CRAB BANK

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I. BACKGROUND

Crab Bank activity in Pakklong Sub-district was started in 2002 by 15 members of the crab trap fishers fishing along the shore line of Thung Maha Bay and Eang Island. They deposit mature blue swimming crabs with eggs in the cage of the crab bank. The crabs are allowed to spawn in the cages after which they are sold to the local market. Everyday, all members give gravid crabs to the leader of group who takes the crabs to the crab bank.

The idea of a crab bank first took place in Ban Pred Village, Rayong Province supported by Thailand Environment Institute and the Thung Maha Mangrove Conservation Network after observing from a study trip that the fishermen had problems because of decreasing catch of crabs. Members of the Ban Pred community discussed and campaigned for gravid mangrove crab conservation giving opportunity for gravid mangrove crabs to spawn on forth - sixth day of the October waning moon, and this campaign was successful as seen from the increasing catch of crabs. The fishermen in Pakklong used the idea to apply it in the management of the resources through the crab bank method. The initial cage used to pre-test the method was provided by the chief of village no. 7 and later another two cages were provided by the Chumphon Provincial Fisheries Office.

There are now 18 members of the group operating the Crab Bank with the slogan "Enhancement, Conservation and Awareness for Sustainable Utilization". The Integrated Coastal Fisheries Management in Pathew District, Chumphon Province (ICFM-PD) and Pakklong Sub-district Administrative Organization (AO.BO.TO.) have been supporting the group financially and technically since 2003.

II. OBJECTIVE

The main objective of the Crab Bank is to protect gravid crabs and encourage community awareness in resource conservation in order to maintain the sizes and improve the quantity of crabs caught.

III. METHODS AND MATERIAL

1. Crab trap fishers of Ban Kho Teab, Moo 7 were grouped to discuss the method and select the committee members who will carry out the activity of the crab bank

2. Procure and prepare holding cages for the crab bank

3. Activities: Receive gravid crabs from each member everyday. Everyday, the leader of the group Mr. Chang Fungfeang, takes the gravid crabs to the crab bank and records the data. Feeding is done by members when they go fishing near the crab bank. After crabs spawned, spent spawners are harvested by members to sell every 3 months. Every month, fishermen deposit income, may apply for loan, and pay interests on loan.

4. The profit from the sale of spent crab spawners is divided into four parts:
   50% for loan in the group
   30% for cage maintenance
   10% for food fed to the crabs
   10% for operating expenses

5. Extend technology to students and other interested persons

Cage and equipment

Pre Test: cage from Chief of village No. 7

First year: 2 cages size 4x4x4 m from Chumphon Provincial Fisheries Office

From second year until now: 2 holding cages size 4x4x4 m and reserved cages from ICRM-PD and 10 floating cages size 1x1 m

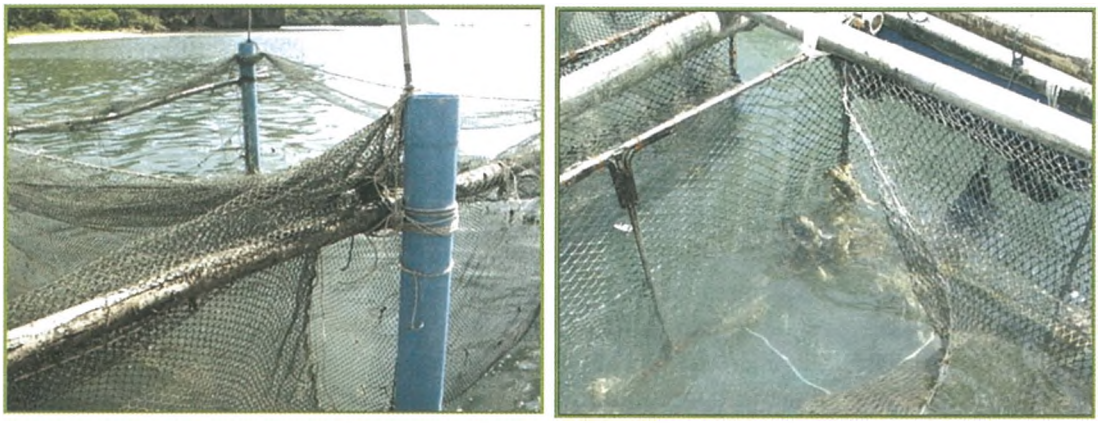

Fig. 1 Holding cage (left) and floating cage (right)

IV. Results

From June 2002 until May 2007, the Crab Bank received a total of 19,475 gravid crabs from the members and other fishermen who were not members of the group (Table 1).

Table 1. Number of gravid crabs turned over to Crab Bank from 2002 to 2007

Period	Number of Gravid Crabs
June - October 2002	557
February - November 2003	3,436
February - November 2004	2,192
January - November 2005	6,049
February - October 2006	4,238
**26 October 2006 – 17 January 2007	-
17 January - May 2007	3,003
Total	19,475

** marking on carapace and released directly to the sea

Since 2002, the Chumphon Marine Fisheries Research and Development Center (CMDEC) conducted landing surveys on the CPUE of blue swimming crabs by crab trap. Results showed that the CPUE from 2002 to 2006 was 9.40, 9.45, 14.44, 17.13 and 12.96 kg/trip, respectively. The average length of male blue swimming crab from 2002 to 2006 was 8.6, 9.17, 9.55, 10.15, and 10.9 cm, respectively while for the female crabs 8.97, 9.56, 10.01, 10.34 and 10.62 cm, respectively (Table 2).

Table 2. CPUE and average size of blue swimming crabs caught by crab trap in Pakklong Sub-district

year	Catching rate (kg/trip)	Average carapace length (cm)		Total catch (mt/year)
		Male	Female	
2002	9.40	8.6	8.97	41.72
2003	9.45	9.17	9.56	44.34
2004	14.44	9.55	10.01	76.88
2005	17.13	10.15	10.34	98.33
2006	12.96	10.39	10.62	67.47

Activities of the members of the Group

In August 2003, the Chumphon Provincial Fisheries Office provided 2.5 inch bottom mesh size of crab traps to crab trap fishermen group, 100 traps per person in exchange for their old traps (Fig. 2). The enlarged mesh size (from 1.25 inch to be 2.5 inch) of the crab traps was more effective as scientifically monitored by CMDEC for one year. The CMDEC has been promoting the use of 2.5 inch bottom mesh size for the crab traps. The result was positive showing an increasing trend in terms of carapace size as well as total catch volume even if the data was yet marginal. When mesh size used was 1.25 inch, the average length of female was smaller than first mature size (9.74 cm) by 63.36%. After using the enlarged mesh size of 2.5 inch, the average length was smaller than first mature size (51.98%) as for the male crabs, before increasing the mesh size the average length was smaller than first mature (6.50 cm) by 17.45%. With enlarged mesh size the average length dropped to 4.18% (Jinda, 2004) as shown in Table 3. Therefore, the enlarged mesh size resulted in higher benefits in terms of exploitation.

Table 3. CPUE and size of blue swimming crabs from crab traps in Pakklong Sub-district

Period	Catching Rate (kg/trip)	Average carapace length (cm)	
		Male	Female
*January - August 2003	10.02	8.56	8.71
**September 2003- January 2004	8.54	8.98	9.10
***February - May 2004	16.44	9.06	9.00

crab trap bottom mesh size:
*1.25 inch only, **1.25 and 2.5 inch, ***2.5 inch only

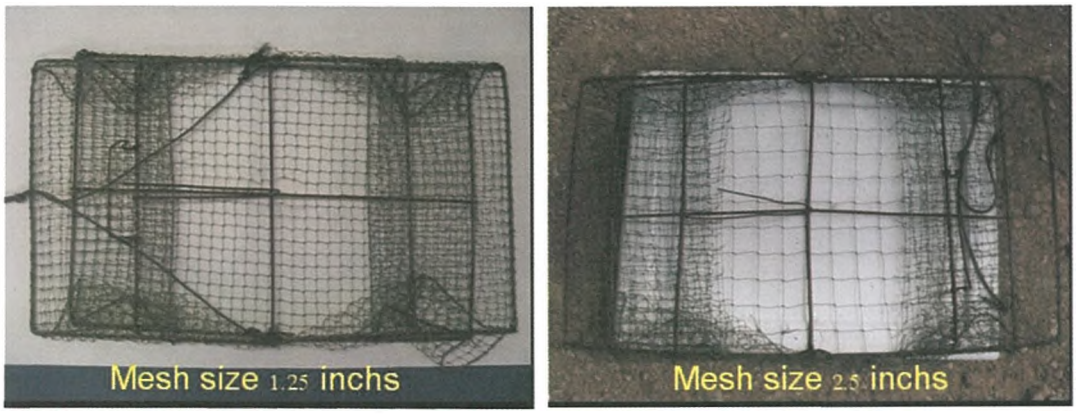

Fig. 2 Crab trap bottom mesh size: 1.25 in (left) and 2.5 in (right)

The Southeast Asian Fisheries Development Center (SEAFDEC) and the Department of Fisheries (DOF) provided 200 T-shirts for sale, the income was used for the operating expenses of the group (Fig. 3). In 2007, total fund of 81,858 Baht has been accounted for the operating expenses of the group. The group also participated in the government efforts for releasing seeds of sea bass, banana shrimps, small blue swimming crabs, and in mangrove reforestation.

Nowadays, the Crab Bank is well-known and the name Mr. Chang Fungfeang rings a bell in coastal resource management by word of mouth as well as in newspapers such as the Daily News, Post Today, Kom Chad Louk and in television: Ch7, modern 9 TV, Ch 11, ITV. Moreover, many people visited the project and learned about the method to be applied in their places.

In 2004, Ao Bo To built Crab Bank Hall to support study tours (Fig. 4) and provided 100,000 Baht as tax-free loan for the group.

Fig. 3 T-shirt for sale supported by SEAFDEC

Fig. 4 Crab Bank Hall by AO.BO.TO

During southeast monsoon, the crab bank method is not appropriate because the big waves make it difficult to manage the crab bank. In June 2006, an NGO in Japan invited Mr.Jang Fungfeang to visit Japan for exchange of experiences, where he also learned a Japanese method of crab conversation through marking on the crab carapace before releasing to the sea (Fig. 5). After he came from Japan, the crab trap group started this new technique during southeast monsoon. SEAFDEC provided the markers, towels to clean the carapace and reward for first, second, third and forth persons who are fast to mark and release the crabs (Fig. 6). Last monsoon, a total of 786 marked crabs was released.

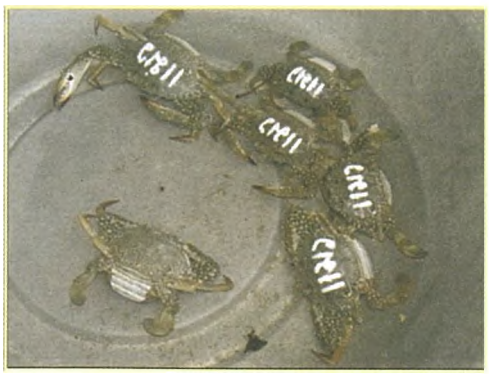

Fig. 5 Marked gravid crabs

Fig. 6 Reward for releasing marked crabs

Students from schools in Pakklong Sub-district and other places visited and learned about crab conservation. They were taught the primary lessons on the crab bank method (Fig. 7).

Fig. 7 Students visit

V. Conclusion

Survival rate of crabs that have not yet spawned in the crab bank was very low because there was not enough food for their high density and the weak crabs were eaten by the stronger ones. The holding cage was modified to floating cage, which is easy to look after, feed, and harvest thus, reducing the loss of crabs remaining in the cage. The floating cage was modified from 10 experimental Babylonia shell cages, size 1x1 m by SEAFDEC.

A total of 43,700 crabs with carapace width of 4-6 cm were released on March, August 2004 and May 2005 (Fig. 8).

Fig. 8 Releasing of blue swimming crab juveniles

VI. Reference

Jinda Petchkamnerd, Thawon Rootjanarat, Iiraporn Ratthanaphrom and Khunruthai Chaikaew.2004. Fishing Gear Replacement Project: changing mesh size at bottom side of Crab Trap in Pakklong Sub-district, Chumphon Province. Department of Fisheries.TD/RES/86.LBCFM-PD No.29.12 p