

INTRODUCTION OF THE JAPANESE MODEL CRAB-BANK TO A FISHING COMMUNITY IN THAILAND

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1. BACKGROUND

Prior to the project initiation in Pathew District, Chumphon Province, in November 2002, the crab fishermen were concerned about dwindling crab production along with reducing their sizes year by year. To cope with the problem, measures were taken to initiate reserving gravid crab in the spawning cage in the village No. 7 of Pakklong sub-district under the guidance by the NGO Thai Environmental Institute. This scheme was taken over by the SEAFDEC / DOF Thailand Collaborative Project (Integrated Coastal Resources Management in Pathew District – ICRM-PD). Further, another measure to reduce juvenile crab catch in crab trap fishing was introduced by initiation of the project in a way of minimizing the mesh size of crab trap from 1.2 inch to 2.5 inch from August 2003. Since then, both the crab catch volume and the sizes of harvested crab have shown an encouraging trend as seen in the following table and figure. At this stage, however, it is difficult to predict whether these increases of harvesting volume and individual size are attributed by the effect of crab bank or the one by mesh-size control or the combined. Therefore, it is intended to continue both the measures by all means.

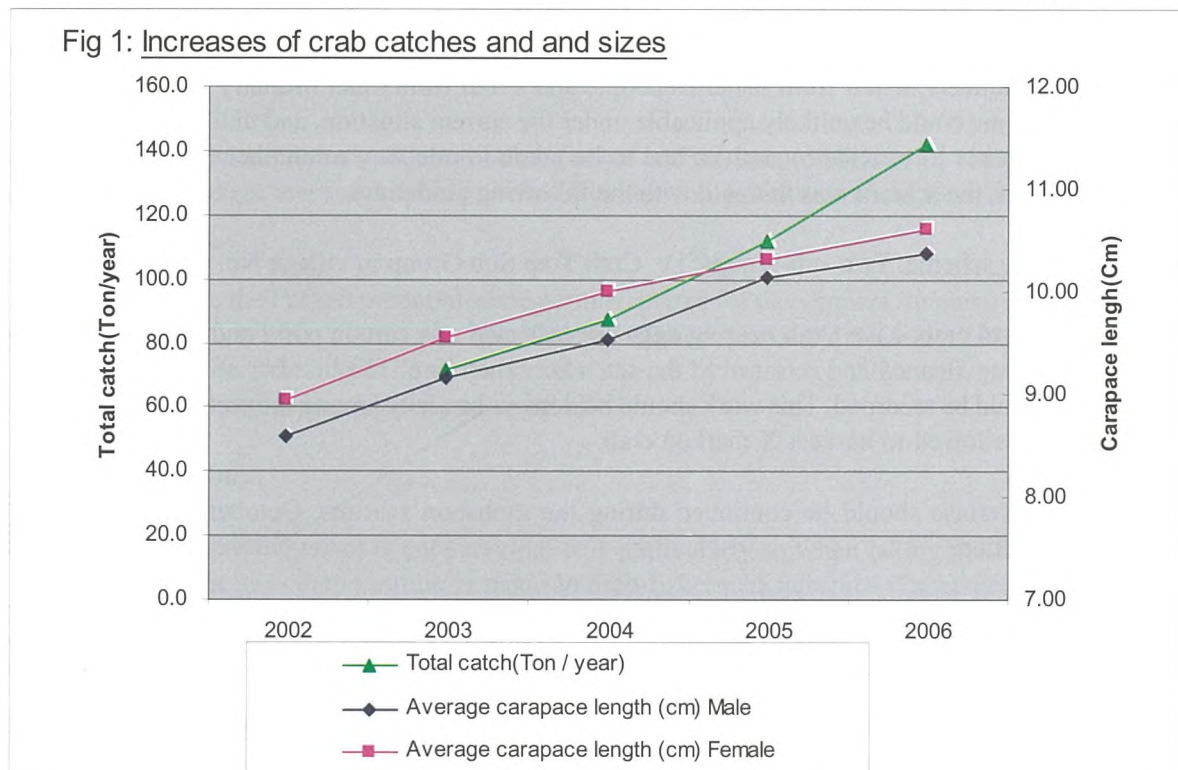


Table 1: Swimming crab catch record in Pathew District

year	Average carapace length (cm)		Total catch (Ton / year)
	Male	Female	
2002	8.60	8.97	-
2003	9.17	9.56	72.1
2004	9.55	10.01	87.6
2005	10.15	10.34	112.6
2006	10.39	10.62	142.6



In the village No. 7, the Crab Trap Fishing Sub-Group was organized under the framework of Pakklong Fishermen's Group (PFG) in 2004 and the crab bank was incorporated in the PFG's undertaking as one of their activities. The crab bank continued their activity in a way that gravid crab were collected from crab-trap fishermen and stocked in a cage for a month or so until eggs were hatched. However, they encountered some problems through their operation like loss by thefts, high mortality, high feeding cost and laborious work in stocking. Meantime, the study tour to Japan was conducted in May 2006 to inspect crab bank practices prevailing in Hyogo-Prefecture since last 20 years under the financial auspices of a NGO group, Hunet ASA in Japan. In this study tour, the Leader of Crab-Bank, the Chairman of the Pakklong Fishermen's Group and the Extension Worker participated. They were impressed by the different type of approach from the different angle in the crab resources management and considered positively its application to their crab bank system, especially during the monsoon seasons when the maintenance of stocking cages would become difficult. Thus, a trial introduction of the Japanese system was initiated in the project site with the Crab Trap Fishing Sub-Group of PFG. after setting in the monsoon season in October 2006.

The brief comparison of advantages in both the methods is described in Table 2: Optional approaches for the Crab-Bank Scheme.

II. APPLICATION OF THE JAPANESE SYSTEM OF CRAB-BANK

When envisaging introducing the Japanese style Crab Bank System to the project area, the major difficulty lay in the operational fund. In case of Japan, the gravid crabs were purchased by the fund donated by a few thousand volunteers; a half from fisheries people and a half from other ordinary volunteers. In the project site, the same could be unlikely applicable under the current situation, and until such time would come, some measures to provide incentives had to be taken in one way or another. Taking the above factor into account, the scheme was initiated with the following guidelines.

Participants of the scheme: Two sub-groups; i.e. Crab Trap Sub Group in village No. 1 and 7

Collection of gravid crab: Live Crab bearing eggs are collected at a certain point and marked **X** on the carapace after being cleaned and released to the sea where they live. The number of crab collected by each member should be recorded. This work should be done voluntarily among the members. Thereafter, no fishermen are allowed to harvest **X** marked crab.

Duration: This exercise should be continued during the monsoon seasons, October to March, as an experimental practice.

Incentives: Some incentives are awarded by SEAFDEC/TD for the fishermen whose contributions in collection of gravid crab are prominent compared with others.

Required equipment and materials: Equipment and materials necessary for this trial such as cleaning towels, special markers and logbooks are provided by SEAGDEC/TD.

III. IMPLEMENTATION OF THE SCHEME

The trial to introduce the Japanese system of crab bank initiated on 20 October 2006 in both the villages No.1 and 7. The crab fisherman in the village No. 1 has continued the operation until now and will continue in future, while those in the village No.7 resumed the conventional system when the monsoon season was over in January 2007. They said that they would resume the Japanese system when the monsoon season sets in. During the course of operation, however, the fishermen found that many marked crabs were caught by crab-gillnet fishers in off-shore where was demarcated from the crab-trap fishing by the mutual agreement. Further, it was reported that some marked crab were caught in the next province at the distance of over 30km from the project area within one month's time. With these facts, the notion that the Japanese crab system has benefited to other fishermen than due beneficiaries has

become prevailing among members of crab fishers and affected to continuation of the trial beyond January 2007. The discussion was made with the crab fishermen on the issue on 6th March 2007 and they expressed that they would like to continue the crab bank operation with the combination of their own system in calm seasons and the Japanese one during monsoon seasons. As to the crab fisherman in the village No. 1, only one active crab-trap fisherman though, he expressed that he would like to continue the Japanese system even in future.

IV. RESULT OF THE TRIAL

As aforementioned, the trial continued for 3 months from October 2006 to January 2007 in the village No. 7 and 5 months from October 2006 to March 2007 in the village No.1. As seen in the detailed record in Annex 2: Crab releasing record from October 2006 to March 2007, 405 crabs were released for 5 months by 3 fishers of the village No.1 and 786 crabs for 3 months by 12 fishers of the village No.7, amounting to 1,191 crabs in total. The number of crabs released per a fishing trip / boat is 3.33 pcs.

Participant

Village No.1: Only one fisherman is engaged in crab-trap fishing in this village (Mr. Winai Sakulnum). In fact, other two fishers participating in this trial purchased gravid crabs from Mr. Winai Sakulnum for the sake of voluntary contribution, which means all 405 crabs were caught by Mr. Winai.

Village No.7.: There are 20 crab-trap fishers registered as members of Crab-trap Fishing Sub-group of PFG. Of those, 12 fishers participated in the trial.

Equipment

The project provided fishers with logbooks, a towel and markers (oil felt-pen). They complained that the Thai-made markers were susceptible to discoloration compared with these from Japan.

Prize awarding

As an incentive, the Project prepared some nominal prizes for the winners, runners-up and third winners. In the village No.7, Mr. Somjit was awarded the winners prizes by releasing 235 crabs. While, in the village No.1, Mr. Winai was done the winner's prize by releasing 293 crabs. All participants were provided with T-shirts as prizes of participation.

V. DISCUSSION

It is no doubt that the result is encouraging. It is particularly so when taking the fact into account that neither payment nor compensation is made to crab-fishermen for crabs discharged unlike those in the crab bank of Japan whose are enjoying compensation against releasing crab from the fund donated by the public. The awareness rising among crab fishers on crab resources conservation is appreciable.

In relation to the above, two PFG members in the village No.1. purchased 112 gravid crabs from a crab fisherman and released them to the sea voluntarily. Such a voluntary participation to the resources conservation activity is noticeable.

Crab is one of major fish catches and constitutes important incomes in the project operational area. Therefore, sustainable and optimum natural resources utilization is the vital factor for the fish-folks' well-being. They have already experienced a negative trend on dwindling crab resources and based on such experiences and lessons they have challenged some measures to cope with. Their activity is highlighted not only in the country but also in the neighboring countries as a vanguard to practice effective crab resources management tactics. The advancement of this activity is no doubt attributed by the voluntary and energetic contribution by the leader of Crab Trap Sub-group of PFG. His dedication to the crab-bank is commendable.

During the course of trial, it was disclosed that crabs marked by the member fishermen were caught by gillnet crab fishers who were operating in the off shore and some were found in the neighboring fishing village at the distance of 30km. Since then, the member fishermen started to argue on effectiveness of Japanese model crab-bank saying that the exercise of releasing gravid crab voluntarily would mostly benefit to outsiders. For this reason, the crab fishermen in the village No.7 resumed the old methods of crab bank that kept gravid crabs in cages until spawning. An explanation about the phenomenon of crab movement and reciprocal common benefit with the shared resources were made at the sub-group meeting on 6th March 2007 in a bid to persuade them to continue the trial. They agreed to resume the Japanese method when the next monsoon season set in. This is simply caused by the visibility effect against impacts by crab releasing as described in Annex 1: Comparison sheet in three crab bank systems. It takes time until all fishermen realize the real concept of common resources management. It needs tenacious efforts. It took 20 years even in Japan to reach the present goal.

VI. CONCLUSION

The trial is considered successful in a sense that awareness development and beneficiaries' positive participation in crab resources conservation have been stimulated to a great extent through this exercise. The fishers in the village No.1 continues the Japanese system which is considered more effective by all means. Also, those in the village No. 7 will resume the Japanese system from October 2007. The SEAFDEC/TD terminated the project operation in December 2006 but the project operation will be continued for next 2 years until December 2009 by the consolidated government institutes under the financial auspices by the Royal

Project. Given the fact that the crab bank operation has just got its impetus and need more support, SEAFDEC/TD should continue technical supports on end in future.

VII. ACKNOWLEDGEMENT

Taking advantage of this occasion, I would like to express a sincere appreciation to Hunet ASA for rendering such a great chance for the project as well as the fishing community in Chumphon to become acquainted with the advanced crab-bank system in Japan, which will be by all means conducive to the coastal fishery resources management approach in Thailand. Also, a particular acknowledgement is for Prof. Hiroshi Fushimi for endeavoring to bring about this attempt through his dedicated coordination.



The cage for crab hatching



The leader of Crab Bank with gravid crab



Prize awarding to the winner



The shield for the winner

Crab releasing record from October 2006 to March 2007

No.	Name	Village No.	Total released	Date		Fishing trip	Average crab release/trip
				strating	closing		
1	Winai Sakulnum	1	293	27/10/2006	6/3/2007	75	3.91
2	Bun-Auen Somson	1	75	3/1/2007	3/3/2007	6	12.50
3	Wara Ket-Ampai	1	37	23/2/2007	27/2/2007	5	7.40
4	Somjit Fungfuang	7	235	26/10/2006	17/1/2007	39	6.03
5	Wanee Niyom	7	128	20/10/2006	6/12/2006	42	3.05
6	Amnaj Piwkhaw	7	81	28/10/2006	16/1/2007	37	2.19
7	Paisan Jinthanom	7	80	27/10/2006	10/1/2007	29	2.76
8	Arnong Annacha	7	72	27/10/2006	11/1/2007	29	2.48
9	Pranom	7	57	28/10/2006	3/1/2007	23	2.48
10	Jang Fungfuang	7	47	26/10/2006	17/1/2007	30	1.57
11	Wisut Namma	7	29	26/10/2006	21/11/2006	10	2.90
12	Prapat Khodkrit	7	23	30/10/2006	10/1/2007	18	1.28
13	Patsanan Puangmalai	7	21	26/10/2006	6/11/2006	9	2.33
14	Jatuphon Kuntongsuk	7	10	26/10/2006	10/11/2006	3	3.33
15	Porntip Tadee	7	3	20/11/2006	30/11/2006	3	1.00
	Total		1,191			358	3.33
<p>Remark: -In Village No.1, Bun-Auen Somson and Mr.Wara Ket-Ampai released crab that she bought from Mr. Winai Sakulnum. In Village No. 7, the closing day to release crab is 17 Jan 2007</p>							