

## THE THAI-DANISH BIOSHELF SURVEYS (1996–1998) OFF WESTERN THAILAND, PART OF THE ANDAMAN SEA

Somchai Bussarawit and Charatsee Aungtonya

*Phuket Marine Biological Center, P.O. Box 60, Phuket 83000, Thailand*

### ABSTRACT

The crustacean material available for the International Crustacean Workshop, held at the Phuket Marine Biological Center in 1998, was collected under the BIOSHELF Project. In this interim report, we aim to give a general background of the BIOSHELF surveys off the western Thailand part of the Andaman Sea, during 1996–1998. A preliminary report on the BIOSHELF surveys (1996–2000) (Aungtonya *et al.*, 2000), referred in part of the general background of the project. The original plan for the BIOSHELF surveys 1996–1998 was referred and discussed. The itinerary of the cruises in 1996–1998 is presented in accordance with the preliminary report.

### INTRODUCTION

The Biodiversity of the Andaman Sea Shelf Project (BIOSHELF) was proposed under the Scientific Cooperation Program (SCP) between Denmark and Thailand, supported by DANIDA, to be carried out during 1996–2000. The objective of the project was to expand our general knowledge of the diversity of benthos within the Thai Economic Exclusive Zone (EEZ). The BIOSHELF Project was carried out in cooperation between the Phuket Marine Biological Center and the Zoological Museum, University of Copenhagen (ZMUC), Denmark.

### MATERIALS AND METHODS

The BIOSHELF surveys were initially planned for three cruises, using the R.V. *Chakratong Tongyai*, during 1996–1998. Twelve transect lines were established across the shelf, running perpendicular to the coast and parallel to latitudes (A–L, Fig. 1A) (Aungtonya and Hylleberg, 1998). Along each transect five stations were fixed at lines at approximate depths of 40, 60, 80, 100, and 200 m. In 1998, the BIOSHELF project was discussed and considered to extend the surveys to greater depths during 1999–2000. The number of stations

in each transect was increased, fixed along the lines at approximate depths of 300, 400, 500, 600, 700, 800, and 900 m. Therefore, the names of the stations were rearranged by Aungtonya *et al.* (2000). The present map of the year 1996–1998 has been made in accordance with Aungtonya *et al.* (2000) (Fig. 1B).

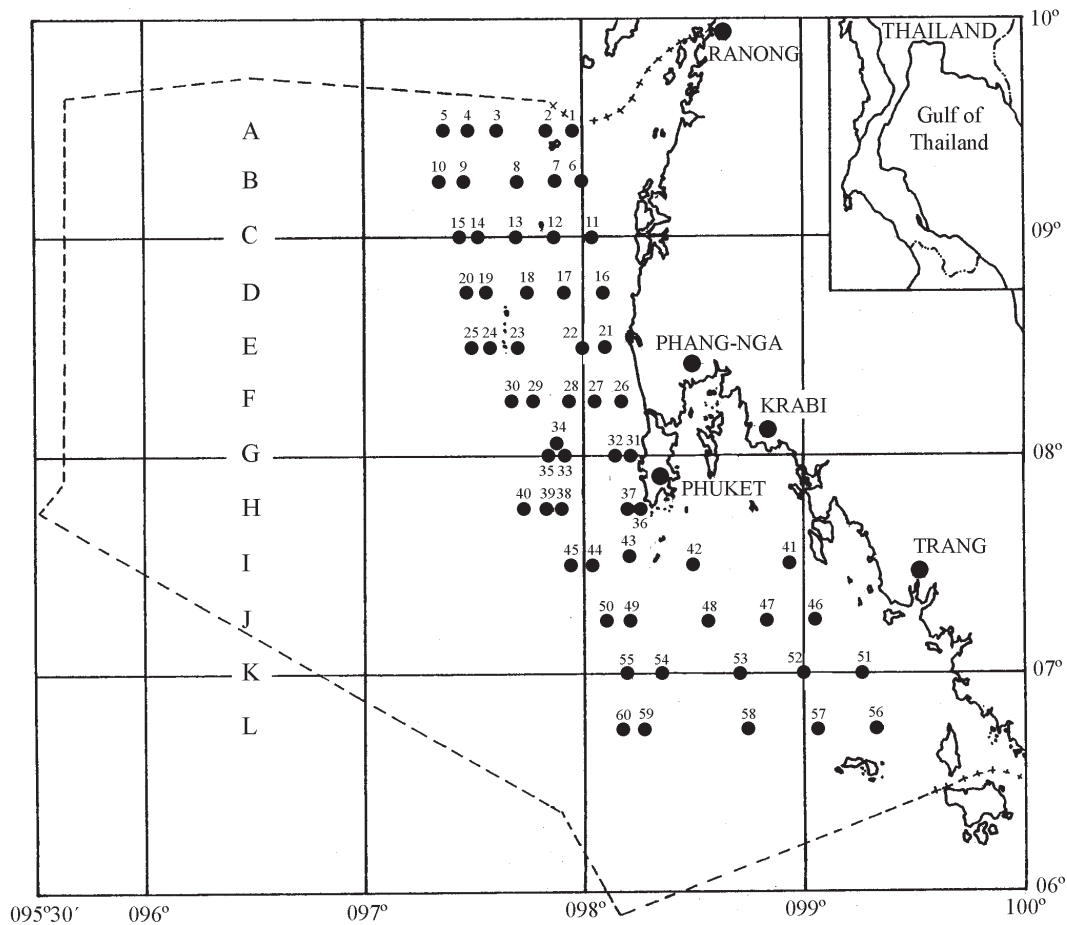
### RESULTS

A total of 48 stations on nine transects, from the Burmese border in the north to the Malaysian border in the south, were sampled at depths of 40–800 m, with an extra 10 stations in the Thai EEZ (U1–U10) and three near-shore stations (T1–T3), 10 stations from Phang-nga Bay (PB1–PB10), 3 stations near Racha Yai Island (RY1–RY3), and 3 stations near Racha Noi Island (RN1–RN3) (Fig. 1B). Due to unsuitable bottom type some of the planned stations could not be sampled, but extra stations were added at 20 m depth along transects E, I, and K.

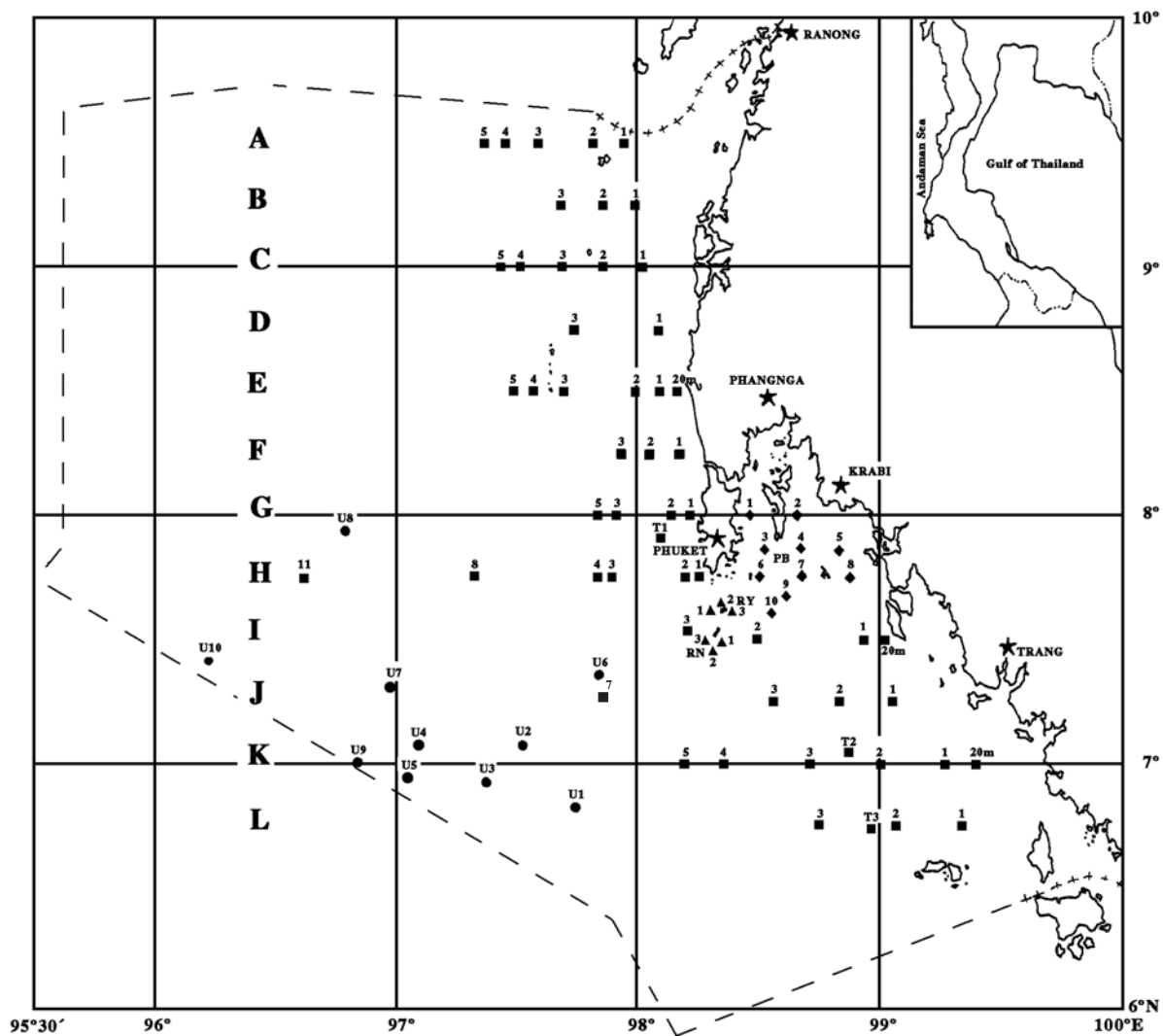
The crustacean material was collected using a box corer, a Smith-McIntyre grab, an Ockelmann detritus sledge (frame = 2 m in length and 1 m in width) and a beam trawl. Three main BIOSHELF cruises and a number of additional cruises were conducted. The three main BIOSHELF cruises

were led by Mr Somchai Bussarawit and Ms Charatsee Aungtonya in April and May 1996, by Mr Somchai Bussarawit in April 1997, and by Mr Somchai Bussarawit and Ms. Charatsee Aungtonya in February 1998. Supplementary crustacean material was collected by using an Ockelmann sledge in November 1997. Sampling took place from a long-tail boat and was led by Dr Niel Bruce and Ms Grete Dinesen from ZMUC. Another supplementary cruise was organized by Dr Matz Berggren during the International Workshop on

Crustaceans in December 1998, and was conducted aboard the Coastal R.V. *Boonlert Phasuk*. SCUBA gear was used and samples were taken at the Racha Islands and from the waters around Phuket Island. A number of crustacean samples were also collected from a test cruise for sampling gear, organized by Mr Somchai Bussarawit in December 1998. A detailed itinerary of the cruises to the Andaman Sea during the period of 1996–1998 is given in Table 1.



**Figure 1 A**, Sampling station of the BIOSHELF survey to the Andaman Sea (modified from Aungtonya and Hylleberg, 1998).



**Figure 1 B**, Location of BIOSHELF stations and additional stations in the Andaman Sea during 1996–1998 (in accordance with Aungtonya *et al.*, 2000). A–L = Transect lines. Numbers indicate sampling points along transect lines. Designations of sampling stations are described in the text.

**Table 1** Details on the BIOSHELF stations sampled during 1996–1998. Previous station names, may occur on labels with some samples, are indicated in parenthesis. Abbreviations: BC: box corer; G: Smith-McIntyre grab; OS: Ockelmann sledge; TD: triangular dredge; BT: beam trawl; T: otter trawl; and ND: no data collected.

Station	Gear	Date	Position		Depth (m) Start	Type of sediment	Collector
			Lat.	Long.			
<b>A1</b>	BC	18/04/1996	09° 30'N	097° 57'E	43	sand with shell fragments	S. Bussarawit and C. Aungtonya
	OS	18/04/1996	09° 30'N	097° 58'E	42	sand with shell fragments	S. Bussarawit and C. Aungtonya
	OS	18/02/1998	09° 30'N	097° 57'E	46	sand with shell fragments	S. Bussarawit and C. Aungtonya
	TD	18/04/1996	09° 32'N	097° 58'E	40	ND	S. Bussarawit and C. Aungtonya
	TD	18/02/1998	09° 30'N	097° 56'E	49	ND	S. Bussarawit and C. Aungtonya
	T	18/04/1996	09° 30'N	097° 57'E	43	ND	S. Bussarawit and C. Aungtonya
<b>A2</b>	BC	18/04/1996	09° 30'N	097° 51'E	61	sandy mud, fine sand and shell fragments	S. Bussarawit and C. Aungtonya
	OS	18/04/1996	09° 32'N	097° 50'E	66	sandy mud	S. Bussarawit and C. Aungtonya
	OS	18/02/1998	09° 29'N	097° 52'E	61	sandy mud	S. Bussarawit and C. Aungtonya
	TD	18/04/1996	09° 34'N	097° 49'E	70	ND	S. Bussarawit and C. Aungtonya
	TD	18/02/1998	09° 30'N	097° 53'E	59	ND	S. Bussarawit and C. Aungtonya
	T	18/04/1996	09° 31'N	097° 51'E	64	ND	S. Bussarawit and C. Aungtonya
<b>(= A2-B2)</b>	T	18/02/1998	09° 27'N	097° 52'E	63	ND	S. Bussarawit and C. Aungtonya
<b>A3</b>	BC	19/04/1996	09° 30'N	097° 38'E	82	sandy mud	S. Bussarawit and C. Aungtonya
	OS	19/04/1996	09° 30'N	097° 38'E	83	sandy mud	S. Bussarawit and C. Aungtonya
	TD	19/04/1996	09° 31'N	097° 38'E	87	ND	S. Bussarawit and C. Aungtonya
	T	19/04/1996	09° 33'N	097° 38'E	83	ND	S. Bussarawit and C. Aungtonya
<b>A4</b>	BC	19/04/1996	09° 30'N	097° 28'E	116	coarse sand	S. Bussarawit and C. Aungtonya
<b>A5</b>	BC	19/04/1996	09° 29'N	097° 22'E	204	rock	S. Bussarawit and C. Aungtonya
	TD	19/04/1996	09° 28'N	097° 22'E	196	ND	S. Bussarawit and C. Aungtonya
<b>B1 (= B6)</b>	OS	17/02/1998	09° 14'N	098° 00'E	45	muddy sand	S. Bussarawit and C. Aungtonya
	TD	17/02/1998	09° 15'N	098° 02'E	43	ND	S. Bussarawit and C. Aungtonya

**Table 1** (continued.)

Station	Gear	Date	Position		Depth (m) Start	Type of sediment	Collector
			Lat.	Long.			
<b>B2 (= B7)</b>	OS	17/02/1998	09° 15' N	097° 54' E	58	sand	S. Bussarawit and C. Aungtonya
	TD	17/02/1998	09° 15' N	097° 54' E	61	ND	S. Bussarawit and C. Aungtonya
<b>B3 (= B8)</b>	TD	18/02/1998	09° 15' N	097° 42' E	80	ND	S. Bussarawit and C. Aungtonya
<b>C1 (= C11)</b>	BC	20/04/1996	09° 00' N	098° 03' E	40	muddy sand with shell fragments	S. Bussarawit and C. Aungtonya
	OS	20/04/1996	09° 01' N	098° 03' E	39	muddy sand	S. Bussarawit and C. Aungtonya
	OS	17/02/1998	09° 00' N	098° 02' E	41	muddy sand	S. Bussarawit and C. Aungtonya
	TD	20/04/1996	09° 02' N	098° 03' E	39	ND	S. Bussarawit and C. Aungtonya
	TD	17/02/1998	09° 00' N	098° 02' E	43	ND	S. Bussarawit and C. Aungtonya
	T	20/04/1996	09° 02' N	098° 03' E	40	ND	S. Bussarawit and C. Aungtonya
<b>C2 (= C12)</b>	BC	20/04/1996	09° 00' N	097° 53' E	65	muddy sand	S. Bussarawit and C. Aungtonya
	OS	20/04/1996	09° 00' N	097° 53' E	64	muddy sand	S. Bussarawit and C. Aungtonya
	OS	17/02/1998	09° 00' N	097° 56' E	60	muddy sand	S. Bussarawit and C. Aungtonya
	TD	20/04/1996	09° 02' N	097° 53' E	64	ND	S. Bussarawit and C. Aungtonya
	TD	17/02/1998	09° 00' N	097° 55' E	61	ND	S. Bussarawit and C. Aungtonya
	T	20/04/1996	09° 01' N	097° 53' E	64	ND	S. Bussarawit and C. Aungtonya
	T	17/02/1998	09° 00' N	097° 48' E	70	ND	S. Bussarawit and C. Aungtonya
<b>C3 (= C13)</b>	BC	20/04/1996	09° 00' N	097° 43' E	79	sandy mud	S. Bussarawit and C. Aungtonya
	OS	20/04/1996	09° 00' N	097° 43' E	80	fine sand with shell fragments	S. Bussarawit and C. Aungtonya
	TD	18/02/1998	09° 00' N	097° 43' E	79	ND	S. Bussarawit and C. Aungtonya
	T	20/04/1996	09° 00' N	097° 43' E	81	ND	S. Bussarawit and C. Aungtonya
<b>C4 (= C14)</b>	BC	21/04/1996	09° 00' N	097° 30' E	129	sandy mud	S. Bussarawit and C. Aungtonya
	T	21/04/1996	09° 00' N	097° 30' E	126	ND	S. Bussarawit and C. Aungtonya
<b>C5 (= C15)</b>	BC	21/04/1996	09° 00' N	097° 26' E	200	sand with shell fragments	S. Bussarawit and C. Aungtonya
	TD	21/04/1996	09° 01' N	097° 27' E	191	ND	S. Bussarawit and C. Aungtonya
<b>D1 (= D16)</b>	TD	19/02/1998	08° 45' N	098° 05' E	38	ND	S. Bussarawit and C. Aungtonya

Table 1 (continued.)

Station	Gear	Date	Position		Depth (m) Start	Type of sediment	Collector
			Lat.	Long.			
<b>D3 (= D18)</b>	OS	19/02/1998	08° 45' N	097° 43' E	80	sand	S. Bussarawit and C. Aungtonya
	TD	19/02/1998	08° 45' N	097° 42' E	80	ND	S. Bussarawit and C. Aungtonya
<b>E 20 m</b>	BC	22/04/1996	08° 30' N	098° 12' E	21	muddy sand	S. Bussarawit and C. Aungtonya
	OS	22/04/1996	08° 30' N	098° 12' E	20	muddy sand	S. Bussarawit and C. Aungtonya
	TD	22/04/1996	08° 29' N	098° 12' E	20	ND	S. Bussarawit and C. Aungtonya
<b>E1 (= E21)</b>	BC	22/04/1996	08° 30' N	098° 06' E	42	muddy sand	S. Bussarawit and C. Aungtonya
	OS	22/04/1996	08° 30' N	098° 06' E	41	muddy sand	S. Bussarawit and C. Aungtonya
	TD	22/04/1996	08° 30' N	098° 06' E	38	ND	S. Bussarawit and C. Aungtonya
<b>E2 (= E22)</b>	BC	22/04/1996	08° 30' N	098° 00' E	63	muddy sand	S. Bussarawit and C. Aungtonya
	OS	22/04/1996	08° 31' N	098° 00' E	60	muddy sand	S. Bussarawit and C. Aungtonya
	TD	22/04/1996	08° 30' N	098° 00' E	60	ND	S. Bussarawit and C. Aungtonya
<b>E3 (= E23)</b>	BC	22/04/1996	08° 31' N	097° 46' E	81	sandy mud	S. Bussarawit and C. Aungtonya
	OS	22/04/1996	08° 30' N	097° 46' E	81	sandy mud with shell fragments	S. Bussarawit and C. Aungtonya
	TD	22/04/1996	08° 32' N	097° 46' E	79	ND	S. Bussarawit and C. Aungtonya
<b>E4 (= E24)</b>	BC	21/04/1996	08° 30' N	097° 33' E	74	sand and gravel	S. Bussarawit and C. Aungtonya
	TD	21/04/1996	08° 30' N	097° 33' E	74	ND	S. Bussarawit and C. Aungtonya
<b>E5 (= E25)</b>	BC	21/04/1996	08° 30' N	097° 30' E	227	rock	S. Bussarawit and C. Aungtonya
<b>F1 (= F26)</b>	OS	16/02/1998	08° 15' N	098° 10' E	43	sand	S. Bussarawit and C. Aungtonya
	TD	16/02/1998	08° 15' N	098° 12' E	36	ND	S. Bussarawit and C. Aungtonya
<b>F2 (= F27)</b>	OS	16/02/1998	08° 15' N	098° 03' E	66	muddy sand	S. Bussarawit and C. Aungtonya
	TD	16/02/1998	08° 15' N	098° 04' E	59	ND	S. Bussarawit and C. Aungtonya
<b>F3 (= F28)</b>	TD	16/02/1998	08° 15' N	097° 58' E	78	ND	S. Bussarawit and C. Aungtonya

**Table 1** (continued.)

Station	Gear	Date	Position		Depth (m) Start	Type of sediment	Collector
			Lat.	Long.			
<b>G1 (= G31)</b>	BC	24/04/1996	08° 00'N	098° 14'E	42	sandy mud	S. Bussarawit and C. Aungtonya
	OS	24/04/1996	08° 00'N	098° 14'E	43	sandy mud	S. Bussarawit and C. Aungtonya
	OS	20/02/1998	08° 00'N	098° 12'E	49	sandy mud	S. Bussarawit and C. Aungtonya
	TD	24/04/1996	07° 59'N	098° 14'E	43	ND	S. Bussarawit and C. Aungtonya
	TD	20/02/1998	08° 00'N	098° 13'E	46	ND	S. Bussarawit and C. Aungtonya
<b>G2 (= G32)</b>	BC	23/04/1996	08° 00'N	098° 10'E	63	muddy sand	S. Bussarawit and C. Aungtonya
	OS	23/04/1996	08° 00'N	098° 10'E	63	muddy sand	S. Bussarawit and C. Aungtonya
	OS	20/02/1998	07° 59'N	098° 08'E	72	muddy sand	S. Bussarawit and C. Aungtonya
	TD	23/04/1996	08° 01'N	098° 10'E	61	ND	S. Bussarawit and C. Aungtonya
	TD	20/02/1998	07° 59'N	098° 09'E	68	ND	S. Bussarawit and C. Aungtonya
<b>G3 (= G33)</b>	BC	23/04/1996	08° 00'N	097° 54'E	76	muddy sand	S. Bussarawit and C. Aungtonya
	OS	23/04/1996	08° 00'N	097° 54'E	77	muddy sand	S. Bussarawit and C. Aungtonya
	TD	20/02/1998	07° 58'N	098° 02'E	79	ND	S. Bussarawit and C. Aungtonya
<b>G5 (= G35)</b>	BC	23/04/1996	08° 00'N	097° 48'E	233	coarse sand and gravel	S. Bussarawit and C. Aungtonya
	TD	23/04/1996	08° 00'N	097° 48'E	220	ND	S. Bussarawit and C. Aungtonya
<b>H1 (= H36)</b>	BC	09/05/1996	07° 45'N	098° 16'E	32	sandy mud	S. Bussarawit and C. Aungtonya
	OS	09/05/1996	07° 45'N	098° 16'E	31	mud	S. Bussarawit and C. Aungtonya
	OS	20/02/1998	07° 46'N	098° 16'E	40	soft mud	S. Bussarawit and C. Aungtonya
	TD	09/05/1996	07° 44'N	098° 17'E	32	ND	S. Bussarawit and C. Aungtonya
<b>H2 (= H37)</b>	BC	09/05/1996	07° 45'N	098° 15'E	59	soft mud	S. Bussarawit and C. Aungtonya
	OS	09/05/1996	07° 45'N	098° 15'E	56	soft mud	S. Bussarawit and C. Aungtonya
	TD	09/05/1996	07° 44'N	098° 16'E	60	ND	S. Bussarawit and C. Aungtonya
	TD	20/02/1998	07° 46'N	098° 14'E	57	ND	S. Bussarawit and C. Aungtonya
<b>H3 (= H38)</b>	BC	09/05/1996	07° 45'N	097° 58'E	70	coarse sand	S. Bussarawit and C. Aungtonya
	TD	09/05/1996	07° 46'N	097° 58'E	71	ND	S. Bussarawit and C. Aungtonya
	(= Unocal) T	08/04/1997	07° 46'N	097° 58'E	80	ND	S. Bussarawit

Table 1 (continued.)

Station	Gear	Date	Position		Depth (m) Start	Type of sediment	Collector
			Lat.	Long.			
<b>H4 (= H39)</b>	BC	09/05/1996	07° 45' N	097° 56' E	139	coarse sand with shell fragments	S. Bussarawit and C. Aungtonya
<b>H8 (= U11)</b>	G	10/04/1997	07° 45' N	097° 20' E	493	soft mud	S. Bussarawit
	OS	10/04/1997	07° 45' N	097° 20' E	493	sand	S. Bussarawit
	TD	10/04/1997	07° 45' N	097° 20' E	493	ND	S. Bussarawit
<b>H11 (= U4)</b>	G	16/04/1997	07° 44' N	096° 38' E	820	soft mud	S. Bussarawit
	OS	16/04/1997	07° 44' N	096° 38' E	822	soft mud	S. Bussarawit
<b>I 20 m</b>	BC	03/05/1996	07° 30' N	099° 01' E	21	mud	S. Bussarawit and C. Aungtonya
	OS	03/05/1996	07° 30' N	099° 01' E	21	mud	S. Bussarawit and C. Aungtonya
	TD	03/05/1996	07° 30' N	099° 01' E	21	ND	S. Bussarawit and C. Aungtonya
<b>I1 (= I41)</b>	BC	03/05/1996	07° 30' N	098° 57' E	38	mud	S. Bussarawit and C. Aungtonya
	OS	03/05/1996	07° 30' N	098° 57' E	38	mud	S. Bussarawit and C. Aungtonya
	OS	22/02/1998	07° 30' N	098° 55' E	42	mud	S. Bussarawit and C. Aungtonya
	TD	03/05/1996	07° 29' N	098° 56' E	40	ND	S. Bussarawit and C. Aungtonya
	TD	22/02/1998	07° 30' N	098° 54' E	43	ND	S. Bussarawit and C. Aungtonya
<b>I2 (= I42)</b>	BC	01/05/1996	07° 30' N	098° 30' E	59	sandy mud	S. Bussarawit and C. Aungtonya
	BC	03/05/1996	07° 30' N	098° 29' E	59	sandy mud	S. Bussarawit and C. Aungtonya
	OS	03/05/1996	07° 30' N	098° 29' E	60	sandy mud	S. Bussarawit and C. Aungtonya
	OS	22/02/1998	07° 30' N	098° 30' E	59	sandy mud	S. Bussarawit and C. Aungtonya
	OS	05/12/1998	07° 29' N	098° 30' E	64	ND	S. Bussarawit
	TD	01/05/1996	07° 30' N	098° 31' E	59	ND	S. Bussarawit and C. Aungtonya
	TD	22/02/1998	07° 31' N	098° 30' E	58	ND	S. Bussarawit and C. Aungtonya
	TD	05/12/1998	07° 28' N	098° 31' E	65	ND	S. Bussarawit
	T	05/12/1998	07° 30' N	098° 30' E	61	ND	S. Bussarawit
T	22/02/1998	07° 30' N	098° 31' E	59	ND	S. Bussarawit and C. Aungtonya	
<b>I3-I2 (= I43-I42)</b>	OS	22/02/1998	07° 33' N	098° 19' E	55	ND	S. Bussarawit and C. Aungtonya



Table 1 (continued.)

Station	Gear	Date	Position		Depth (m) Start	Type of sediment	Collector
			Lat.	Long.			
<b>I3 (= I43)</b>	BC	02/05/1996	07° 30'N	098° 10'E	79	sand with shell fragments	S. Bussarawit and C. Aungtonya
	OS	01/12/1998	07° 34'N	098° 13'E	77	ND	S. Bussarawit
	OS	02/12/1998	07° 35'N	098° 14'E	73	ND	S. Bussarawit
	TD	02/05/1996	07° 30'N	098° 10'E	78	ND	S. Bussarawit and C. Aungtonya
	TD	01/12/1998	07° 35'N	098° 12'E	77	ND	S. Bussarawit
	TD	02/12/1998	07° 34'N	098° 14'E	75	ND	S. Bussarawit
	BT	02/12/1998	07° 32'N	098° 13'E	83	ND	S. Bussarawit
	BT	01/12/1998	07° 34'N	098° 14'E	69	ND	S. Bussarawit
<b>J1 (= J46)</b>	BC	04/05/1996	07° 15'N	099° 03'E	43	sandy mud with shell fragments	S. Bussarawit and C. Aungtonya
	OS	04/05/1996	07° 16'N	099° 03'E	42	sandy mud with shell fragments	S. Bussarawit and C. Aungtonya
	OS	23/02/1998	07° 15'N	099° 04'E	39	sandy mud with shell fragments	S. Bussarawit and C. Aungtonya
	TD	04/05/1996	07° 15'N	099° 03'E	42	ND	S. Bussarawit and C. Aungtonya
	TD	23/02/1998	07° 15'N	099° 03'E	42	ND	S. Bussarawit and C. Aungtonya
<b>J2 (= J47)</b>	BC	04/05/1996	07° 15'N	098° 50'E	62	soft mud	S. Bussarawit and C. Aungtonya
	OS	04/05/1996	07° 15'N	098° 51'E	61	soft mud	S. Bussarawit and C. Aungtonya
	OS	23/02/1998	07° 15'N	098° 48'E	63	soft mud	S. Bussarawit and C. Aungtonya
	TD	04/05/1996	07° 15'N	098° 51'E	62	ND	S. Bussarawit and C. Aungtonya
	TD	23/02/1998	07° 15'N	098° 48'E	63	ND	S. Bussarawit and C. Aungtonya
<b>(= J47-J46)</b>	T	23/02/1998	07° 16'N	098° 49'E	62	ND	S. Bussarawit and C. Aungtonya
<b>J3 (= J48)</b>	BC	04/05/1996	07° 15'N	098° 34'E	79	muddy sand	S. Bussarawit and C. Aungtonya
	OS	04/05/1996	07° 15'N	098° 36'E	79	muddy sand	S. Bussarawit and C. Aungtonya
	OS	23/02/1998	07° 15'N	098° 36'E	77	fine sand	S. Bussarawit and C. Aungtonya
	TD	04/05/1996	07° 15'N	098° 35'E	79	ND	S. Bussarawit and C. Aungtonya
	TD	23/02/1998	07° 15'N	098° 35'E	78	ND	S. Bussarawit and C. Aungtonya
<b>J3-J2 (= J48-J47)</b>	T	23/02/1998	07° 14'N	098° 37'E	76	ND	S. Bussarawit and C. Aungtonya
<b>J7</b>	TD	02/12/1998	07° 16'N	097° 53'E	342	ND	S. Bussarawit

Table 1 (continued.)

Station	Gear	Date	Position		Depth (m) Start	Type of sediment	Collector
			Lat.	Long.			
<b>K 20 m</b>	BC	06/05/1996	07° 00' N	099° 24' E	21	mud with shell fragments	S. Bussarawit and C. Aungtonya
	OS	06/05/1996	07° 00' N	099° 24' E	22	mud with shell fragments	S. Bussarawit and C. Aungtonya
	TD	06/05/1996	07° 00' N	099° 24' E	20	ND	S. Bussarawit and C. Aungtonya
<b>K1 (= K51)</b>	BC	06/05/1996	07° 00' N	099° 16' E	43	soft mud	S. Bussarawit and C. Aungtonya
	OS	06/05/1996	07° 00' N	099° 15' E	45	soft mud	S. Bussarawit and C. Aungtonya
	OS	24/02/1998	07° 00' N	099° 16' E	41	soft mud	S. Bussarawit and C. Aungtonya
	TD	06/05/1996	07° 00' N	099° 16' E	44	ND	S. Bussarawit and C. Aungtonya
	TD	24/02/1998	07° 00' N	099° 15' E	42	ND	S. Bussarawit and C. Aungtonya
<b>K2 (= K52)</b>	BC	06/05/1996	07° 00' N	098° 59' E	63	soft mud	S. Bussarawit and C. Aungtonya
	OS	06/05/1996	07° 00' N	099° 00' E	60	soft mud	S. Bussarawit and C. Aungtonya
	OS	24/02/1998	07° 00' N	099° 04' E	53	soft mud	S. Bussarawit and C. Aungtonya
	TD	06/05/1996	07° 00' N	098° 59' E	64	ND	S. Bussarawit and C. Aungtonya
	TD	24/02/1998	07° 00' N	099° 04' E	55	ND	S. Bussarawit and C. Aungtonya
<b>(= K52-K51)T</b>		24/02/1998	07° 00' N	099° 04' E	52	ND	S. Bussarawit and C. Aungtonya
<b>K3 (= K53)</b>	BC	05/05/1996	07° 00' N	098° 41' E	83	sandy mud	S. Bussarawit and C. Aungtonya
	OS	05/05/1996	06° 59' N	098° 42' E	82	sandy mud	S. Bussarawit and C. Aungtonya
	TD	05/05/1996	07° 00' N	098° 42' E	83	ND	S. Bussarawit and C. Aungtonya
<b>K4 (= K54)</b>	BC	07/05/1996	07° 00' N	098° 21' E	105	sand with shell fragments	S. Bussarawit and C. Aungtonya
<b>K5 (= K55)</b>	BC	07/05/1996	07° 00' N	098° 12' E	220	gravel	S. Bussarawit and C. Aungtonya
<b>L1 (= L56)</b>	BC	06/05/1996	06° 45' N	099° 21' E	38	sandy mud with shell fragments	S. Bussarawit and C. Aungtonya
	OS	06/05/1996	06° 46' N	099° 21' E	38	sandy mud with shell fragments	S. Bussarawit and C. Aungtonya
	OS	24/02/1998	06° 49' N	099° 21' E	39	sandy mud with shell fragments	S. Bussarawit and C. Aungtonya
	TD	06/05/1996	06° 45' N	099° 21' E	38	ND	S. Bussarawit and C. Aungtonya
	TD	24/02/1998	06° 49' N	099° 21' E	39	ND	S. Bussarawit and C. Aungtonya
<b>(= Adang Rawi Island-L2)</b>	T	25/02/1998	06° 45' N	099° 18' E	47	ND	S. Bussarawit and C. Aungtonya

**Table 1** (continued.)

Station	Gear	Date	Position		Depth (m) Start	Type of sediment	Collector
			Lat.	Long.			
<b>L2 (= L57)</b>	BC	05/05/1996	06° 46' N	099° 04' E	59	soft mud	S. Bussarawit and C. Aungtonya
	OS	05/05/1996	06° 44' N	099° 05' E	56	soft mud	S. Bussarawit and C. Aungtonya
	OS	25/02/1998	06° 43' N	099° 03' E	61	soft mud	S. Bussarawit and C. Aungtonya
	TD	05/05/1996	06° 45' N	099° 04' E	59	ND	S. Bussarawit and C. Aungtonya
	TD	25/02/1998	06° 44' N	099° 04' E	59	ND	S. Bussarawit and C. Aungtonya
<b>L3 (= L58)</b>	BC	05/05/1996	06° 45' N	098° 45' E	83	sandy mud with shell fragments	S. Bussarawit and C. Aungtonya
	OS	05/05/1996	06° 46' N	098° 45' E	83	sandy mud with shell fragments	S. Bussarawit and C. Aungtonya
	TD	05/05/1996	06° 45' N	098° 45' E	83	ND	S. Bussarawit and C. Aungtonya
<b>RN1</b>	BC	08/05/1996	07° 30' N	098° 22' E	63	sandy mud	S. Bussarawit and C. Aungtonya
	OS	08/05/1996	07° 30' N	098° 22' E	64	sandy mud	S. Bussarawit and C. Aungtonya
	TD	08/05/1996	07° 30' N	098° 22' E	63	ND	S. Bussarawit and C. Aungtonya
<b>RN2</b>	BC	08/05/1996	07° 26' N	098° 19' E	75	sand with shell fragments	S. Bussarawit and C. Aungtonya
	OS	08/05/1996	07° 26' N	098° 18' E	75	sand with shell fragments	S. Bussarawit and C. Aungtonya
	TD	08/05/1996	07° 26' N	098° 18' E	74	ND	S. Bussarawit and C. Aungtonya
<b>RN3</b>	BC	08/05/1996	07° 30' N	098° 17' E	72	muddy sand	S. Bussarawit and C. Aungtonya
	OS	08/05/1996	07° 30' N	098° 17' E	72	muddy sand	S. Bussarawit and C. Aungtonya
	TD	08/05/1996	07° 30' N	098° 18' E	70	ND	S. Bussarawit and C. Aungtonya
<b>RY1</b>	BC	08/05/1996	07° 36' N	098° 19' E	55	sand with shell fragments	S. Bussarawit and C. Aungtonya
	OS	08/05/1996	07° 37' N	098° 20' E	55	sand with shell fragments	S. Bussarawit and C. Aungtonya
<b>(= I43)</b>	OS	22/02/1998	07° 35' N	098° 16' E	68	sand with shell fragments	S. Bussarawit and C. Aungtonya
	TD	08/05/1996	07° 36' N	098° 19' E	55	ND	S. Bussarawit and C. Aungtonya
<b>(= I43)</b>	TD	22/02/1998	07° 35' N	098° 16' E	70	ND	S. Bussarawit and C. Aungtonya
	BT	01/12/1998	07° 37' N	098° 15' E	67	ND	S. Bussarawit
	T	02/12/1998	07° 37' N	098° 16' E	71	ND	S. Bussarawit
<b>RY2</b>	BC	08/05/1996	07° 39' N	098° 23' E	45	sand with shell fragments	S. Bussarawit and C. Aungtonya
	OS	08/05/1996	07° 40' N	098° 24' E	44	sand with shell fragments	S. Bussarawit and C. Aungtonya
	TD	08/05/1996	07° 39' N	098° 24' E	43	ND	S. Bussarawit and C. Aungtonya

Table 1 (continued.)

Station	Gear	Date	Position		Depth (m) Start	Type of sediment	Collector
			Lat.	Long.			
RY3	BC	08/05/1996	07° 36' N	098° 25' E	49	muddy sand	S. Bussarawit and C. Aungtonya
	OS	08/05/1996	07° 36' N	098° 25' E	50	muddy sand	S. Bussarawit and C. Aungtonya
	TD	08/05/1996	07° 35' N	098° 26' E	52	ND	S. Bussarawit and C. Aungtonya
PB1	BC	23/04/1997	08° 00' N	098° 29' E	19	sand with shell fragments	S. Bussarawit
	OS	23/04/1997	08° 00' N	098° 29' E	17	sand with shell fragments	S. Bussarawit
	TD	23/04/1997	07° 59' N	098° 29' E	14	ND	S. Bussarawit
PB2	BC	22/04/1997	08° 00' N	098° 39' E	17	sand with shell fragments	S. Bussarawit
	OS	22/04/1997	07° 59' N	098° 39' E	20	sand with shell fragments	S. Bussarawit
	TD	22/04/1997	08° 00' N	098° 38' E	15	ND	S. Bussarawit
PB3	BC	23/04/1997	07° 51' N	098° 32' E	22	sand with shell fragments	S. Bussarawit
	OS	23/04/1997	07° 51' N	098° 31' E	20	sand with shell fragments	S. Bussarawit
	OS	21/02/1998	07° 51' N	098° 34' E	28	sand with shell fragments	S. Bussarawit and C. Aungtonya
(= bet. Mai Thon Island -PMBC)	OS	27/02/1998	07° 48' N	098° 31' E	24	ND	S. Bussarawit and C. Aungtonya
	OS	04/12/1998	07° 49' N	098° 31' E	22	ND	S. Bussarawit
	TD	23/04/1997	07° 52' N	098° 31' E	22	ND	S. Bussarawit
	TD	21/02/1998	07° 51' N	098° 32' E	33	ND	S. Bussarawit and C. Aungtonya
	TD	04/12/1998	07° 48' N	098° 31' E	20	ND	S. Bussarawit
(= Unocal)	T	21/04/1997	07° 48' N	098° 28' E	21	ND	S. Bussarawit
	T	04/12/1998	07° 48' N	098° 29' E	22	ND	S. Bussarawit
PB3-PB4	T	21/02/1998	07° 51' N	098° 37' E	21	ND	S. Bussarawit and C. Aungtonya
	T	04/12/1998	07° 51' N	098° 38' E	22	ND	S. Bussarawit
PB4	BC	22/04/1997	07° 52' N	098° 41' E	32	sand with shell fragments	S. Bussarawit
	OS	22/04/1997	07° 52' N	098° 41' E	31	sand with shell fragments	S. Bussarawit
	OS	21/02/1998	07° 52' N	098° 41' E	29	sand with shell fragments	S. Bussarawit and C. Aungtonya
	TD	22/04/1997	07° 52' N	098° 41' E	33	ND	S. Bussarawit
	TD	21/02/1998	07° 52' N	098° 40' E	28	ND	S. Bussarawit and C. Aungtonya

Table 1 (continued.)

Station	Gear	Date	Position		Depth (m) Start	Type of sediment	Collector
			Lat.	Long.			
PB5	BC	22/04/1997	07° 52'N	098° 48'E	21	sand with shell fragments	S. Bussarawit
	OS	22/04/1997	07° 52'N	098° 48'E	21	sand with shell fragments	S. Bussarawit
PB6	BC	22/04/1997	07° 45'N	098° 32'E	30	sand with shell fragments	S. Bussarawit
	OS	22/04/1997	07° 45'N	098° 32'E	30	sand with shell fragments	S. Bussarawit
	OS	21/02/1998	07° 43'N	098° 33'E	37	sand with shell fragments	S. Bussarawit and C. Aungtonya
	TD	22/04/1997	07° 46'N	098° 31'E	27	ND	S. Bussarawit
	TD	21/02/1998	07° 44'N	098° 33'E	34	ND	S. Bussarawit and C. Aungtonya
(= Kai Is. -Dok Mai Island)	T	27/02/1998	07° 45'N	098° 36'E	24	ND	S. Bussarawit and C. Aungtonya
PB7	BC	22/04/1997	07° 45'N	098° 41'E	29	sand with shell fragments	S. Bussarawit
	OS	22/04/1997	07° 45'N	098° 41'E	32	sand with shell fragments	S. Bussarawit
	OS	21/02/1998	07° 44'N	098° 41'E	32	sand with shell fragments	S. Bussarawit and C. Aungtonya
	TD	22/04/1997	07° 45'N	098° 40'E	30	ND	S. Bussarawit
	TD	21/02/1998	07° 45'N	098° 42'E	30	ND	S. Bussarawit and C. Aungtonya
(= PB7-PB6)	T	21/02/1998	07° 44'N	098° 40'E	32	ND	S. Bussarawit and C. Aungtonya
PB8	BC	22/04/1997	07° 45'N	098° 52'E	19	sand with shell fragments	S. Bussarawit
	OS	22/04/1997	07° 45'N	098° 51'E	19	sand with shell fragments	S. Bussarawit
	TD	22/04/1997	07° 44'N	098° 51'E	22	ND	S. Bussarawit
PB9	TD	05/12/1998	07° 40'N	098° 37'E	36	ND	S. Bussarawit
PB10	OS	05/12/1998	07° 36'N	098° 34'E	41	ND	S. Bussarawit
	T	05/12/1998	07° 36'N	098° 34'E	44	ND	S. Bussarawit
U1	G	19/04/1997	06° 49'N	097° 45'E	400	sandy mud	S. Bussarawit
	OS	19/04/1997	06° 46'N	097° 44'E	416	sandy mud	S. Bussarawit
	TD	19/04/1997	06° 48'N	097° 45'E	402	ND	S. Bussarawit
U2	G	18/04/1997	07° 03'N	097° 32'E	476	sandy mud	S. Bussarawit
	TD	18/04/1997	07° 04'N	097° 31'E	476	ND	S. Bussarawit

Table 1 (continued.)

Station	Gear	Date	Position		Depth (m) Start	Type of sediment	Collector
			Lat.	Long.			
U3	G	17/04/1997	06° 55'N	097° 22'E	669	soft mud	S. Bussarawit
	TD	17/04/1997	06° 57'N	097° 22'E	651	ND	S. Bussarawit
U4 (= U5)	G	15/04/1997	07° 02'N	097° 08'E	989	soft mud	S. Bussarawit
U5 (= U6)	G	15/04/1997	06° 56'N	097° 03'E	1020	soft mud	S. Bussarawit
U6 (= U7)	BC	09/04/1997	07° 21'N	097° 51'E	324	rock	S. Bussarawit
	G	09/04/1997	07° 21'N	097° 50'E	324	rock	S. Bussarawit
	TD	09/04/1997	07° 21'N	097° 51'E	324	ND	S. Bussarawit
U7 (= U8)	G	13/04/1997	07° 19'N	096° 59'E	929	soft mud	S. Bussarawit
	TD	13/04/1997	07° 16'N	096° 59'E	935	ND	S. Bussarawit
U8 (= U9)	G	11/04/1997	07° 56'N	096° 48'E	640	soft mud	S. Bussarawit
	TD	11/04/1997	07° 55'N	096° 47'E	643	ND	S. Bussarawit
U9 (= U10)	G	14/04/1997	07° 00'N	096° 51'E	1020	soft mud	S. Bussarawit
	OS	14/04/1997	07° 00'N	096° 51'E	1020	soft mud	S. Bussarawit
	TD	14/04/1997	06° 59'N	096° 54'E	1020	ND	S. Bussarawit
U10 (= U12)	BC	12/04/1997	07° 25'N	096° 15'E	880	soft mud	S. Bussarawit
	G	12/04/1997	07° 25'N	096° 15'E	879	soft mud	S. Bussarawit
	TD	12/04/1997	07° 25'N	096° 18'E	878	ND	S. Bussarawit
T1 (= K53)	OS	24/02/1998	07° 02'N	098° 50'E	75	sandy mud	S. Bussarawit and C. Aungtonya
	TD	24/02/1998	07° 02'N	098° 49'E	76	ND	S. Bussarawit and C. Aungtonya
T2 (= L58)	OS	25/02/1998	06° 43'N	098° 57'E	72	sandy mud with shell fragments	S. Bussarawit and C. Aungtonya
	TD	25/02/1998	06° 43'N	098° 58'E	71	ND	S. Bussarawit and C. Aungtonya
T3	T	03/12/1998	07° 52'N	098° 06'E	68	ND	S. Bussarawit

Table 1 (continued.)

Station	Gear	Date	Position		Depth (m) Start	Type of sediment	Collector
			Lat.	Long.			
<b>Supplementary crustacean material:</b>							
<b>NBA</b>	OS	23/11/1997	07° 37'N	098° 17'E	50	coarse sand	N. Bruce and G. Dinesen
<b>NBB</b>	OS	27/11/1997	07° 40'N	098° 20'E	60	coarse sand	N. Bruce and G. Dinesen
<b>NBC</b>	OS	03/12/1997	07° 43'N	098° 24'E	45	coarse sand	N. Bruce and G. Dinesen
<b>NBD</b>	OS	09/12/1997	07° 44'N	098° 24'E	40	coarse sand	N. Bruce and G. Dinesen
<b>Aeo Island (NW bay)</b>	SCUBA	26/11/1998	07° 45'N	098° 24'E	max. Depth 6 m.	ND	A. Myers, J. Lowry, R. Evans, M. Huggett, M. Storey, P. Davie, and G. Dinesen
<b>Dok Mai Island</b>	SCUBA	04/12/1998	07° 47'N	098° 32'E	max. Depth 25 m.	ND	as above
<b>Hae Island (north bay)</b>	SCUBA	02/11/1998	07° 45'N	098° 23'E	max. Depth 8.5 m	ND	as above
<b>Hae Island (south bay)</b>	SCUBA	09/12/1998	07° 44'N	098° 22'E	max. Depth 12 m.	ND	as above
<b>Hae Island (north bay)</b>	SCUBA	09/12/1998	07° 45'N	098° 23'E	max. Depth 10 m.	ND	as above
<b>Racha Yai Island (south point)</b>	SCUBA	05/12/1998	07° 35'N	098° 21'E	max. Depth 30 m.	ND	as above
<b>Racha Yai Island (NW bay)</b>	SCUBA	05/12/1998	07° 36'N	098° 22'E	max. Depth 12 m.	ND	as above
<b>Racha Noi Island (south bay)</b>	SCUBA	14/12/1998	07° 28'N	098° 18'E	max. Depth 25 m.	ND	as above
<b>Racha Noi Island (NW bay)</b>	SCUBA	14/12/1998	07° 27'N	098° 18'E	max. Depth 15 m.	ND	as above
<b>Racha Noi Island</b>	Trap	08/11/1999	07° 31'N	098° 20'E	47	ND	C. Aungtonya and V. Vongpanich
<b>about 30 mile from south of</b>	Trap	15/11/1999	07° 00'N	098° 25'E	75	ND	C. Aungtonya and V. Vongpanich
<b>Racha Noi Island</b>							
<b>Ta Chai Island</b>	Trap	02/02/2000	09° 04'N	097° 48'E	45	ND	C. Aungtonya and V. Vongpanich
<b>Hin Dang Island</b>	Trap	26/02/2000	07° 09'N	098° 50'E	65	ND	C. Aungtonya and V. Vongpanich
<b>Adang Island</b>	Trap	27/02/2000	06° 30'N	099° 18'E	22	ND	C. Aungtonya and V. Vongpanich
<b>Bu Tang Island</b>	Trap	28/02/2000	06° 31'N	099° 09'E	46	ND	C. Aungtonya and V. Vongpanich

ND = No data collecting

Animals collected were sorted on board into broad taxonomic groups. A number of photographs were taken of fresh crustacean specimens before they fixed in 10% buffered formalin. Brachyuran material was frozen in 0–5 C° in order to let the specimens were anesthetic before they were fixed. All material was brought back to the PMBC Reference Collection for detailed studies, including sorting, identification.

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#### REFERENCES

- Aungtonya, C. and J. Hylleberg. 1998. Checklist of sublittoral molluscs, with nine new records for the Andaman Sea. *Phuket Marine Biological Center Special Publication* **18**(2): 317–322.
- Aungtonya, C., S. Thaipal and O. Tendal. 2000. A preliminary report on the Thai–Danish BIOSHELF surveys (1996–2000) of the west coast of Thailand, Andaman Sea. *Phuket Marine Biological Center Research Bulletin* **63**: 53–76.