

Habitat Conservation and Resources Enhancement in Seagrass Beds in Sriboya Island, Krabi Province, Thailand

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Abstract

The project on “Rehabilitation of Fisheries Resources and Habitat/Fishing Grounds through Resources Enhancement”, has been undertaken by Southeast Asian Fisheries Development Center/Training Department (SEAFDEC/TD) since 2010 to identify appropriate resource enhancement tools, develop strategies and guidelines for resources enhancement for various types of aquatic habitats, and support capacity building for the ASEAN Member States in the implementation of their respective resource enhancement programs. The activities pursued with local communities in sites selected as critical fishing grounds in marine habitats, included conservation and rehabilitation measures that had been conducted. A deteriorated seagrass bed area in Sriboya Island, Krabi Province, Thailand was selected as one of the pilot sites to mitigate the depleted stocks of a species of an edible sea snail, the dog conch (*Strombus canarium*) which is commonly harvested by fishers and local communities by hand and/or labor-saving equipment as motorized boats, dredges and diving with air pump supply. However, such massive collection methods of harvesting easily led to drastic degradation of the seagrass bed habitats as well as deterioration of the dog conch population. TD therefore promoted the conservation and optimum utilization of dog conch through public awareness activities. The workshops on Andaman Sea Province Dog Conch Shell Resource Management Measures on August 2013 and 2014 in Krabi Province, Thailand, which was participated in by local stakeholders in Krabi and nearby provinces, led to an agreement and subsequent implementation of several management schemes, such as restrictions on dog conch harvestable size (<6 cm) and types of fishing gear (dredges), as well as banning the use of motorized boats. Furthermore, several types of media that support awareness building, such as posters, stickers, brochures and banners were produced and distributed to several provinces along the Andaman Sea coast. Through such activities, permanent dog conch conservation areas were established by local fishing communities at Sriboya Island in Krabi Province, and Muk Island in Trang Province. Demarcation of conservation areas at Sarai Island in Satun Province and some other areas had been proposed and under consideration by their respective local fishing community.

Keywords: seagrass bed, dog conch, *Strombus canarium*, resources enhancement, conservation areas

Introduction

Southeast Asian Fisheries Development Center/Training Department (SEAFDEC/TD) implemented the project on “Rehabilitation of Fisheries Resources and Habitat/Fishing Grounds through Resources Enhancement” since 2010 to identify appropriate resource enhancement tools, develop strategies and guidelines for resources enhancement in various types of aquatic habitats, and support capacity building for the ASEAN Member States (AMSs) on the implementation of their respective resource enhancement programs. Still ongoing, the project targets the local sites that had been diagnosed and selected as critical fishing grounds or marine habitats, for the implementation of conservation and rehabilitation measures.

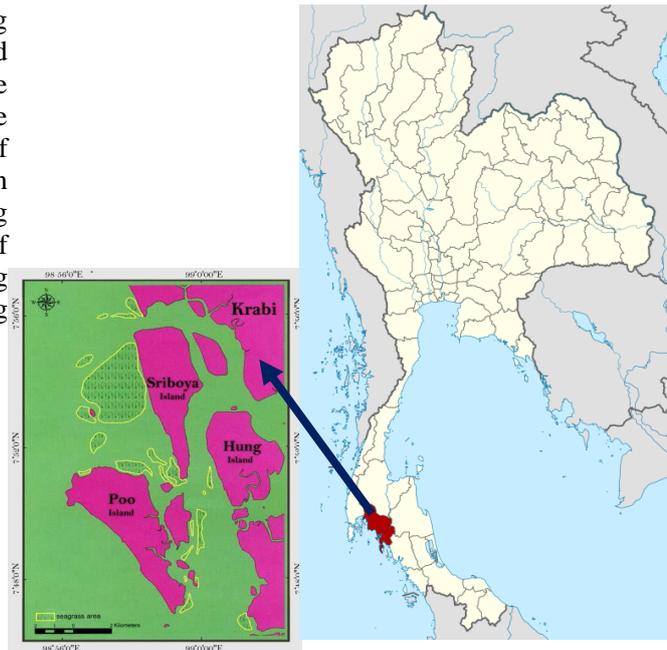
During the project implementation, investigations of the current status of critical fishing grounds, e.g. sea grass beds, coral reefs, freshwater

reservoirs, were carried out to determine those habitats that were found to be degraded, and where rehabilitation and conservation measures would be implemented. During the diagnostic phase of the project, it was found that the marine resources of Sriboya Island in Krabi Province of Thailand are already in the state of degradation and thus, such resources need to be conserved. Moreover, it was also observed that Sriboya Island hosts the natural stocks of the sea snail or dog conch (*Strombus canarium*). Sriboya Island was therefore selected as one of the pilot sites to mitigate the state of depletion of the stocks of such economically important species, considering that wild stocks of dog conch had been abundant in the Island and commonly harvested by fishers and local communities by hand and/or using labor-saving equipment such as motorized boats, dredges and by diving using air pump-supplied equipment.

Such massive methods of collecting the dog conch in the sea grass beds of Sriboya Island had become uncontrollable affecting the marine habitats, not only degrading the condition of the sea grass beds but also depleting the stocks of dog conch which had been abundantly thriving in the sea grass beds. Such irresponsible harvesting also decreased the size as well as the number of dog conch living in the sea grass beds, affecting the local communities that depend on the dog conch for their livelihood.



Dog conch (*Strombus canarium*)



Map of Thailand showing Krabi Province and Sriboya Island

Activities

- 1st preliminary study survey on the seagrass beds site for resources enhancement was conducted in Sriboya Island, Krabi Province, Andaman Sea, Thailand (21-26 March 2011)
- Follow-up survey and investigation on fish species compositions using juvenile fish traps, trammel net, collapsible crab trap and hand-held push net operations (July and November 2011)
- Seed releasing of dog conch was simultaneously conducted in the selected site, where two rearing cages were constructed and dog conch were released to study their survival and growth rates
- Fish composition survey using trammel nets, collapsible traps, juvenile fish traps and a hand-held push net completed in April 2012
- Discussion with stakeholders on area demarcation for conservation of the dog conch; dog conch seeds prepared for release
- Demarcation of conservation area as agreed by local fishers' community for the dog conch successfully done in August 2012
- Marked buoys installed in the conservation area of 25 rai (200x200 m² or 4 ha)
- 30,000 seeds of dog conch were released in the demarcated area by local fishers and officers concerned
- 1st and 2nd Local seminar on Dog Conch Resource Management organized and attended by 70 participants representing stakeholders from the Andaman Sea areas, Department of Fisheries of Thailand and SEAFDEC/TD on August 2013 and 2014, respectively, in Krabi Province, Thailand
- Dog conch conservation campaign posters, brochures, stickers and banners were distributed for public awareness
- 2 permanent dog conch conservation areas sign boards were established by local fishing community in Sriboya Island, Krabi Province in October 2014





Fabrication of dog conch rearing cages (*above*) and releasing of dog conch seeds (*right*)

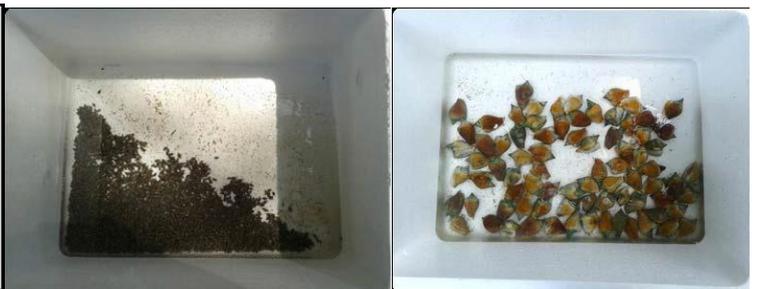


Results

During the workshops on Andaman Sea Province Dog Conch Shell Resource Management Measures in Krabi Province, Thailand in 2013 and 2014, an agreement was reached and subsequent implementation of several management schemes, such as restrictions on dog conch harvestable size (<6 cm) and types of Specifically, the workshops agreed to ban the harvesting of under-sized dog conch (< 6 cm); only hand collecting of the dog conch is allowed; using dredges or trawl net, push net with or without motorized boat is prohibited; and diving by air supplied equipment or tanks to collect the dog conch is also prohibited. Furthermore, declaration was made to promote conservation area for dog conch shell for each area; dog conch conservation zone in sea grass beds area were proposed for all Andaman Sea Provinces; leading

fishing gear (dredges), as well as banning the use of motorized boats. In addition, several types of media that support awareness building, such as posters, stickers, brochures and banners were produced and distributed to several provinces along the Andaman Sea coast.

to the establishment of permanent dog conch conservation areas by the local fishing communities such as those in Sriboya Island in Krabi Province, and Muk Island in Trang Province while in some areas demarcation of conservation areas had been promoted such as those in Sarai Island in Satun Province. Some other areas had also been proposed as conservation areas but these are still under consideration by their respective local fishing communities.



Banner on dog conch conservation (*left*), juveniles (*center*) and broodstock (*right*) of dog conch for release

Constraints Encountered during Implementation of Activities

- Local communities not very much aware on the importance of resources management
- Limited/lack of participation of fishery users of various levels of decision-making
- Insufficient budget to implement the activities by local fishing communities
- Limited dog conch seeds collected for release
- Inadequate data on dog conch catch and sale records to be able to understand the trend and indicators for successful implementation and planning in the future
- Need to monitor and follow-up the activities, for evaluation purposes

Lessons Learnt

The pilot site seagrass beds in Sriboya Island showcases the achievements and lessons learned in the management of seagrass beds as well as protection of breeding/spawning areas through the establishment of dog conch and seagrass beds conservation areas. A successful coastal zone management requires the participation of multi-stakeholders, local communities, government authorities, NGOs, scientists or researchers, and

investors. All the parties should have the chance to express and present their opinions as well as exchange experiences, when discussing the needs and problems; while scientists or researchers could provide their expertise in formulating the management plans. Similar activities could be carried out to expand the initiative to other provinces in Andaman Sea.



Conclusion and Recommendations

In view of the current situation of the marine resources in Sriboya Island, it is recommended that the sea grass bed areas and dog conch stocks should be conserved and managed through the following measures:

- Promotion of a collaborative working mechanism between the government sector and local communities who directly utilize the resources in the sea grass beds;
- Increasing the awareness of stakeholders on the need to protect and conserve the sea grass areas including the marine resources inhabiting these areas;
- Conducting research and enhance knowledge of stakeholders on sea grass restoration as well as disseminate the information to local communities
- Prohibiting the use of some fishing gears that destroy the sea grass beds such as trawl nets, seine nets, dredges and the massive harvesting by diving with air pump-supplied equipment, and promoting the use of small fishing gears for fishery in sea grass beds
- Enhancing the knowledge of stakeholders on the benefits and importance of sea grass ecosystem as habitats for the economically-important species such as dog conch through

mass media specifying various aspects, *i.e.* as nursery ground, shelter and feeding habitats of marine fauna

- Conducting seminars on sea grass and dog conch conservation targeting fishers and local communities that exploit the resources in sea grass beds

Finally, for the sustainability of dog conch fishery in Sriboya Island, it is necessary that a national master plan should be developed for sea grass management to be used as conservation framework for government agencies and communities. In order to facilitate the implementation of such master plan, the local people exploiting the dog conch stocks in Sriboya Island should be organized into an association to ensure that the fishing grounds are protected and conserved. The association should be given a free-hand to develop their regulations on dog conch fishery in Sriboya Island based on the abovementioned resource enhancement measures in order that the degraded sea grass of Sriboya Island could be revived and the dog conch stocks are made to recover for the benefit of the local communities that depend on these resource for their livelihood.