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The Second Experiment of Deep Sea Pot Fishing in the Andaman Sea

by
Worawit Wanchana

M.V. SEAFDEC Cruise No. 21-5/1994
16-30 March 1994
SEAFDEC/Training Department

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Introduction

In 1990, the SEAFDEC Training Department conducted experiment of Deep Sea Pot fishing in the Andaman Sea during M.V.PAKNAM cruise no. 85-1/1990, 12 January - 2 March 1990. This second experiment of deep sea pots was a joint research project of the Training Department and Department of Fisheries of Thailand.

The objectives of the experiment can be summarized as follows:

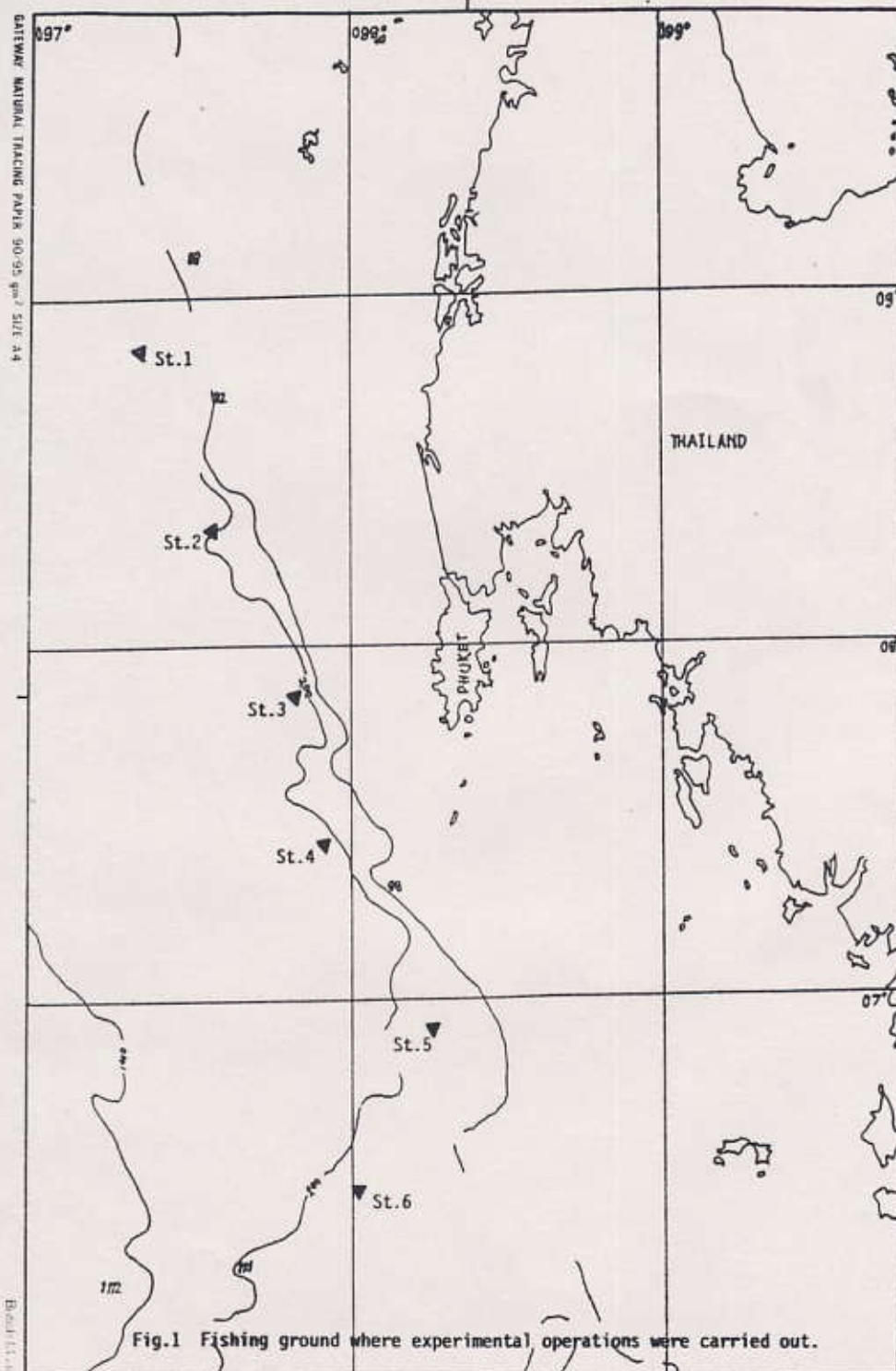
1. To study the demersal fish stocks in the area of the Andaman Sea,
2. To study the efficiency of a deep sea pot at demersal level.

The summary records of the experiment are given in Table 1

Table 1 Summary of the experiment record for Deep Sea pots, 1990 and 1994

Items	1990	1994	
Fishing ground	Andaman Sea		
Fishing gear			
mesh size	25 mm	30.3 mm	120 mm
entrance	150 mm	220 mm	550 mm
No. of operations	4	6	6
Total no. of pots	234	181	179
Type of bait	Indian Mackeral		
No. of fish caught	401	459	30
No. of species caught	21	17	8
Catch/Pot by no.	1.71	2.54	0.16

The second experimental operation of Deep Sea Pots were carried out during M.V. SEAFDEC cruise no. 12-5/1994 from 16-30 March 1994. The operations performed at station 1-6 in the location of the experimental fishing ground are shown in Fig. 1



Fishing gear materials and configuration

Two types of the deep sea pots were used in the second experiment, shrimp and crab pots. Specification of the fishing gear are shown in Fig.2-5 and Table 2.

Table 2 Specification of Shrimp and Crab pots

Parts	Shrimp pot	Crab pot
1. Netting	Polyester (Tetoron) knottless 210d/18, mesh size 30.3mm	Polyethylene 400d/45, mesh size 120 mm
2. Bottom frame	Plastic coated Iron-ring, dia. 9 mm	Iron ring covered with polyethylene twine, dia. 9mm
3. Upper frame	Vinyl plastic pipe, dia. 6mm	(same as bottom part)
4. Size of pot	Dia. of bottom ring:800mm Height of pot : 300mm	Dia. of bottom ring:1500mm Dia. of upper ring:750mm Height of pot:600mm
5. Entrance	Polyethylene sheet, dia. of upper part:220mm dia. of bottom part:110mm	Polyethylene sheet, dia. of upper part:550mm dia. of bottom part:400mm
6. Branch line	Polyethylene rope 3 strands 50g/m , length 1.5 m.	Polyethylene rope 3 strands 50g/m , length 2.5 m.
7. Joint	C-ring , dia. 14 mm	C-ring , dia. 14 mm
8. Bait box	Height:11.5cm , dia. 7.5 cm	Height: 11.5 cm , dia. 7.5 cm
9. Netting bait bag	Polyethylene 22x11 cm.	-

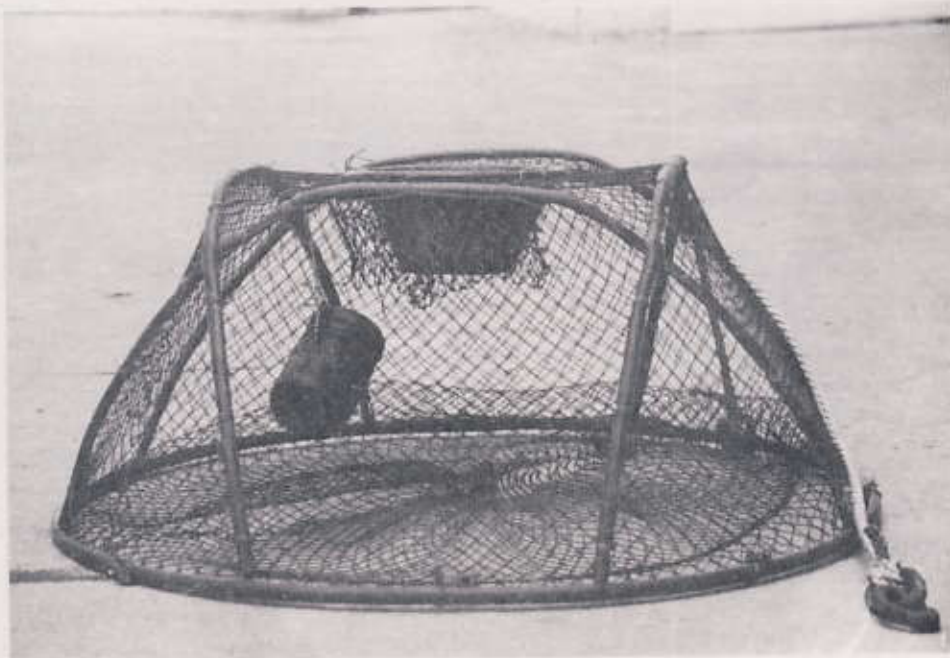
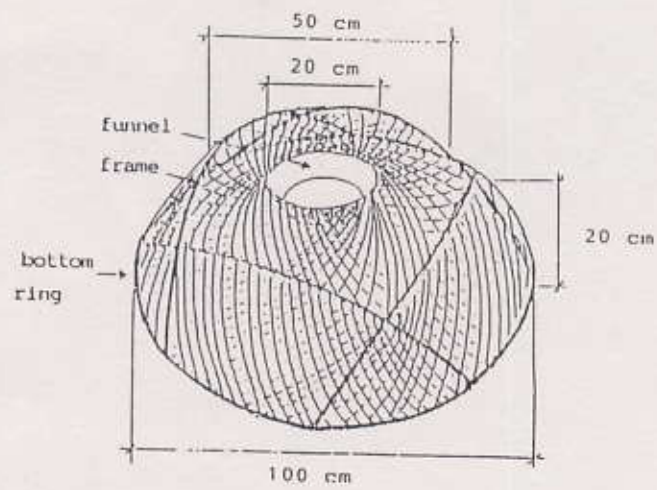


Fig. 2 and 3 Shrimp pot configuration

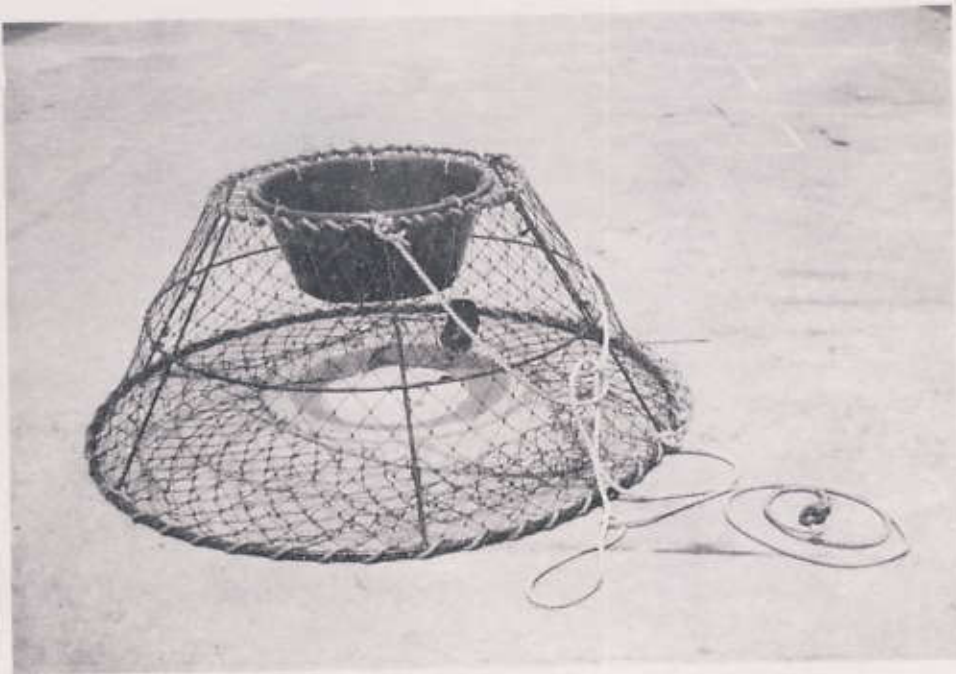
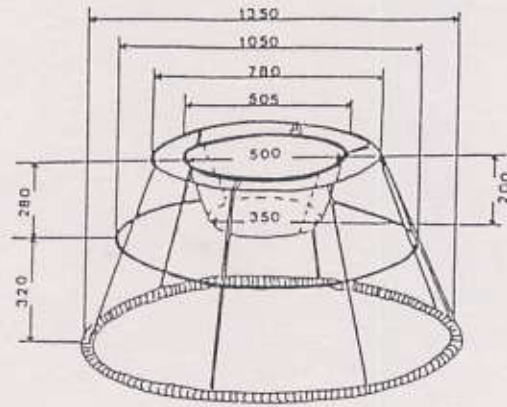


Fig. 4 and 5 Crab pot configuration

Fishing gear arrangement and its operations

A unit of fishing gear consists of a float rope, a main line, a branch line, a pot and a sinker. The operational procedure is as follows;

The shrimp and crab pots are alternately connected to the main line and arranged at about 20 meter intervals.

i) The arrangement for shooting

All main line is coiled on the stern deck next to the purse winch of the vessel. All pots are put at the stern for baiting, connected with a float rope, a flag, a supporting buoy and a sinker. They are then ready for shooting.

ii) Shooting

The shooting of the pots is carried out at the stern. The sinker is first cast and is followed by the flag pole with the float line. The branch line to each pot is connected to the main line by using a C-ring. After all the pots are cast into the sea, the sinker is dropped, followed by the float rope, supporting buoy and flag. The position of shooting is shown in Fig.6

In the last operation, a float rope was added to the middle of the whole gear, to prevent the main line becoming stuck in the sea bottom.

iii) Hauling

The hauling of the deep sea pot experiments were carried out after finishing the bottom vertical longline hauling operation. Immersion time for the deep sea pots was 9:15 hours.

The flag pole with float was firstly hooked, and the float line was passed through side roller to the capstan. When the branch line came up to the side roller, the crew stopped the capstan and removed the branch line from the main line. The position of hauling is shown in Fig. 7

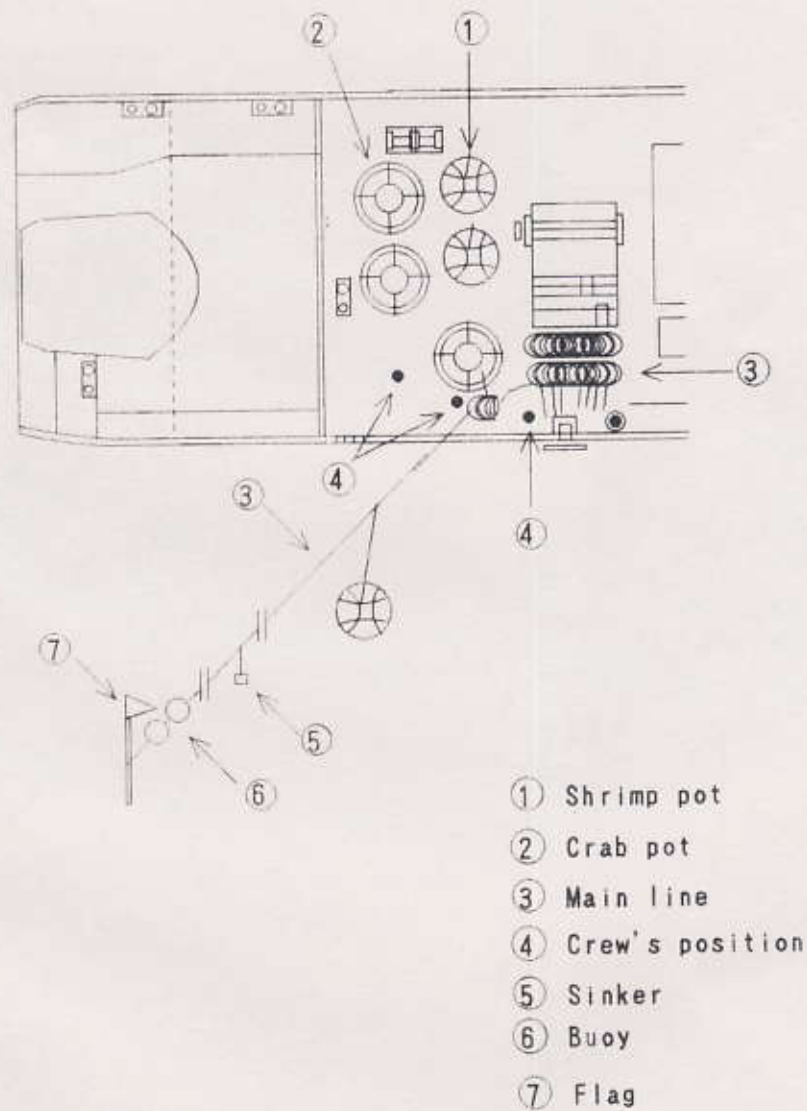


Fig. 6 Shooting of the deep sea pots

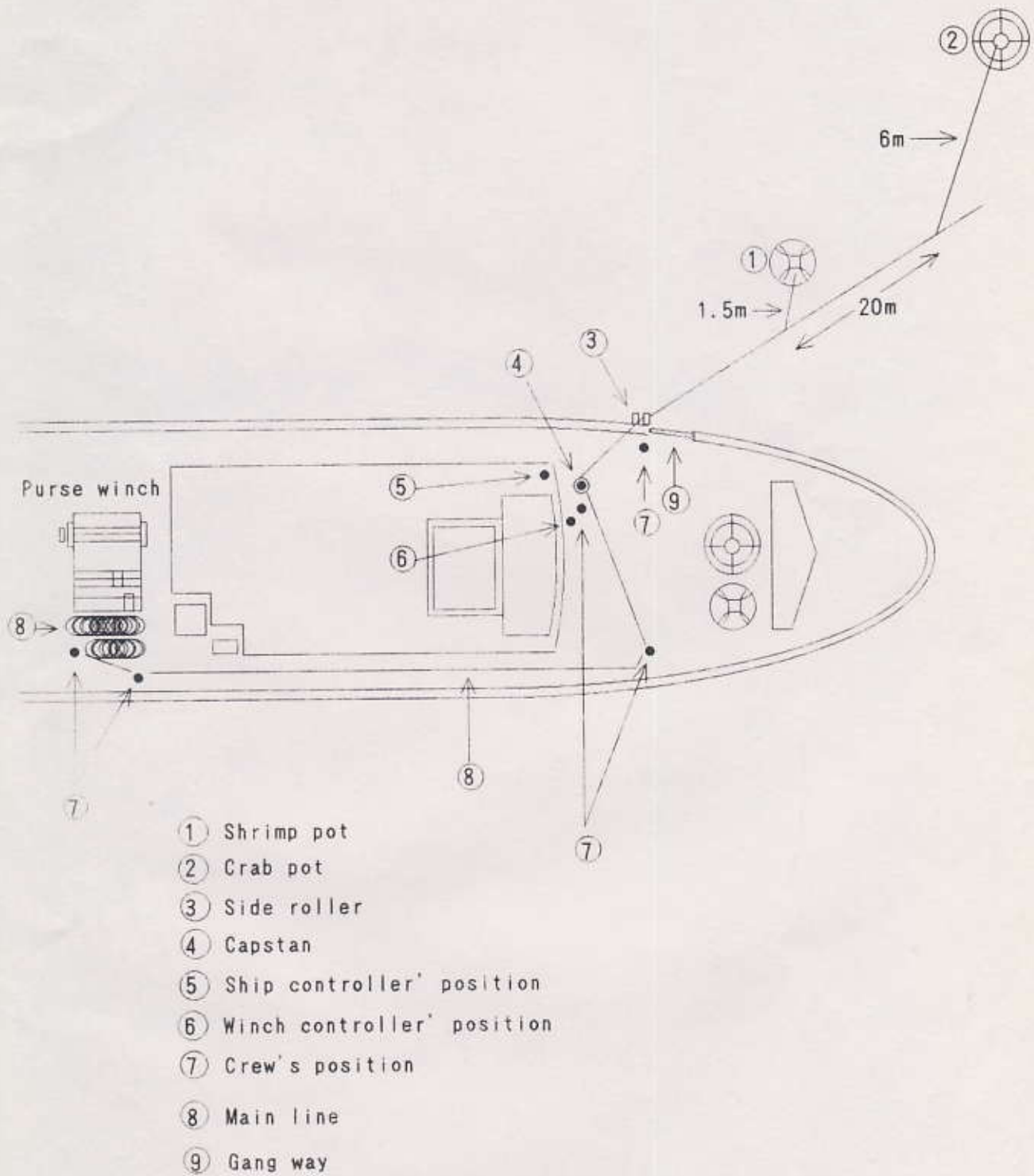


Fig. 7 Hauling of the deep sea pots

Results

The operation

Six operations of the deep sea pots experiments were carried out along the contour line of the sea bottom 150-270 meter. A summary of the experiment is shown Table 2.

Table 2 Summary of the deep sea pot experiment

Station no.	1	2	3	4	5	6
Date	19 Mar.	21 Mar.	22 Mar.	25 Mar.	27 Mar.	29 Mar.
Moon age	7	9	10	13	15	17
Weather	bc	rain	bc	c	c	c
Sea condition	smooth	smooth	smooth	smooth	smooth	smooth
Depth of capture	265-273m	192-250m	229-234m	200m	154-174m	152-161m
Bottom temp.	11.08 C	12 C	11.7 C	12.6 C	12.8 C	12.7 C
Start position	8-49.2N 97-20.0E	8-17.8N 97-35.1E	7-50.0N 97-50.5E	7-25.7N 97-56.9E	6-52.3N 98-15.7E	6-27.1N 98-01.4E
Finish position	8-49.7N 97-18.9E	8-10.2N 97-34.0E	7-50.3N 97-59.6E	7-25.9N 97-62.5E	6-52.6N 98-14.8E	6-26.3N 98-01.0E
Finish shooting time	4:51	4:44	4:42	4:32	4:32	4:35
Start hauling time	13:10	12:40	16:30	11:16	11:12	12:50
Immersion time*	9:25	8:45	12:50	7:51	7:27	9:12
Catch in species	10	8	6	9	8	6
Catch in no.	88	53	176	115	24	33
Catch in wg.(kg)	10.96	7.02	29.50	23.10	10.04	8.16

Total caught in no. and wg. was 489 and 88.78 kg, respectively.

* Immersion time = (Time spent on shooting/2) + Waiting time after shooting +
(Time spent on Hauling/2)

Species composition

Total number of species caught in this second experiment were 19 . The species were composed of three species of deep sea shrimp , five species of deep sea crab. One species of Spiny Lobster, Octopus, Hag fish, Cartilagenous fish, Conger Eel , Moray and Sea Urchin, and four species of Bony fish. The maximum catch of deep sea shrimp was found at station 1 , the deep sea crab at station 3 followed by station 1 and 4. The maximum catch in wg. was found at station 3, followed by station 4 and 5 . The maximum catch in species was found at station 1 , followed by station 4.

Total catch weight and number are 88.78 and 489 pieces, among the species caught in the experiment Conger eel was most common, followed by Moray eels. Total weight of Conger eel and Morey was 37.8 and 25.45 kg, respectively. Table 3 shows species caught by number in the deep sea pot experiment.

Conclusion and recommendation

As the results of the second experiment show the target depth for catching deep sea shrimp is ranges from 153 to 173 meter, which is differently reported in the preliminary experiment in 1990 where the depth of capture was found to be more than 400 meters. From these results, the depth of deep sea shrimp stock should be researched more thoroughly.

The fishing record in species and number of catch by deep sea crab pots was very small , due to the large mesh size of the cover netting/ nil of the deep sea crabs in the the area of the fishing grounds.

Table .3 Species catch by number of Deep sea pot experiments

Station number	1	2	3	4	5	6			
Depth of capture	165-273m	192-250m	229-234m	200m	154-174m	152-161m			
Type of pot	Shrimp Crab	Shrimp Crab	Shrimp Crab	Shrimp Crab	Shrimp Crab	Shrimp Crab			
Number of pot	30	30	30	30	31	30	30	30	Total
Species name									
1. Deep sea shrimp	(Heterocarpus sibogae)	16							16
2. Deep sea shrimp	(Heterocarpus sp.)	1	3						4
3. Deep sea shrimp	(Parapendulus sp.)	2							3
4. Deep sea crab	(Maja kominotoensis)	3	2	4	1				15
5. Deep sea crab	(small crab)	1	1	21	8			1	32
6. Deep sea crab	(Coronoplax bispinosa)				5				5
7. Deep sea crab	(Dairoides margaritatus)		2	3					6
8. Hermit crab			4						4
9. Hag fish	(Eptatretus cirrhatus)	2							2
10. Conger eel		55	12	74	33				175
11. Tiger shark		4	18	6	15	1	7	1	53
12. Fam. Macrouridae		1					2		3
13. Scorpionfish	(Scopaeana neglecta)		1						1
14. Moray	(Gymnothorax sp.)	10	67		43		1		141
15. Sweet lips	(Haplogenyx sp.)						2	8	11
16. Spiny lobster	(Linuparus trigonus)						6	2	8
17. Snapper	(Tongia carnolabrum)					5			1
18. Octopus	(Octopus sp.)							1	1
19. Sea urchin		1				1	1		3
Total	86	2	39	14	175	1	108	7	489

Acknowledgement

I wish to express my appreciation to the Capt. Sutee Rajuchithong, Mr. Aussanee Munprasit , Staff from Fisheries Department , all the crew of M.V. SEAFDEC for their kind cooperation during the experiment.

References

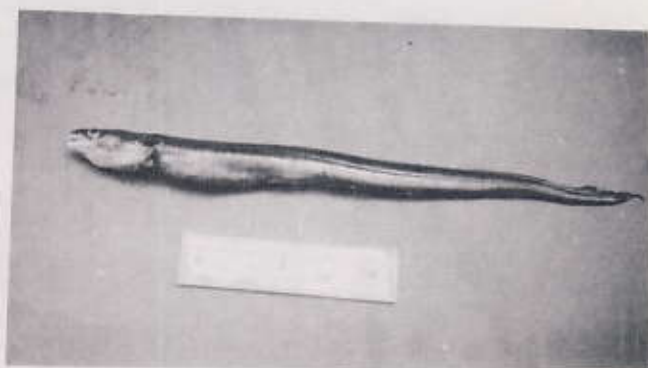
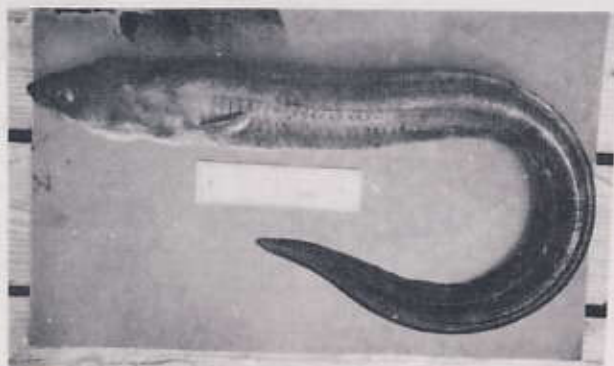
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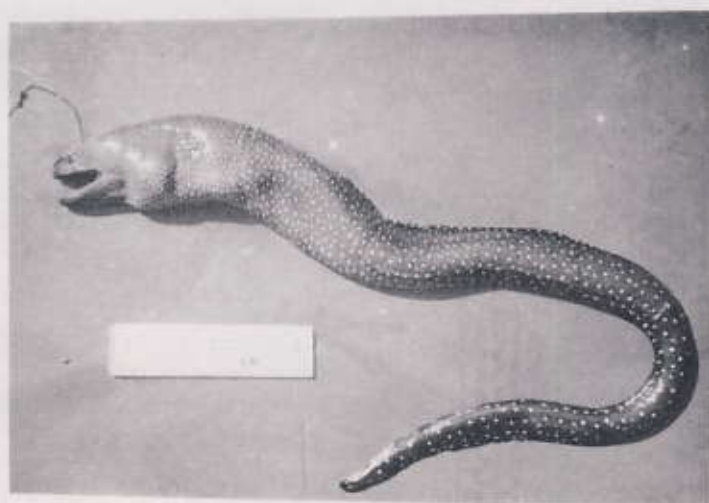
Bating of Shrimp pot.



Hauling of Deep sea pot.



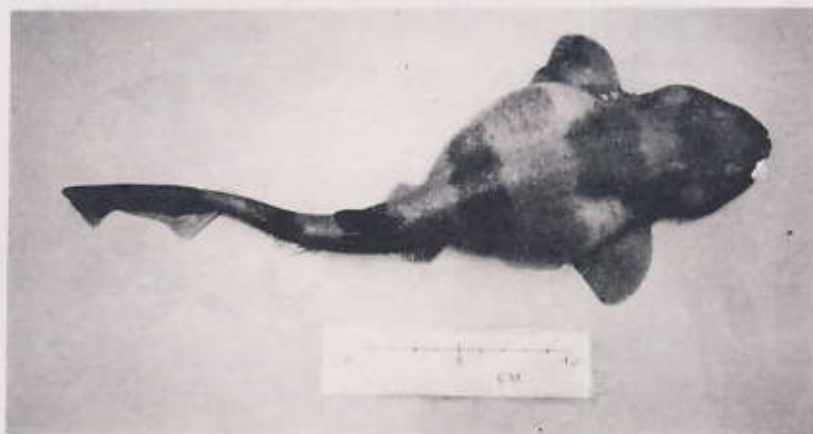
Conger eel



Moray (*Gymnothorax* sp.)



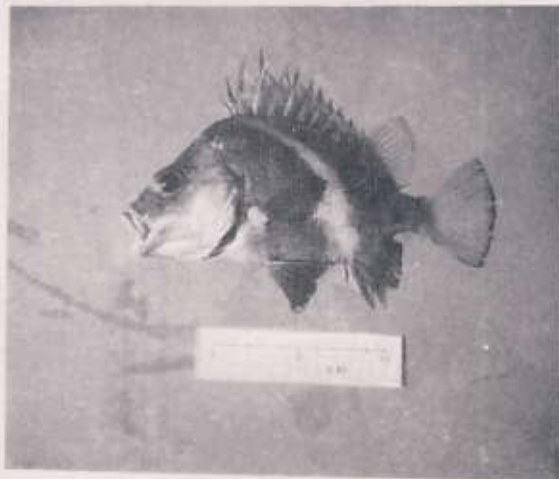
Hag fish (*Eptatretus cirratus*)



Tiger shark



Fam. Macrouridae



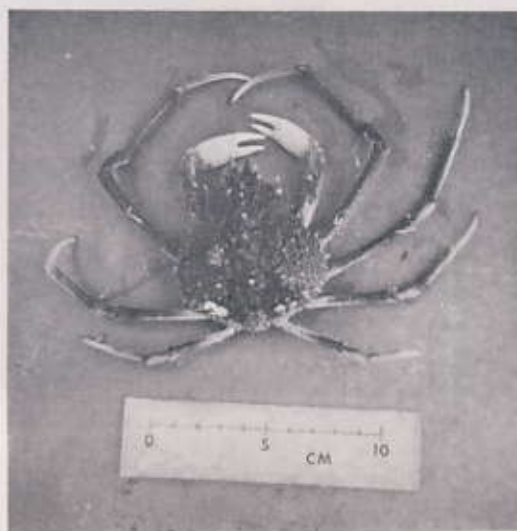
Sweetlips (*Hapalogenys* sp.)



Octopus (*Octopus* sp.)



Spiny lobster (*Linuparus trigonus*)



Deep sea crab (*Mija kominoteonsis*)