



CRUISE REPORT ON RESEARCH ACTIVITIES

M.V.SEAFDEC 2 Cruise No. 9-3/2005

19 April– 18 May 2005

Fisheries Resources Survey, Vietnam

TD/RP/87

This report is base on preliminary data

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

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Survey Cruise Report

Cruise no.: MV.SEAFDEC2 No.9-3/2005
Period: 19 April – 18 May 2005
Area: Vietnamese water
Port of call: Nha Trang, Vietnam
Objective: Vietnam national research survey on marine fisheries resources
Main activity: 1. Fisheries resource survey by crab trap, bottom vertical longline and automatic squid jigging.
 2. Oceanographic survey using Integrated Conductivity Temperature and Depth measuring instrument (ICTD), Thermosalinograph-fluorometer (TSG), Profiling Reflectant Radiometer (PRR), Vandorn water sampler and Fish larvae net

List of personal on board:

Ship personnel

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

SEAFDEC Researchers

No.	Position	Name
17	Chief/Scientist	Mrs.Penjan Laongmanee
18	Master fisherman	Mr. Sayan Promjinda
19	Oceanographer	Mr. Aussawin Buachuay

Vietnamese scientist

No.	Position	Name
20	Chief/Scientist	Mr. Tran Dinh
21	Biologist	Mr. Bach Van Hanh
22	"	Mr. Vo Van Quang *
23	"	Mrs. Tran Thi Hong Hao *
24	"	Mr. Phan Van Minh
25	Fishing technologist	Mr. Tran Ngoc Khanh
26	Oceanographer	Mr. Duong Van Phuc
27	"	Mr. Luong Van Vien

Remark: For Vietnamese scientist, * from Nha Trang Institute of Oceanography and the others came from Research Institute for Marine Fisheries.

The MV.SEAFFDEC2 cruise no. 9-3/2005 was planned for the Vietnam National Research Survey. Twenty stations along Vietnamese water on about 150 meter contour depth were planned to do survey on fisheries resources and oceanographic condition. Unfortunately, for safety reason, station no. 19 and 20 were canceled from the bad weather and sea condition. Fig. 1 shown Satellite image from NOAA on 11 May 2005 while SEAFFDEC2 cruising to station no. 19.

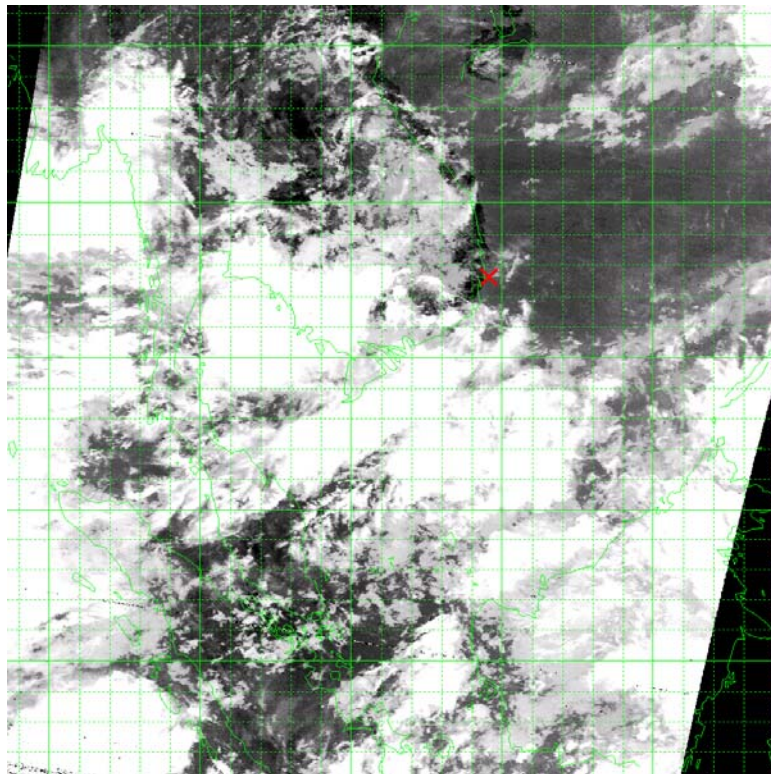


Fig. 1 NOAA 1705/05/11 03:22:43 GMT

Fisheries resources survey

Three type of fishing gear were operated during the survey, crab trap, bottom vertical long line and automatic squid jigging. Fishing information and catch data were shown in fishing log at annex 1.

Crab Trap

18 trap operation can be done as planed. However, in station no. 3, immersion time of trap was more than as planed. It is because of the float line sank to underwater which could be came from strong current during hauling in the early morning. Searching was continuous from 05:00 and trap buoy were found at 11:00.

Number of trap in each station is a bit varied. It is because some traps were damage in each operation. At station no. 8, trap main line were cut by local pair trawler. We lost 36 traps. Trap buoy line entassngle with propeller at station no. 9. Five traps lost and three trap were damaged in this station. From station no. 11, one buoy line was added at the center of main line. We used two scad as bait for crab trap.

All catch were identify species composition, count individual number and total weight of each species. For the biological study, length-weight frequency, fullness stomach content, sex / maturity stage and sample otolith / scale for ageing study. This study was carried out by Vietnamese scientist team. Summary information of trap was shown in table 1.

Table 1 Summary information of crab trap operation

Summary information of crab trap operation

St. no.	Date	Shooting			Immersion time hrs:min	No.of trap	Total catch (kg)
		Time	Latitude	Longitude			
1	24-Apr-05	12:35	17_01.4 N	109_08.8 E	18:37	100	14.91
2	25-Apr-05	12:22	16_58.6 N	109_30.9 E	17:11	79	6.28
3	26-Apr-05	14:18	15_58.7 N	109_21.2 E	20:25	96	7.17
4	27-Apr-05	15:02	16_01.8 N	108_58.6 E	14:25	99	5.78
5	28-Apr-05	15:54	14_58.9 N	109_21.2 E	13:29	98	4.39
6	29-Apr-05	10:12	14_29.9 N	109_25.2 E	5:18	93	3.4
7	30-Apr-05	6:15	14_00.1 N	109_30.1 E	10:20	84	1.61
8	1-May-05	6:22	13_30.4 N	109_30.3 E	7:09	88	3.08
9	2-May-05	6:08	12_59.4 N	109_35.3 E	9:32	67	1.89
10	3-May-05	5:50	12_30.1 N	109_35.2 E	5:55	54	3.04
11	6-May-05	5:23	11_55.8 N	109_35.7 E	6:24	78	0.77
12	6-May-05	16:46	11_30.2 N	109_30.3 E	3:48	77	16.2
13	7-May-05	9:35	11_00.0 N	109_20.2 E	6:50	73	1.05
14	8-May-05	5:20	10_29.3 N	109_09.5 E	6:22	65	4.04
15	8-May-05	16:27	09_59.0 N	109_10.0 E	13:17	69	4.02
16	9-May-05	10:35	09_23.4 N	109_00.2 E	7:10	67	3.26
17	10-May-05	9:05	08_59.1 N	108_49.6 E	7:10	69	0.71

Bottom Vertical Longline (BVL)

In this survey squid was used as bait. There were several problems during BVL operation. At station no. 8, two end of BVL main line were cut by local pair trawl fisherman. We lost the whole main line compose with 117 branch line, 936 hooks, 116 sinker, 114 float and 2800 m of mainline. There was not enough spare material to prepare new BVL. We have to cancel BVL at station no. 9 and 10 on 2 – 3 May 2005. New set of BVL were prepared on 5 May using material from Vietnamese fishing gear shop.

At station no. 11, twenty one float were broken from water pressure. We lost 21 branch lines. To solve this problem, safety line were added to all float. While hauling BVL at station no. 17, thirty branch lines entangle with the main line from the strong wind and current. BVL were also cancel at station no.18, because of too strong wind and current. We then decided to back to operate BVL at station no.9 and 10. Summary of information of bottom vertical long line were shown in table 2.

All catch were also identify species composition, count individual number and total weight of each species. For the biological study, length-weight frequency, fullness stomach content, sex / maturity stage and sample otolith / scale for ageing study. This study was carried out by Vietnamese scientist team.

Table 2 Summary information of bottom vertical long line operation

St. no.	Date	Shooting			Immersion time hrs:min	No.of hook	Total catch (kg)
		Time	Latitude	Longitude			
1	24-Apr-05	11:52	16_59.5 N	109_10.1 E	4:08	720	3.94
2	25-Apr-05	11:43	16_59.8 N	109_30.3 E	3:43	960	8.03
3	26-Apr-05	13:38	16_00.1 N	109_20.1 E	3:13	960	22.45
4	27-Apr-05	14:17	16_00.0 N	109_00.2 E	2:30	904	10.49
5	28-Apr-05	15:10	15_00.6 N	109_20.6 E	1:38	904	3.56
6	29-Apr-05	10:42	14_31.40 N	109_24.36 E	4:37	920	2.57
7	30-Apr-05	6:55	13_58.9 N	109_30.8 E	7:30	920	2.36
8	1-May-05	6:53	13:28.9 N	109_30.7 E	7:37	936	Lost all line
9	13-May-05	5:42	12_52.9 N	109_37.4 E	2:50	720	0
10	13-May-05	12:00	12_30.4 N	109_35.1 E	3:40	720	0.105
11	6-May-05	5:53	11_57.5 N	109_35.7 E	4:39	760	5.78
12	6-May-05	16:04	11_30.8 N	109_30.5 E	2:24	712	5.7
13	7-May-05	10:00	11_00.5 N	109_21.5 E	4:58	720	6.36
14	8-May-05	5:56	10_30.56 N	109_10.3 E	4:29	628	0
15	8-May-05	15:52	10_00.1 N	109_10.3 E	2:35	672	1.5
16	9-May-05	11:00	09_24.2 N	109_01.2 E	5:00	720	4.8
17	10-May-05	9:30	09_00.0 N	108_50.7 E	4:04	704	1.56

Automatic Squid Jigging

Four Automatic Squid Jigging machines were operated from about 20:00 to 24:00 at the station that we can drifting at night. The catch was not so good. Summary information of automatic squid jig operations was shown in table 3.

Table 3. Summary information of automatic squid jig operation.

St. no.	Date	Start jigging			Jigging time hrs:min	No.of jigs	Total catch (individule)
		Time	Latitude	Longitude			
1	24-Apr-05	19:00	17_00.0 N	109_09.8 E	2:30	200	1
2	25-Apr-05	19:00	16_57.6 N	109_30.8 E	2:00	200	3
3	26-Apr-05	19:00	15_56.2 N	109_22.2 E	3:00	200	5
4	27-Apr-05	20:00	16_00.0 N	108_58.5 E	3:00	200	1
5	28-Apr-05	20:00	14_59.7 N	109_22.0 E	3:00	200	8
7	30-Apr-05	22:00	13_31.3 N	109_30.4 E	1:30	200	1
8	1-May-05	20:00	13_01.9 N	109_35.0 E	4:00	200	6
9	2-May-05	20:00	12_31.0 N	109_35.6 E	3:00	200	16
11	5-May-05	21:15	11_56.4 N	109_36.3 E	2:00	200	0
14	7-May-05	21:05	10_28.1 N	109_29.1 E	2:00	200	3



Fig 2 Fisheries resources survey activities

Oceanographic survey

Eighteen stations with two replicate in station 9 and 10 were carried out. Equipments that were used in each station and data file name were shown in table no. 4.

CTD (SeaBird -911+)

MV.SEAFFDEC 2 CTD systems compose with main three sensor for conductivity, temperature and depth, and four auxiliary sensor for dissolved oxygen, pH, chlorophyll fluorometer and PAR.

Oxygen data from down cast of station no. 2-5 show irregular pattern. However, oxygen data from up cast seem good enough. From station no. 6, we changed CTD deployment speed to be 0.3 m/s, the oxygen data of down become well enough. At station no. 11-15, down cast oxygen data become irregular pattern with unknown reason despite deployment speed is 0.3 m/s. In this survey, all plotted oxygen data came from up cast operation.

From preliminary quality control process by visualize the profile of down and up cast, oxygen data in each station were deleted as follow:

St no.	Down cast	Up cast
2	40 -138 m	100 – 138 m
4	31 – 96 m	80 – 96 m
5	3, 40 -100 m	101 m
11	26 – 135 m	-
12	36 – 120 m	99 – 118 m
13	70 – 111 m	92 – 111 m
14	42 – 125 m	125 – 126 m
15	121 – 149 m	148 – 149 m

All CTD data were average into every 1 meter interval. Data in each station were divided into down cast and up cast. Profile of temperature, salinity, dissolve oxygen, pH and fluorescence chlorophyll-a were shown in annex 2.

Carousel water sample with twelve 1.7 liter Niskin Bottles which is a part of CTD system were used to collect water sample from standard depth. The water sample were filter through Whatman GFC filter paper then store in the freezer at -40 °C for nutrient (nitrite, nitrate, phosphate and silicate) analysis at SEAFDEC/Training Department laboratory. 146 samples were taken. All samples will be analyzed within two month. Then data will be sent to Vietnam national coordinator.

At station no. 1, 3, 7 and 16, CTD operation was cancel. It is because of rough sea. However Temperature and Depth Recorder (TD) were used instead to collect profile of temperature.

There were two CTD cast for station no. 9 and 10. 1st cast at the trap operation while the 2nd cast at BVL operation.



Fig. 3 Deploying of CTD



Fig. 4 Water filtration for nutrient, chlorophyll-a and total suspended solid.

Profiling Reflectance Radiometer System (PRR)

Eleven PRR cast were carries out. At station no. 1, 2,4,5,6 and 7, the dark measurement didn't take both pre and post deployment. The complete process of PRR measure was started at station no.8. File name of PRR data were shown in table 4

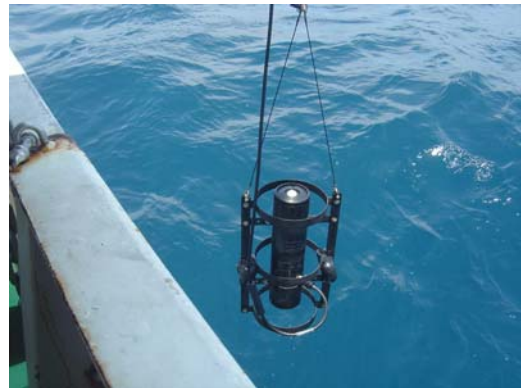


Fig. 5 PRR under water unit

Van Dorn water sampler



Water sample from surface, 10m, 20m and 30m were taken using Van Dorn water sampler. The water (5-6 lit) was filter through GFF filter paper for analyzing chlorophyll- a concentration. One liter from surface was filtered trough GFC filter paper for total suspended solid study. All samples were taken to analyze at SEAFDEC/Training department laboratory. The sample analysis should be finish within two month. Then data will be sent to Vietnam national coordinator.

Fig. 6 Collect large volume of water sample using Van Dorn water sample

Temperature and depth recorder (TD)

TD was used for two purposes. The first is for checking temperature at capture depth of bottom vertical long line. It was attached with the main sinker line of BVL (Fig. 7). The second is for measuring temperature profile at the rough sea station. However, we can collect BVL temperature data only from station 1 to 7. Because of BVL were trawl by the trawler, we lost TD at station no. 8 (Fig.8).



Fig 7. Temperature and Depth recorder attached with BVL



Fig. 8 Temperature and Depth recorder lost from the line.

Thermosalinograph with Fluorometer (TSG-Fluorometer)

TSG – Fluorometer were operated when MV.SEAFDEC2 cruising along the cruise track. Temperature, salinity and fluorescence chlorophyll-a were average every 6 second. Data file name were show in table 4.

Fish Larvae

Fish Larvae sample were taken using hand trawled larvae net (the equipment from Nha Trang Institute of Oceanography) in both day and night time. The larvae net were leaved drifting freely at surface water for 20 minute then trawl slowly to the vessel by manpower. All fish larvae will be analyzed by researcher from Nha Trang Institute of Oceanography.

Problem and recommendation.

There were two main problems for this survey. The first is weather condition which we cannot control. The second is local fisherman. There were many fisherman do fishing in the same our survey area. It's a cause of lost fishing gear and difficult to set fishing gear on the survey area or even cruising. Sometime we don't understand the signal that fisherman send to us. The radio system on MV.SEAFDEC2 is difference from the local fisherman. We cannot communicate with them. For future survey, radio system of local fisherman is needed for MV.SEAFDEC2.

Table 4 Partial detail of oceanographic survey station of cruise no.9_3/2005

St.No. (Viet inam)	Date	Time (Vietnam)	Lat	Long	Oceanographic instruments					Transparency		Bottom Depth(m)	Remark
					SBE CTD	TSG	TD	PRR	Chl-a	Secchi disc (m)	Foral scale		
1	24-Apr-05	1330	17°00'.20 N	109°10'.00 E	-	20050425	Td_profile_st01	2005_04_24_1320	✓	✓	✓	112	
							Td_BVL_st01						
2	25-Apr-05	1310	17°00'.08 N	109°30'.05 E	s2d09002,s2u09002	20050426	Td_BVL_st02	2005_04_25_1313	✓	✓	✓	147	
3	26-Apr-05	1455	16°00'.23 N	109°20'.23 E	-	20050427	Td_profile_st03	-	✓	✓	✓	147	
							Td_BVL_st03						
4	27-Apr-05	1545	16°00'.80 N	108°59'.10 E	s2d09004,s2u09004	20050428	-	2005_04_27_1550	✓	✓	✓	104	
5	28-Apr-05	1632	14°59'.90 N	109°20'.90 E	s2d09005,s2u09005	20050429	Td_BVL_st05	-	✓	✓	✓	110	
6	29-Apr-05	1220	14°30'.16 N	109°25'.45 E	s2d09006,s2u09006	20050429(1)	Td_BVL_st06	2005_04_29_1205	✓	✓	✓	130	
7	30-Apr-05	0930	14°01'.10 N	109°30'.30 E	-	20050430	Td_profile_st07	2005_04_30_0935	✓	✓	✓	158	
8	1-May-05	0917	13°29'.00 N	109°31'.50 E	s2d09008,s2u09008	20050501	-	2005_05_01_0920	✓	✓	✓	141	
9	2-May-05	0920	12°59'.10 N	109°35'.60 E	s2d09009,s2u09009	20050502	-	2005_05_02_0922	✓	✓	✓	160	
10	3-May-05	0935	12°30'.25 N	109°35'.46 E	s2d09010,s2u09010	-	-	2005_05_03_0937	✓	✓	✓	137	
11	6-May-05	0937	11°58'.28 N	109°35'.94 E	s2d09011,s2u09011	20050506	-	2005_05_06_0916	✓	✓	✓	152	
12	6-May-05	1803	11°30'.86 N	109°30'.64 E	s2d09012,s2u09012	20050507	-	-	✓	-	-	126	
13	7-May-05	1125	11°00'.60 N	109°20'.20 E	s2d09013,s2u09013	20050507(1)	-	2005_05_07_1133	✓	✓	✓	118	
14	8-May-05	0920	10°30'.52 N	109°10'.21 E	s2d09014,s2u09014	20050508	-	2005_05_08_0921	✓	✓	✓	130	
15	8-May-05	1740	10°00'.00 N	109°10'.70 E	s2d09015,s2u09015	20050509	-	-	✓	-	-	157	
16	9-May-05	1220	09°23'.86 N	109°00'.89 E	-	-	Td_profile_st16	-	✓	-	-	159	
17	10-May-05	1145	09°00'.00 N	108°50'.78 E	s2d09017,s2u09017	20050510	-	-	✓	✓	✓	132	
18	11-May-05	0905	08°30'.72 N	108°50'.35 E	-	20050511	Td_profile_st18	-	✓	-	-	120	
19	-	-	-	-	-	-	-	-	-	-	-	-	Too strong wind and wave,
20	-	-	-	-	-	-	-	-	-	-	-	-	St. 19 and 20 were canceled.
9_1	13-May-05	0713	12°52'.03 N	109°37'.69 E	s2d0909_1,s2u0909_1	-	-	-	-	✓	✓	146	
10_1	14-May-05	1247	12°30'.74 N	109°35'.42 E	s2d09010_1,s2u09010_1	-	-	-	-	✓	✓	137	