Southeast Asian Fisheries Development Center

Training Department

CRUISE REPORT ON RESEARCH ACTIVITIES

M.V.SEAFDEC 2 Cruise No. 6-6/2004

3-16 November 2004

Fisheries Resources Survey in the Gulf of Thailand

TD/RP/84

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.: 6-6/2004 **Leg no:** -
Project Title: National survey for Thailand
Duration: 3-16 November 2004 (14 days)
Covered water: The Gulf of Thailand
Latitude 07°07'.40 N-11°41'.73 N
Longitude 100°20'.60 E-102°22'.70 E
Port of call: Samui Island, Thailand
Objective:
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	Boatswain	Mr. Vudthirat Vudthipanyo
7	Steerman	Mr. Pradit Kui-prasert
8	Steerman	Mr. Tana Rungjoy
9	Fitter	Mr. Vallop Phimroom
10	Oiler	Mr. Plew Shodok
11	Oiler	Mr. Boontarin Wara-in
12	Cook	Mr. Saichol Kornnoom

SEAFDEC Researchers

No.	Position	Name
13	Chief/Scientist	Mr. Isara Chanrachkij
14	Researcher	Mr. Nakaret Yasook
15	Assist. Researcher/FG.	Mr. Narong Ruangsivakul
16	Assist. Researcher/FG.	Mr. Aussawin Buachuay
17	Assist. Researcher	Ms. Kamolwan Pokaeo

DOF/ Thailand Researchers

No.	Position	Name
18	Researcher	Mrs. Pattira Lirdwitayaprasit
19	Researcher	L.t. Chairat Nuangsang
20	Researcher	Mr. Narupon Darumas
21	Researcher	Mr. Kanit Chuapun
22	Researcher	Ms. Chantihip Bunluedaj
23	Researcher	Mr. Souwanich Chamnan
24	Researcher	Ms. Jureerat Songnui
25	Researcher	Mr. Aekkarat Wongkeaw
26	Researcher	Mr. Vibon Mecharom
27	Researcher	Mr. Tavee Buranset
28	Researcher	Mr. Noppabon Suprungsri
29	Researcher	Mr. Visut Tonghong
30	Researcher	Mr. Amnuay Pisanpant

3. Observation Summary

Oceanographic survey summary

This cruise was the collaborative project of SEAFDEC/TD and DOF/Thailand for oceanographic survey, Acoustic survey and a Fish sampling by bottom trawl. Totally, twenty-three of oceanographic survey stations consist of main oceanographic activities namely ; Thermo-Salinograph and Fluorometer (TSG), PRR 2600 (Profiling Reflectance Radiometer System), Bongo, oceanographic data collection by STD/CTD model SD204, Water sampling by Niskin bottles included transparency by Sechi disc and Foral scale.

The detail of oceanographic activities is shown in Table 1. The shortly activities summary of each oceanographic survey station are as follow:

Thermo-Salinograph and Fluorometer (TSG)

Thermo-Salinograph & Fluorometer (TSG) is an oceanographic instrument that measures, temperature, salinity and fluorescence which operated for 24 hrs while the vessel was sailing and far away the shore. Except for the fishing operation and the vessel was drifting, it could not be archiving the oceanographic data efficiently.

For this cruise, two times of TSG operations were done the first operated was the route from SEAFDEC/TD to oceanographic survey station no.52 and the second time, on the way back to SEAFDEC/TD. However, when start the equipment the low battery of flow meter 12 L/min is shown have to solve by replace with new battery.

PRR-2600 (Profiling Reflectance Radiometer System)

Seven oceanographic stations namely; no.52, 76, 106, 140, 184, 273 and 426. There, PRR was operated only sunlight time (1000-1600 hrs.) for light measurement, which consist of two light sensors. Once, the underwater unit attached with oceanographic winch, speed 0.5 m/s then vertically dips start from the water surface until

30 meters depth. For the surface light sensor was installed on the stern deck and avoided any shadow to fall across them, the deckbok for battery power was connected to computer for acquiring and displaying real-time data.

The oceanographic survey station of PRR operation is shown in Table 1.

Bongo

The bongo is consists of the zooplankton frame attached with zooplankton net, 300 μm. of mesh net and attach with flow meter s/no.2120. The other side, fish larvae frame, attached with fish larvae net, 500 μm. of mesh net and attach with flow meter s/no.1034. The both net were used for zooplankton and fish larvae collection.

Fig.1 Bongo net operation

The bongo was operated every oceanographic survey station. Each station was attached with net-sonde for check the depth level and horizontally tow above the bottom of the sea, with towing speed 1.5-2.0 m/s. However, the towing depth was consideration from the sea depth of each station. The sample was preserved in formalin 10%

The oceanographic survey station of bongo operation is shown in Table 2.

STD/CTD model SD204

The STD/CTD model SD204 was carried out from DOF/Thailand which a self-contained instrument that measures, calculates and records sea water conductivity, salinity, temperature, pressure and sound velocity, included dissolved oxygen. It was conduct every oceanographic station. Each survey station, it was attached with the oceanographic winch with winch speed 0.5 m/s to vertical dip from surface – 50 m. depth.

Fig. 2 STD/CTD model SD204

Otherwise, the depth of CTD operation can be change according to the sea depth in each station.

The oceanographic data were recorded in the instrument memory and transferred to PC by cable after the measurement had been completed. However, it could not be recording data at st.no.52 and 78.

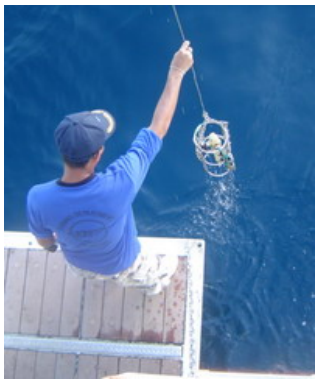
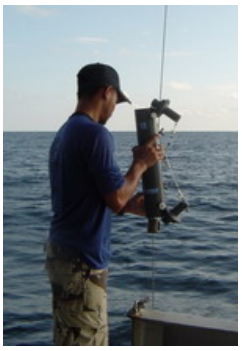


Fig. 3 STD/CTD model SD204 operation

The oceanographic survey station of CTD/STD operation is shown in Table 1 and temperature profile is shown in the **Appendix I**.

Water sampling

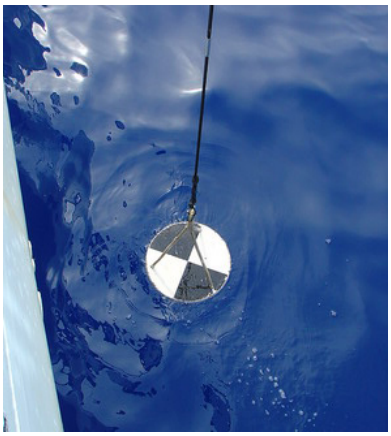


Twenty-three of oceanographic surveys were conducted using Niskin bottles to collected the sea water sample for nutrient determination which it was attached with oceanographic winch, speed 0.5 m/s to collected the sea water at surface, 10 m., 20 m., 30 m. and 50 m. of sea depth and filtered them through the filter paper 1.2 cm. of diameter in order to eradicated the phytoplankton that effected to nutrient determination. Each depth, the sample were carried out 60 cc. in both of two repetition and freeze in refrigerator to analyze at TD/laboratory.

Fig. 4 water sampling by using Niskin bottles

Transparency

Twenty oceanographic surveys, The Secchi disc and Foral scale were used to measured water transparency and sea water color, respectively. Only three stations at st.no.52, 143 and 181, could not be operated because of poorly sea condition.



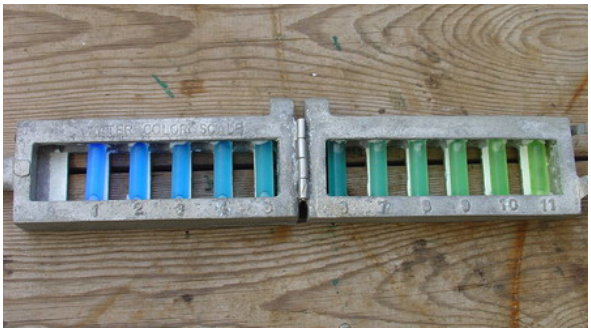


Fig. 5 Secchi disc and Foral scale

Table 1. Partial details of Oceanographic activities cruise no. 6-6/2004 (3 - 16 November 2004)The Gulf of Thailand

St.No	Date	Time (Local)	Lat	Long	Oceanographic instruments				Transparency		Bottom Depth (m)	Filename	
					CTD# SD204	PRR	Bongo	Niskin	Sechi disc (m)	Foral scale		CTD#SD204	PRR
52	4-Nov-04	0923	11_37.90 N	101_06.90 E	✔	✔	✔	✔	-	-	56	*	2004_11_04_1056.mdb
50	4-Nov-04	1430	11_37.46 N	100_37.65 E	✔	-	✔	✔	22.0	4	48	20040650.sd2	-
76	5-Nov-04	0909	11_07.70 N	100_37.40 E	✔	✔	✔	✔	11.5	2	56	20040676.sd2	2004_11_05_0909.mdb
78	5-Nov-04	1556	11_07.50 N	101_07.80 E	✔	-	✔	✔	18.0	2	60	*	-
108	6-Nov-04	0732	10_37.50 N	101_07.80 E	✔	-	✔	✔	20.0	2	63	20046108.sd2	-
106	6-Nov-04	1118	10_37.60 N	100_37.70 E	✔	✔	✔	✔	16.3	3	61	20046106.sd2	2004_11_06_1120.mdb
143	6-Nov-04	1727	10_07.20 N	101_00.40 E	✔	-	✔	✔	-	-	64	20046143.sd2	-
142	7-Nov-04	0755	10_07.80 N	100_52.50 E	✔	-	✔	✔	23.8	3	62	20046142.sd2	-
140	7-Nov-04	1149	10_07.50 N	100_22.60 E	✔	✔	✔	✔	15.0	5	55	20046140.sd2	2004_11_07_1151.mdb
181	7-Nov-04	1657	09_42.54 N	100_22.86 E	✔	-	✔	✔	-	-	51	20046181.sd2	-
183	10-Nov-04	0748	09_37.70 N	100_52.80 E	✔	-	✔	✔	21.0	3	56	20046183.sd2	-
184	10-Nov-04	1008	09_37.40 N	101_07.90 E	✔	✔	✔	✔	15.6	3	65	20046184.sd2	2004_11_10_1010.mdb
224	10-Nov-04	1558	09_07.30 N	101_07.90 E	✔	-	✔	✔	18.0	3	59	20046224.sd2	-
222	11-Nov-04	0736	09_07.50 N	100_37.70 E	✔	-	✔	✔	15.0	3	37	20046222.sd2	-
269	11-Nov-04	1100	08_37.40 N	100_37.70 E	✔	-	✔	✔	11.5	5	31	20046269.sd2	-

Remark: * = No Data Recorded
- = No operated

Table 1. continued.

St.No	Date	Tim (Local)	Lat	Long	Oceanographic instruments				Transparency		Bottom Depth (m)	Filename	
					CTD# SD204	PRR	Bongo	Niskin	Sechi disc (m)	Foral scale		CTD#SD204	PRR
271	11-Nov-04	1614	08_37.50 N	101_07.80 E	✔	-	✔	✔	15.0	3	54	20046271.sd2	-
323	12-Nov-04	0745	08_07.40 N	101_23.00 E	✔	-	✔	✔	15.0	3	52	20046323.sd2	-
273	12-Nov-04	1215	08_37.40 N	101_47.20 E	✔	✔	✔	✔	16.0	3	76	20046273.sd2	2004_11_12_1215.mdb
325	12-Nov-04	1707	08_08.10 N	101_52.60 E	✔	-	✔	✔	16.0	3	74	20046325.sd2	-
376	13-Nov-04	0812	07_37.80 N	102_07.10 E	✔	-	✔	✔	13.0	4	69	20046376.sd2	-
426	13-Nov-04	1228	07_07.60 N	102_22.70 E	✔	✔	✔	✔	13.0	5	50	20046426.sd2	2004_11_13_1229.mdb
424	13-Nov-04	1644	07_07.50 N	101_52.80 E	✔	-	✔	✔	15.0	5	49	20046424.sd2	-
374	14-Nov-04	0744	07_36.90 N	101_37.70 E	✔	-	✔	✔	16.0	4	50	20046374.sd2	-

Remark: * = No Data Recorded
- = No operated

Table 2. Bongo net : Horizontal direction

St.No	Date	Start			Finish			Towing depth (m)	Towing speed (knots)	Bottom Depth (m)	No.at flow meter	
		Time (local)	Latitude	Longitude	Time (local)	Latitude	Longitude				Fish larvae (s/No.1034)	Zooplankton (s/No.2120)
52	4-Nov-04	0949	11_37.89 N	101_06.34 E	1014	11_37.93 N	101_05.88 E	50	1.5	56	12,410	15,240
50	4-Nov-04	1455	11_37.27 N	100_37.49 E	1515	11_37.30 N	100_37.36 E	40	1.5-2.0	48	5,360	13,780
76	5-Nov-04	0940	11_07.50 N	100_37.20 E	1000	11_07.60 N	100_37.07 E	40	1.8	56	3,910	10,225
78	5-Nov-04	1615	11_07.33 N	101_07.76 E	1635	11_07.43 N	101_07.75 E	45	2.0	60	4,720	13,400
108	6-Nov-04	0749	10_37.60 N	101_07.70 E	0809	10_37.90 N	101_07.60 E	52	2.0	63	10,565	19,540
106	6-Nov-04	1142	10_37.80 N	100_37.80 E	1203	10_37.90 N	100_37.60 E	54	2.0	61	10,020	17,960
143	6-Nov-04	1728	10_07.23 N	101_00.35 E	1748	10_07.36 N	101_00.28 E	52	2.0	64	4,815	10,935
142	7-Nov-04	0814	10_07.90 N	100_52.70 E	0835	10_08.10 N	100_52.60 E	52	1.8	62	10,240	16,735
140	7-Nov-04	1213	10_07.50 N	100_22.90 E	1234	10_07.53 N	100_22.93 E	40	2.0	55	11,060	19,591
181	7-Nov-04	1657	09_42.54 N	100_22.86 E	1717	09_42.64 N	100_23.02 E	42	1.8	51	10,595	18,635
183	10-Nov-04	0806	09_37.77 N	100_52.79 E	0827	09_37.92 N	100_52.73 E	45	1.5	56	10,118	18,134
184	10-Nov-04	1032	09_37.55 N	101_07.73 E	1053	09_37.75 N	101_07.68 E	50	1.5	65	10,012	18,834
224	10-Nov-04	1614	09_07.23 N	101_07.78 E	1635	09_07.11 N	101_07.80 E	45	1.8	59	10,620	10,439
222	11-Nov-04	0748	09_07.50 N	100_37.60 E	0809	09_07.45 N	100_37.48 E	30	1.5	37	10,940	11,286
269	11-Nov-04	1112	08_37.39 N	100_37.70 E	1133	08_37.36 N	100_37.74 E	25	1.5	31	10,003	18,310
271	11-Nov-04	1629	08_37.45 N	101_07.64 E	1650	08_37.54 N	101_07.71 E	50	1.5	54	12,070	19,322
323	12-Nov-04	0801	08_07.00 N	101_22.85 E	0820	08_08.10 N	101_22.78 E	45	1.5	52	10,416	17,570
273	12-Nov-04	1238	08_37.43 N	101_47.06 E	1300	08_37.82 N	101_47.23 E	60	1.5	76	10,636	19,116
325	12-Nov-04	1724	08_08.30 N	101_52.49 E	1745	08_08.83 N	101_52.56 E	50	1.5	74	11,758	10,218
376	13-Nov-04	0830	07_38.07 N	102_06.58 E	0849	07_38.71 N	102_06.23 E	55	2.0	69	10,544	11,952
426	13-Nov-04	1248	07_07.51 N	102_22.28 E	1309	07_08.02 N	102_22.11 E	36	1.8	50	5,670	11,096
424	13-Nov-04	1708	07_07.50 N	101_52.52 E	1729	07_07.98 N	101_52.11 E	40	1.8	49	13,878	19,714
374	14-Nov-04	0757	07_37.26 N	101_37.39 E	0819	07_38.09 N	101_37.20 E	42	2.0	50	10,142	18,768

Fishing survey summary

In this survey, fishing survey was operated by bottom trawl. The entire cruise was operated in 22 stations. The maximum catch (in weight) was 28.087 kg in station no. 424. The partial detail of fish sampling activities is shown in Table 3.

Fig. 6 Bottom trawl operation and catch

Table 3. Partial details of Bottom Trawl fishing survey activities cruise no. 6-6/2004 (3 - 16 November 2004) The Gulf of Thailand

Station no.	Date		Shooting		Hauling		Depth of capture (m)	Speed vessel (kt)	Total catch (kg)
			Start	Finish	Start	Finish			
52	4-Nov-04	Time	0655	0728	0828	0845	55.3	3.0-3.3	5.406
		Latitude	11°37'.4 N	11°37'.9 N	11°40'.3 N	11°40'.4 N			
		Longitude	101°07'.3 E	101°05'.8 E	101°03'.8 E	101°03'.2 E			
50	4-Nov-04	Time	1525	1543	1643	1700	46.0	3.1	2.125
		Latitude	11°37'.49 N	11°38'.36 N	11°41'.10 N	11°41'.73 N			
		Longitude	100°37'.56 E	100°38'.05 E	100°39'.60 E	100°39'.36 E			
76	5-Nov-04	Time	1043	1106	1208	1223	55.8	3.0	13.453
		Latitude	11°07'.1 N	11°05'.8 N	11°02'.4 N	11°02'.1 N			
		Longitude	100° 36'.9 E	100°36'.5 E	100°35'.4 E	100°35'.2 E			
78	5-Nov-04	Time	1700	1715	1815	1830	62.0-65.6	3.5	20.255
		Latitude	11°05'.6 N	11°05'.0 N	11°01'.8 N	11°01'.4 N			
		Longitude	101°06'.3 E	101°06'.8 E	101°08'.5 E	101°08'.8 E			
108	6-Nov-04	Time	0555	0607	0707	0722	65.7	3.0-3.3	17.008
		Latitude	10°40'.2 N	10°39'.7 N	10°37'.3 N	10°37'.0 N			
		Longitude	101°04'.5 E	101°04'.9 E	101°07'.0 E	101°02'.2 E			
106	6-Nov-04	Time	1207	1219	1319	1336	61.0	3.3-3.5	14.203
		Latitude	10°37'.9 N	10°37'.9 N	10°38'.3 N	10°38'.6 N			
		Longitude	100°73'.7 E	100°38'.3 E	100°41'.8 E	100°42'.2 E			
143	6-Nov-04	Time	1800	1817	1917	1940	63.0	2.7	17.297
		Latitude	10°07'.2 N	10°06'.5 N	10°04'.1 N	10°03'.6 N			
		Longitude	101°01'.2 E	101°01'.9 E	101°04'.4 E	101°05'.1 E			
142	7-Nov-04	Time	0554	0607	0707	0722	62.5-66.2	3.7	18.685
		Latitude	10°07'.9 N	10°08'.6 N	10°11'.4 N	10°11'.8 N			
		Longitude	100°52'.6 E	100°52'.0 E	100°49'.7 E	100°49'.4 E			
140	7-Nov-04	Time	1250	1309	1409	1424	58.0	3.3	7.354
		Latitude	10°07'.7 N	10°08'.4 N	10°11'.1 N	10°11'.4 N			
		Longitude	100°22'.9 E	100°22'.6 E	100°20'.6 E	100°21'.0 E			
183	10-Nov-04	Time	0554	0610	0710	0724	57.0-59.0	3.3	10.465
		Latitude	09°36'.1 N	09°36'.8 N	09°40'.9 N	09°40'.9 N			
		Longitude	100°52'.8 E	100°52'.6 E	100°51'.6 E	100°51'.5 E			
184	10-Nov-04	Time	1130	1142	1241	1255	61.0-65.6	3.0	18.694
		Latitude	09°38'.5 N	09°37'.8 N	09°34'.5 N	09°34'.1 N			
		Longitude	101°01'.0 E	101°07'.2 E	101°01'.9 E	101°07'.7 E			
224	10-Nov-04	Time	1640	1652	1752	1808	58.5-60.9	3.6-3.7	10.624
		Latitude	09°06'.9 N	09°06'.9 N	09°02'.4 N	09°01'.9 N			
		Longitude	101°07'.8 E	101°07'.8 E	101°08'.3 E	101°08'.2 E			
222	11-Nov-04	Time	0533	0604	0705	0723	32.5-33.0	3.5	6.068
		Latitude	09°07'.5 N	09°07.5 N	09°07'.0 N	09°06'.9 N			
		Longitude	100°35'.6 E	100°36'.3 E	100°39'.7 E	100°40'.0 E			
269	11-Nov-04	Time	1142	1152	1251	1306	31.0	3.8-3.9	3.756
		Latitude	08°37'.3 N	08°37'.3 N	08°36'.7 N	08°36'.5 N			
		Longitude	100°37'.9 E	100°38'.7 E	100°42'.4 E	100°42'.8 E			
271	11-Nov-04	Time	1655	1708	1808	1826	53.6-53.8	3.9	7.822
		Latitude	08°37'.1 N	08°37'.0 N	08°36'.4 N	08°36'.4 N			
		Longitude	101°07'.5 E	101°06'.7 E	101°03'.0 E	101°02'.3 E			
323	12-Nov-04	Time	0552	0604	0704	0717	52.0	3.1	8.968
		Latitude	08°07'.1 N	08°06'.9 N	08°05'.8 N	08°05'.7 N			
		Longitude	101°23'.5 E	101°24'.0 E	101°27'.0 E	101°27'.1 E			
273	12-Nov-04	Time	1304	1315	1406	1420	72.7-73.0	3.4	4.740
		Latitude	08°37'.7 N	08°37'.7 N	08°37'.4 N	08°37'.3 N			
		Longitude	101°47'.1 E	101°46'.4 E	101°43'.4 E	101°43'.2 E			
325	12-Nov-04	Time	1747	1801	1901	1917	73.5	3.6	17.713
		Latitude	08°08'.8 N	08°08'.6 N	08°08'.5 N	08°08'.6 N			
		Longitude	101°52'.5 E	101°51'.7 E	101°48'.4 E	101°48'.0 E			
376	13-Nov-04	Time	0600	0614	0714	0730	69.0	4.1	13.351
		Latitude	07°37'.5 N	07°37'.7 N	07°39'.3 N	07°39'.7 N			
		Longitude	102°06'.9 E	102°06'.0 E	102°02'.5 E	102°01'.9 E			
426	13-Nov-04	Time	1313	1326	1425	1436	50.0	3.7	17.132
		Latitude	07°07'.9 N	07°07'.9 N	07°07'.6 N	07°07'.4 N			
		Longitude	102°21'.9 E	102°21'.1 E	102°17'.8 E	102°17'.3 E			
424	13-Nov-04	Time	1732	1744	1844	1900	50.0	3.9	28.087
		Latitude	07°08'.1 N	07°08'.0 N	07°08'.3 N	07°08'.3 N			
		Longitude	101°51'.9 E	101°51'.0 E	101°47'.3 E	101°46'.7 E			
374	14-Nov-04	Time	0553	0605	0706	0724	50.0	2.9	2.587
		Latitude	07°37'.5 N	07°37'.1 N	07°33'.9 N	07°34'.0 N			
		Longitude	101°37'.5 E	101°37'.6 E	101°38'.0 E	101°37'.1 E			

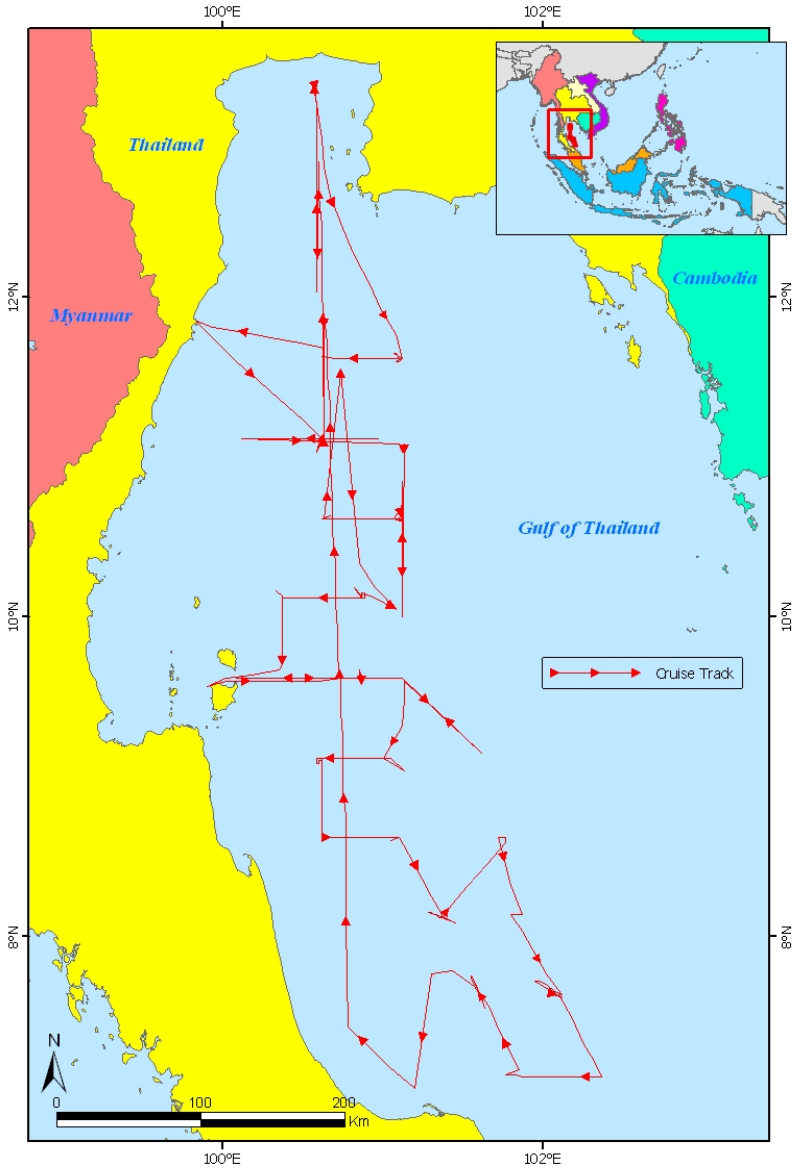


Fig. 7 Cruise track map: cruise no. 6-6/2004

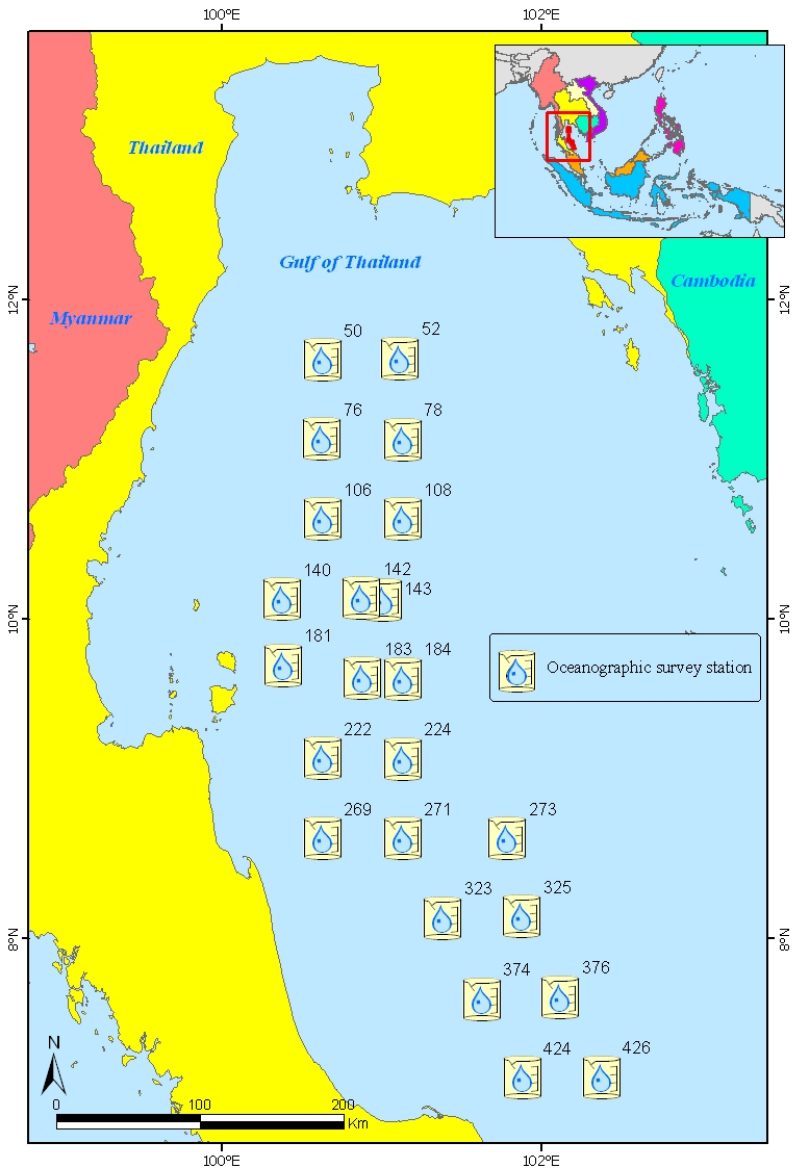


Fig. 8 Oceanographic survey stations of cruise no. 6-6/2004

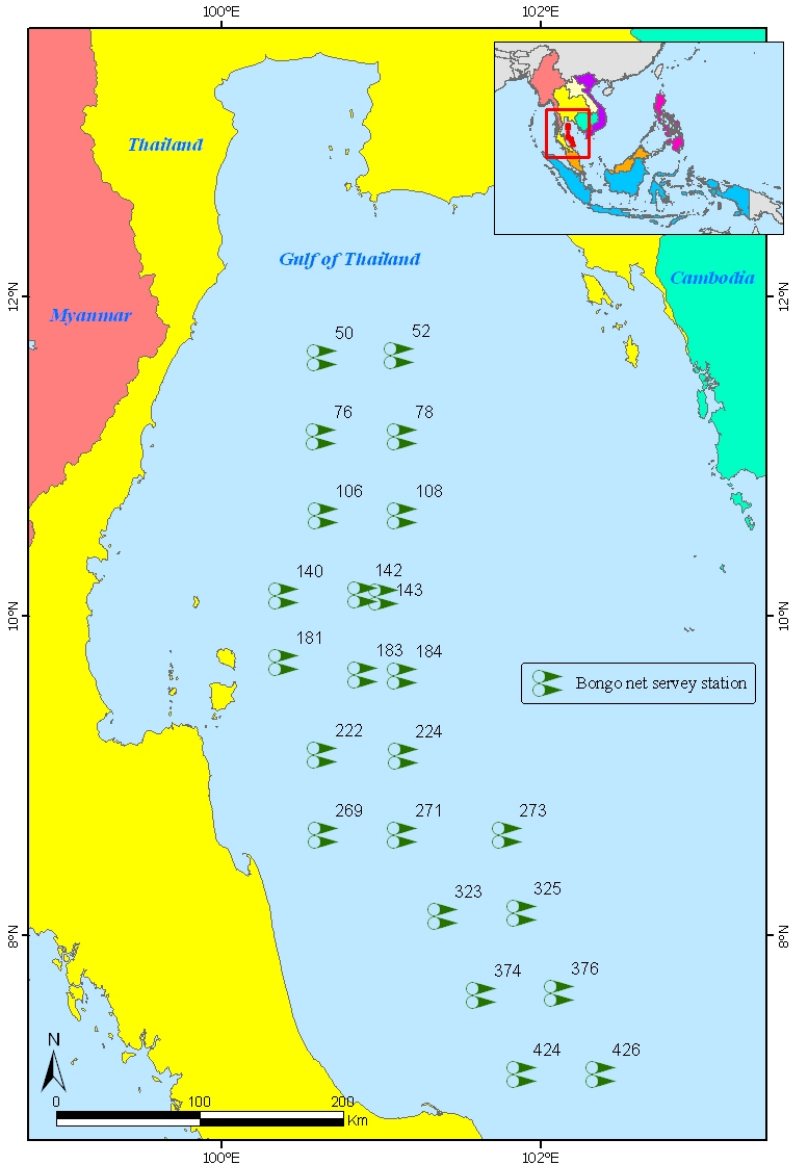


Fig. 9 Bongo net survey stations of cruise no. 6-6/2004

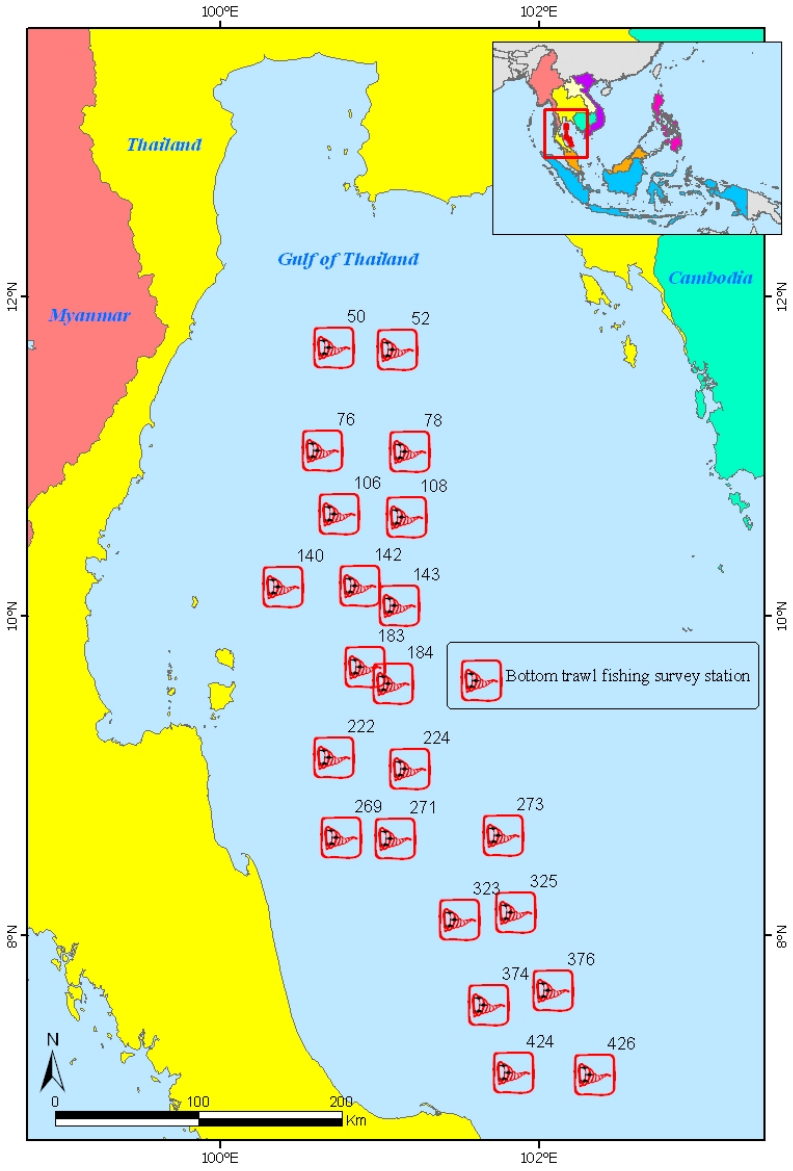
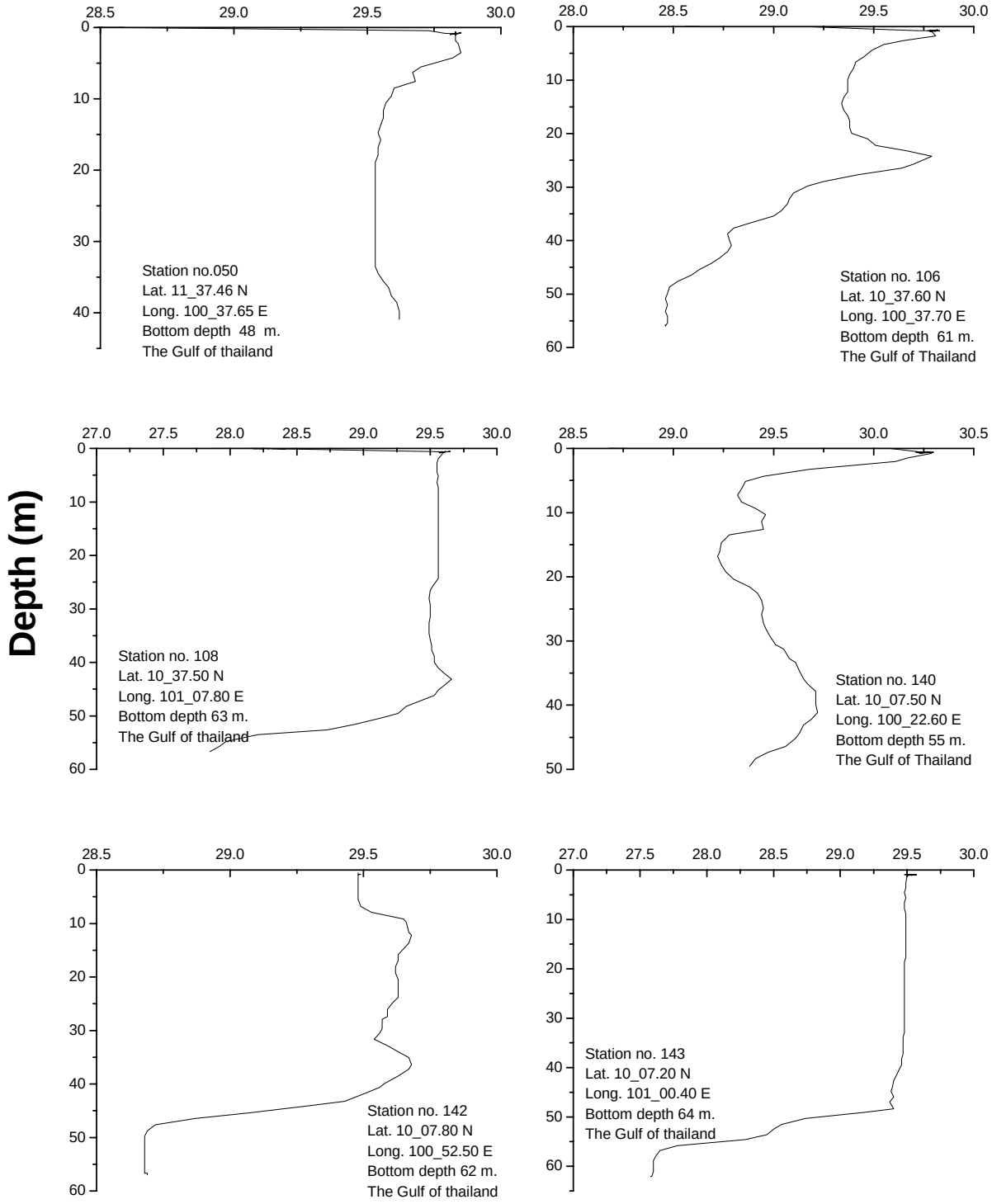


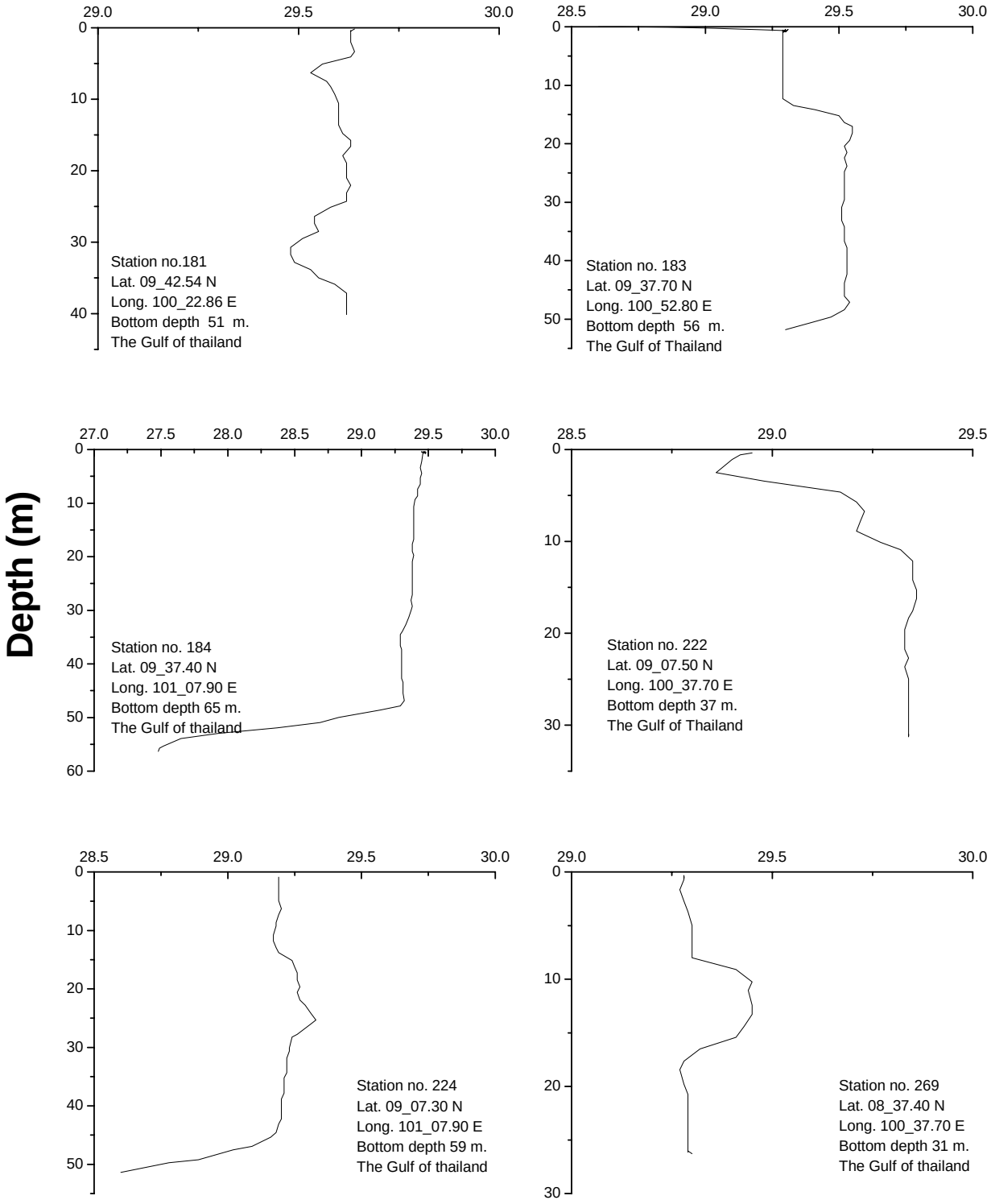
Fig. 10 Bottom trawl survey stations of cruise no. 6-6/2004

Appendix I

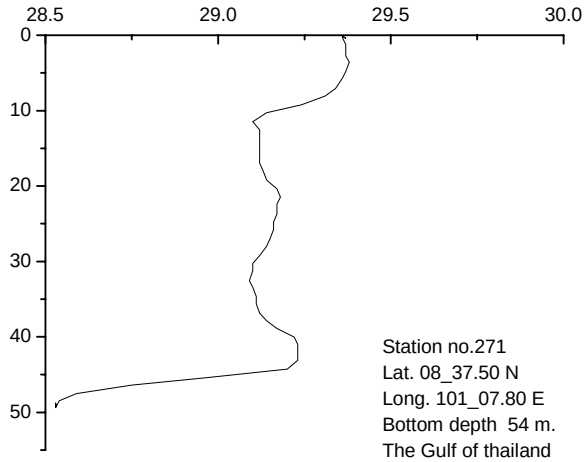
Temperature (^{o}C)

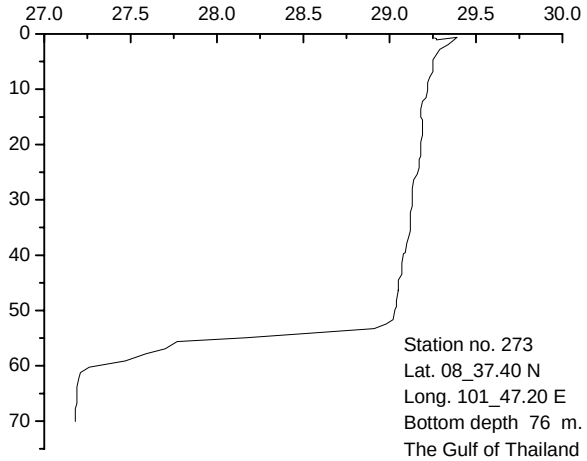


Temperature (^{o}C)

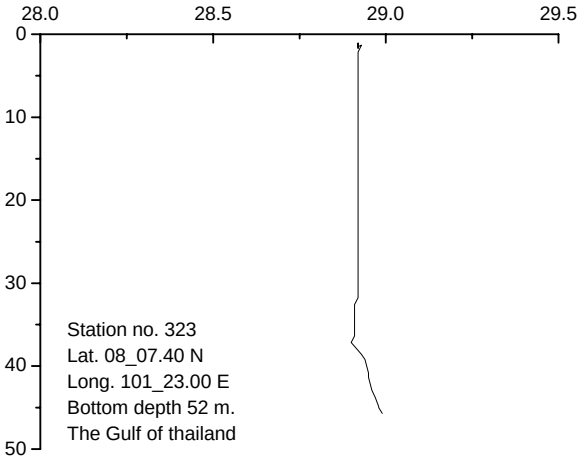


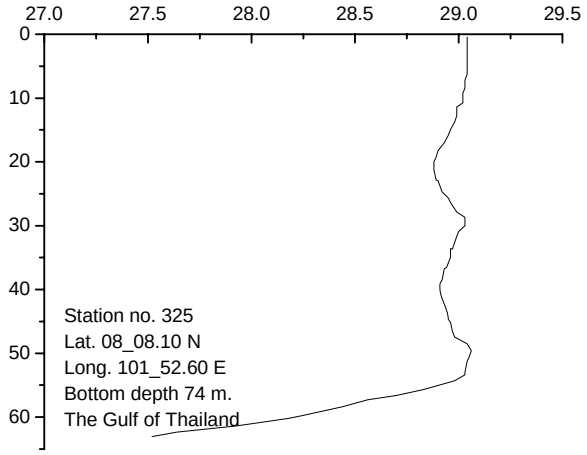
Temperature (^{o}C)

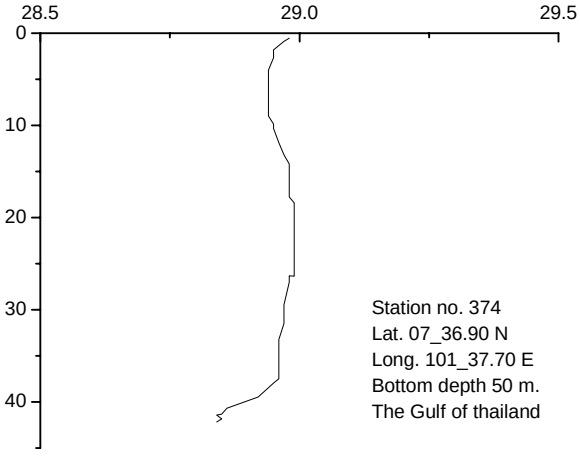


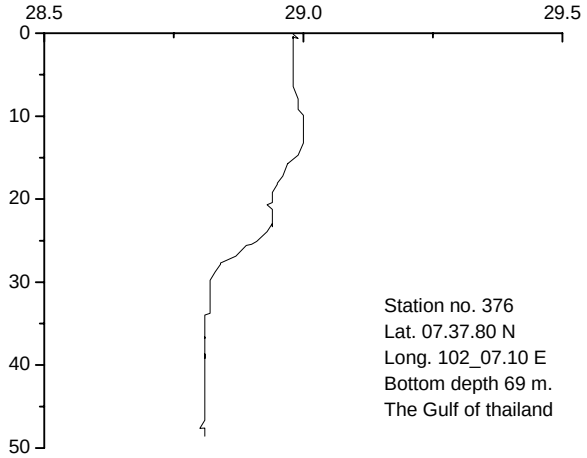


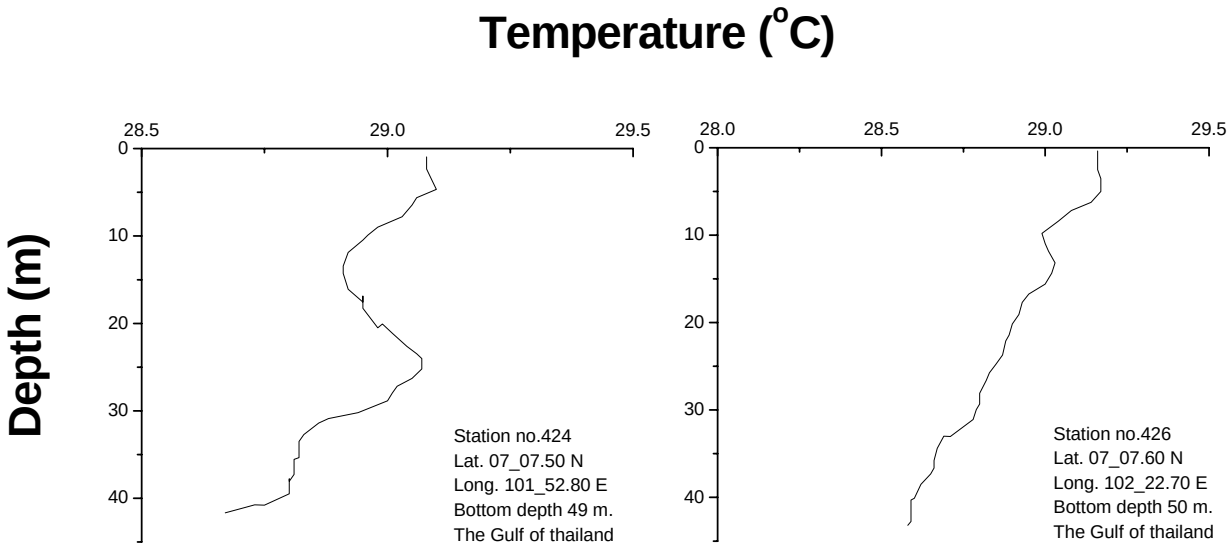
Depth (m)










Temperature (°C)
Depth (m)
28.5
29.0
29.5
0
10
20
30
40
Station no.424
Lat. 07_07.50 N
Long. 101_52.80 E
Bottom depth 49 m.
The Gulf of thailand
28.0
28.5
29.0
29.5
0
10
20
30
40
Station no.426
Lat. 07_07.60 N
Long. 102_22.70 E
Bottom depth 50 m.
The Gulf of thailand