



CRUISE REPORT ON RESEARCH ACTIVITY

M.V. SEAFDEC 2 Cruise No. 4-4/2004

17 – 29 August 2004

**Verify Research Methodology of M.V. SEAFDEC 2 in
water of Thailand (Gulf of Thailand)**

TD/RP/82

This report is based on preliminary data

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

Southeast Asian Fisheries Development Center

Training Department

PO. BOX 97 Phrasamutchedi

Samut Prakan, 10290

THAILAND

Tel: 662-4256100

Fax: 662-4256110

E-mail: td@seafdec.org



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Cruise report on Research Activity

1. Cruise Summary

Vessel name: M.V. SEAFDEC 2
Cruise no.: 4-4/2004 **Leg no:** -
Duration: 17-29 August 2004 (13 days)
Project Title:
Objective: Verify research methodology in water of relevant countries (Thailand) and National survey for Thailand
Covered water: The Gulf of Thailand
Latitude 07°00'.00 N-12°00'.00 N
Longitude 100°30'.00 E-102°30'.00 E
Port of call: Samui Island, Thailand
Main activity: 1. Oceanographic survey by ICTD, Larvae bongo net by Oblique plane, Fluorometer.
2. Acoustic survey
3. Fish sampling by bottom trawl.

2. List of researcher and ship staff

Ship personnel

No.	Position	Name
1	Captain	Mr. Tossaporn Sukhapindha
2	Chief engineer	Mr. Veerachai Chettasumon
3	Second officer	Mr. Suren Pruksarat
4	Third officer	Mr. Somphote Vudthipanyo
5	Second engineer	Mr. Komson Sangphuek
6	Third engineer	Mr. Sakya Pradit
7	Boatswain	Mr. Vudthirat Vudthipanyo
8	Steerman	Mr. Pradit Kui-prasert
9	Steerman	Mr. Tana Rungjoy
10	Able seaman	Mr. Phairoj Sudkangwan
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	Able seaman	Mr. Boonsom Prangtip

SEAFDEC Researchers

No.	Position	Name
17	Chief/Scientist	Mr. Isara Chanrachkij
18	Researcher	Dr. Taweekiet Amornpiyakrit
19	Special Trainee	Mr. Sayan Promjinda
20	Special Trainee	Ms. Kamolwan Pokaeo
21	Assist. Researcher	Mr. Aussawin Buachuay
22	Assist. Researcher	Ms. Sukanya Obromwan
23	Audio Visual Officer	Mr. Mokrara Phanchuen

DOF/Thailand Researchers

No.	Position	Name
24	Researcher	Mr. Wuttichai Uttayamakul
25	Researcher	Mr. Narupon Darumas
26	Researcher	Mr. Somjet Sornkrut
27	Researcher	L.t. Chairat Nuangsang
28	Researcher	L.t. Phithak Chaidee
29	Researcher	Mr. Phisare Chuthachan
30	Researcher	Mr. Souwanich Chamnan
31	Researcher	Mr. Ackanat Wongkeaw
32	Researcher	Mr. Amnat Dowroung
33	Researcher	Mr. Montri Sumontha
34	Researcher	Mr. Durongrit Keawkaew

3. Observation Summary

Oceanographic survey summary

The oceanographic instruments were carried out during this cruise consists of five kinds of oceanographic instruments such as Integrated Conductivity Temperature Depth (ICTD), Thermo-Salinograph and Fluorometer (TSG), PRR (Profiling Reflectance Radiometer System) and Temperature and Depth Recorder (TD). Additionally, also the bongo net, it is equipment from DOF, Thailand for fish larvae collection. The detail of oceanographic activities is shown in Table 1. The shortly activities summary of each oceanographic survey station as follows:

Integrated Conductivity Temperature Depth (ICTD)

All of oceanographic stations, The oceanographic data collection was collected by CTD SBE 9 plus which measured several parameters such as; temperature, conductivity, salinity, dissolve oxygen, pH and also using PAR for light measurement. Additionally, the water samples were collected as follow sea depth in order to nutrient analyze by auto-analyze equipment in the Chemical laboratory at the Training Department.

For the data profile each parameters is shown in the **Appendix I**.



Fig. 1 Deploying of iCTD

PRR-2600 (Profiling Reflectance Radiometer System)

Seven oceanographic stations, consists of station no.50, 78, 142, 222, 271, 325 and 424. This equipment were operated only sunlight time (1000-1600 hrs.) for light measurement which it consists of two light sensors. Once the underwater unit which it was dip at the water surface until 30 meters of sea depth. The surface light sensor was installed on the sterndeck and avoided any shadow to fall across the surface light sensor including the deckbok for battery power, it was connected to computer for loading the raw data. However, only station no.50 the underwater unit was forgot to expose a cover.

Temperature and Depth Recorder (TD)

Temperature and Depth Recorder (TD) was conducted for 3 times at station no.76, 108 and 142 for the bongo net operation which it was attached with bongo net to collect continuously temperature and depth data.

For the data profile is shown in the **Appendix II**.

Bongo net

For this cruise, the bongo net was carried out from DOF, Thailand to collected fish larvae of all stations, it was operated at 30 meters of sea depth with 10 minutes, speed vessel 2 knot.

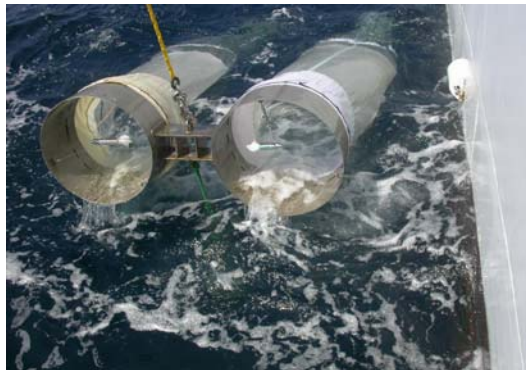


Fig. 2 Bongo net operation

Thermo-Salinograph and Fluorometer (TSG)

Thermo-Salinograph & Fluorometer (TSG), it was operated for 24 hrs while the vessel was sailing and far away the shore. However, TSG could not be completely operation in this cruise. Because it had some problem about TSG system.

Table 1. Partial details of Oceanographic activities cruise no. 4-4/2004 (17-29 August 2004) in the Gulf of Thailand

St.	Date	Time (Thai)	Latitude	Longitude	Oceanographic instruments					Bottom Depth(m)	File name	Remark
					SBE CTD	TSG	TD	PRR 2600	Bongo			
52	18/8/2004	0413	11_37.41 N	101_07.87 E	✓				✓	57	s2d04001 gt	Bongo wire was broken
50	19/8/2004	1221	11_37.70 N	100_38.10 E	✓			✓	✓	46	s2d04050 gt	Forgot to expose the underwater unit
76	20/8/2004	0510	11_07.52 N	100_37.80 E	✓		✓		✓	55	s2d04076 gt	
78	20/8/2004	1145	11_07.62 N	101_07.94 E	✓			✓	✓	60	s2d04078 gt	
108	20/8/2004	1940	10_38.78 N	101_07.89 E	✓		✓		✓	69	s2d04108 gt	
106	21/8/2004	0509	10_37.54 N	100_37.54 E	✓				✓	60	s2d04106 gt	
142	21/8/2004	1204	10_07.50 N	100_52.58 E	✓		✓	✓	✓	63	s2d04142 gt	
183	24/8/2004	0538	09_37.74 N	100_52.64 E	✓				✓	59	s2d04183 gt	
222	24/8/2004	1222	09_07.54 N	100_37.50 E	✓			✓	✓	37	s2d04222 gt	
224	24/8/2004	1730	09_07.46 N	101_05.69 E	✓				✓	69	s2d04224 gt	
269	25/8/2004	0532	08_37.56 N	100_37.44 E	✓				✓	30	s2d04269 gt	
271	25/8/2004	1101	08_37.53 N	101_06.99 E	✓			✓	✓	53	s2u04271 gt	
323	25/8/2004	1652	08_07.51 N	101_22.27 E	✓				✓	52	s2d04323 gt	
273	26/8/2004	0525	08_37.59 N	101_47.04 E	✓				✓	75	s2d04273 gt	
325	26/8/2004	1104	08_07.31 N	101_52.62 E	✓			✓	✓	73	s2d04325 gt	
376	26/8/2004	1657	07_37.53 N	102_07.53 E	✓				✓	69	s2d04376 gt	
374	27/8/2004	0532	07_37.40 N	101_37.61 E	✓				✓	49	s2d04374 gt	
424	27/8/2004	1118	07_07.48 N	101_52.61 E	✓			✓	✓	49	s2d04424 gt	
426	27/8/2004	1836	07_08.74 N	102_19.06 E	✓				✓	50	s2d04426 gt	

Hydro-Acoustic survey summary

The Scientific Echo Sounder FQ-80 Operations

This marine resource survey has been carried out in collaboration with the DOF (Department of Fisheries) of Thailand in order to obtain the preliminary data on the Bio-mass assessment in the Gulf of Thailand.

The survey was conducted by using the Scientific Echo Sounder model FQ-80 equipped onboard M.V. SEAFDEC 2. All together 18 tracks (19 stations) were surveyed and the data were recorded and preliminary analyzed onboard. The echo view, area of the operations and the SV values along the survey track are shown respectively on each page of the report. The operations records are shown in the Table 2. The preliminary analysis results have been submitted to the DOF of Thailand in the Microsoft Word and Excel formats.

Problem and suggestion

1) Date and time shown in the SV values results do not correspond the actual recorded time, should be fixed.

2) In a presentation, a combined result in the adjacent areas maybe required to be shown simultaneously.

Table 2. Scientific Echo Sounder FQ-80 operation records onboard M.V. SEAFDEC 2 cruise no. 4-4/2004 (17-29 August 2004)

Scientific Echo Sounder FQ-80 Operation Records									
Cruise Order M.V.SEAFFDEC-2 No.4-4/2004, Gulf of Thailand, August 17-29, 2004, Recorded by Taweekiet Amornpiyakrit									
No.	Date	Time duration	Station No.x to	Depth setting	ID No.	Survey speed	Sea condition	Heading (Degree)	Errors notes & Remarks
1	18-Aug-04	1954-2408	52 to 50	5 to 70	2349	7.0	Slight	Proceeded back to Shore (Prachuab kiri khan)	A lots of interference (Against the waves, back to shore)
2	19-Aug-04	1526-1913	50 to 76	5 to 60	2350	8.0	Slight then developed to be big waves	South (180°)	Interference, Failed to create an area map, probably the GPS (GP-37) has not been selected
3	20-Aug-04	0746-1126	76 to 78	5 to 70	2351	8.0	Calm	East (090°)	
4	20-Aug-04	1432-1812	78 to 108	5 to 70	2352	8.0	Slight	South (180°)	Interference, Failed to create an area map, probably the GPS (GP-37) has not been selected
5	20-Aug-04	2020-0119	108 to 106	5 to 70	2353	6.0	Slight	West (270°)	Interference
6	21-Aug-04	0749-1202	106 to 142	5 to 70	2354	8.0	Slight	Southwest (154°)	
	21-Aug-04		142 to 183	5 to 70				South (180°)	Cancelled due to rough sea condition and proceeded to Samui Island
7	23-Aug-04	1943-2326	181 to 183	5 to 70	2355	8.0	Calm	East (090°)	
8	24-Aug-04	0815-1220	183 to 222	5 to 60	2356	8.0	Calm	Southwest (206°)	First half maybe interfered with the other echo sounder
9	24-Aug-04	1446-1726	222 to 224	5 to 70	2357	10.0	Calm	East (090°)	
10	24-Aug-04	2013-0019	224 to 269	5 to 70	2358	10.0	Calm	Southwest (223°)	
11	25-Aug-04	0805-1059	269 to 271	5 to 60	2359	10.0	Calm	East (090°)	
12	25-Aug-04	1335-1652	271 to 323	5 to 70	2360	10.0	Calm	Southeast (153°)	
13	25-Aug-04	1916-2311	323 to 273	5 to 90	2361	10.0	Calm	Northeast (039°)	
14	26-Aug-04	0801-1105	273 to 325	5 to 90	2362	10.0	Slight	Southeast (169°)	
15	26-Aug-04	1340-1657	325 to 376	5 to 90	2363	10.0	Slight	Southeast (154°)	
16	26-Aug-04	1920-2219	376 to 374	5 to 80	2364	10.0	Slight	West (270°)	
17	27-Aug-04	0759-1116	374 to 424	5 to 60	2365	10.0	Slight	Southeast (154°)	
18	27-Aug-04	1358-1653	424 to 426	5 to 60	2366	10.0	Slight	East (090°)	

Fishing survey summary

In this survey, fish sampling was collected by bottom trawl. The entire cruise was operated bottom trawl in 19 stations. The partial detail of fish sampling activities is shown in Table 3.



Fig. 3 Trawl Monitor



Fig. 4 Catch from Bottom Trawl

Table 3. Partial details of Bottom Trawl fishing survey of cruise no. 4-4/2004 (17-29 August 2004) in the Gulf of Thailand

Station no.	Date		Shooting		Hauling		Depth of capture (m)	Speed vessel (kt)	Total catch (kg)
			Start	Finish	Start	Finish			
52	18-Aug-04	Time	0605	0610	0710	0803	55.4	5.1	100.629
		Latitude	11_37.57 N	11_37.57 N	11_37.53 N	11_36.90 N			
		Longitude	101_07.97 E	101_08.46 E	101_12.31 E	101_11.70 E			
50	19-Aug-04	Time	1330	1348	1449	1510	45.0	3.0	12.493
		Latitude	11_37.80 N	11_37.30 N	11_35.00 N	11_35.10 N			
		Longitude	100_38.50 E	100_38.00 E	100_35.60 E	100_35.90 E			
76	20-Aug-04	Time	0556	0605	0705	0720	55.4	3.5	7.927
		Latitude	11_07.40 N	11_06.70 N	11_04.60 N	11_04.30 N			
		Longitude	100_37.80 E	100_37.00 E	100_34.90 E	100_35.10 E			
78	20-Aug-04	Time	1228	1240	1337	1350	60.0	3.5	7.021
		Latitude	11_09.20 N	11_09.80 N	11_12.80 N	11_13.00 N			
		Longitude	101_09.00 E	101_09.30 E	101_10.50 E	101_10.80 E			
108	20-Aug-04	Time	1820	1833	1905	1925	65.0	3.5	3.971
		Latitude	10_37.16 N	10_37.78 N	10_39.10 N	10_39.20 N			
		Longitude	101_06.91 E	101_07.58 E	101_08.60 E	101_08.90 E			
106	21-Aug-04	Time	0546	0600	0700	0720	61.0	3.4	13.215
		Latitude	10_37.40 N	10_37.60 N	10_38.70 N	10_38.90 N			
		Longitude	100_37.80 E	100_38.60 E	100_41.70 E	100_42.10 E			
142	21-Aug-04	Time	1313	1327	1418	1500	63.0	3.6	4.025
		Latitude	10_08.143 N	10_08.05 N	10_07.60 N	10_07.70 N			
		Longitude	100_51.363 E	100_51.73 E	100_54.70 E	100_55.00 E			
183	24-Aug-04	Time	0614	0616	0725	0742	56.0	7.0	4.605
		Latitude	09_37.94 N	09_37.96 N	09_38.80 N	09_39.00 N			
		Longitude	100_52.52 E	100_52.64 E	100_56.30 E	100_56.67 E			
222	24-Aug-04	Time	1256	1309	1401	1421	37.0	3.6	12.424
		Latitude	09_07.69 N	09_08.27 N	09_10.10 N	09_11.20 N			
		Longitude	100_37.44 E	100_37.89 E	100_39.60 E	100_39.70 E			
224	24-Aug-04	Time	1803	1817	1917	1935	60.0	3.4	7.971
		Latitude	09_07.30 N	09_06.82 N	09_05.20 N	09_05.20 N			
		Longitude	101_05.40 E	101_04.54 E	101_01.80 E	101_01.30 E			
269	25-Aug-04	Time	0601	0610	0715	0730	30.0	3.5	4.030
		Latitude	08_37.48 N	08_38.05 N	08_41.80 N	08_42.20 N			
		Longitude	100_37.51 E	100_37.54 E	100_37.70 E	100_37.90 E			
271	25-Aug-04	Time	1140	1155	1255	1310	57.0-59.0	3.5	25.330
		Latitude	08_37.70 N	08_37.52 N	08_36.60 N	08_37.1 N			
		Longitude	101_07.30 E	101_06.52 E	101_03.40 E	101_03.20 E			
323	25-Aug-04	Time	1722	1735	1840	1855	53.0	3.2	8.694
		Latitude	08_07.40 N	08_06.80 N	08_04.10 N	08_03.80 N			
		Longitude	101_22.60 E	101_22.10 E	101_19.90 E	101_20.10 E			
273	26-Aug-04	Time	0604	0620	0720	0735	75.0	3.2	11.648
		Latitude	08_37.25 N	08_36.82 N	08_35.22 N	08_34.70 N			
		Longitude	101_47.48 E	101_46.79 E	101_44.10 E	101_44.00 E			
325	26-Aug-04	Time	1145	1200	1300	1318	73.0	3.4	10.700
		Latitude	08_07.10 N	08_06.60 N	08_05.70 N	08_05.90 N			
		Longitude	101_53.00 E	101_52.30 E	101_49.40 E	101_49.00 E			
376	26-Aug-04	Time	1727	1742	1834	1850	67.0	3.7	7.988
		Latitude	07_37.10 N	07_36.70 N	07_35.10 N	07_34.70 N			
		Longitude	102_07.30 E	102_06.50 E	102_04.00 E	102_03.90 E			
374	27-Aug-04	Time	0604	0618	0717	0732	48.0	3.5	6.120
		Latitude	07_37.00 N	07_36.56 N	07_34.70 N	07_34.40 N			
		Longitude	101_37.75 E	101_37.18 E	101_34.60 E	101_34.40 E			
424	27-Aug-04	Time	1200	1215	1316	1330	49.0	3.5	9.785
		Latitude	07_07.30 N	07_07.88 N	07_09.90 N	07_10.20 N			
		Longitude	101_52.90 E	101_53.63 E	101_56.20 E	101_56.40 E			
426	27-Aug-04	Time	1705	1715	1815	1835	50.0	3.5	17.786
		Latitude	07_07.40 N	07_07.50 N	07_08.10 N	07_08.70 N			
		Longitude	102_22.90 E	102_22.10 E	102_18.80 E	102_19.00 E			

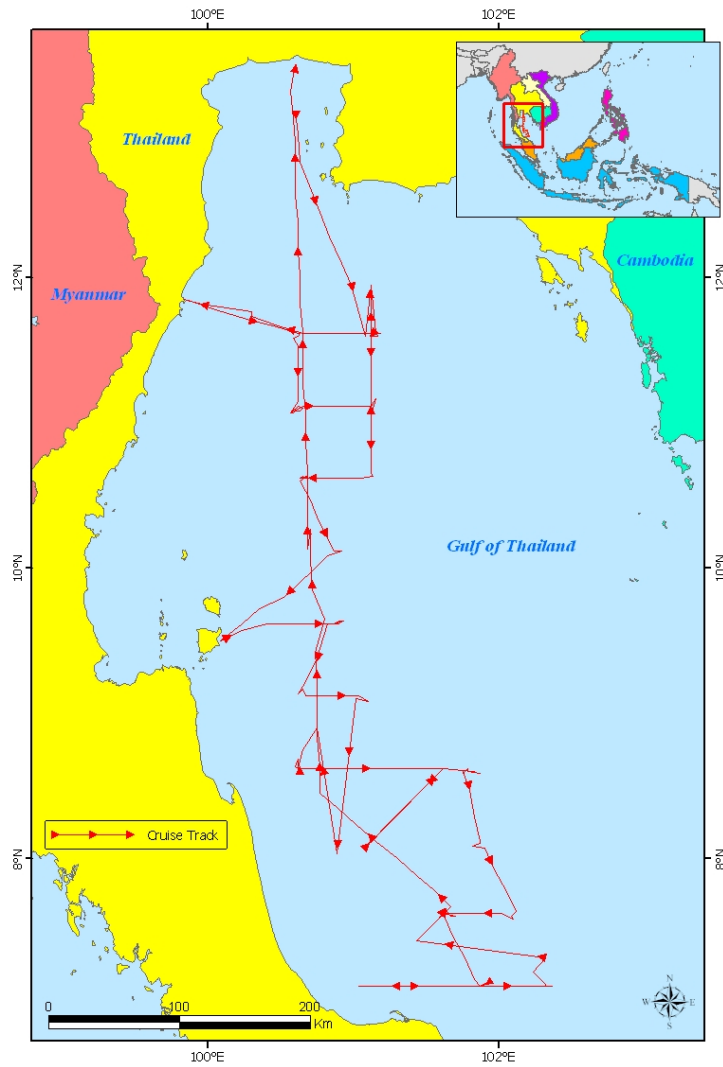


Fig. 5 Cruise track map: cruise no. 4-4/2004 (17-29 August 2004) in the Gulf of Thailand

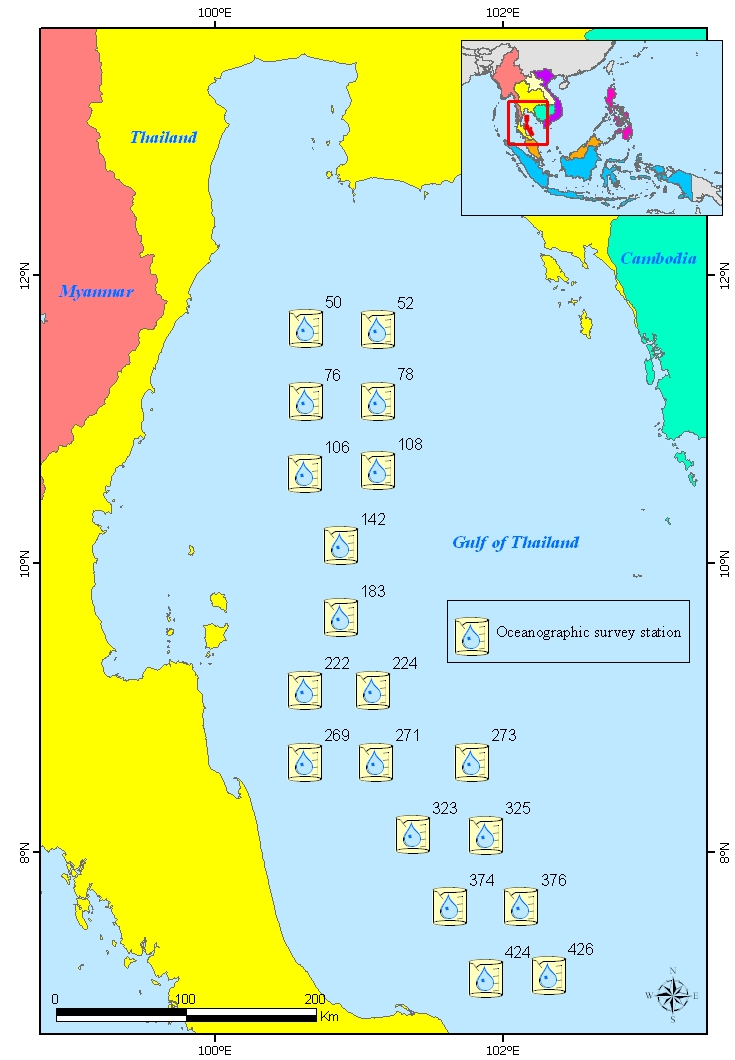
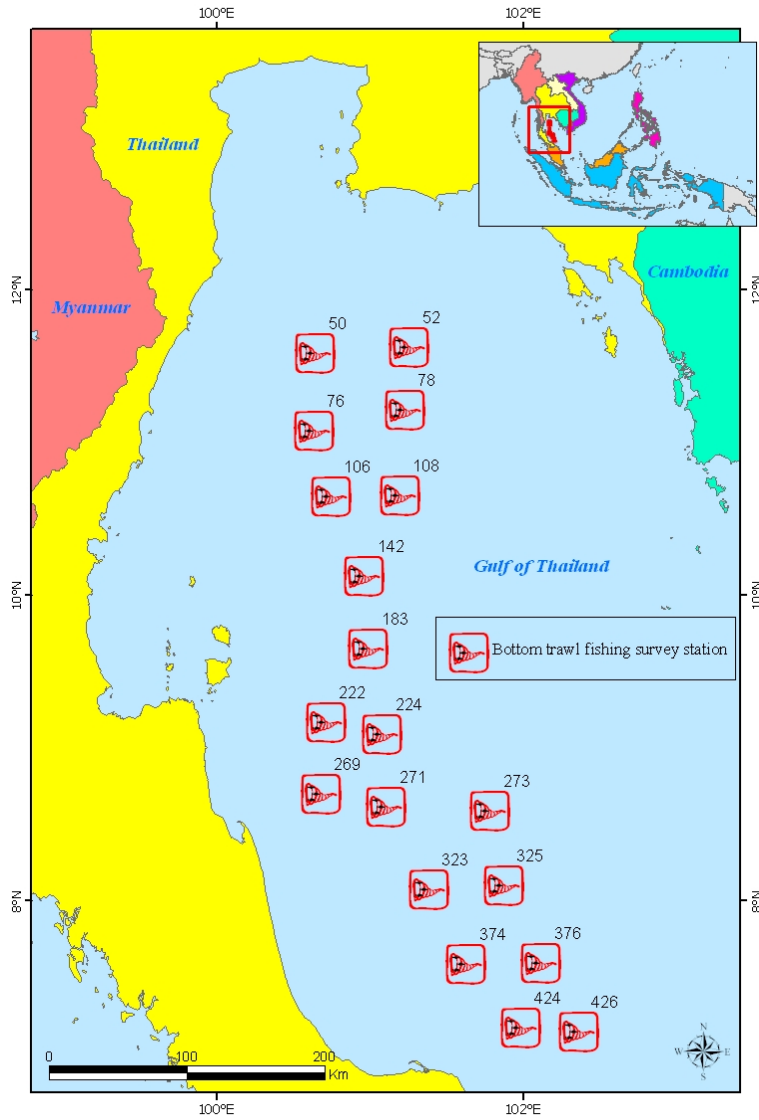


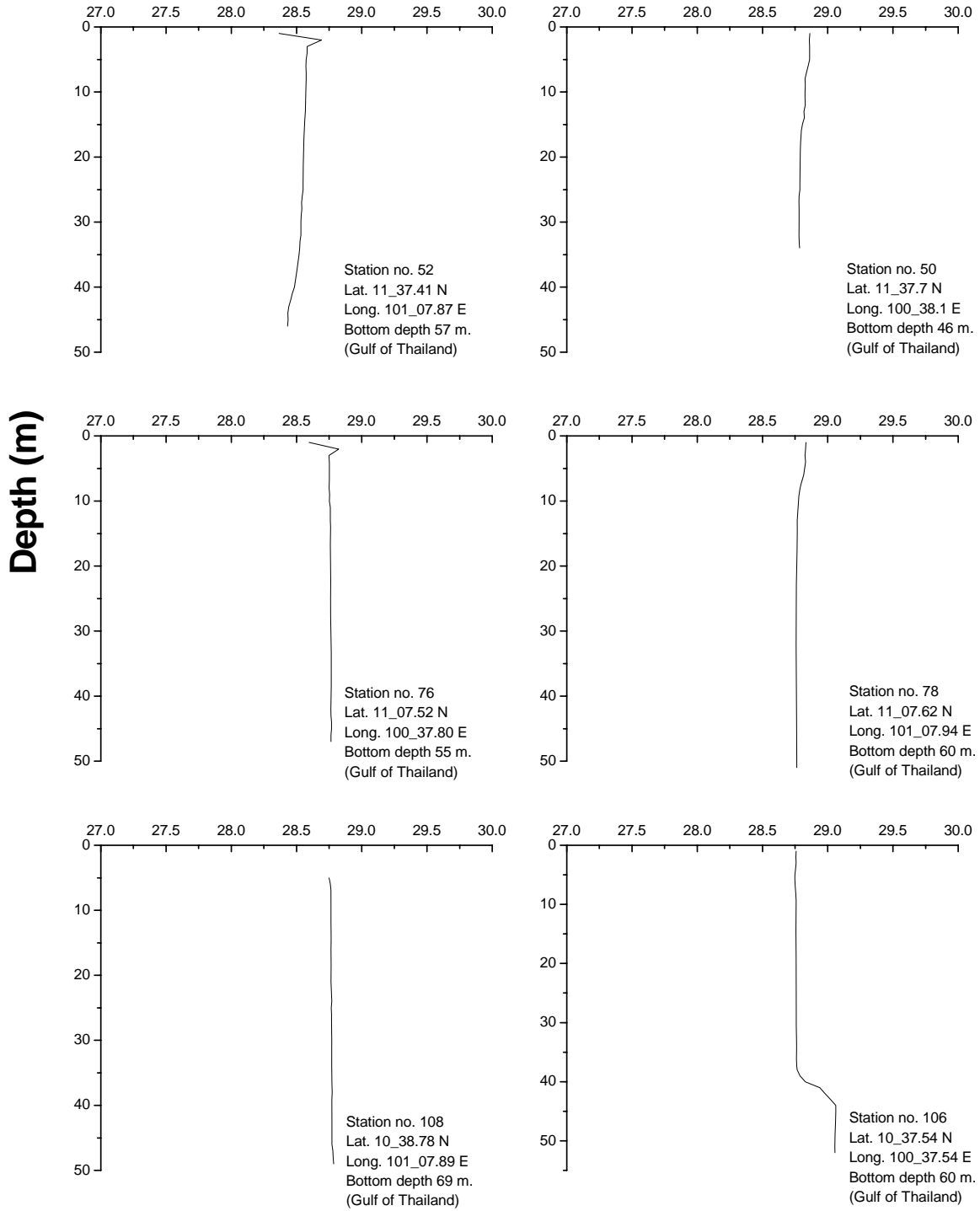
Fig. 6 Oceanographic survey stations of cruise no. 4-4/2004 (17-29 August 2004) in the Gulf of Thailand

Fig. 7 Bottom Trawl fishing survey stations cruise no. 4-4/2004 (17-29 August 2004) in the Gulf of Thailand

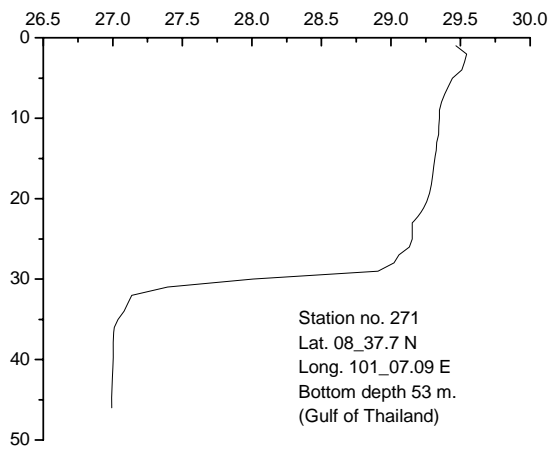
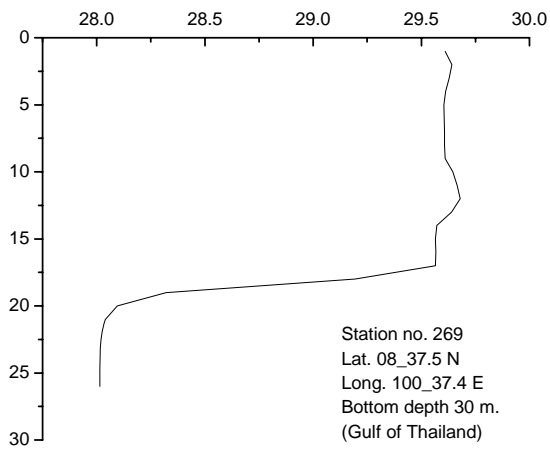
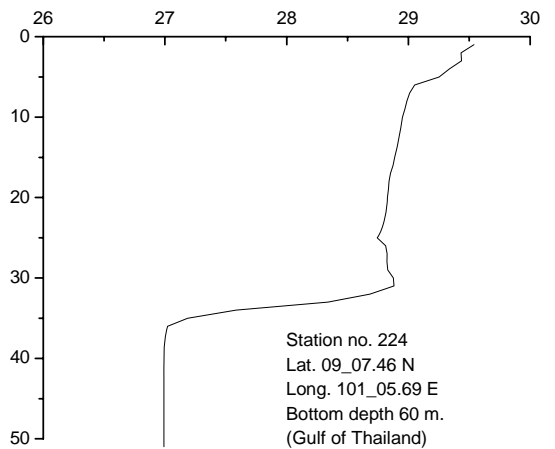
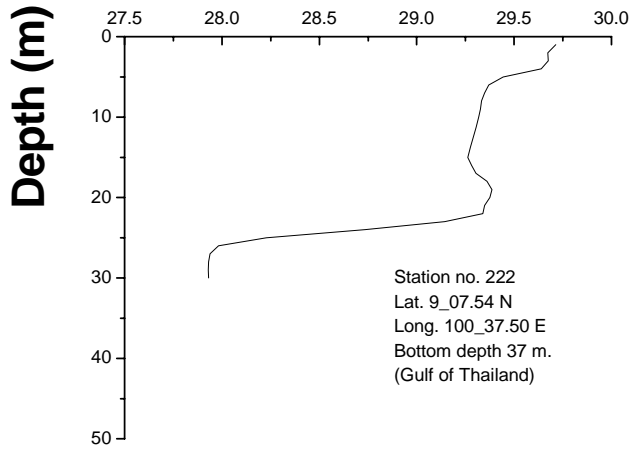
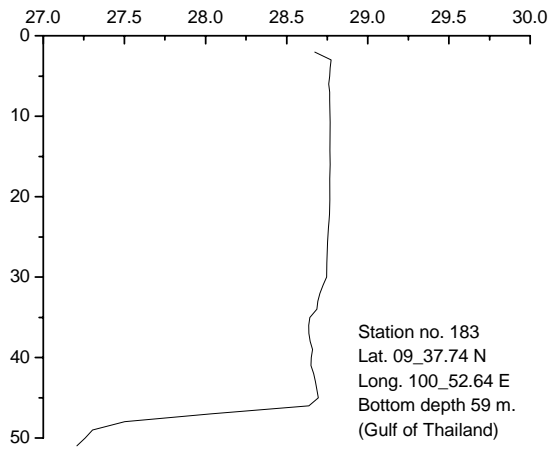
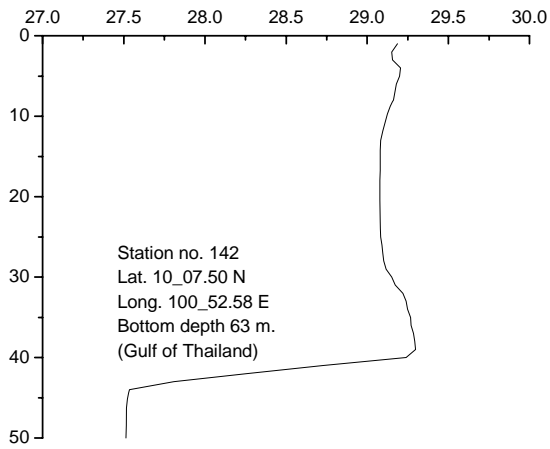


Appendix I

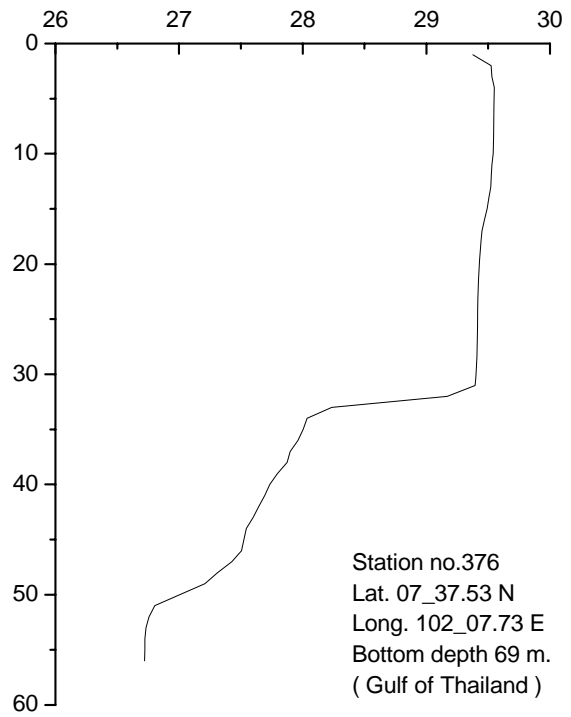
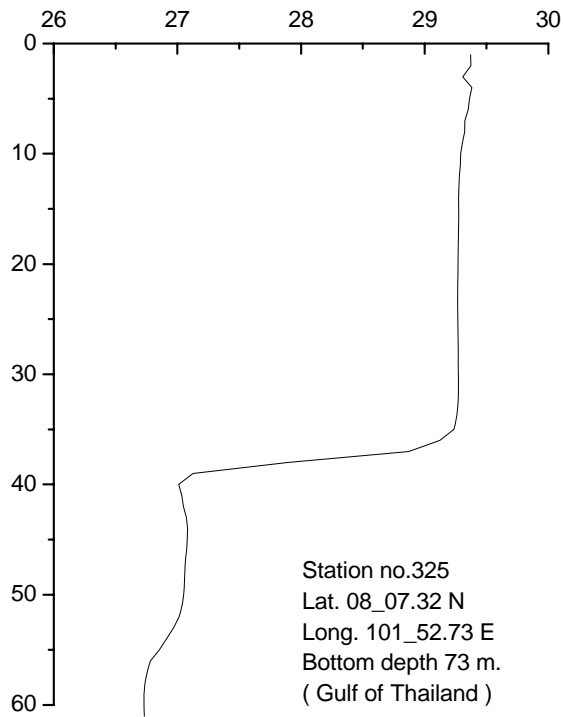
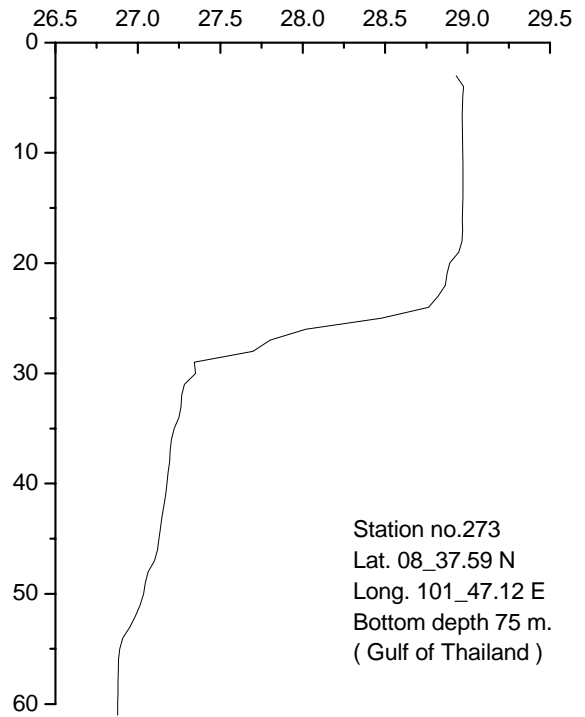
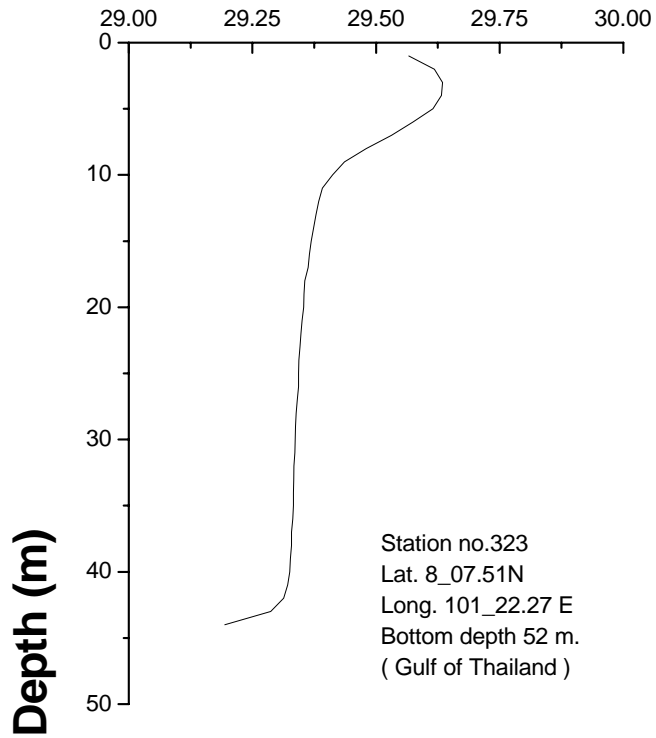
Temperature (°C)



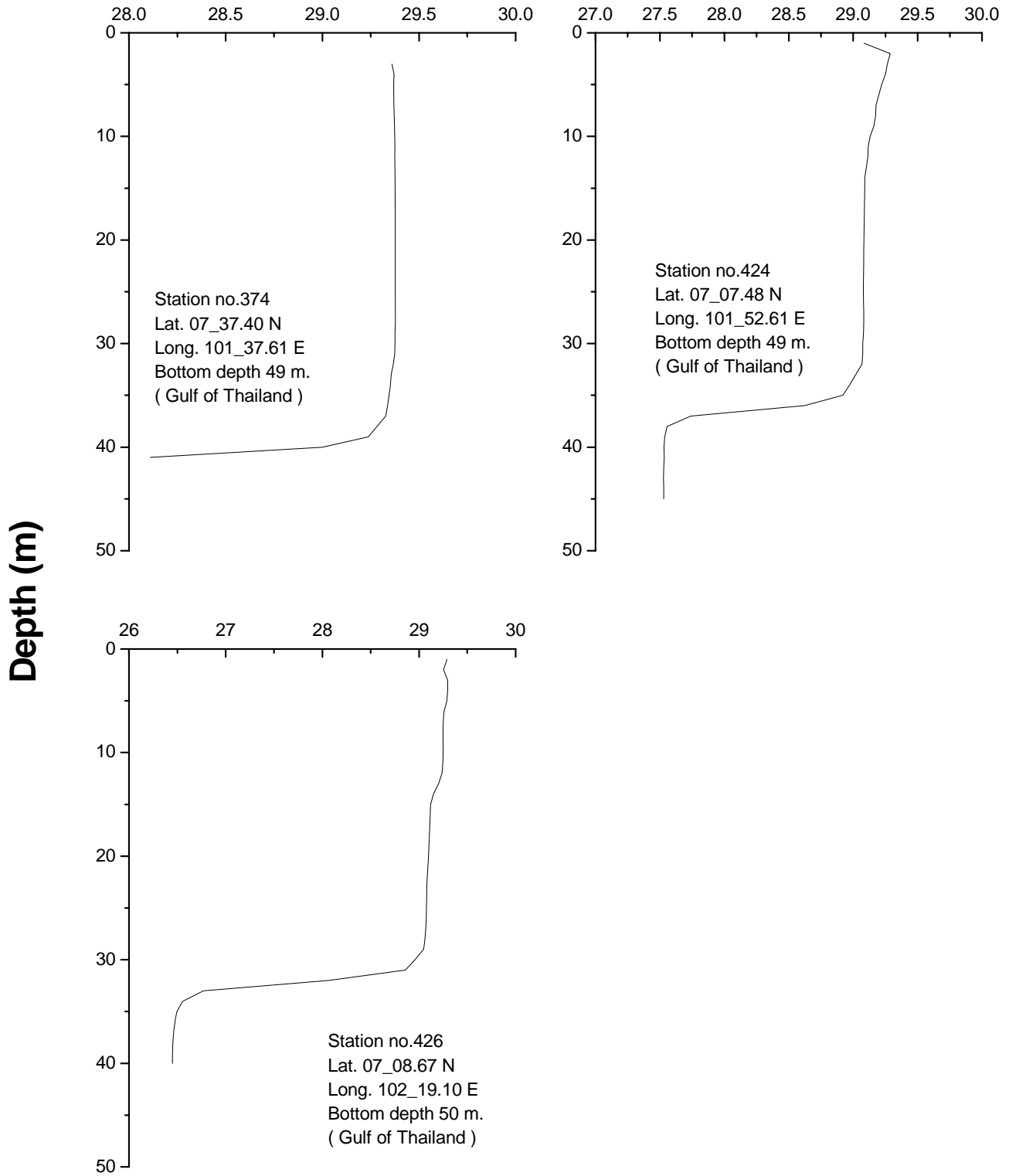
Temperature (°C)



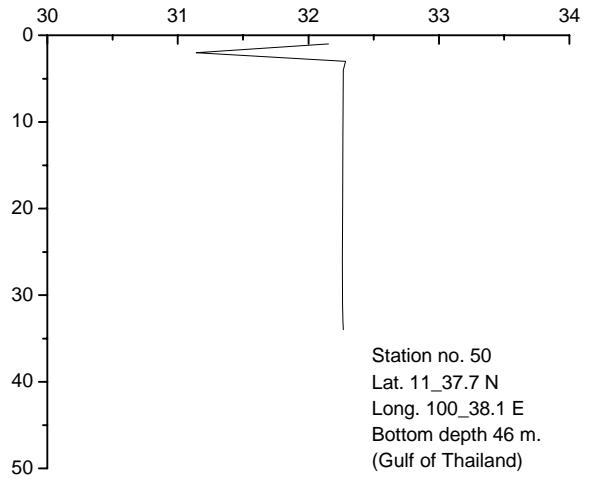
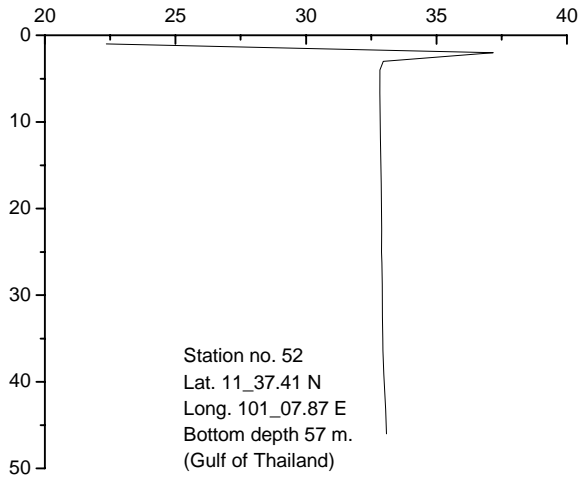
Temperature (°C)



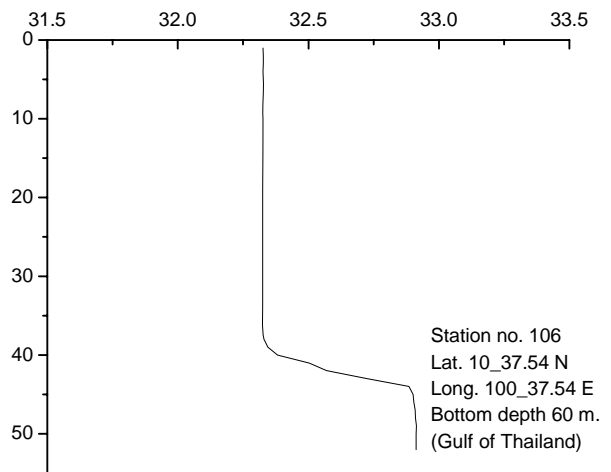
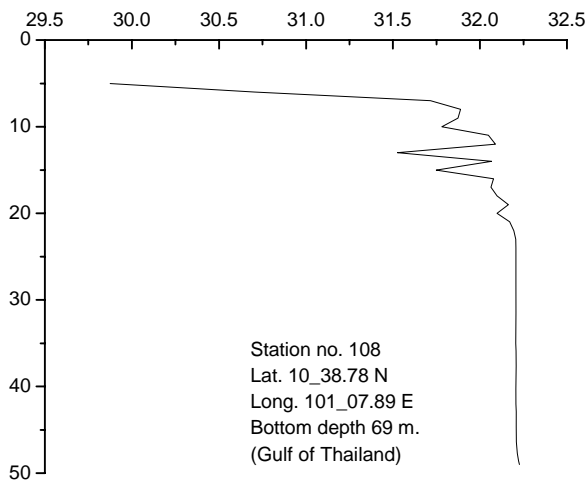
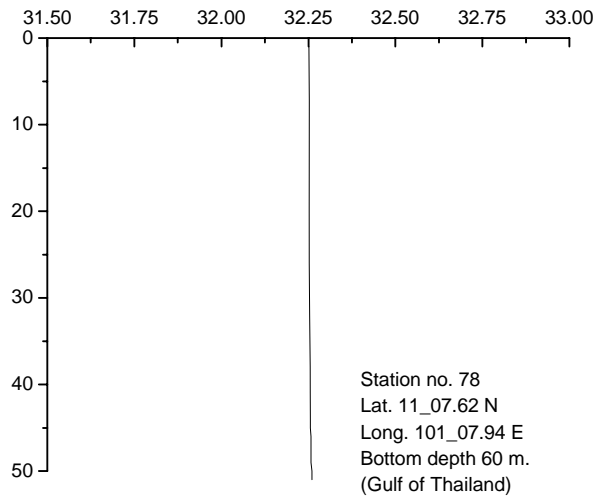
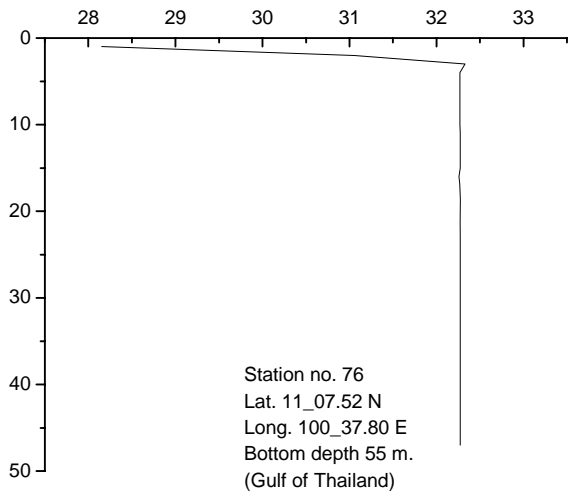
Temperature (°C)



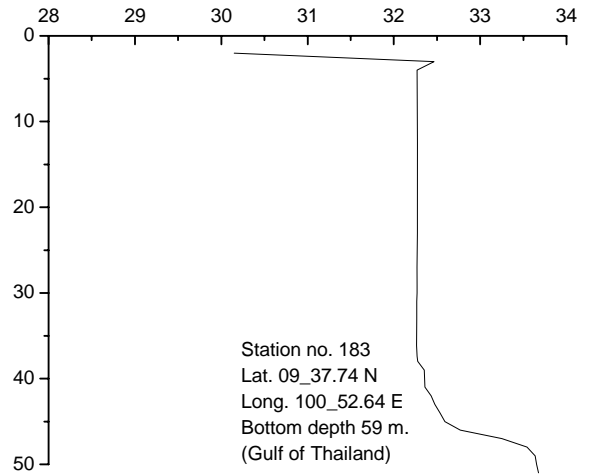
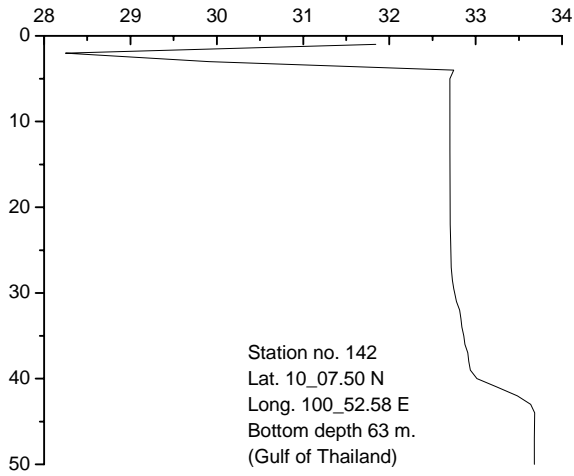
Salinity (psu)



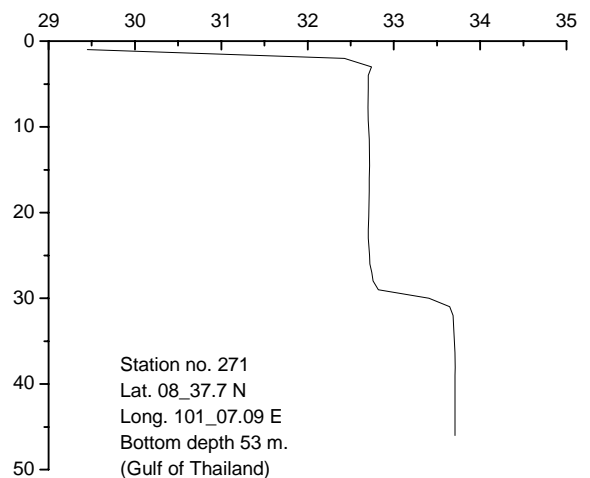
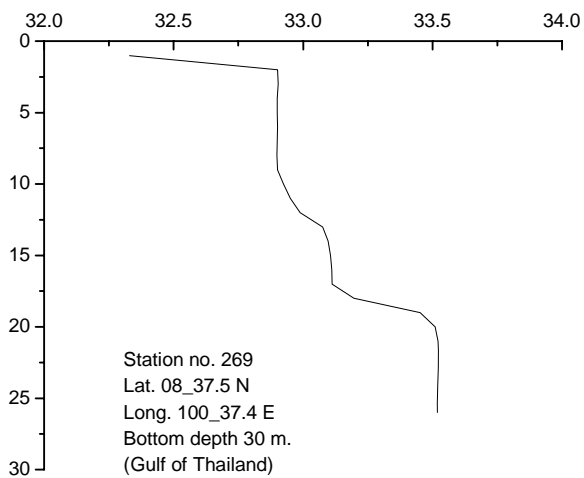
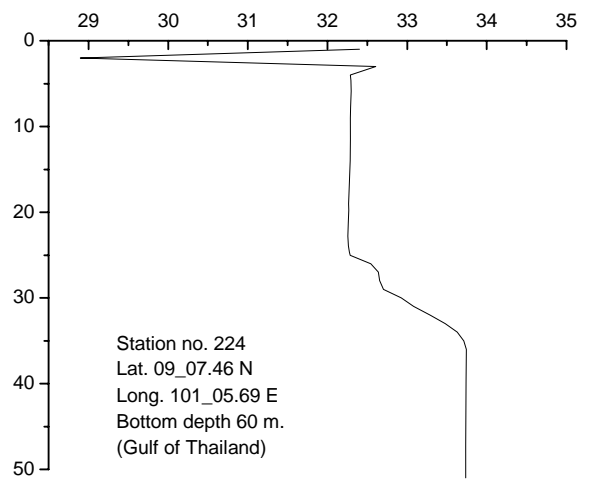
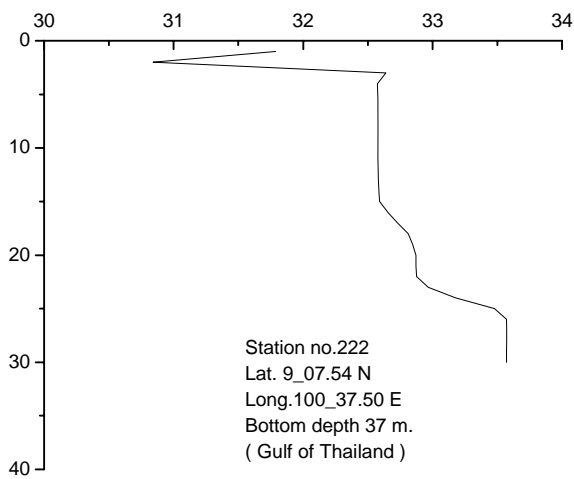
Depth (m)



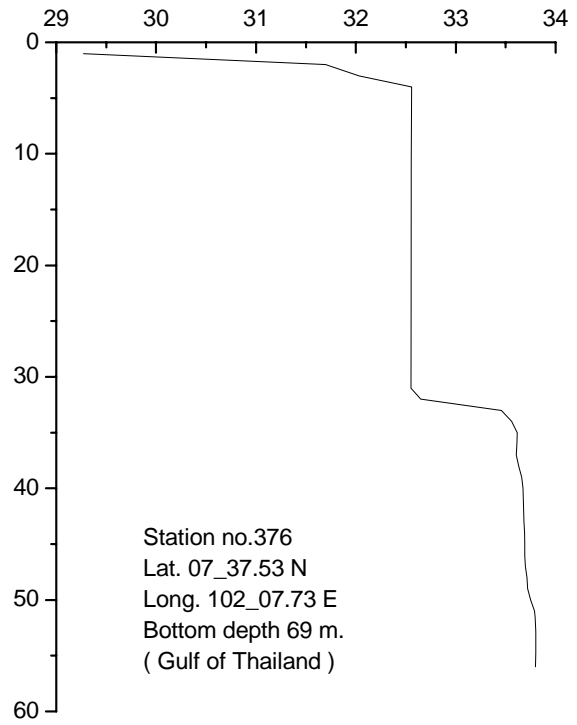
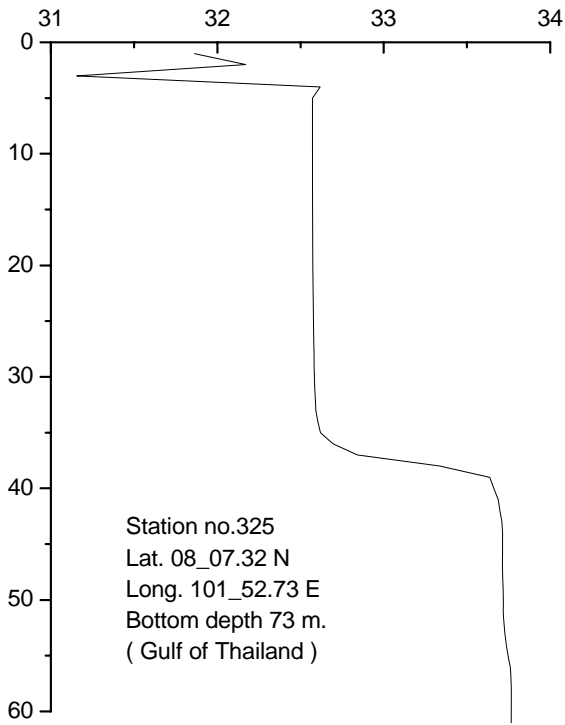
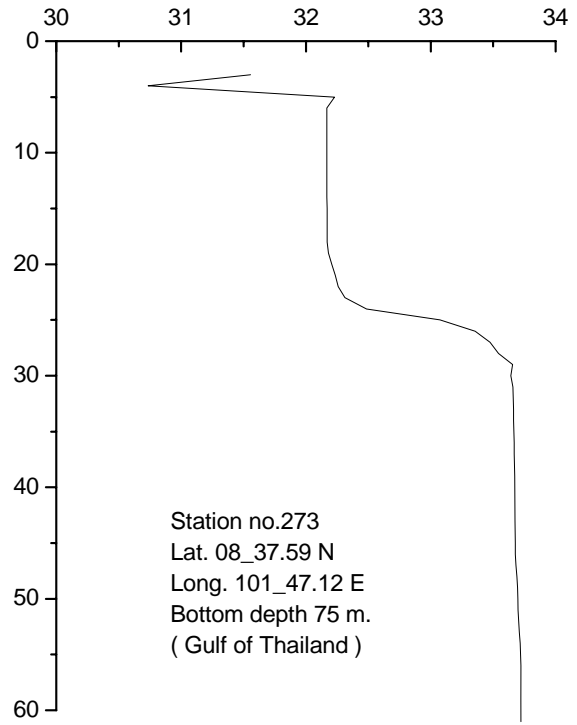
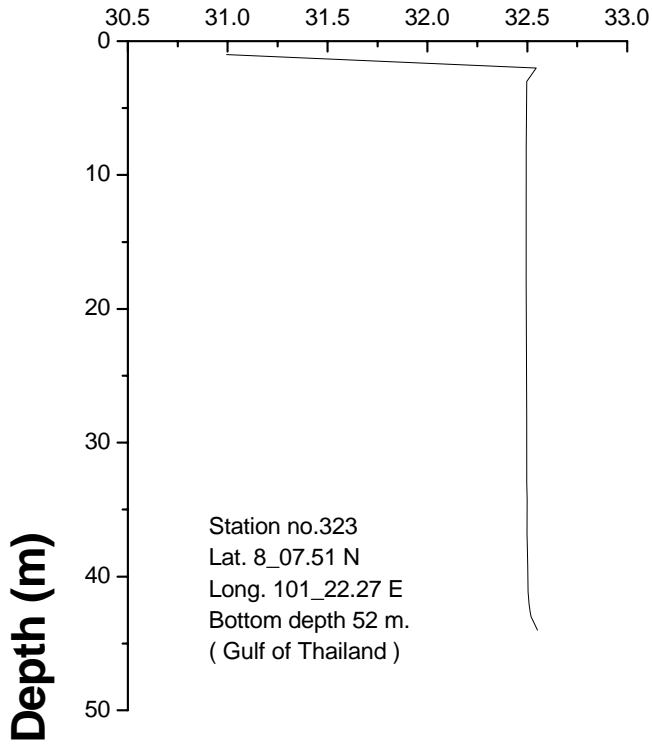
Salinity (psu)



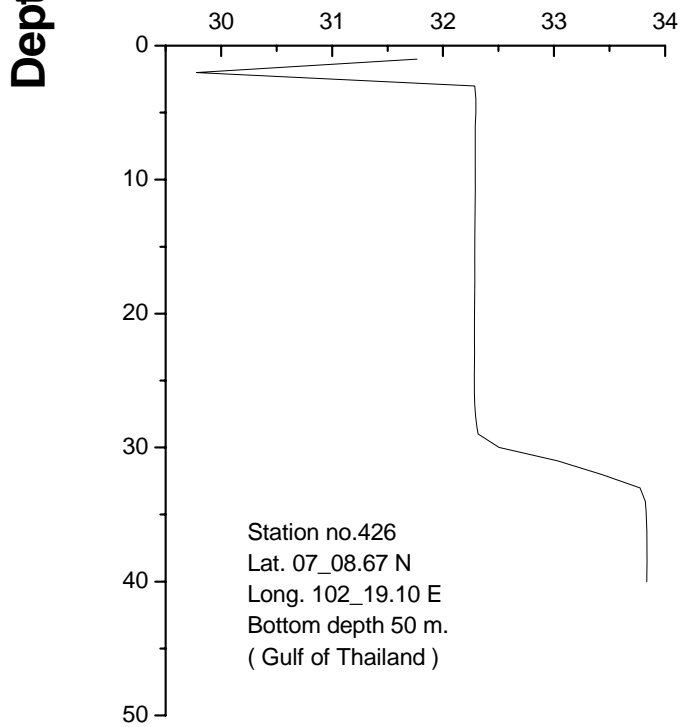
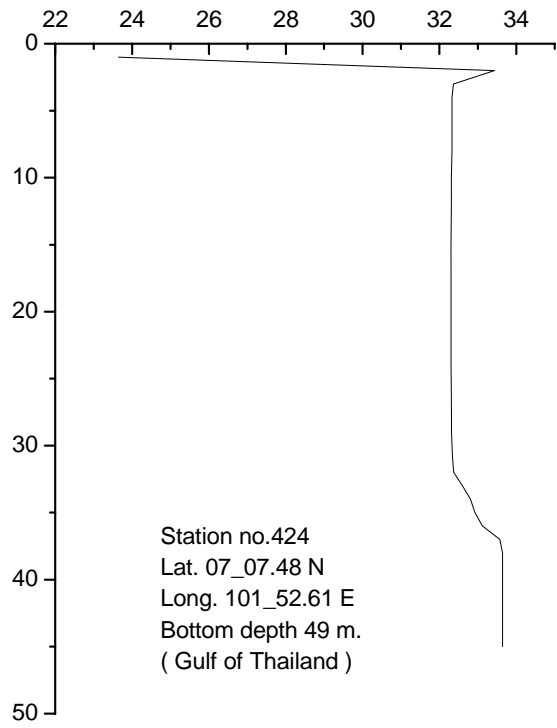
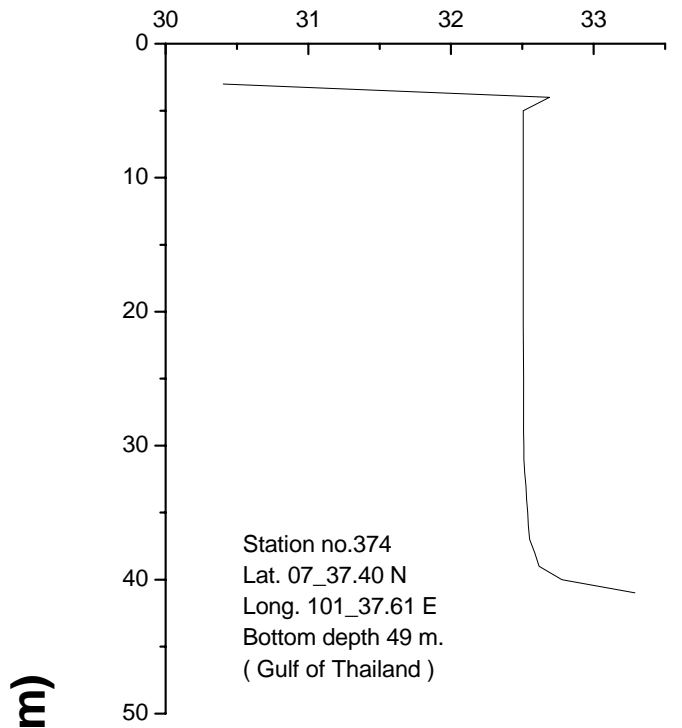
Depth (m)



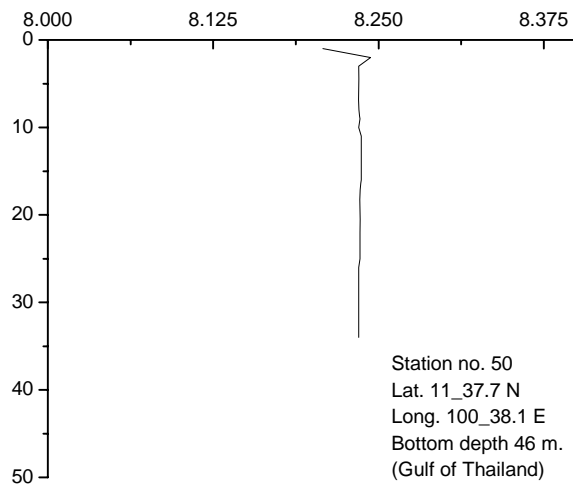
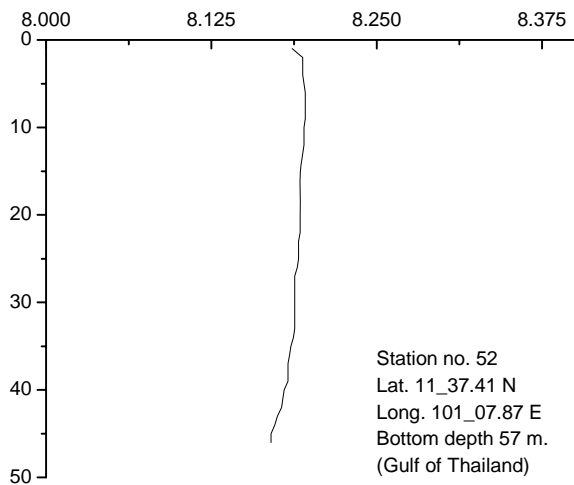
Salinity (psu)



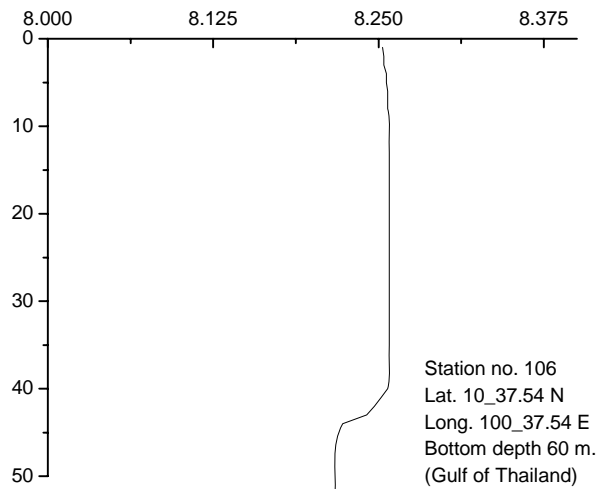
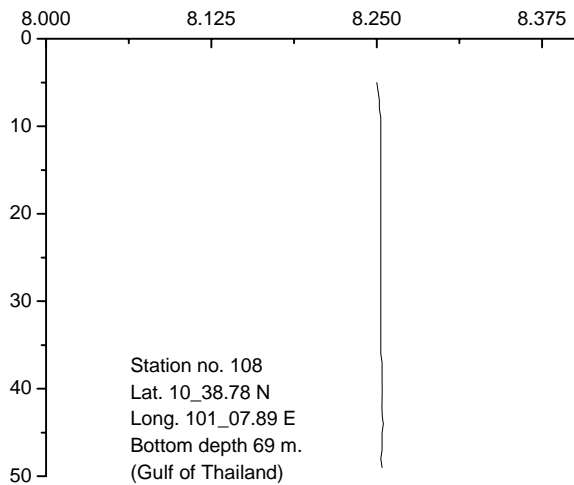
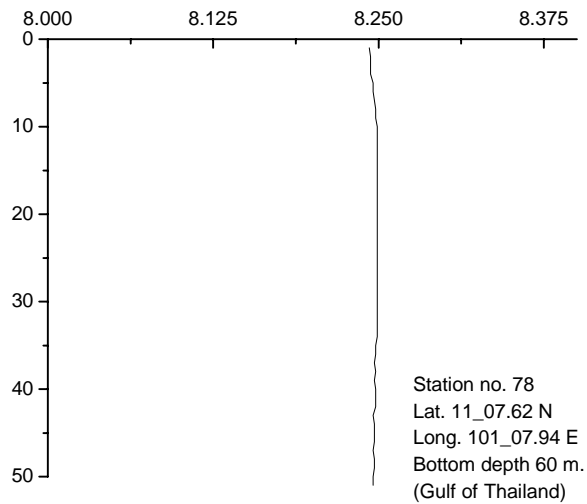
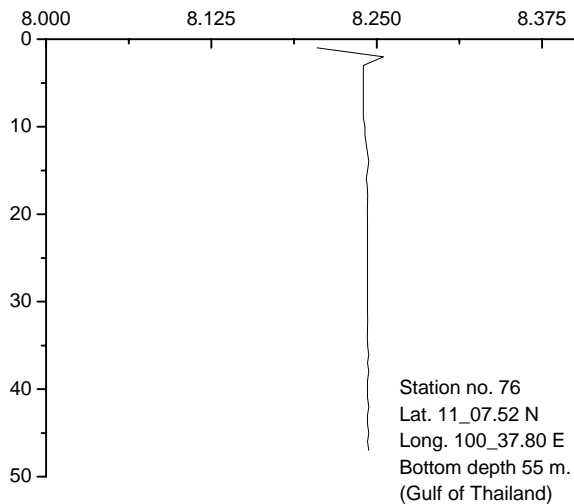
Salinity (PSU)



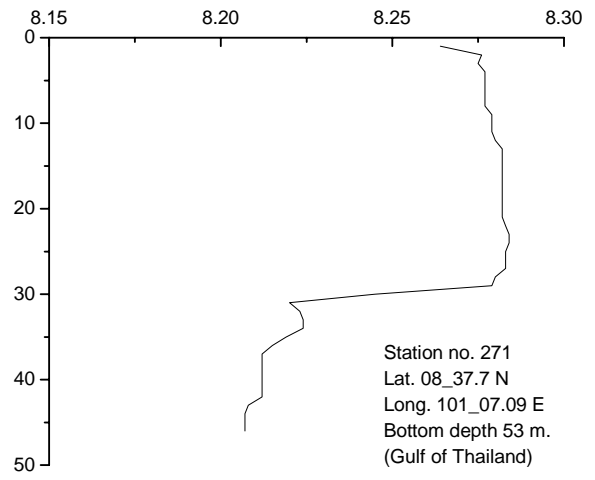
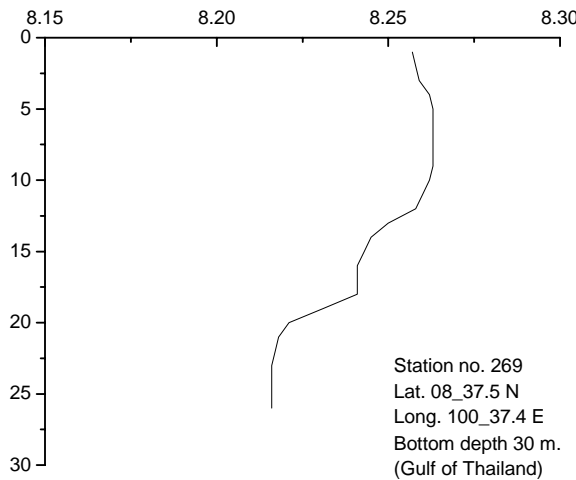
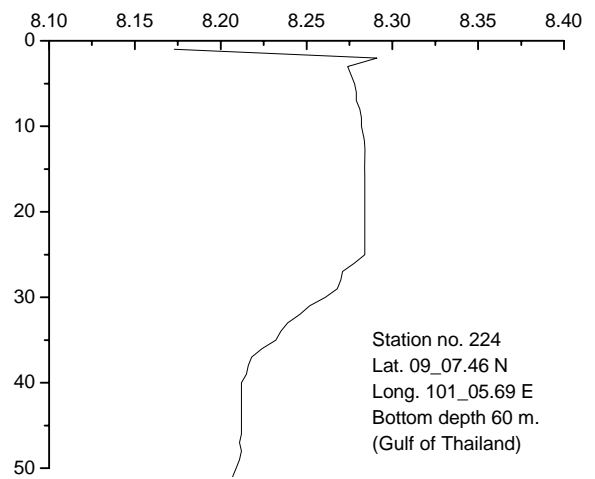
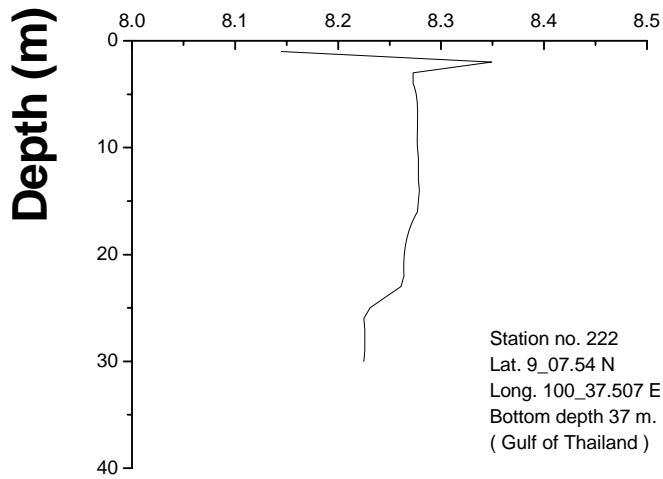
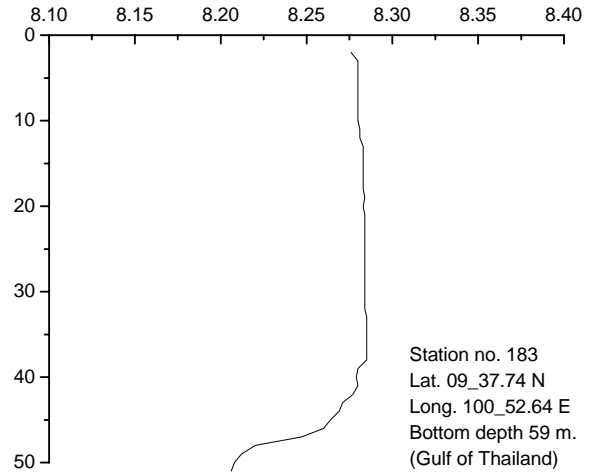
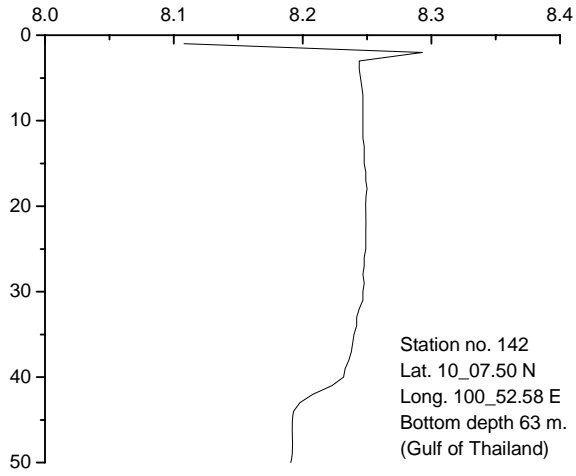
pH



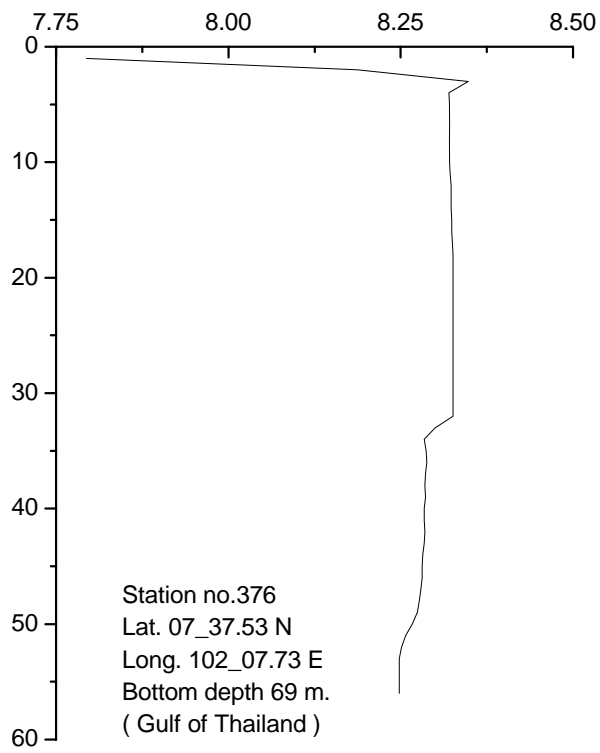
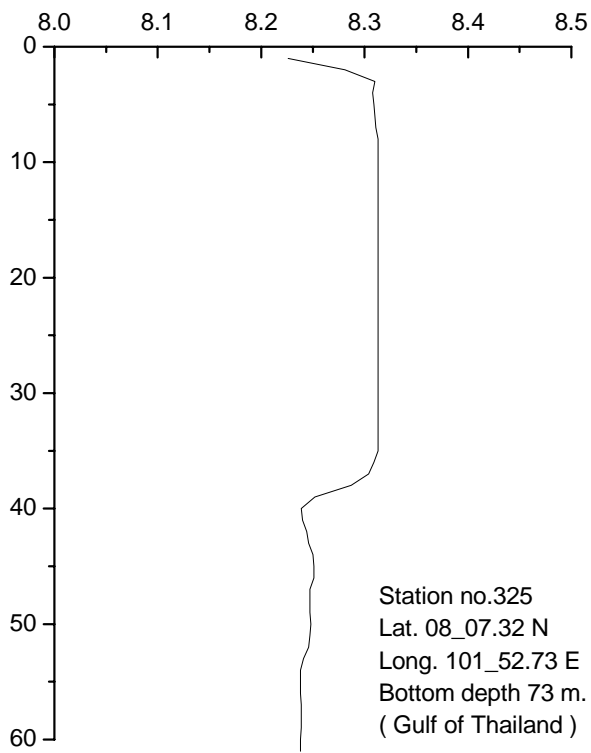
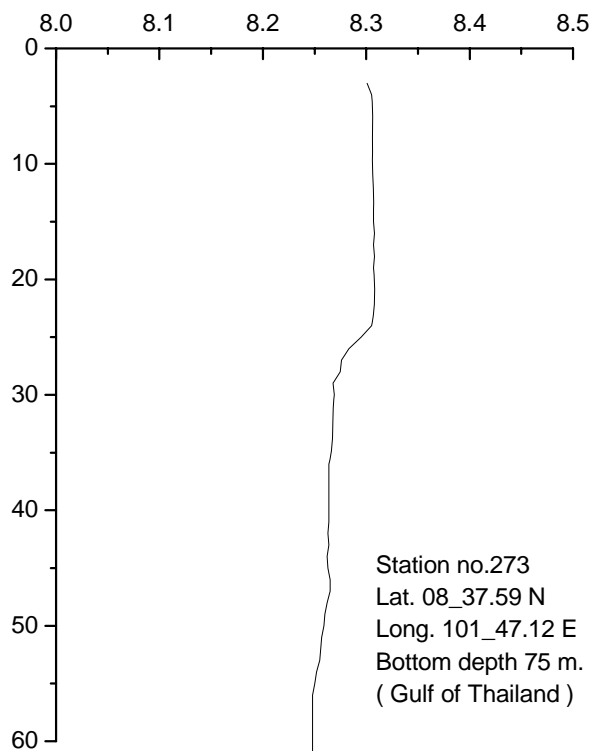
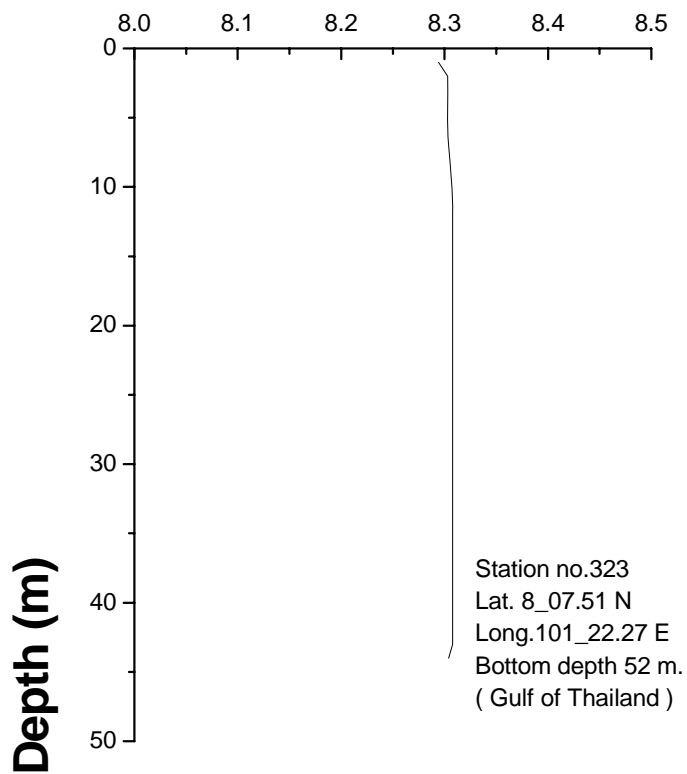
Depth (m)



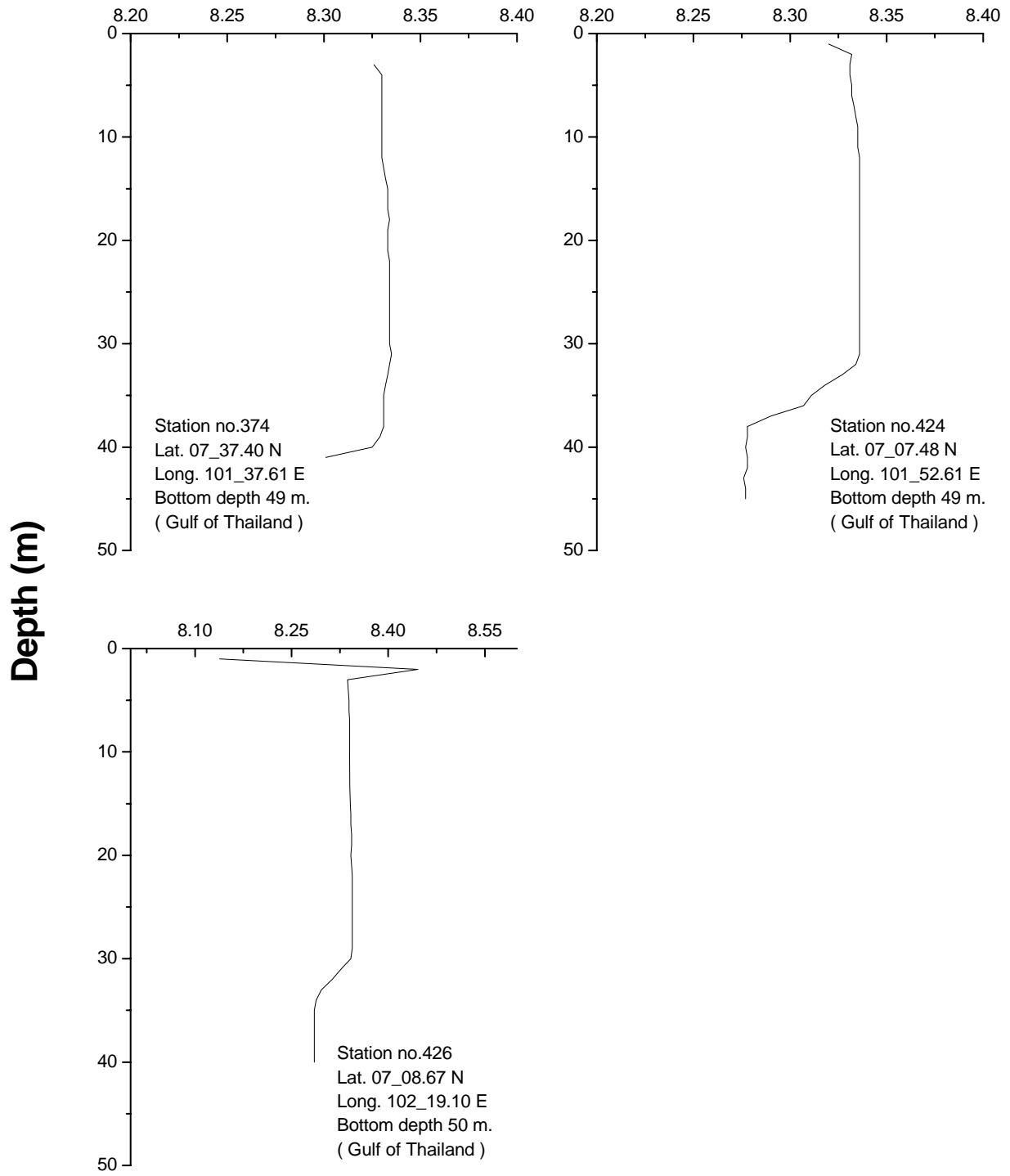
pH



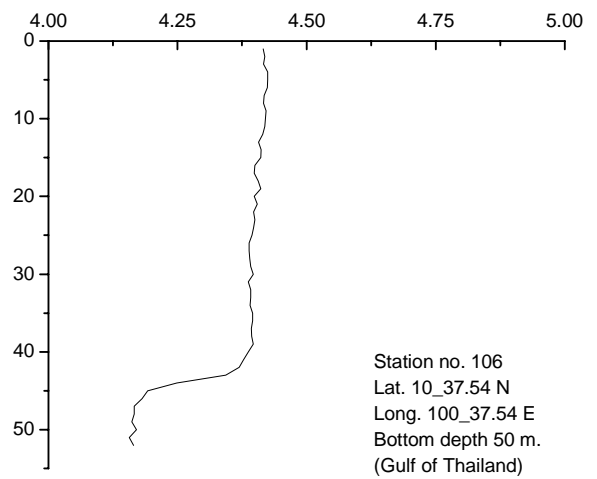
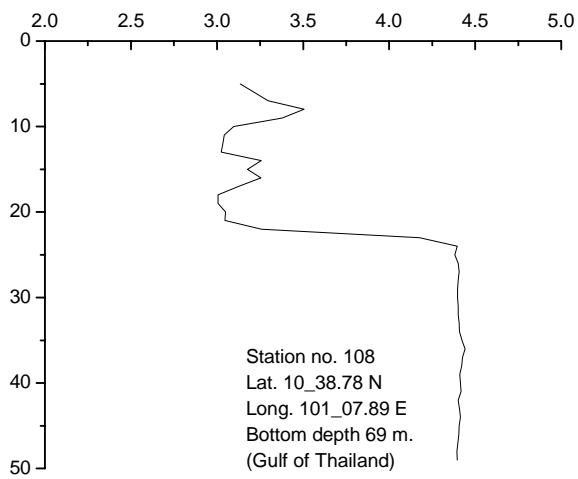
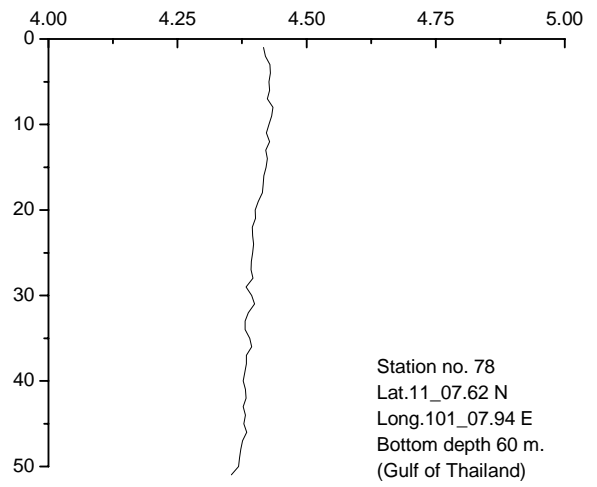
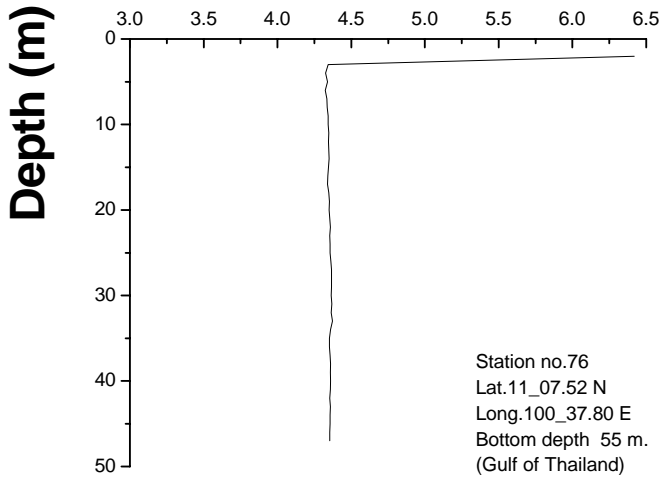
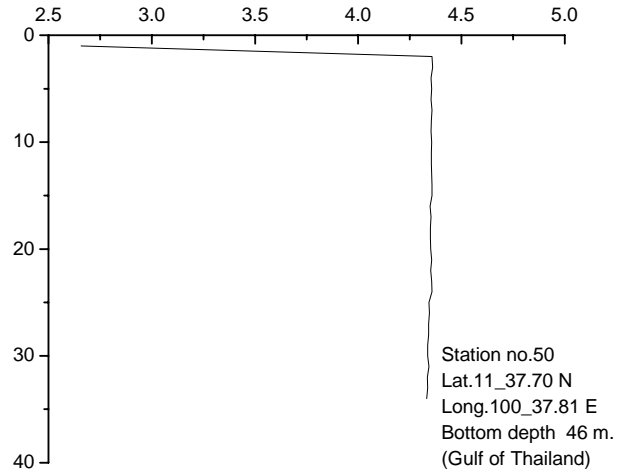
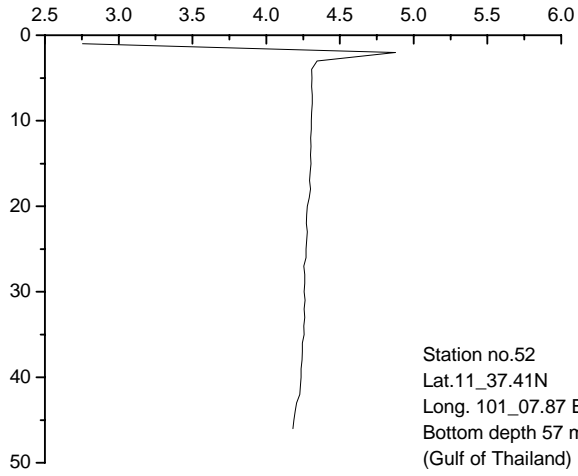
pH



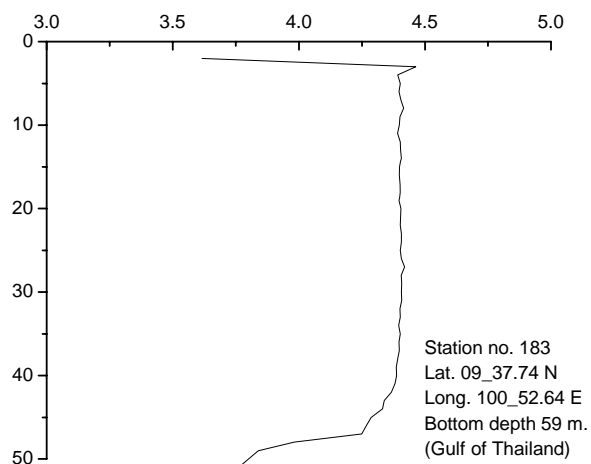
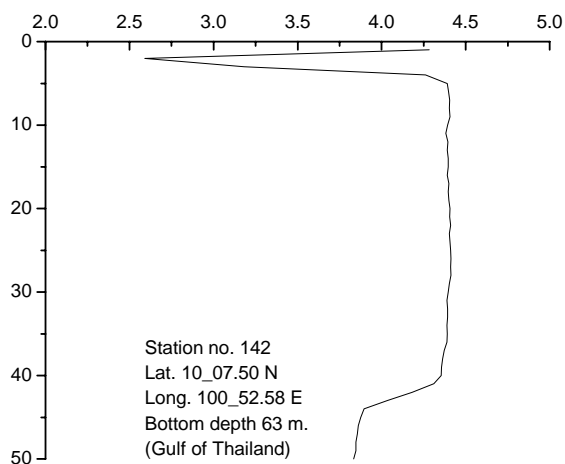
pH



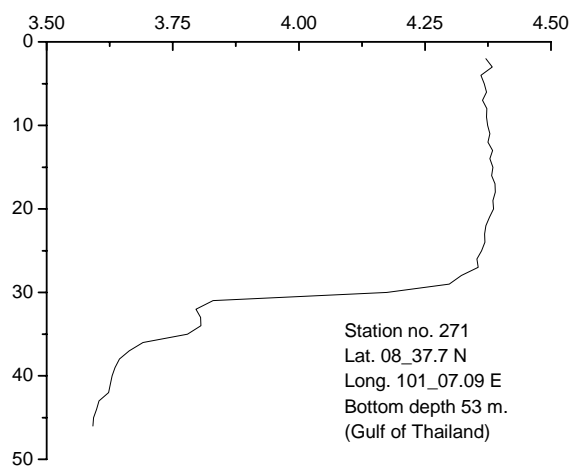
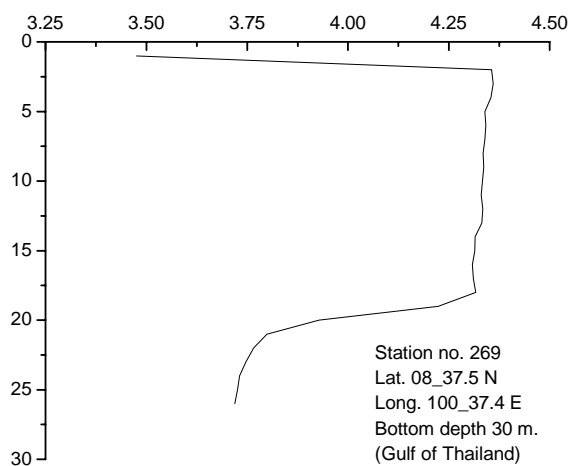
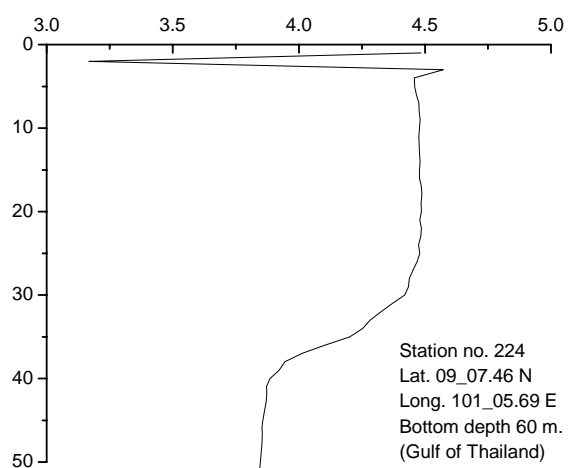
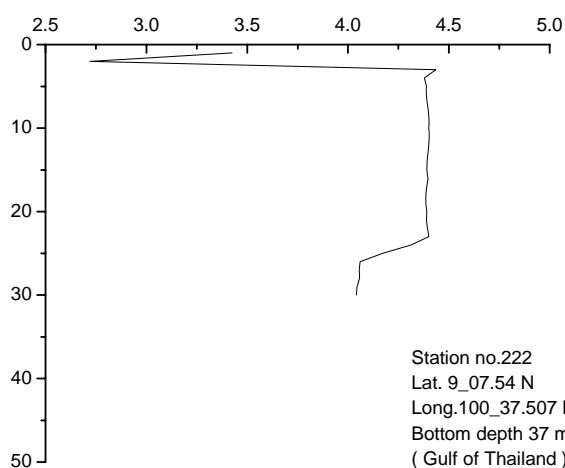
Oxygen (mg/l)



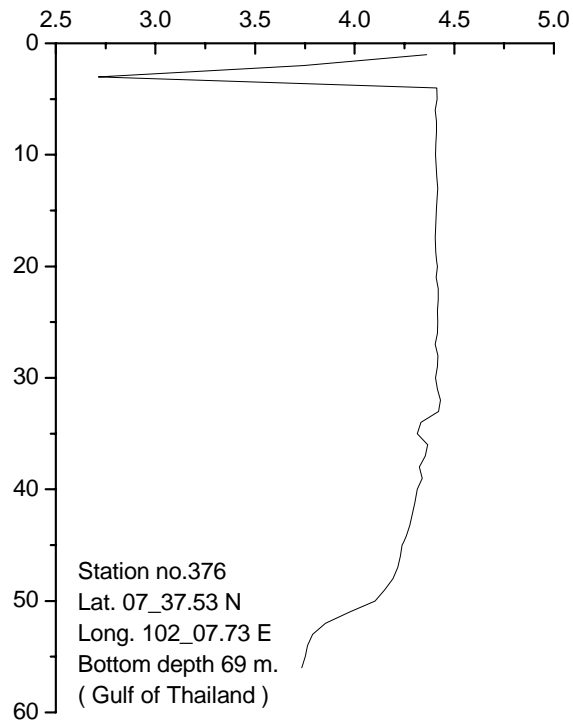
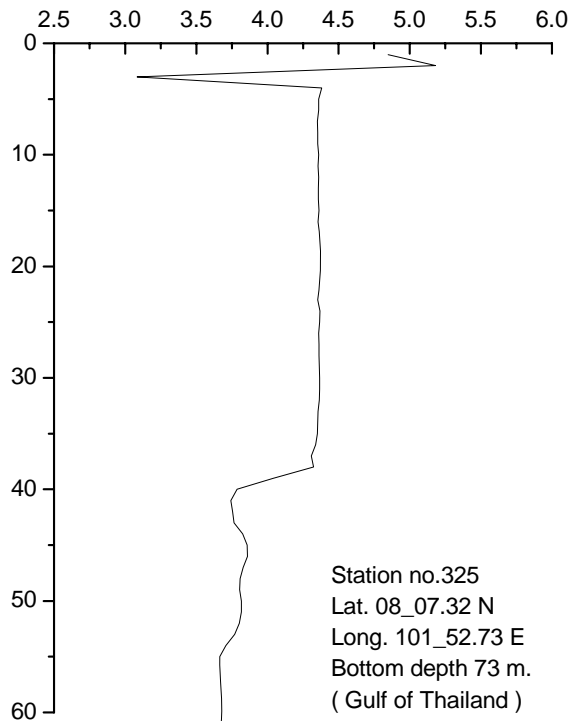
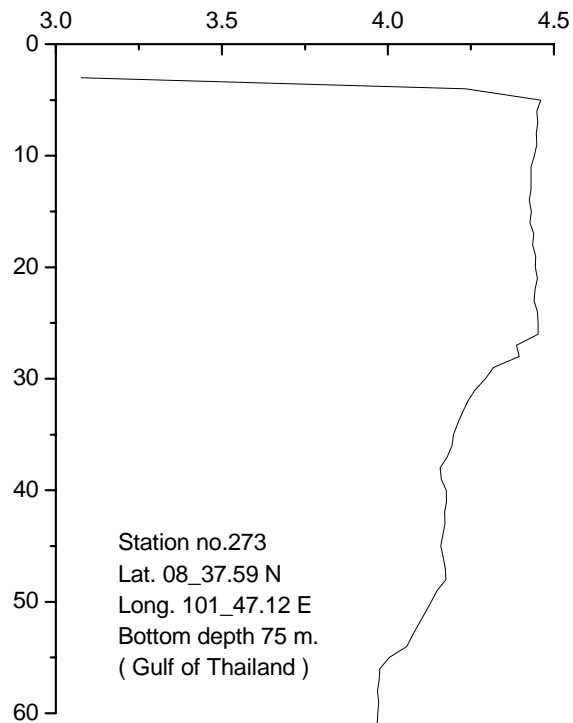
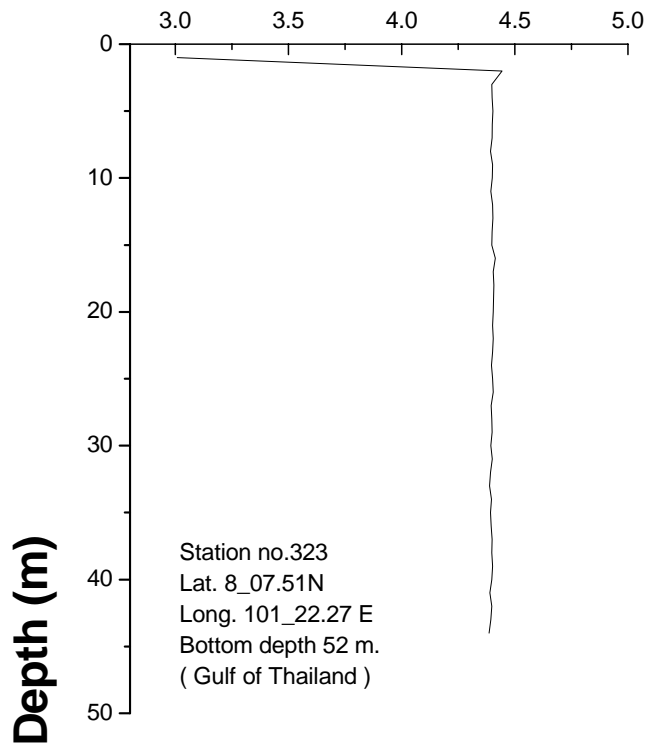
Oxygen (mg/l)



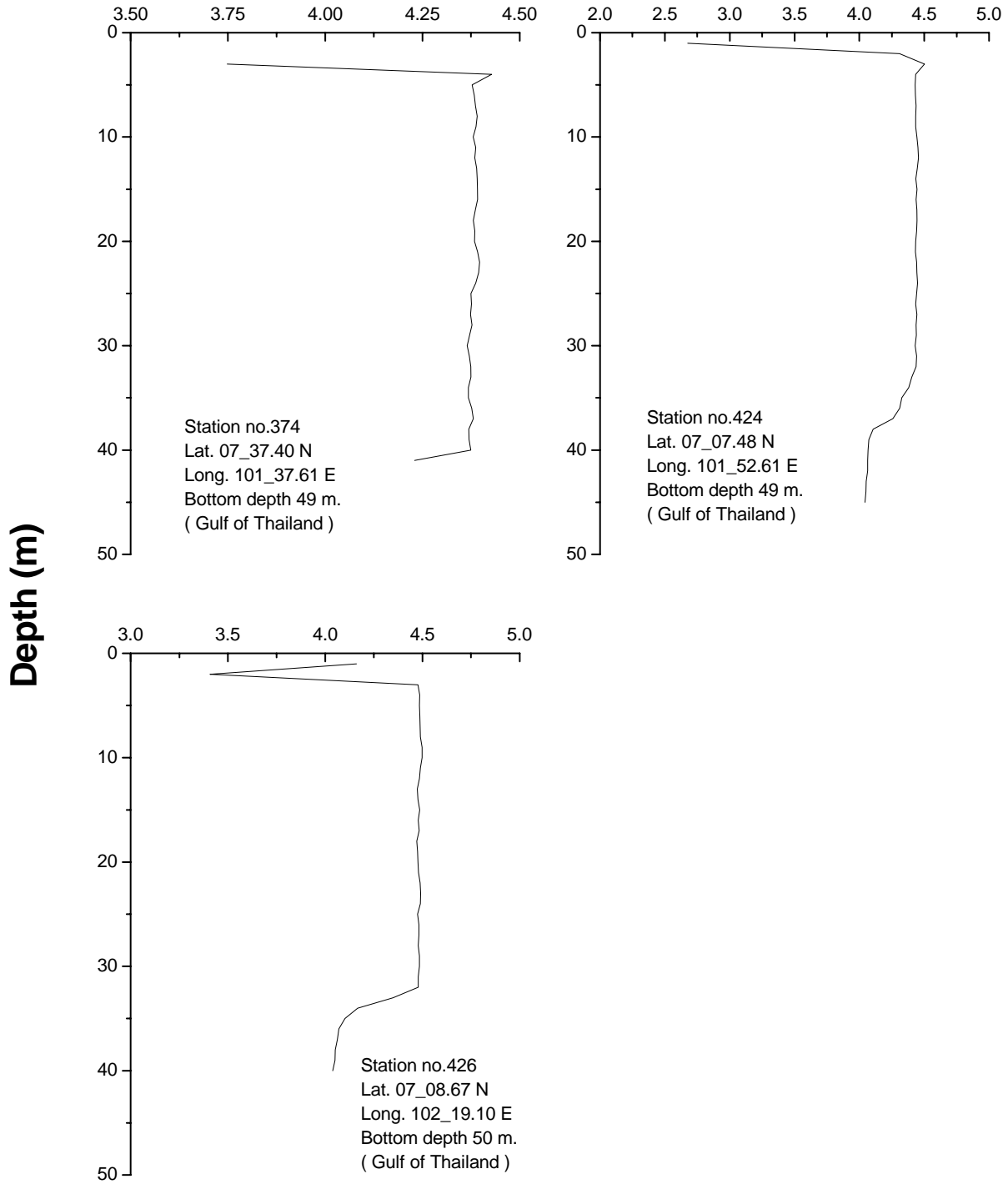
Depth (m)



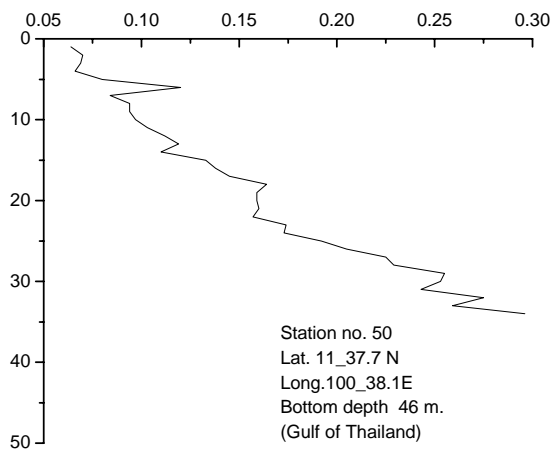
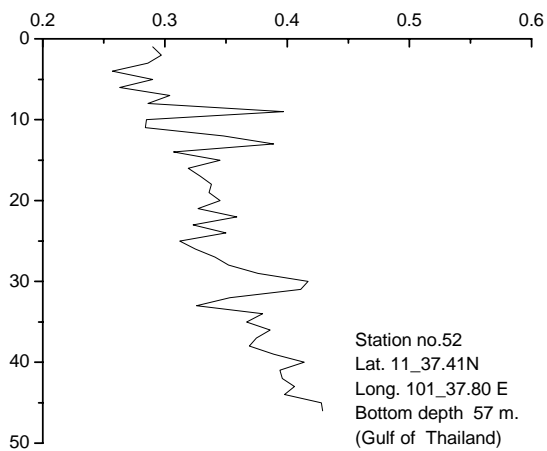
Oxygen (mg/l)



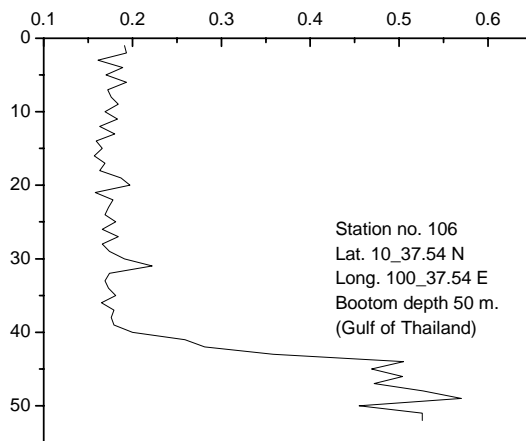
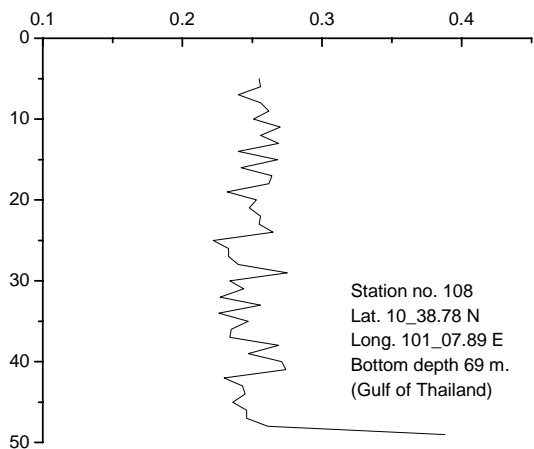
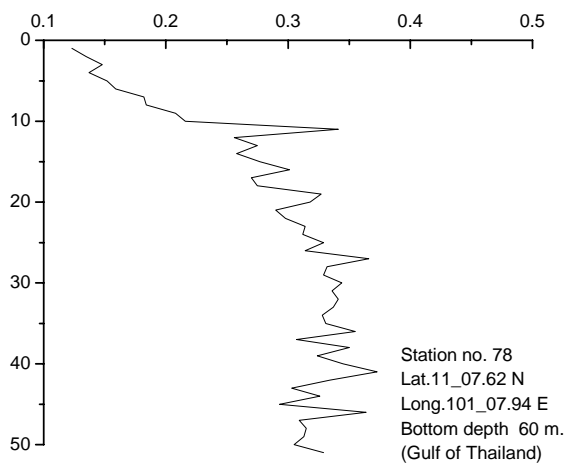
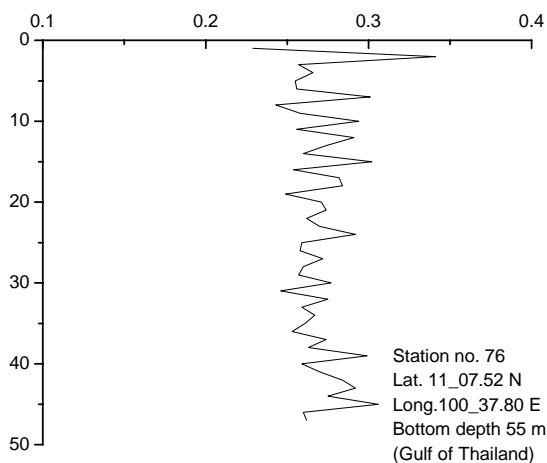
Oxygen (mg/l)



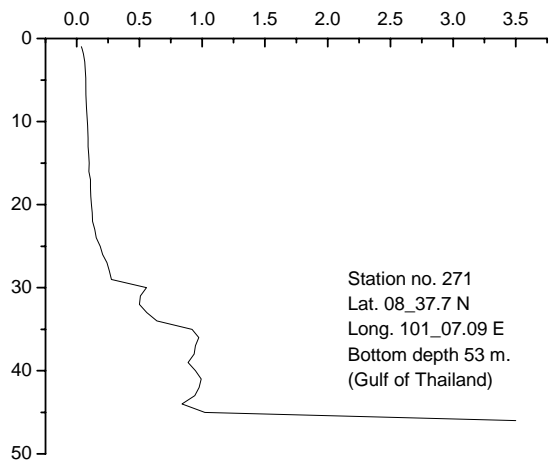
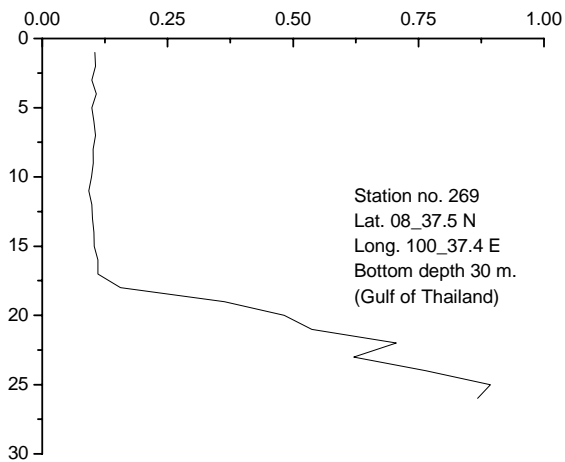
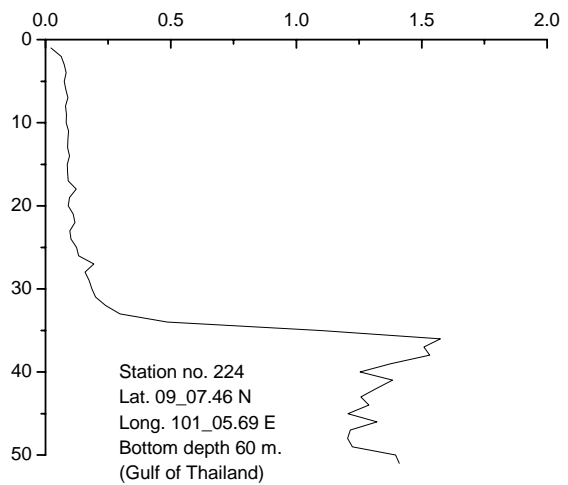
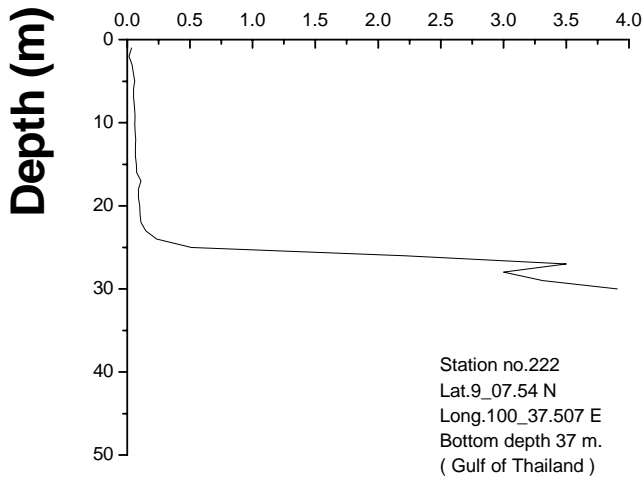
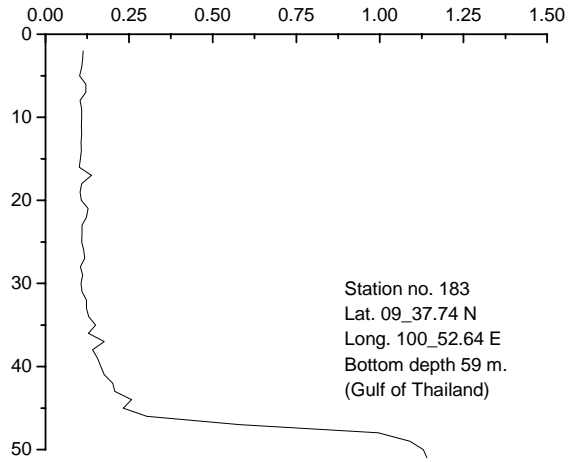
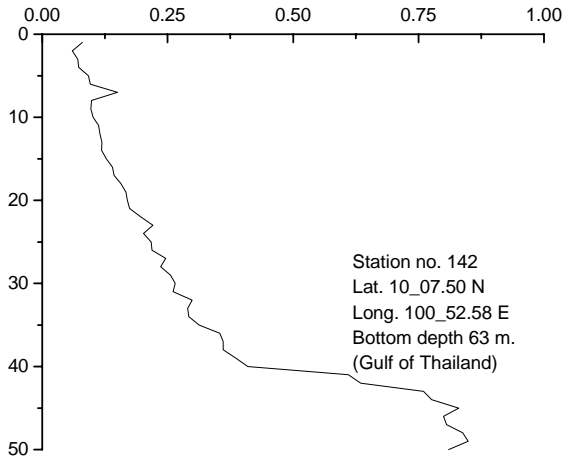
Fluorescence



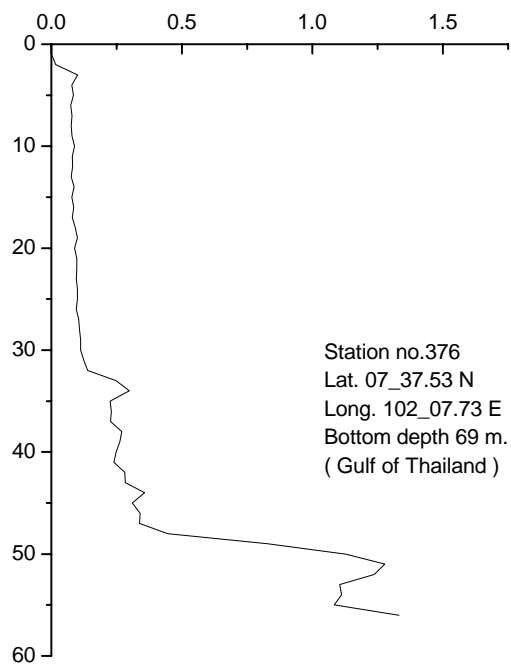
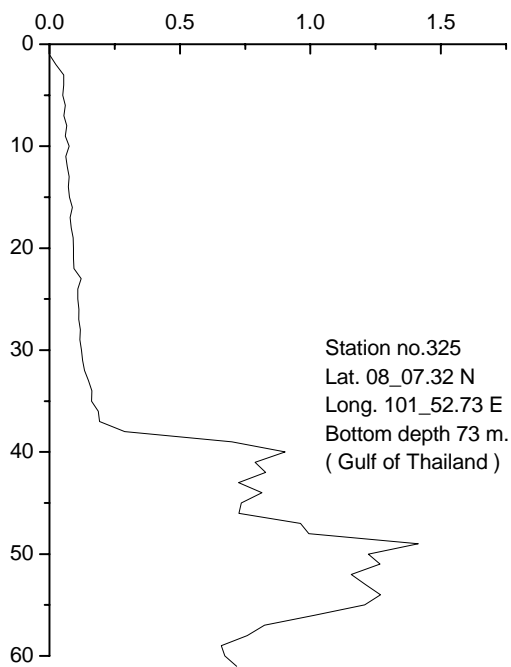
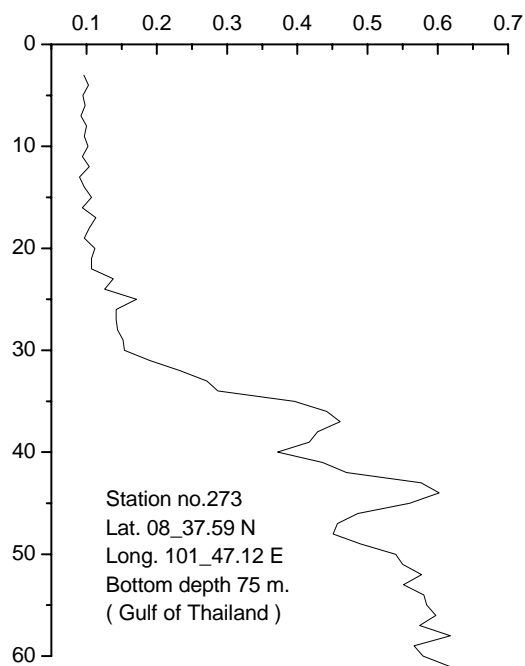
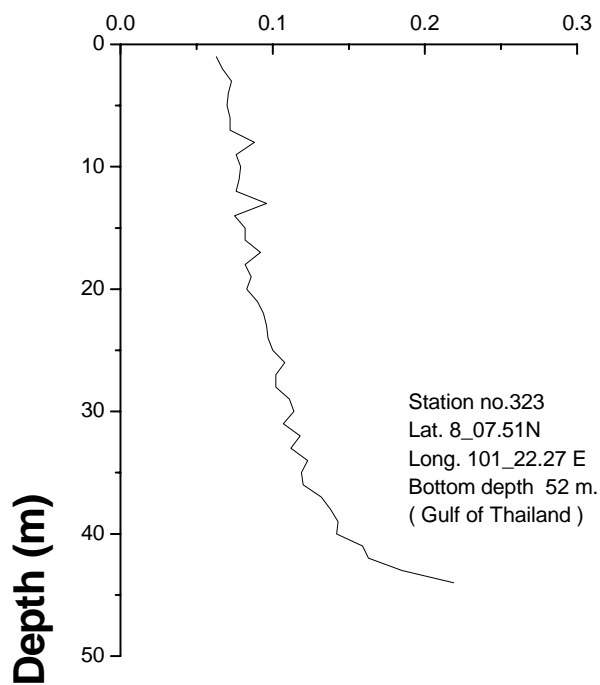
Depth (m)



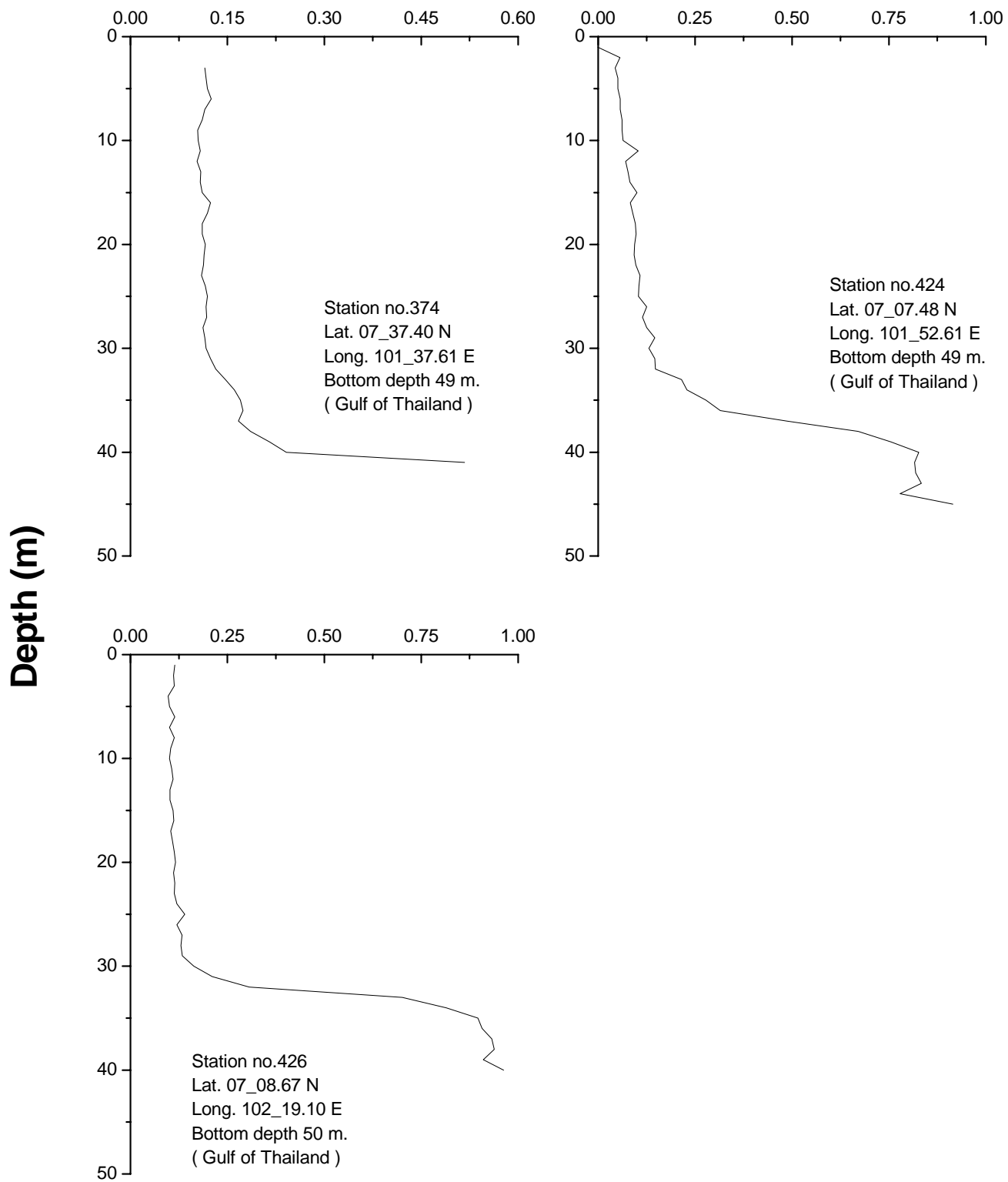
Fluorescence



Fluorescence



Fluorescence



Appendix II

Cruise no. 4-4/2004 [Gulf of Thailand]

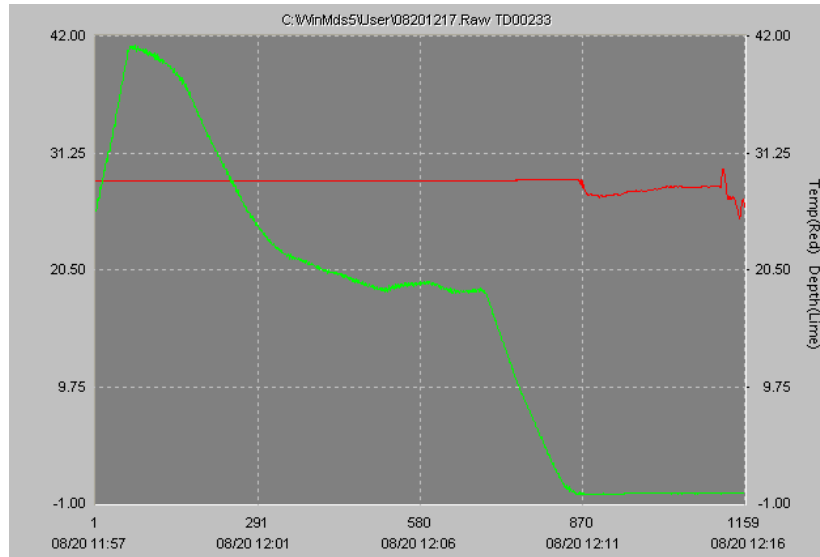
Station no.78

Date: 20-Aug-2004

Sounding depth: 60 m

Start 12:00 Lat. 11_07.668 N Long. 101_08.086 E

Finish 12:22 Lat. 11_07.477 N Long. 101_08.317 E



Cruise no. 4-4/2004 [Gulf of Thailand]

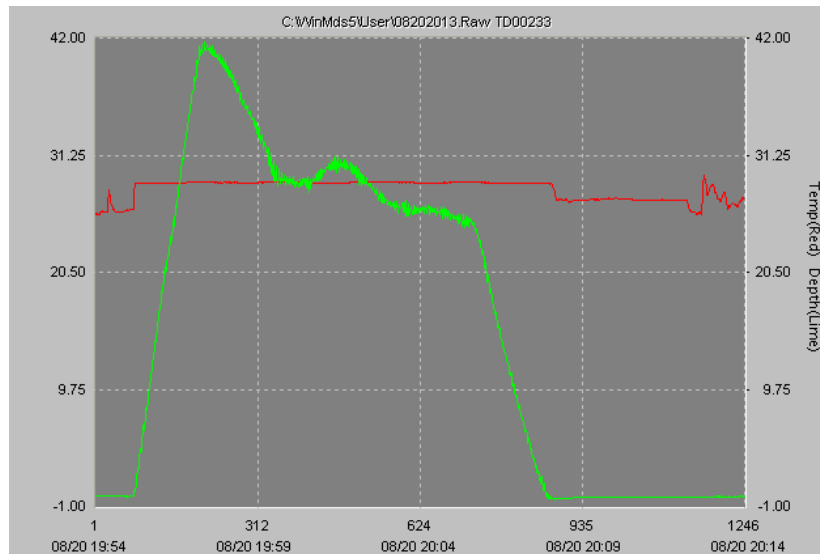
Station no.108

Date: 20-Aug-2004

Sounding depth: 69 m

Start 19:55 Lat. 10_38.807 N Long. 101_07.993 E

Finish 20:12 Lat. 10_38.284 N Long. 101_07.978 E



Cruise no. 4-4/2004 [Gulf of Thailand]

Station no.142

Date: 21-Aug-2004

Sounding depth: 63 m

Start 12:34 Lat. 10_07.803 N Long. 100_52.853 E

Finish 12:51 Lat. 10_07.646 N Long. 100_52.951 E

