



CRUISE REPORT ON RESEARCH ACTIVITY

M.V.SEAFDEC 2 Cruise No. 19-3/2006

29 May - 26 June 2006

**Fisheries resource survey in the Waters of
Brunei Darussalam**

TD/RP/96

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 activity

1. Cruise Summary

Vessel name : MV SEAFDEC 2

Cruise no. : 19-3/2006

Duration : 29 May – 26 June 2006 (29 days)

Project Title : Research Survey in the Waters of Brunei Darussalam.

Objective : To carry out the following research survey on:
1. Acoustic survey.
2. Oceanographic survey (including collection of Plankton, Sediment).
3. Demersal fish sampling by Bottom Trawl in Zone 2-3.
4. Large pelagic fish sampling from Pelagic Longline in Zone

Covered water: The Waters of Brunei Darussalam.

Port of call : Muara fishing port

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. Nuttapong Chaitanavisut
6	Boatswain	Mr. Vudthirat Vudthipanyo
7	Steerman	Mr. Pradit Kui-prasert
8	"	Mr. Somkiat Phetrasatein
9	Able seaman	Mr. Boonsom Prangtip
10	Fitter	Mr. Dum Tanyacharoen
11	Oiler	Mr. Plew Shodok
12	"	Mr. Boontarin Wara-in
13	"	Mr. Watchara Panasri
14	Cook	Mr. Saichol Kornnoom
15	Ship's boy	Mr. Phaithoon Sriratanaphon
16	Assist. Master fisherman	Mr. Aussawin Buachuay

SEAFDEC Researchers

No.	Position	Name
1	Chief/Scientist	Mr. Isara Chanrachkij
2	Researcher	Mr. Naroong Ruangsivakul
3	Researcher	Mr. Nakaret Yasook
4	Oceanographer	Ms. Sukanya Obromwam
5	Assistant researcher	Mr. Yuta Maruoka

The officers and staffs of Brunei Darussalam

No.	Position	Name
1	Fisheries officer	Mr. Matzaini Bin Haji Juna
2	Gear technologies expert	Mr. Elviro Cinco
3	Captain	Mr. Mohammad Bin Mail
4	Act. Assistant fisheries officer	Mr. Abdul Hamid Bin Haji Zainin
5	Act. Head of fisherman	Mr. Bidin Bin Suru
6	Act. Senior fisheries assistant	Mr. Matsalleh Bin Haji Tahir
7	Act. Senior fisheries assistant	Mr. Haji Aji Bin Haji Sapar
8	Engineer	Mr. Ahmad Bin Jair
9	Act. Second ship officer	Mr. Harun Bin Haji Putih
10	Assistant engineer	Mr. Roslan Bin Haji Lamit
11	Junior fisheries assistant	Mr. Haji Ramlee Bin Haji Ahmad
12	Fisherman	Mr. Norazmi Bin Haji Bagol
13	Fisherman	Mr. Talip Bin Omar
14	Fisherman	Mr. Mohd Hatral Kamal Bin Abd Hamid
15	Fisherman	Mr. Haji Ramlee Bin Haji Assan
16	Fisherman	Mr. Ahmad Bin Putih
17	Fisheries licensers officer	Mr. Adi Shah Bin Abd Hamid
18	Fisheries officer	Ms. Desimawati Bin Haji Metali
19	Laboratory assistant	Ms. Nurul Zaedah Binti Haji Ibrahim

Contact address:

FISHERIES DEPARTMENT
 MINISTRY OF INDUSTRY AND PRIMARY RESOURCES
 JALAN MENTERI BESAR,
 BANDAR SERI BEGAWAN,
 BB 3910
 NEGARA BRUNEI DARUSSALAM

3. List of Research Projects

No.	Research project activities	Responsible researcher
1	Pelagic and demersal fisheries resources in the Zone 2, 3 and 4 of Brunei Darussalam waters by using Hydro-Acoustic Methods (FQ80) and fish samplings from Bottom Trawl and Pelagic Longline.	Mr. Matzaini Bin Haji Juna Mr. Elviro Cinco Mr. Matsalleh Bin Haji Tahir
2	Oceanographic survey (using ICTD, Thermosalinograph with Fluorometer and others)	Mr. Matzaini Bin Haji Juna Mr. Elviro Cinco Ms. Desimawati Bin Haji Metali Ms. Nurul Zaedah Binti Haji Ibrahim
3	Collect fish, squid larvae, eggs and other zooplankton	Mr. Matzaini Bin Haji Juna Mr. Elviro Cinco Mr. Haji Aji Bin Haji Sapar
4	Collect soil samples and benthic organisms in Zone 2 and 3	Mr. Matzaini Bin Haji Juna Mr. Elviro Cinco

4. Observation Summary

4.1 Oceanographic survey summary

Oceanographic activities were conducted through these cruises have separated into 2 legs, the first leg started from 3 -9 June 2006 (23 stations) and the second leg started from 11-16 June 2006 (15 stations). 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 no. 1.1 and 1.2.

iCTD (SeaBird 911) :



M.V.SEAFFDEC 2 iCTD systems compose with main three sensors for conductivity, temperature and depth, and four auxiliary sensors 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 or maximum at 300 m. with constant velocity 0.5 m/s and retrieved to sea surface at the same speed. All profile of temperature, salinity, dissolve oxygen, pH and fluorescence chlorophyll-a in each station are shown in **Annex. I**.

During retrieved iCTD, Carousel water sample (Niskin Bottles) were used to collect water sample from standard depth. The water sample were filter through Whatman GFC filter paper then collected in 60 ml polypropylene

bottle, which was rinsed with the sample solution before freezing at -40 °C for nutrient analysis (nitrite, nitrate, phosphate and silicate) at SEAFDEC/Training Department laboratory, All samples will be analyzed as soon as it is possible.

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

Thermosalinograph with Fluorometer (TSG-Fluorometer) :

TSG – Fluorometer were operated when MV.SEAFDEC2 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. However it could not operated when the vessel was drifting or during fishing operation.

Remark: Some stations of the first leg had problem about input data from interface box. The data from those stations will shorter than the cruise track.

Smith McIntyre grab :

Smith McIntyre grab was operated only at the first leg and cancel stations that sea depth more than 100 m. To collected soil samples and benthic organisms.



Bongo net equipped with flowmeter :

Bongo net consisted of zoo plankton and larvae net with mesh size of 330 μm and 500 μm , respectively. They were attached to 60 cm. diameter bongo frames. A flow meter was attached at the front of net to measure the water volume passing through the net. Quality of water (m^3) per one flow meter revolution in front of zooplankton and larvae net were 0.08478 rpm^3 .



At each station a 10-15 minutes oblique tow of the bongo net was made with the ship speed 2-2.5 knots approximately. The depth of haul was 10-20 meters above the sea bottom or 85-100 meters for the station which was too deep. The samples were preserved in 10% buffered formalin and seawater immediately. For logsheet of bongo net operations were shown in table no. 2.1 and 2.2

Fish larvae net equipped with flowmeter :



Fish larvae was sampled by fish larvae net (100 cm. in diameters) with the towing speed at 2 knot for about 15 minute in horizontal direction at surface level. The flow meters were attached at center for estimated water volume that flow passed into the nets. The fish larvae collected was preserved with 10% buffered formalin in seawater immediately. For logsheet of fish larvae operations were shown in table no. 3.1 and 3.2

Water transparency and water color:

The Secchi dise and Foral scale were used for measured water transparency and water color, respectively.

4.2 Hydro Acoustic Survey

The hydro-acoustic Survey by using Scientific Echo sounder (Furuno, FQ-80) in the water of Brunei Darussalam during 29 May – 26 June 2006 follows the cruise order number M.V. SEAFDEC 2 No. 19-3/2006. This survey was the last reconfirm survey in 3 years plan. The calibration of the equipment was not done before surveying because the limit of the time. There are two parts of survey area. The first part (the station name leaded by “A”) is shallower than the second part (the station name leaded by “B”), so the depth of survey was set from 0 – 90 meters with depth interval 5 meters in the first part and 0 – 300 meters with depth interval 15 meters. All together 39 tracks (23 + 16) have been surveyed by using ship speed 9.5 – 10 knots. The survey data of hydro-acoustic were backed up into DVD disc (3 discs) and gave to the DOF of Brunei Darussalam one copy and another one for SEAFDEC/TD.

During the survey the sea condition quite good, calm, slight and a bit moderate but some time when the ship was rolling and pitching the lost data would appear. However, there are some remarks for this survey as follows:

1. Should provide the time for calibration the equipment at least one day.
2. The survey speed did not fix at 10 knots when planning the survey but the range should be 7 – 10 knots.
3. The time of recording data after analyze is faster than the real time about 30 minutes, so please check the time in the table of FQ-80 log book.
4. The other information is in the table of FQ-80 log book.

Partial detail of hydro acoustic survey were report in annex II

4.3 Fishery resource survey

There were 2 type of fishing gear operated during the survey; bottom Trawl and pelagic longline. Seven bottom trawl was operated in Zone 2-3 for demersal

fishery resources while six pelagic longline were operated in zone 4. Detail of each fishing operation were show in Annex III

ANNEX I

St.No.	Date	Time (Local)	Lat	Long	Oceanographic instruments					Transparency		Bottom Depth(m)	Filename		Remark
					CTD	TSG	Grab	FL net	Bongo	Secchi disc (m)	Foral scale		CTD	TSG	
1(A1)	3-Jun-06	10:10	05° 08.94 N	114° 55.12 E	✓	✓	✓	✓	✓	10.4	6	31	s2d19001	20060603(1)	
2(A2)	3-Jun-06	13:55	05° 24.71 N	114° 40.00 E	✓	✓	✓	✓	✓	10.8	4	62	s2d19002	20060603(2)	
3(A3)	3-Jun-06	17:05	05° 40.00 N	114° 25.18 E	✓	✓	-	✓	✓	13.8	3	149	s2d19003	20060603(3)	
4(A4)	4-Jun-06	09:20	05° 34.94 N	114° 19.99 E	✓	✓	-	✓	✓	21.2	3	382	s2d19004	20060604(1)	
5(A5)	4-Jun-06	12:16	05° 20.43 N	114° 34.78 E	✓	✓	✓	✓	✓	11.8	7	71	s2d19005	20060604(2)	
6(A6)	4-Jun-06	15:34	05° 03.85 N	114° 50.34 E	✓	✓	✓	✓	✓	11.7	8	20	s2d19006	20060604(3)	
7(A7)	4-Jun-06	17:11	05° 02.81 N	114° 42.36 E	✓	✓	✓	✓	✓	12.9	8	20	s2d19007	20060604(4)	
8(A8)	5-Jun-06	05:46	05° 15.29 N	114° 30.45 E	✓	✓	✓	✓	✓	-	-	70	s2d19008	20060605(1)	
9(A9)	5-Jun-06	09:00	05° 30.02 N	114° 15.04 E	✓	✓	-	✓	✓	17.2	3	550	s2d19009	20060605(2)	s2u19009 for oxygen profile
10(A10)	5-Jun-06	14:25	05° 24.85 N	114° 10.18 E	✓	✓	-	✓	✓	23.5	3	570	s2d19010	20060605(3)	s2u19010 for oxygen profile
11(A11)	6-Jun-06	05:46	05° 09.99 N	114° 25.34 E	✓	✓	✓	✓	✓	-	-	66	s2d19011	20060606(1)	
12(A12)	6-Jun-06	08:58	04° 54.81 N	114° 40.15 E	✓	✓	✓	✓	✓	11.0	8	13	s2d19012	20060606(2)	
13(A13)	6-Jun-06	10:36	04° 49.92 N	114° 35.01 E	✓	✓	✓	✓	✓	11.8	9	16	s2d19013	20060606(3)	
14(A14)	6-Jun-06	13:41	05° 05.03 N	114° 20.22 E	✓	✓	✓	✓	✓	14.8	9	62	s2d19014	20060606(4)	
15(A15)	6-Jun-06	16:43	05° 20.17 N	114° 05.11 E	✓	-	-	✓	✓	17.6	3	711	s2d19015	Cancel	Searching for fishing ground
16(A16)	7-Jun-06	11:26	05° 15.10 N	114° 00.26 E	✓	✓	-	✓	✓	26.3	4	581	s2d19016	20060607(1)	s2u19016 for oxygen profile
17(A17)	7-Jun-06	14:35	04° 59.90 N	114° 15.23 E	✓	✓	✓	✓	✓	9.8	10	58	s2d19017	20060607(2)	
18(A18)	7-Jun-06	17:45	04° 44.97 N	114° 30.13 E	✓	✓	✓	✓	✓	8.9	9	14	s2d19018	20060607(3)	
19(A19)	9-Jun-06	08:42	04° 44.22 N	114° 21.62 E	✓	-	✓	✓	✓	8.9	11	28	s2d19019	Cancel	Back to Muara fishing port
20(A20)	8-Jun-06	05:45	04° 54.97 N	114° 10.22 E	✓	✓	✓	✓	✓	-	-	55	s2d19020	20060608(1)	
21(A21)	8-Jun-06	08:48	05° 10.07 N	113° 55.14 E	✓	✓	-	✓	✓	28.0	4	366	s2d19021	20060608(2)	
22(A22)	8-Jun-06	10:35	05° 04.91 N	113° 50.07 E	✓	✓	-	✓	✓	18.6	4	224	s2d19022	20060608(3)	
23(A23)	9-Jun-06	05:50	04° 50.30 N	114° 06.16 E	✓	✓	✓	✓	✓	-	-	50	s2d19023	20060609(1)	
1 (B1)	11-Jun-06	13:28	05° 36.46 N	114° 14.24 E	✓	✓	✓	✓	✓	18.7	2	873	s2d19001b	20060611(1)	
3 (B3)	11-Jun-06	18:18	06° 03.23 N	113° 48.18 E	✓	✓	✓	✓	✓	-	-	2,699 *	s2d19003b	20060611(2)	
5 (B5)	12-Jun-06	05:49	06° 34.24 N	113° 17.83 E	✓	✓	✓	✓	✓	-	-	1,297	s2d19005b	20060612(1)	
7 (B7)	12-Jun-06	10:54	07° 02.56 N	112° 49.99 E	✓	✓	✓	✓	✓	17.3	2	1,385 *	s2d19007b	20060612(2)	
9 (B9)	12-Jun-06	15:03	07° 05.67 N	112° 30.91 E	✓	✓	✓	✓	✓	17.8	2	2,266 *	s2d19009b	20060612(3)	
11 (B11)	13-Jun-06	05:45	06° 38.67 N	112° 57.06 E	✓	✓	✓	✓	✓	-	-	1,479	s2d19011b	20060613(1)	

St.No.	Date	Time (Local)	Lat	Long	Oceanographic instruments					Transparency		Bottom Depth(m)	Filename		Remark
					CTD	TSG	Grab	FL net	Bongo	Secchi disc (m)	Foral scale		CTD	TSG	
13 (B13)	13-Jun-06	11:18	06° 09.57 N	113° 25.70 E	✓	✓	✓	✓		24.0	2	2,699 *	s2d19013b	20060613(2)	
15 (B15)	13-Jun-06	16:20	05° 41.47 N	113° 53.51 E	✓	✓	✓	✓		23.2	2	2,277 *	s2d19015b	20060613(3)	
17 (B17)	14-Jun-06	05:42	05° 18.47 N	114° 00.16 E	✓	✓	✓	✓		-	-	800	s2d19017b	20060614(1)	
19 (B19)	14-Jun-06	10:51	05° 47.82 N	113° 31.47 E	✓	✓	✓	✓		30.7	2	2,368 *	s2d19019b	20060614(2)	
21 (B21)	14-Jun-06	15:51	06° 15.41 N	113° 03.10 E	✓	✓	✓	✓		25.4	3	1,423	s2d19021b	20060614(3)	
27 (B27)	15-Jun-06	05:43	06° 20.43 N	112° 41.54 E	✓	✓	✓	✓		-		1,318	s2d19027b	20060615(1)	
29 (B29)	15-Jun-06	10:50	05° 51.90 N	113° 10.19 E	✓	✓	✓	✓		26.3	2	>2,000	s2d19029b	20060615(2)	
31 (B31)	15-Jun-06	15:51	05° 23.61 N	113° 38.42 E	✓	✓	✓	✓		22.9	2	1,746 *	s2d19031b	20060615(3)	
23 (B23)	19-Jun-06	09:04	06° 43.23 N	112° 35.02 E	✓	-	✓	✓		26.7	2	2,000 *	s2d19023b	-	