Sustainable Management of Blue Swimming Crab in Thailand

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Abstract

National Plan of Action on Sustainable Management of Blue Swimming Crab (BSC) of Thailand was developed through a series of participatory consultations among government, private sector, academics, fishers, and NGO. It applied the SWOT analysis and in line with indicators of Marine Stewardship Council (MSC) Fisheries Standard aiming at sustainable utilization of BSC in Thailand based on international principles. The 4-year implementation period of the Plan started from 2015 to 2018 covering 4 strategies, 8 measures, and 21 activities. The 4 strategies are (a) improving information on BSC fisheries and relevant resources, (b) establishment the direction on BSC restoration, (c) controlling inputs to BSC fishing and utilizing, and (d) promotion of local participation and responsible BSC fishing. All activity-level implementations were monitored and evaluated in the aspects of BSC stocks, environmental impacts, and management.

Keywords: sustainable management, blue swimming crab, Thailand
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1. Introduction

Blue Swimming Crab (BSC) has been regarded as the economic aquatic species of Thailand owing to its high domestic and international market demands, both fresh and processing products. It has been found that the products of crab in Thailand mostly come from natural catch, 70% of which is BSC, followed by 21% of other crabs and 9% of mud crab. From marine production statistics of Thailand during 1986 - 2013, the catch of BSC increased from 30,432 tons in 1986 to the peak of 46,678 tons in 1998, then decreased trend from 22,836 tons in 2010 to 28,790 in 2011, 33,464 in 2012, and 25,712 tons in 2013 (Department of Fisheries, 1987, 2001, 2016). From the stock assessment of BSC in Trang Province, Andaman Sea coast of Thailand, its expliotation rate was more than 0.5 showing excessive above its potential yield (Sawusdee and Songrak, 2009; Sanlee, 2012). The fishing efforts of BSC in the upper, eastern, and western coast of the Gulf of Thailand were found over its maximum sustainable yield, while its catch was decreased. Moreover, small crabs and berried female crabs were also caught which resulted in its small recruitment and decreased production (Jindalikit *et al.*, 2008).

The Department of Fisheries has been consistently paying attention on the restoration and management of BSC which was shown by a number of projects and activities on conservation and management of this resources, e.g. the activities for increase and management of aquatic resources under the Food Safety Project, the activities of crab bank (hatching and seed releasing), and the activities for promotion of community-based fisheries management under the Master Plan of Marine Fisheries Management of Thailand. In addition, there has been a large amount of crab bank, both in hatcheries and cages, in fishing communities sponsored by other related bodies, such as the Government Savings Bank, other public and private sectors, as well as their own communities (Marine Fisheries Research and Development Division, 2018). BSC conservation measures were also launched by the Department of Fisheries, i.e. Notification of the Ministry of Agriculture and Cooperatives on the prohibition of berried female crab fishing during October and December

yearly, and the prohibition of fishing by crab trap of under 2.5 inch-bottom mesh size, as well as creating 3,000 – 5,400 m coastal conservation area for nursery ground.

"National Plan of Action on Sustainable Management of Blue Swimming Crab of Thailand" was developed by "Thailand Blue Swimming Crab Sustainable Management Committee", which consists of the members from Department of Fisheries, Department of Marine and Coastal Resources, Academics, Thai Frozen Foods Association, and World Wild Fund for Nature (WWF). The Plan aims to concrete conservation and restoration of BSC through the cooperation of all stakeholders which finally creates responsible and sustainable BSC utilization, fishery-sector potential development, cooperation promotion, and management network.

2. Methods

2.1 Conduct SWAT analysis on sustainable management of BSC in Thailand (SWOT Analysis, 2018).

2.2 Apply the indicators of Marine Stewardship Council (MSC) Fisheries Standard. It is acceptable to be the tool for worldwide fisheries conservation by means of creating economic motivation for sustainable fisheries (WWF, 2015). There are 3 principles of MSC: non-overfishing, non-ecosystem-effect fishing, and fishing management under local, national, and international rules.

2.3 The MSC pre-assessment process is the first official step in the MSC standardization process. For understanding fisheries in the context of deploying the MSC principles and criteria for sustainable fishing to help assess problems, identify the strengths and weaknesses of the fishery.

2.4 Conduct SWAT analysis participating with working group and Committee of Thailand BSC Sustainable Management.

3. Results

Strategies, Measures, and Activities

There are 4 strategies for "National Plan of Action on Sustainable Management of BSC of Thailand", shown as follows:

(1) Improvement of the information network of BSC resources and fisheries
(2) Establishment of the direction for BSC restoration
(3) Control of BSC fishing and utilizing
(4) Promotion of local participation and responsible BSC fishing

The implementation period of the National Plan of Action on Sustainable Management of Blue Swimming Crab (NPOA) was 4 years from 2015 to 2018. All activity-level implementations are monitored and evaluated in the aspects of BSC stocks, environmental impacts, and management. Measures and activities in each strategy areas are as follows:

Strategy 1 Improvement of the information network of BSC fisheries and relevant resources

Information about BSC resources and fisheries is updated. It includes data of biology, habitats, distribution, and population characteristics. By-catch and Endangered, Threatened and Protected Species (ETP) from BSC fisheries, and market demand /situation are also assessed. The linkage and integration of such data are established. Monitoring and improving are carried out under committee agreement.

There are 2 measures with 6 activities in this strategy, shown as follows:

1.1 Update information of BSC resources and fisheries

1.1.1 Synthesize the status of BSC resources

1.1.2 Assess the status of BSC fisheries, including by-catch and ETP

1.1.3 Assess the status of environment and ecosystem related to BSC resources

1.1.4 Assess BSC market situation and import-export statistics

Those 4 activities respond to the evaluation of BSC resources and environment.

1.2 Create BSC data linkage

1.2.1 Establish working groups/Task forces for monitoring and updating overall situation of BSC

1.2.2 Integrate BSC knowledge for its comprehensive fisheries management

Those 2 activities respond to the evaluation of BSC management.

Strategy 2 establishment of the direction for BSC restoration

BSC restoration activities are promoted by establishing community crab banks. Survival rates in crab banks, seed releasing, and appropriate method for BSC productivity in natural water are studied under cooperation and participation of the communities.

There is one measure with 3 activities in this strategy, shown as follows:

2.1 Promote BSC rehabilitation activities

2.1.1 Establish community crab banks

2.1.2 Study survival rates in crab banks

2.1.3 Release BSC seeds/juveniles

Those 3 activities respond to the evaluation of BSC resources.

Strategy 3 control of BSC fishing and utilizing

Optimum BSC fishing effort is determined according to its reference point for sustainable utilization. Measures for spatial fisheries management are defined. Law enforcement is strengthened under cooperation of fishing communities via their monitoring and surveillance network.

There are 2 measures with 5 activities in this strategy, shown as follows:

3.1 Define optimum BSC fishing effort

3.1.1 Define reference point for sustainable utilization

3.1.2 Define optimum BSC fishing effort

3.1.3 Define suitable measures for BSC spatial management in Ao Ban Don, Suratthani Province

Those 3 activities respond to the evaluation of BSC resources.

3.2 Strengthen law enforcement

3.2.1 Conduct monitoring and surveillance participated by communities

3.2.2 Develop network for monitoring and surveillance of illegal fishing

Those 2 activities respond to the evaluation of BSC management.

Strategy 4 promotion of local participation and responsible BSC fishing

Fishing practice is regulated along with the cooperation of communities. Communities are educated in Fisheries law and the law related to marine resources management in order to understand and participate in monitoring and responsible utilizing of BSC resources.

There are 3 measures with 7 activities in this strategy, shown as follows:

4.1 Regulate destructive fishing practice in cooperation with communities

4.1.1 Educate authorities/fishers in the content of “the Royal Ordinance on Fisheries B.E. 2558 (2015)” and “Act on the Promotion of Marine and Coastal Resources Management, B.E. 2558 (2015)”

4.1.2 Promote community-based fisheries management (creating community BSC conservation zones)

4.1.3 Strengthen fishing communities for coastal fisheries management

Those 3 activities respond to the evaluation of BSC resources and management.

4.2 Conduct the monitoring and surveillance of by-catch and ETP, participated by communities

4.2.1 Prepare fishing logbook for fishers

4.2.2 Disseminate the knowledge of by-catch and ETP, including how to save ETP from BSC fishing

Those 2 activities respond to the evaluation of BSC management and environment.

4.3 Monitor and publicize

4.3.1 Plan for communication and public relation

4.3.2 Assess the efficiency of the Plan, including BSC data base, community supporting sectors, and community agreement/regulation

Those 2 activities respond to the evaluation of BSC management.

4. Conclusion

National Plan of Sustainable Management of Blue Swimming Crab of Thailand was developed through a series of participatory consultations among government and private sectors. It applied the SWOT analysis and in line with indicators of Marine Stewardship Council (MSC) Fisheries Standard aiming at sustainable utilization of BSC in Thailand based on international principles. The Plan consists of 4 strategies, 8 measures, and 21 activities. The 4 strategies are (a) Improvement of the information network of BSC resources and fisheries, (b) Establishment of the direction for BSC rehabilitation, (c) Control of BSC fishing and utilizing, and (d) Promotion of local participation and responsible BSC fishing. All activity-level implementations were monitored and evaluated in the aspects of BSC stocks, environmental impacts, and management.

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