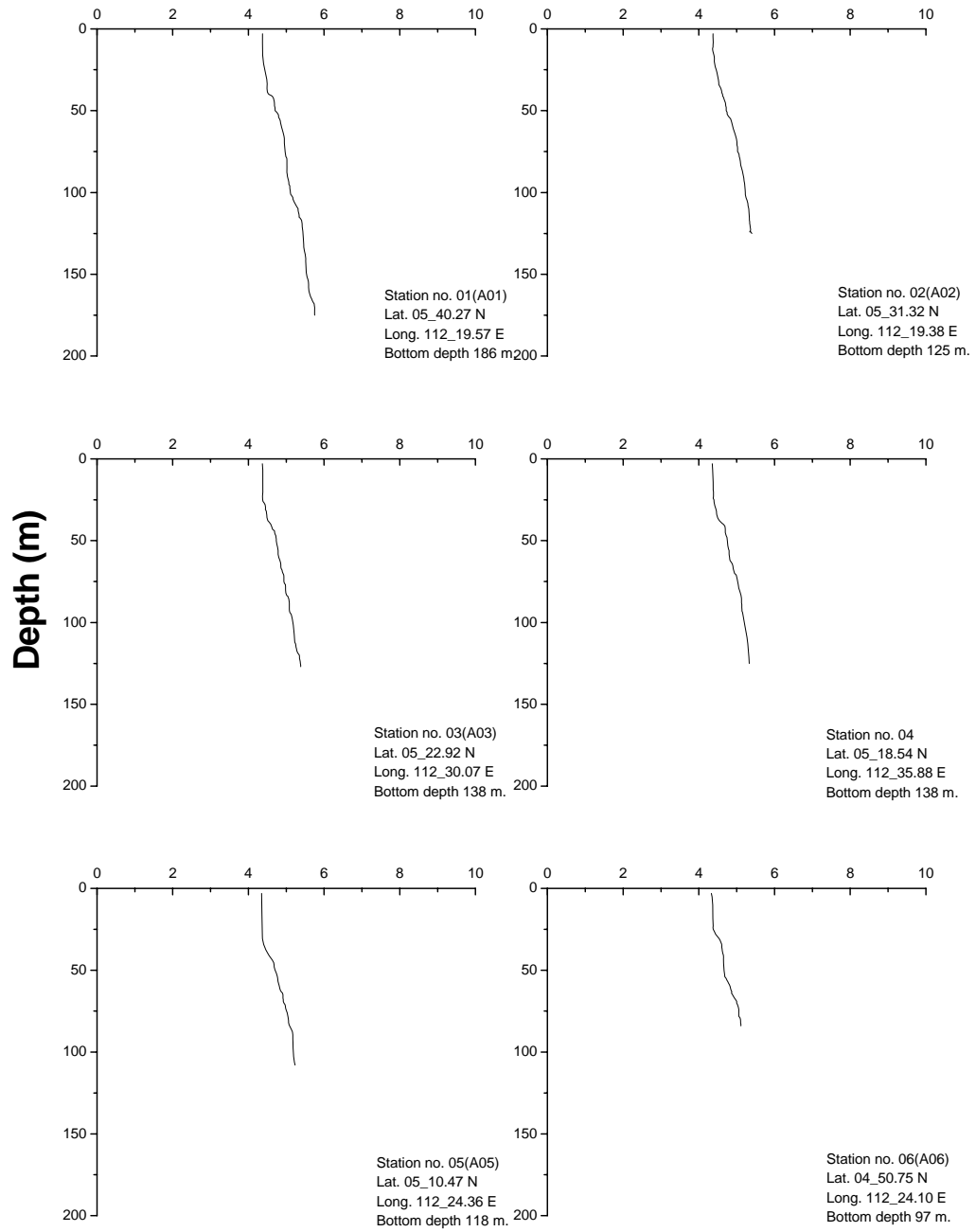


# pH

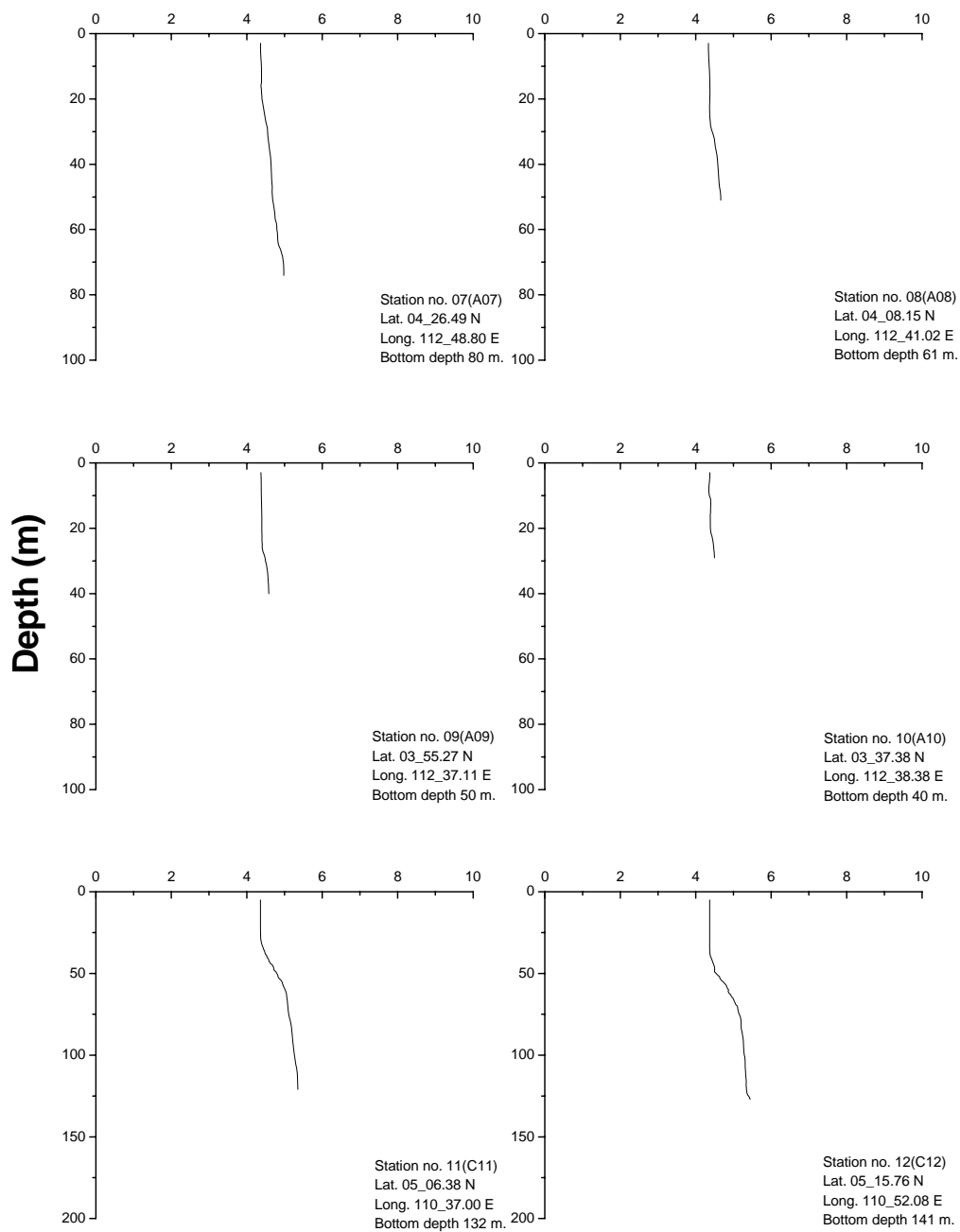




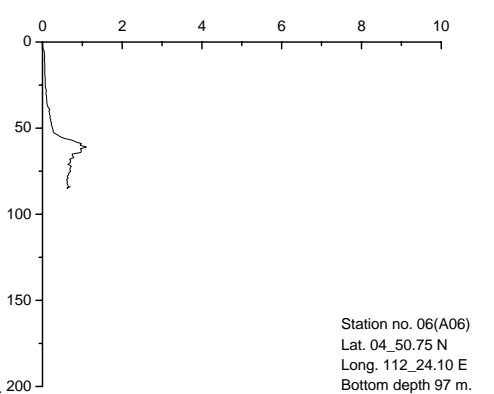
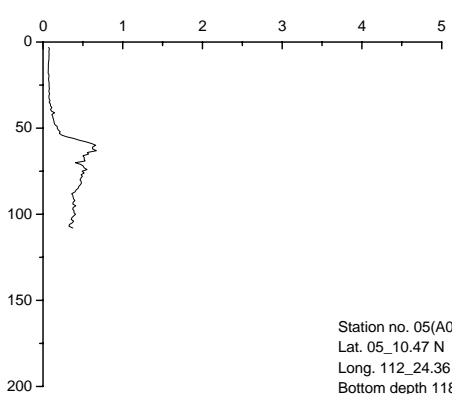
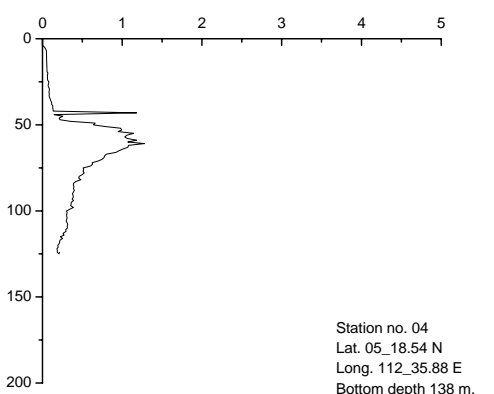
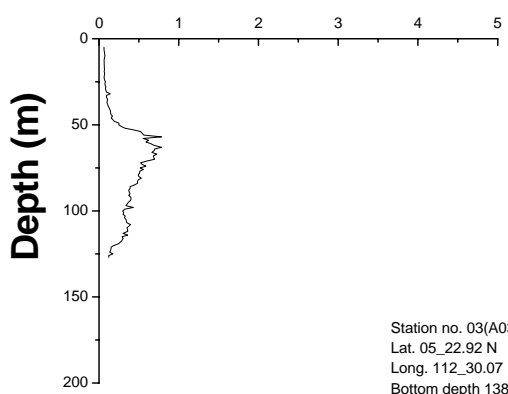
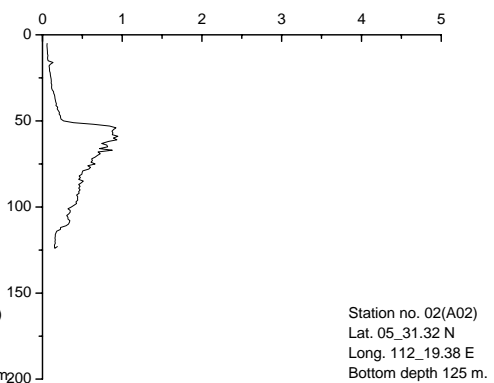
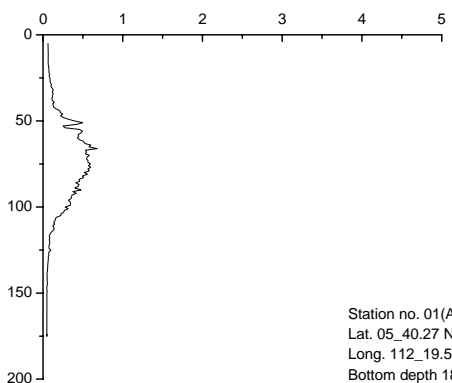
# Oxygen (ml/l)



## Oxygen (ml/l)



# Fluorescence



# Fluorescence

