

# THE TRADITIONAL PRACTICE OF FISHERY GOVERNANCE IN COASTAL ZONE MANAGEMENT

: the case of  
Chumphon Province,  
Thailand

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Management: the case of Chumphon Province, Thailand**

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## **Part I. Policies on the Implementation of Coastal Zone Demarcation and Management**

### **Introduction**

The Seventh National Economic and Social Development Plan (1992-1996) of Thailand broadly adopted a bottom-up approach to promote people's participation in the plan. In 1995, the central government launched its policy and program on political and administrative decentralization in the whole nation [1]. In the implementation of this policy and program, the central government decentralized its authority to the local government level, with greater emphasis on the provincial, district and sub-district levels. At the local sub-district level, the administrative organization known as Ao.Bo.To. serves as the key leading management body. The Ao.Bo.To. takes the function and responsibility of the administrative work, social welfare and environmental management in its own boundary areas.

In the fisheries sector, the Department of Fisheries (DOF) of Thailand also embraces the bottom-up approach. Specifically, the DOF introduced the community-based fisheries management (CBFM) approach adopting the bottom-up approach for coastal resource management. The CBFM approach highlights on the people's participation particularly the resource users in marine resource management. It should be noted that strengthening the people's participation in development has been strongly emphasized in the 1997 Constitution and Public Administrative Decentralization Act. This Act legally prescribes the participation of the local people or resource users in community development and resource management.

The DOF has formulated and implemented small-scale fisheries development policies and plans nationwide for more than two decades. These policies and plans were implemented under the framework of the Seventh (1992-1996) and the Eighth (1997-2001) national plans. Small-scale fishers in the whole country are the target groups of such national plans. Certainly, these two plans had the overall goal of achieving sustainability of the coastal resources and poverty alleviation. These plans comprise four main components to stimulate small-scale fishers' participation in fisheries management and community economic development. These main components are: infrastructure construction in fisheries, fisheries resource rehabilitation, institution of fishers' group on micro-credit, and improvement of women's skills in fisheries more particularly in fish processing and product development.

Although some elements of the four components have been successfully implemented, there were some that had unfavorable implications as far as the overall goals of the plans are concerned. For example, the setting up of fishing jetties was an activity under the infrastructure construction as part of the fisheries component. Fishing jetties provide landing places for small-scale fishers, selling sites for their fish catch, and anchor points for fishing boats. However, since the construction of fishing jetties was not fully accomplished as desired, many small-scale fishers still continue to land their fish catch on the shore and anchor their boats at the back door of their homes [2]. This physical outcome had not satisfied the small-scale fishers since most fishing communities have already experienced the benefits from the implementation of small-scale fisheries development and resource management.

In Chumphon Province, a number of fishing villages in the hundred sub-districts have already been introduced to the concept of small-scale fisheries development including its plans and implementation procedures. The small-scale fishers had also learnt the importance of instituting a fishers' group tasked mainly to manage development project such as in this case, the revolving loan arrangement for aquaculture and responsible fishing gear development and management. In addition, the small-scale fishers also participated in resource enhancement and rehabilitation activities such as fish releasing and artificial reef installation. The small-scale fishers appreciated such types of activities as they have directly gained benefits in terms of improved fish catch.

The institution of a fishers' group for a revolving loan management was expected to push the fishers' participation in the group's activity for their economic benefit. The arrangement of the revolving loan was for the purpose of coastal aquaculture engagement and development as well as for the development of responsible fishing gear. These groups were practically vulnerable because of the lack of experience on the part of the fishers in group management and development while many of them misunderstood the group's objective. However, the fishers had gained basic knowledge on how to participate in any group activity primarily for the interest of the group. This is a basic skill necessary to enable the fishers to contribute to the CBFM approach for sustainable development of the coastal resources.

After the termination of the small-scale fisheries development plans implemented in Chumphon Province, the DOF collaborated with SEAFDEC/TD for the five year locally-based coastal resource management project at Pakklong Sub-district, Pathew District. This project comprises the strategy and mechanism to strengthen fishers' participation in coastal resource management for sustainable use of the resources.

The objective of this paper is to demonstrate the fishers' practices, experiences and participation in the coastal resource management. This is part of the practical outcome of the locally-based coastal resource management project implemented in Chumphon Province in 2001-2006. This project adopted the CBFM and co-management approaches. The fishers' participation was a strategic tool to practically pursue these two approaches in achieving the sustainability of the coastal resources. These two approaches also support mechanically the exercise of fishery governance and institution. Since the system of fishery governance and institution that are already present in the province, is traditionally practiced by the local fish farmers and crab trap fishers, these two stakeholders have practically undergone self-governance particularly on the conflict resolution aspect in designated coastal areas.

### **Literature review of fisheries governance definition**

Fisheries governance has not been exactly defined, in the meantime, the existing definition varies area to area. In this part of the paper, a collection of the various definitions of governance as applied to fisheries sector development and management is presented, based on the definitions provided by various international organizations and research institutions.

The World Bank provides two meanings for governance. One is the exercise of political authority and the use of institution resources to manage society's problems and affairs. The other is the use of institution, structures of authority and even collaboration to allocate resources and coordinate or control activity in society or the economy [3].

David Symes, Fisheries Research [4] defined that governance is the whole body of public as well as private interactions taken to solve problems and create societal opportunities. He also divided the basic style of governance into three categories. First is the state centered-top-down mode of hierarchical governance. Second is self-governance involving privatization, deregulation, and transfer of responsibility to individual and organization. The last is participative governance between state user groups, and elements of civil society. In addition, he also gave a guide for the three distinct orders of governance, such as 1) concerned with identification and solution of everyday problems; 2) focusing on institutional arrangement system of agreement, rules, right laws, norms, beliefs, roles, procedures and organizations; 3) meta-governance dealing with value, principle and criteria.

Fisheries Management Science Programme [5] defines governance as fundamental to fisheries determining the manner in which power and influence are exercised over their management. In addition, institution is defined as the set of rules and arrangement (public and private, formal and informal) affecting a fishery as well as the organizations that develop and implement those rules.

The World Humanity Action Trust [6] defines governance as a system of formal and/or informal rules that apply to certain types of activities. Guidelines on both types of formal and informal governance practices are also given. One is the governance of fisheries with the legal framework such as extended jurisdiction, set law of the sea and international agreement. The other is informal governance which relates to local and vested in coastal community or village institution. However,

an informal governance may be vulnerable, this is because it is not legally recognized, could not cope with the introduction of modern technology, could not exercise governance over the full range of fishery resource and gear types, lacks community backing and cohesion, powerless to exclude or control new entrants. The practice of governance system may assign the right to shares of fishery which are specified by the nature of shares in fishery, the type of entities that hold rights, rule about transferability and enforceability. Share can be an amount of catch, unit of fishing efforts (such day of fishing), an exclusive geographic area, and time period when fishing is allowed. Table 1 introduces the principal range of governance in fisheries and the various aspects of fisheries governance.

**Table 1. The principal range of governance in fisheries and aspects of fisheries governance**

<b>Principal range of governance in fisheries</b>	<b>Aspects of fisheries governance</b>
<ul style="list-style-type: none"> <li>- ability to monitor fishers behavior</li> <li>- rates of change in resource use</li> <li>- the level of interaction between fishers and their families</li> <li>- ability to exclude outsiders</li> <li>- collective support for monitoring and enforcement</li> </ul>	<ul style="list-style-type: none"> <li>- conflict resolution</li> <li>- rule compliance</li> <li>- knowledge creation, diffusion and exchange</li> <li>- enhance flexibility to change</li> <li>- rent-seeking behavior</li> <li>- management options with uncertainty</li> </ul>

Source: [7]

These documentations of governance in fisheries are informative in order to have a knowledgeable background in institutionalizing a coastal resource management system. Some of these practices are easily found in the experience of Thailand in coastal resource management.

### **Policy of fisheries management**

The DOF implemented the Seventh and Eighth National Economic and Social Development plans with anticipated three outcomes. These expected outcomes include: access to basic infrastructure for fishing community economic development, trained fishers and stakeholders to participate in decision-making process on coastal resource management, enhanced capacity of women to participate in community economic development. In the meantime, the DOF also adopted the concept of clearly defined boundary to manage the fisheries sector.

Theoretically, three outcomes of the Seventh and Eighth Plans are integral to support fisheries management with certain boundary of the coastal areas, where the fishers and other stakeholders are taking their functions as resource managers. All the stakeholders participate in the decision-making process on coastal resource management in their own boundary, and they make use of accessible basic infrastructures to develop their fishing community economies. Such actions and procedures lead to the improvement of the fishers and other stakeholders' livelihood and security. On the other hand, the empowerment of fishers and stakeholders to participate in coastal resource management such in responsible fishing and fish cage culture, leads to environment-friendly practices.

The DOF has proclaimed the fisheries zone management nationwide into three zones as regulated under the National Fisheries Law, 1947. Zone 1 covers the distance from the shoreline to 3 km of coastal areas. Zone 2 is the inshore areas which cover the distance from 3 km to 12 km of sea water areas. Zone 3 is the exclusive economic zone covering 200 nautical miles from the inshore lines. However, the fisheries zone management has not been effective to reduce the conflict between commercial and small-scale fishers competing to exploit the fisheries resources in zone 1. Recognizing such problem, the DOF promoted the concept of territorial use rights in fisheries and fishing right system to strengthen the clearly defined boundary in coastal management.

### ***The fishing right pilot project implementation***

The DOF formulated the fishing rights pilot project under the Eighth National Social and Economic Development Plan to solve the conflict between the commercial and small-scale fisheries in Prachuabkirikhan Province, Thailand. This pilot project was broadly based on the concept of Territorial Use Rights in Fisheries (TURFs) and the fishing right system practiced in Japan. The concept of TURFs and fishing right system are similar, as such concepts define clearly the boundary of the coastal zone for management with exclusive use rights in fisheries. In Japan,

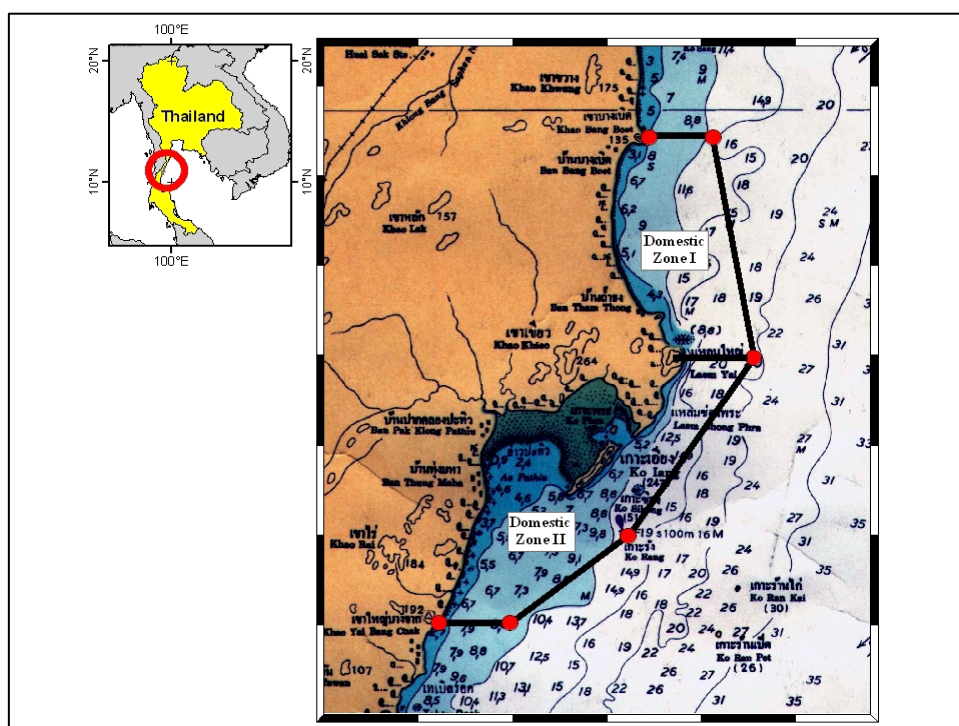
the fishing right system belongs to the Fisheries Cooperative Associations (FCA), where Japanese fishers should be members of the FCA in order to have the right to do fishing.

The DOF applied the basic concepts of TURFs and the fishing right system to formulate the fishing rights pilot project, which was implemented in the coastal zone at Bang Saphan Noi and Bang Saphan Districts, Prachuabkirikhan Province in 1997. The coastal areas of these two districts, covering a distance of up to 5 km from the shoreline, were demarcated. This zone demarcation was legally regulated to prohibit the operation of irresponsible fishing gear in the zone. Particularly, trawls and luring light purse seines using mesh size smaller than 2.5 cm are not allowed to fish in the zone [8]. But the local and non-local small-scale fishers could freely do fishing in the designated zone.

### ***Coastal zone demarcation in Chumphon Province***

The locally-based coastal resource management project was implemented in Pathew District (LBCRM-PD) in Chumphon Province was a collaborative project of the DOF and SEAFDEC Training Department (TD). Comprising a number of activities, the project which had the zone demarcation as a sub-activity under Activity 2 [8], encouraged and extended the LBCRM concept in the district. The zone demarcation activity made use of the experience from the zone demarcation in Bang Saphan and Bang Saphan Noi Districts. The zone demarcation in Pathew District covered a distance of only 3 km of coastal areas as defined in the National Fisheries Laws, 1947. The zone demarcation was aimed at alleviating the conflict between small-scale fishers and commercial fishing boats that operate such gear as trawls and push net.

The fishers and stakeholders' participation in the coastal resource management was guided by legal framework of the Constitution of the Kingdom of Thailand, 1997. The constitution defined that these stakeholders have the right to participate in the decision-making process on local resource management. The Chumphon Provincial Office of Fisheries Officials took a leading role in conducting public hearings on the zone demarcation at Pakklong Sub-district, after which the fishers and stakeholders of the Sub-district agreed on the marked position and areas of the zone demarcation as shown in Fig. 1.



**Fig. 1. Boundary of the coastal zone demarcation of the Pakklong Sub-district**

Remarks: Provided by Sukchai Arnuphapboon and Siriporn Pangson, Capture Fisheries Technology Division, SEAFDEC/TD

The Pakklong Sub-district Administrative Organization (Ao.Bo.To.) Council took the responsibility of the assigned task regarding coastal zone demarcation under the Sub-district Administrative Organization Act, 1994. The Council submitted the community's consensus on the zone demarcation which was achieved through public hearings conducted in the community, to higher authorities of the government agencies. After the Cabinet approved the zone demarcation, Chumphon Province made a proclamation on the zone demarcation on October 4, 2002, which was made effective one month later on November 4, 2002. The zone demarcation consisted of two areas: Area I covers forty-six km<sup>2</sup> from Bang Bird Mt. to Khao Lamyai Mt. while Area II is 70 km<sup>2</sup> from Khao Lamyai Mt. to Khao Bang Jak Mt., as shown in Fig. 1 [9]. Trawler, push net, cockle cast net and anchovy fishing at night have been prohibited in the zone demarcation. Since Area I and Area II are not defined as an exclusive use rights area, both local and non-local small-scale fishers conventionally utilize its fisheries resources. Hence they continue to catch any kind of marine species anywhere they want [9]. The application of CBFM and CM approaches are the key strategies encouraging the local fishers' and stakeholders' participation in monitoring, control and surveillance (MCS), while the stakeholders were expected to serve as watchdogs for offenders. However, since the stakeholders and the Pakklong Ao.Bo.To. Council do not have the authority to arrest the offenders, this created a gap between the policy and the practice of decentralization authority. This is considering that the zone demarcation emanated from the local fishers' and stakeholders' participation in hearings resulting in a community consensus on coastal zone management.

### ***Zone management for fishing and aquaculture***

The local fishers, fish farmers and other stakeholders benefit from the utilization of the coastal area in the demarcated zone. They fish, cruise their boats and engage in fish cage and shellfish culture [10] particularly in Area II. However, in Area II the conflict between small-scale fishers and commercial fishing boats even alleviated, while the conflict between the fishers and fish farmers also became a serious problem. The fish farmers including the newcomers tried to expand their areas for fish cage culture. The newcomers marked certain areas and reserved the areas for their own use for fish cage culture even if part of the marked areas already encroached into the conventional cruising lanes of fishing boats. Additionally, some of these marked areas have also been used as safe anchorage for fishing boats during the monsoon season to avoid disasters from strong winds.

To alleviate the conflict between the fishers and fish farmers, the Chumphon Provincial Office of Fisheries and the LBCRM project staff proposed to implement the concept of zone management for fish and shellfish cultures to all local stakeholders. The objective of this concept was to reduce the conflict between the fishers and fish farmers in utilizing the fishing grounds in Thungmaha Bay, Pakklong Sub-district. This concept was also aimed at controlling the number of fish farmers, fish cages and the corresponding areas covered. After the stakeholders adopted this concept, the Provincial Office held the first pre-consensus meeting at a village-based level with all the seven villages of Pakklong Sub-district, following a procedure shown in Table 2. The elected representatives of each village joined the Provincial Office and the project staff to conduct a site selection using the global position system (GPS). The elected representatives fully supported the move to mark the site selected, which is based on their local knowledge and customary life in the fishing grounds.

**Table 2. First village-based step: local stakeholders' pre-consensus on zone management for coastal aquaculture**

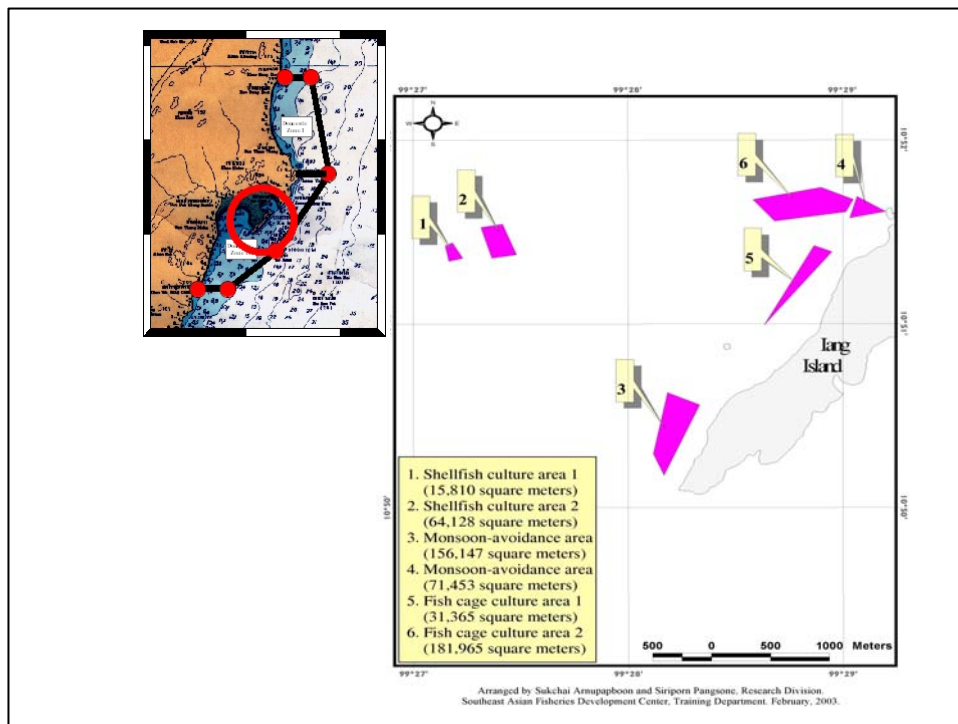
<b>Pre-consensus of Moo *1 and Moo 6 (19 August 2002)</b>	<b>Pre-consensus of Moos 2, 3, 5, and 7 (29 August 2002)</b>
1. Changed the provincial proclamation defined in 1984 from <i>allowed areas for shellfish culture</i> to <i>allowed areas for coastal aquaculture</i> .	1. Changed the provincial proclamation defined in 1984 from <i>allowed areas for shellfish culture</i> to <i>allowed areas for coastal aquaculture</i> .
2. Zone of the allowable areas for coastal aquaculture divided into two main areas: 2.1 for shellfish culture about 96 ha. 2.2 for fish cage culture about 48 ha.	2. Mandated regulation or ordinance to manage coastal aquaculture needed.

Pre-consensus of Moo* 1 and Moo 6 (19 August 2002)	Pre-consensus of Moos 2, 3, 5, and 7 (29 August 2002)
3. Zone for fish cage culture and shellfish culture must be clearly defined.	
4. Provided anchorage place for fishing boats to seek shelter from monsoon wind and avoid vessel destruction.	
5. Elected a representative from each village to establish a group/committee to consider: 5.1 zone for shellfish culture and fish cage culture to be clearly defined. 5.2 looked for a sheltered place for fishing boats to avoid destruction from the monsoon wind	

Source: [10]

Remark: \* means village no. in Thai

The marked site was divided into three areas corresponding to three main purposes: one area was for fish cage culture, which is 300 rais (48 hectares); the other area was for shellfish culture, which is 600 rais (96 hectares); and the last area was reserved as anchorage place for fishers and fishing boats during the monsoon winds (Fig. 2).

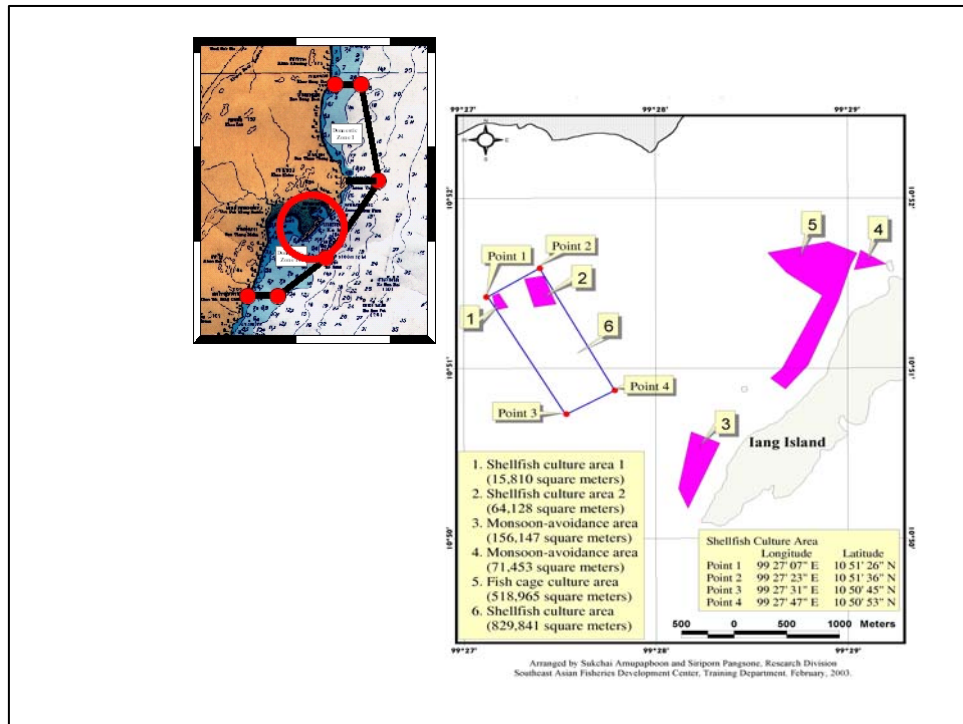


**Fig. 2. First draft of the designated zone management for fishing and aquaculture**

Remarks: Provided by Sukchai Arnuphapboon and Siriporn Pangson, Capture Fisheries Technology Division, SEAFDEC/TD

The map of the selected site is presented in Fig.2, which was used for the discussion at second village-based step. All stakeholders made comments and adjustments on the map. Fig. 3 shows the final layout of site selection.

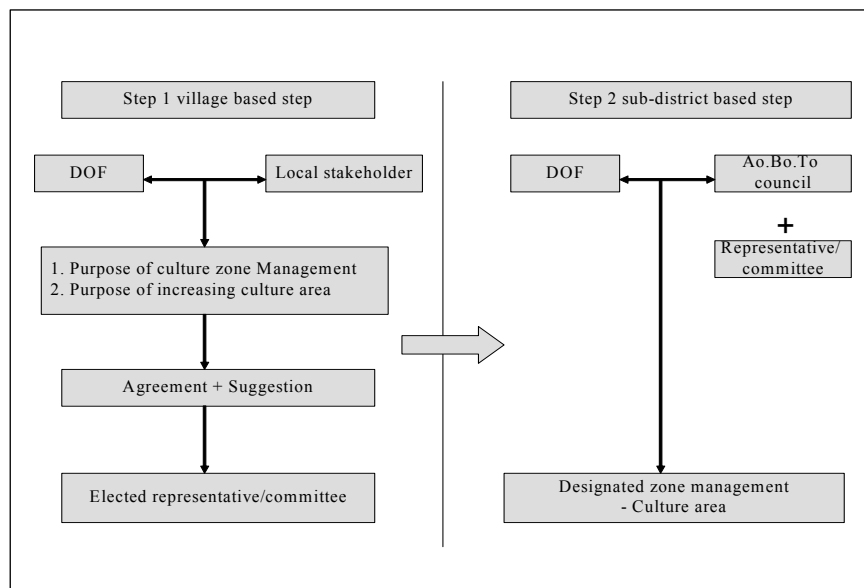




**Fig. 3. Final draft of the designated zone management for fishing and aquaculture, Pakklong Sub-district**

Remarks: Provided by Sukchai Arnuphapboon and Siriporn Pangson, Capture Fisheries Technology Division, SEAFDEC/TD

An Official of the Chumphon Provincial Office of Fisheries took the responsibility of bringing the final layout of the site selected for discussion with the Pakklong Ao.Bo.To. Council. This was a sub-district-based step (Chart 1). The Council accepted local stakeholder’s consensus on the layout of site selection for zone management. But the Council has no authority to officially approve the zone management. In 2004, the Provincial Official tried to formally propose the zone management for aquaculture to be placed under the implementation of the Sea Food Bank Program, but this program was no longer pursued after the Thailand political crisis in September 2006.



**Chart 1. Process of stakeholder’s decision-making on the zone management designation for fishing and aquaculture (Source: [10])**

In practice, all stakeholders particularly the fishers and fish farmers respect the rules and comply with the zone management for fisheries and aquaculture. Newcomers in the village also stopped expanding and reserving portions of the coastal areas for their fish cage culture operations. Fishers can now conveniently cruise their boats for fishing operations in the area surrounding the Thungmaha Bay. Although the zone management for fishing and aquaculture does not exclude the outsiders, they should also obey the community rules and comply with the zone management scheme especially on where to fish and where to site their cages for fish culture.

### ***Implication of the zone management***

The principle of clearly defined boundaries is workable and applicable for coastal management [11]. The zone management is a practical application of this principle. Specifically, the zone management for fishing and aquaculture as in the case of Chumphon Province in Thailand is certainly feasible to reserve and delineate the boundary of the fishing areas and aquaculture for the fishers and fish farmers, respectively. However, the principle of clearly defined boundaries may not be enough to support sustainable coastal zone management as in the case of the zone management in Chumphon Province which seems less effective in reducing the conflict between the crab trap fishers and fish farmers operating push net to catch fish bait in Thungmaha Bay, Pakklong Sub-district. These stakeholders have not clearly defined their right to share in the fishery [6]. The share in fishery includes such factors as amount of catch, unit of fishing efforts and time period allowed for fishing.

### ***Characteristic of the stakeholders and the conflicts***

The National Fisheries Act, 1947 has regulated push net fishing gear operations as seen in Table 3. Additionally, the provincial proclamation of Chumphon Province has also a regulation prohibiting push net fishing gear operations in the zone demarcation of Pakklong Sub-district. Crab trap fishing gear however, is not clearly defined in Section 4 of the Act, although the Act prohibits the catching of fertilized or gravid crabs of the species: 1) *Scylla serrata*, 2) *Portunus pelagicus*, and 3) *Charybdis ferriatus*, from October to December annually.

Recently, a collapsible crab trap has been popularly used to catch the blue swimming crabs. A campaign was launched by the Department of Fisheries (DOF) of Thailand to enlarge the mesh size of the collapsible crab trap, which is also known as crab trap, from 1 inch to be 4 inches [15]. The DOF campaign aims to promote responsible fisheries, and was also applied in the Locally-based Coastal Resources Management (LBCRM) Project, later known as the Integrated Coastal Resources Management Project in Pathew District (ICRM-PD). The campaign mainly targets the participation of the crab trap fishers. As a result, the crab trap fishers in Pakklong Sub-district agreed to change the mesh size of the bottom net only of their collapsible crab traps to 2.5 inches.

**Table 3. The National Fisheries Act, 1947 legally controlled push net and crab fisheries**

<b>Item</b>	<b>Ministerial Notification</b>	<b>Provincial Notification</b>
Push net [12],[13]	Section 32 (2) and (4): prohibits push net fishing gear operated with powered boats with lengths longer than 14 m, to do fishing operations in territorial waters of Prachuabkirikhan Province, Chumphon Province and Surattani Province (Annex II)	MOA 0528/10491 on September 18, 2002: prohibits all kinds of push net fishing gear to do fishing operations in the demarcated coastal zone of Chumphon Province (Annex IV)
Fertilized crab fisheries resources [12]	Section 32 (7): prohibits the catching of fertilized crabs, namely: 1) <i>Scylla serrata</i> , 2) <i>Portunus pelagicus</i> , 3) <i>Charybdis ferriatus</i> from October to December annually, but allows governmental officials to fish fertilized crabs for experimental purposes (Annexes I and III).	
Crab trap [14]	Crab trap fishing gear is not defined in Section 4 (13), (Annexes I and III)	
Fish farmer[14]	Section 5, Ministerial regulation No. 5 (1947): culture of fishes allowed only in allowable areas (Annex V)	

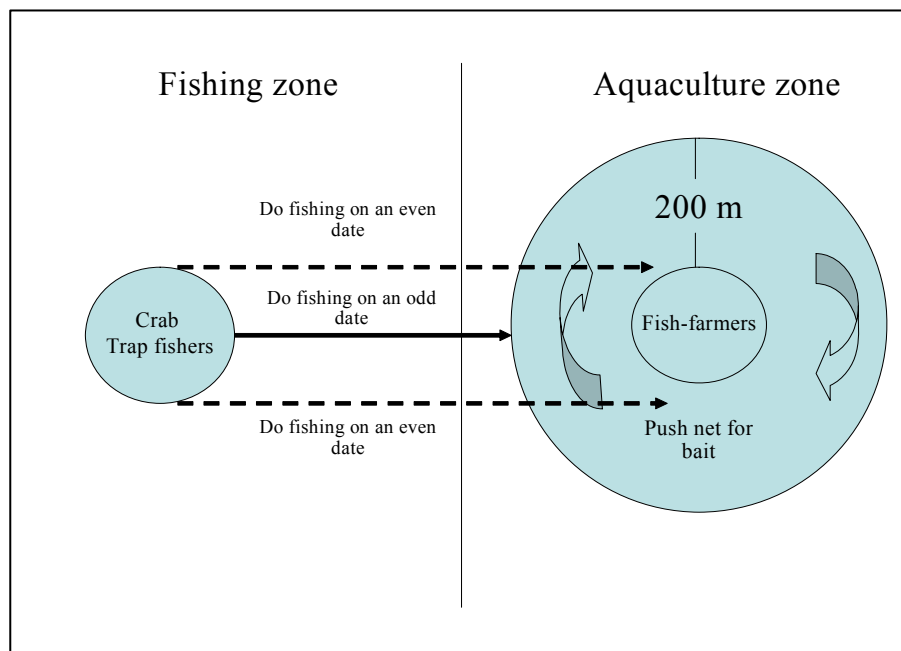
A major conflict between the crab trap fishers and fish farmers using push net for fish bait become a serious concern in this particular zone management. The crab trap fishers declared that they lost their crab traps due to the push net operation for fish bait. In the end, the fish farmers, who operate the push net for fish bait, had to pay certain amount as compensation to the crab trap fishers for their destroyed crab traps.

Considering that both push net and crab trap fishing gears are illegal, in practice, the fish farmers still use push net to catch fish bait while the crab trap fishers still operate their crab traps. The fish farmers reasoned out that the fish bait they caught using push net help in reducing the cost of fish feeds. In fact, they declared that they could not afford to buy fish bait from fish freezing plants because the price is too costly, and increase in the price of fish feeds would lead to high operating cost for fish cage culture, thus, higher cost of fish. On the other hand, the crab trap fishers still trap crabs the whole year round except from October to December as regulated in the Fisheries Act, 1947, Section 32 (7).

***The practice of conflict resolution***

In order to resolve the conflict, the stakeholders particularly the crab trap fishers of village no. 7 and the fish farmers using push net for fish bait from village nos.1 and 6, Pakklong Sub-district, convened a meeting to address the problem of fishing gear losses and destruction on one hand, and alleviation of the coastal resource degradation on the other hand. The head of village no. 7 served as the chairperson during the meeting, which was attended by the crab trap fishers and fish farmers from all villages in the Sub-district.

In the meeting, the fish farmers proposed that they would do push net operation only within a boundary of 200 m surrounding their fish culture areas. Such limited area for push net operation fully supports the reduction of crab trap destruction. Moreover, the fish farmers also proposed that fishing day for each side should be assigned. As a result, it was agreed that the fishing day for the crab trap fishers is on odd calendar dates while the fish farmers’ fishing day is on even calendar dates. The fish farmers also offered that the crab trap fishers could put their traps inside the 200 m boundary of their fish culture areas on odd calendar days (Chart 2).



**Chart 2. The designated boundary of fishing zone with clearly defined fishing days practiced in Pakklong Sub-district**

The stakeholders who participated in the meeting socially endorsed the community rules (agreement) to promote conflict resolution. Specifically, such community rules include the following:

1. Push net for fish bait is allowed to fish only inside the 200 m boundary of the fish farmers' culture areas.
2. On even dates, crab trap fishers are prohibited from fishing inside the 200 m boundary of the fish farmers' culture areas.
3. Push net for fish bait is not permitted to fish on odd dates, and if the push net fishers break these rules and cause destruction on the crab traps, the push net fishers should pay certain amount of compensation to the crab trap fishers.

However, the local fishers expressed their concern that these rules could be cancelled by government agencies that might consider these rules as not very reliable and legally binding. Nevertheless, the social endorsement of such community rules on fishing operational management has been fully respected by the stakeholders concerned. Even non-local stakeholders who come to fish around the zone management also obey these rules, which have been made effective and practiced since May 2003 to the present (2007).

This is a traditional practice of self-governance in fisheries by the local stakeholders in Pakklong Sub-district, which had also been adopted during the implementation of the LBCRM project. Under this practice, the local stakeholders initially solve their conflicts on fishing in the same area, by themselves and in their own way. They made use of the regulation on zone management for fishing and aquaculture to alleviate the conflict. Therefore, they applied the principle of sharing in the fishery particularly regarding the fishing day by assigning specific fishing days for fishing operations. The stakeholders strictly respect the community rules that they themselves have established.

After the community rules have been endorsed, there no conflict has since then been observed between the fish farmers using push net for fish bait and the crab trap fishers. Now, the fish farmers operate their push nets for fish bait within the 200 m boundary of their fish culture areas on even calendar days, while the crab trap fishers do fishing on odd calendar days. The fish farmers also allow the crab trap fishers to put their crab traps inside the 200 m boundary on even calendar days, practically expanding the fishing ground of the crab trap fishers.

Until recently, the Pakklong Ao.Bo.To. Council and the higher authorities of government agencies have not officially approved these community rules on fishing operational management. This has caused apprehension on the part of the stakeholders for although they recognized the vulnerability of such community rules, they appreciated and continued to adopt the rules which have helped them in controlling and managing the utilization of the common fishing ground by all stakeholders.

## **Part II. Survey on the Practice of Coastal Zone Demarcation and Management**

### ***Stakeholders' participation and fishery governance***

The fish farmers and crab trap fishers of Pakklong Sub-district explicitly practiced the community-based fisheries management approach, and participated successfully in the conflict resolution aspect of fishery governance. They went through the process of problem analysis during a special meeting in the community and came up with certain defined solutions to their problems. The definite fishing days that they established serve as key tools in allocating a share in the fishing operation for each stakeholder. The endorsed specific fishing days also serve as their agreement in line with fishing zone management, and they considered such agreement as a community rule necessary to alleviate the conflicts in utilizing the same fishing ground. This practice is also a consequence of the coastal zone demarcation activity. Nonetheless, the fish farmers and crab trap fishers have always respected such community rule on fishing zone management for more than four years.

The LBCRM project staff conducted a survey in three targeted villages, namely: village nos. 1, 6 and 7 of Pakklong Sub-district, to assess the participation of the fish farmers and crab trap fishers in the fishery governance on fishing zone management. The survey was designed as a supportive tool to evaluate how both stakeholders recognize the coastal zone demarcation. Specifically, the survey also aimed to examine how both stakeholders participated in fishery governance in the fishing zone management, especially after the approval the coastal zone demarcation.

### *Scope of the survey*

#### **Objectives**

1. To assess how the stakeholders participate in alleviating the conflict on the use of the same fishing ground
2. To evaluate how the stakeholders recognize and make use of the community rule or agreement to manage the conflict on the use of the same fishing ground
3. To identify factors that helped in promoting self-management and governance in fishing zone management

#### **Methodology**

1. The target respondents were the collapsible crab trap fishers and the fish cage farmers
2. Questionnaire was designed as formative tool to interview the target respondents
3. Inputted data were analyzed using descriptive analysis
4. Results of the survey presented as charts and tables with some explanations.

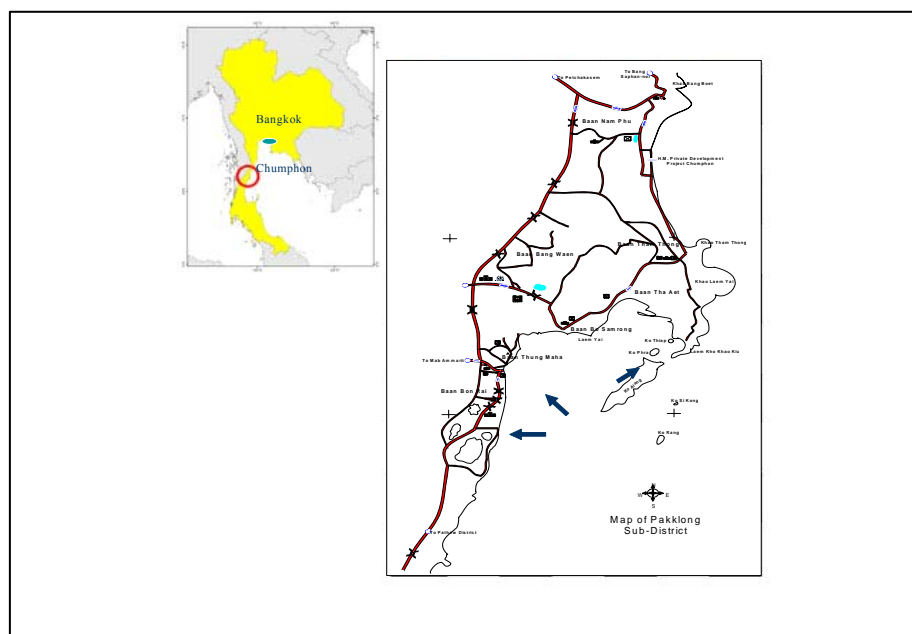
#### **Envisage Output**

1. Collected views on how the local stakeholders participate in problem-and-solution discussions during an assembly
2. Clear views on how local stakeholders self-regulate or self-formulate an agreement, rules or regulations to initially alleviate the conflicts among themselves
3. Possible application of the approach practiced by the local stakeholders in self-management and governance of the coastal resource in its own areas of jurisdiction.

#### **Demographic and geographic information**

Ban Thungmaha Village (village no. 1), Ban Bonrai Village (village no. 6) and Ban Koh Teab Village (village no. 7) are located along the Thungmaha Bay, Pakklong Sub-district, Pathew District, Chumphon Province (Fig. 4). There are totally 204 fishing households in these three villages (Table 4). Each fishing household owns a fishing boat, while some of the fishing households own outboard powered boats, some have inboard powered boats. The data on the number of fishing households was based on the survey conducted in 2002 by SEAFDEC/TD in collaboration with the CMDEC project staff. Table 4 also shows that 44 fishing households have been involved in the fishing zone management (about 22% of the total households in the three villages). The survey sampled only 27 households or 61% of the total fishing households involved in fishing zone management.

The respondents of the survey were categorized by type of engagement in the fisheries sector. Type one comprised the fishing households engaged in fishing only, which were mainly found at Ban Koh Teab Village (village no. 7) with a total of 22 households (Table 5). Type two comprised the fishing households engaged in both fishing and aquaculture, such as 3 households of village no.1, 1 household in each of village no. 6 and no. 7.



**Fig. 4. Map of Pakklong Sub-district Territories**

**Table 4. Number of fishing households and number of respondents, Pakklong Sub-district**

Fishing households	Village no. 1	Village no. 6	Village no. 7	Total
Number of fishing households*	95	41	68	204
Number of fishing households involved in the fishing zone management	6	2	36	44
Number of respondents	3	1	23	27
% of number of respondents	50	50	64	61

**Remark: \* number of fishing household [16]**

**Table 5. Number of respondents by type of engagement in the fisheries sector**

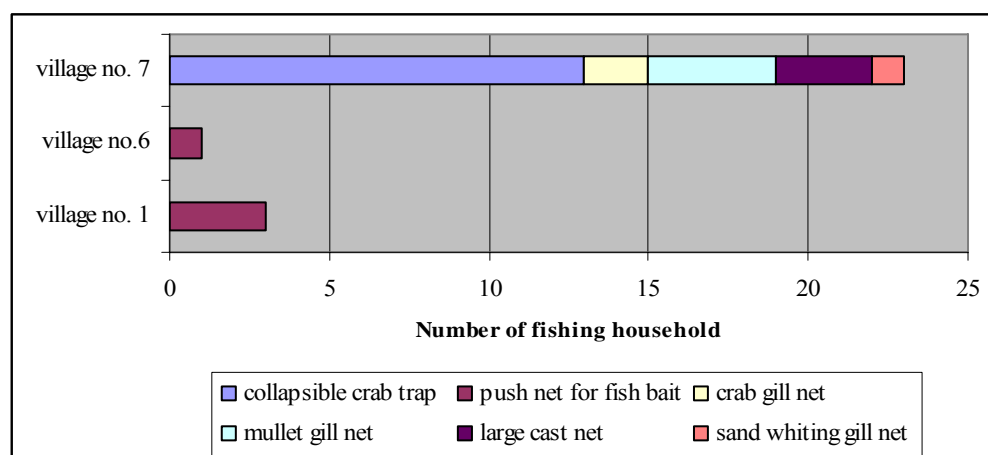
Type of respondents	Village no. 1	Village no. 6	Village no. 7	Total
Engaged in fishing only	0	0	22	22
Engaged in both fishing and aquaculture	3	1	1	5
Total	3	1	23	27

The average age of the respondents is 39 year olds. They have had experience in the fisheries sector for about 17.8 years on average.

***A different fisheries sector***

Generally, the fisheries sector of Thailand is considered as tropical zone type of fisheries resources. This means that there is diversity of the fisheries resource, leading to multi-fishing gear use in the country. The multi-fishing gears used are commonly found in the coastal zone along the Gulf of Thailand and the Andaman Sea. Certainly, multi-fishing gears are also used in the sampled three villages of Pakklong Sub-district. The respondents of the survey indicated that they own more than one type of fishing gear. The results of the survey clarified the type of fishing gear used by each fishing households as well as the fact that each household uses only two types of fishing gear.

Fig. 5 shows that fishing gear type 1 is employed in village nos. 1, 6 and 7. Push net for fish bait is mainly found in village nos. 1 and 6, owned and operated by the fish farmers. In village no. 7, several types of fishing gear are used, where the collapsible crab trap is the major fishing gear of the village. From the survey, 13 respondents indicated that they use the collapsible crab traps, although other types of fishing gear were also found in village no. 7 such the crab gill net, mullet gill net, large cast net, and sand whiting gill net.



**Fig. 5. Types of fishing gear employed by respondents**

Fishing gear type 2 is used by village nos. 1 and 7 as seen in Fig. 6 and Fig. 7. Fig. 6 shows that the fish farmers of village no. 1 are engaged in the fishing operation, three of them using push net to catch fish bait. They also own mullet gill net (one fishing household) and large cast net (two fishing households).

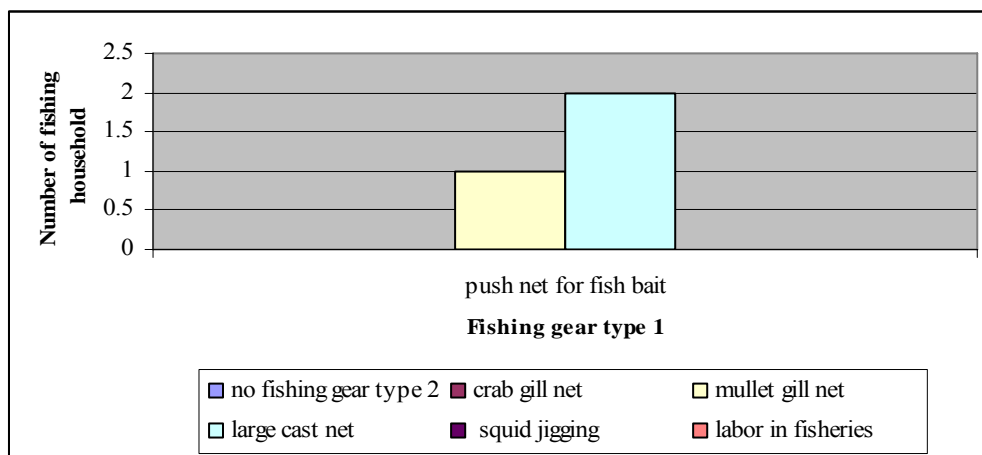


Fig. 6. Types of fishing gear owned by fish farm households

In village no.7, the respondents use multi-type of fishing gear based on their expertise and the fishing season. The result of the survey found that some respondents possess only one type of fishing gear while some own at least two types of fishing gear. Some of respondents use mainly the collapsible crab trap and one more type of fishing gear. Fig. 7 indicates that collapsible crab trap (5), crab gill net (2), mullet gill net (3) and large cast net (2) fishers used only one type of fishing gear. The respondents chiefly engaged in collapsible crab trap also owned mullet gill net (1), large cast net (4), squid jigging (2), and crab gill net (1).

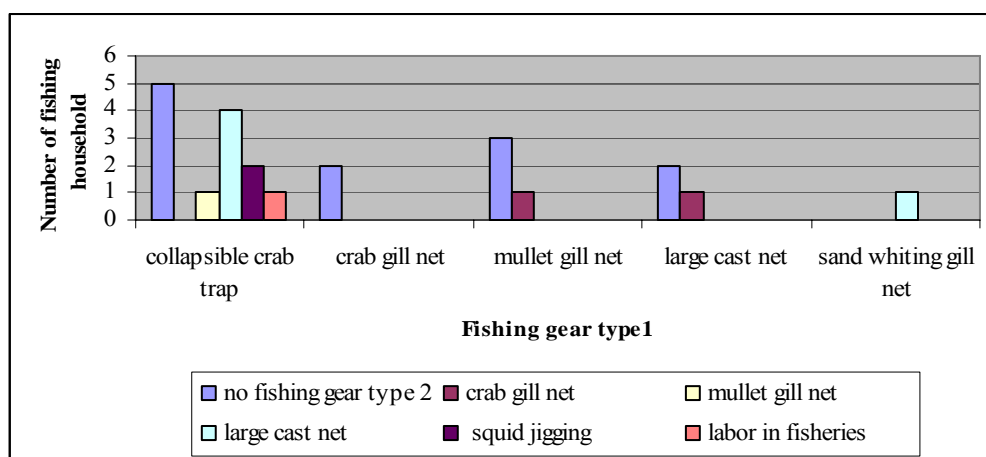


Fig. 7. Types of fishing gear found in fishing households

Table 6 indicates the number of respondents engaged in both fishing and aquaculture (5 respondents), as well as the characteristics and capacity of the small-scale aquaculture. The common type of small-scale aquaculture is grouper and sea bass culture in cages, and is found in every village as seen at Tables 5, 6, and 7. The respondents were not engaged in shellfish culture.

**Table 6. Experience and capacity of fish farm households in Village No. 1**

Items	Number of fishing households	Minimum	Maximum	Mean
Experience in aquaculture (years)	3	5	20	10
Number of grouper cage (cages)	3	0	22	9
Number of grouper in a cage (tails)	3	0	450	233
Number of sea bass cage (cages)	3	3	20	10
Number of sea bass cage (tails)	3	300	350	317
Shellfish culture areas (sq. m.)	3	0	0	0
Shellfish culture line (lines)	3	0	0	0

The respondents from village no. 1 had experience in small-scale aquaculture with a minimum of 5 years to maximum of 20 years (Table 6). The number of sea bass and grouper cages was 3 and 22, respectively, while the number of stocked sea bass and grouper was 350 and 450 tails per cage, respectively.

The respondent from village no. 6 also had an experience in fish cage culture for about 9 years. The number of sea bass and grouper cages was 2 and 3, respectively (Table 7). The number of stocked sea bass and grouper was 350 and 450 tails per cage, respectively.

**Table 7. Experience and capacity of fish farm households in Village No. 6**

Items	Number of fishing households	Minimum	Maximum	Mean
Experience in aquaculture (years)	1	9	9	9
Number of grouper cage (cages)	1	3	3	3
Number of grouper in a cage (tails)	1	450	450	450
Number of sea bass cage (cages)	1	2	2	2
Number of sea bass cage (tails)	1	350	350	350
Shellfish culture areas (sq. m.)	1	0	0	0
Shellfish culture line (lines)	1	0	0	0

Table 8 indicates that the respondents from village no.7 have just been engaged in fish cage culture, having an experience of only one-half year in coastal aquaculture. There is an equal number of grouper and sea bass cage, one each while there were 200 and 300 tails of sea bass and grouper stocked per cage, respectively.

**Table 8. Experience and capacity of fish farm households in Village No. 7**

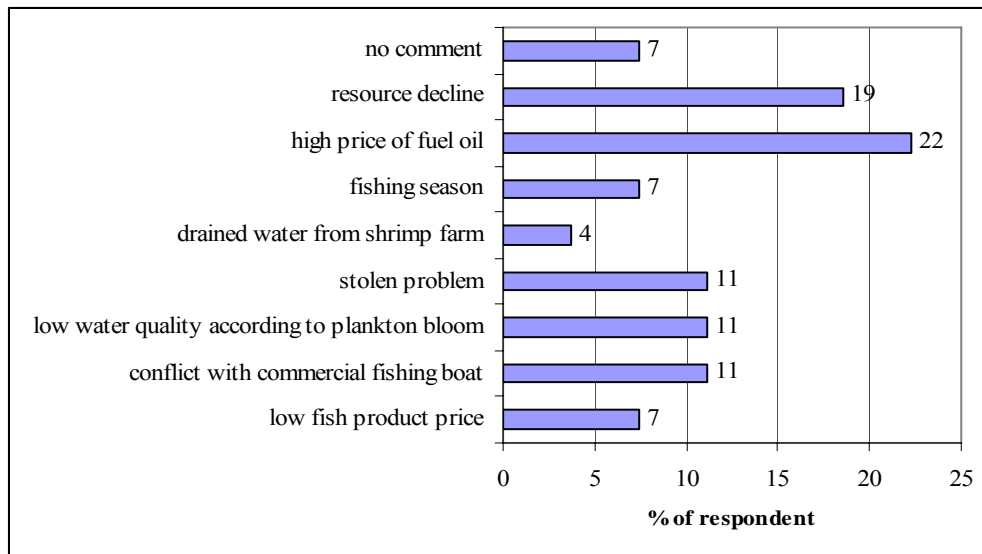
Items	Number of fishing households	Minimum	Maximum	Mean
Experience in aquaculture (years)	23	0	0.5	0
Number of grouper cage (cages)	23	0	1	0
Number of grouper in a cage (tails)	23	0	300	13
Number of sea bass cage (cages)	23	0	1	0
Number of sea bass cage (tails)	23	0	200	9
Shellfish culture areas (sq. m.)	23	0	0	0
Shellfish culture line (lines)	23	0	0	0

The results of the survey are informative enough to understand the characteristics and interests of the respondents and their engagement in the fisheries sector. Conventionally, the respondents who are fishers can do fishing the whole year round. They choose a type of fishing gear suitable for every fishing season. The respondents, who operate fish cage culture, handle both rearing and harvesting of the cultured products from their fish cages. They rear the fish fingerlings to marketable size which takes around 6-8 months. The harvested marketable size fishes are sold to fish collectors. These are among the reasons why both fishers and fish farmers have demanded to be given equal opportunities in utilizing the fisheries resources and the fishing grounds.



### *The problems of the fisheries sector*

The problems of the fisheries sector as also occurring in the three villages were also assessed. The survey was also a tool to solicit the respondents' recognition of the problems. Fig. 8 lists the problems common in the villages which the respondents also recognized as problems also occurring in the fisheries sector.



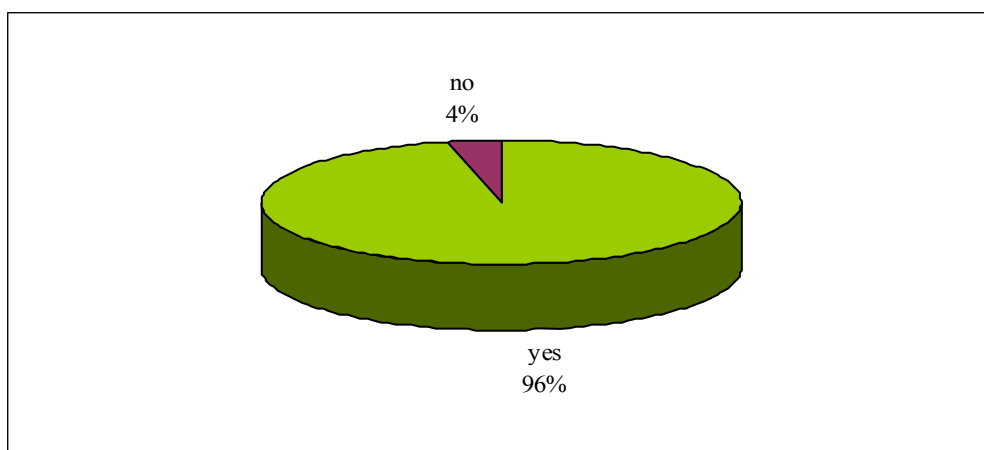
**Fig. 8. List of the problems found in fishing sector in Pakklong Sub-district**

The bar chart in Fig. 8 indicates the list of problems threatening the fisheries sector. The top five in the list of fisheries sector problems are: high price of fuel oil, resource decline, theft-related (stealing) problems, low water quality according to plankton bloom, and conflict with commercial fishing boats. About 22% of the respondents indicated that high price of fuel oil was a serious problem as the capital cost to operate fishing had increased. In addition, 19% of the respondents cited that resource decline also threatened their livelihoods as this could lead to uncertain returns from their fishing operations.

### *Stakeholders' perception in fishing zone management*

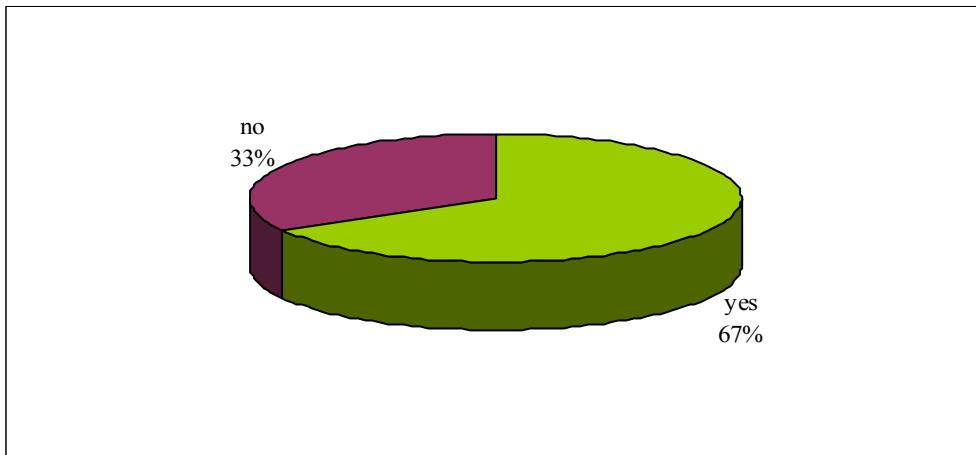
This part of the survey serves as a mechanism to attain one of the objectives, which is to evaluate how the stakeholders recognize and make use of the community rule or agreement to manage the conflict in using the same fishing ground. The survey questionnaire relied on the implemented framework of fishing zone management. A set of questions emphasized on whether the respondents promote post-fishing zone management endorsement on one hand. Additionally, the set of questions also assessed whether the respondents recognize the rule under the fishing zone management, on the other hand.

The respondents were asked whether they knew the fishing zone management for fishing and aquaculture, and 96% of them replied that they were aware of the zone management (Fig. 9).



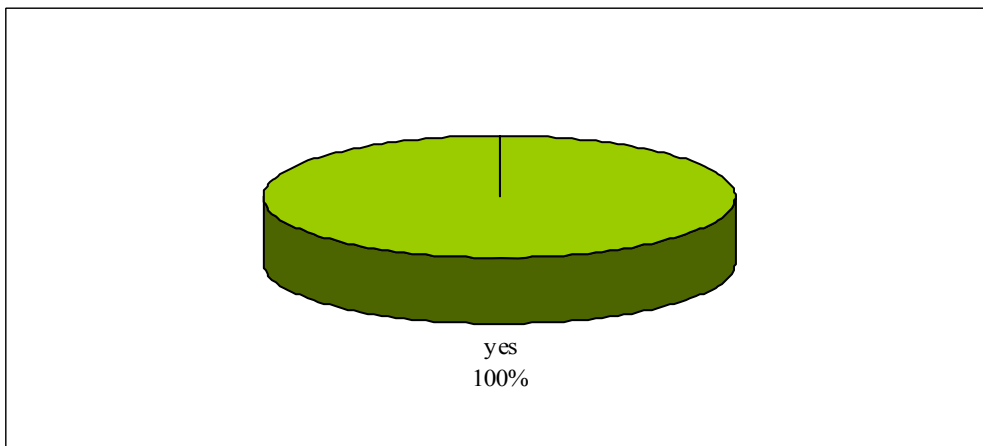
**Fig. 9. Respondents' recognition of the fishing zone management for fishing and aquaculture**

The respondents also gave a confirmation that they also participated in the demarcated fishing zone management for fishing and aquaculture. Fig. 10 concretely displays the number of respondents who participated in the zone management (67%).



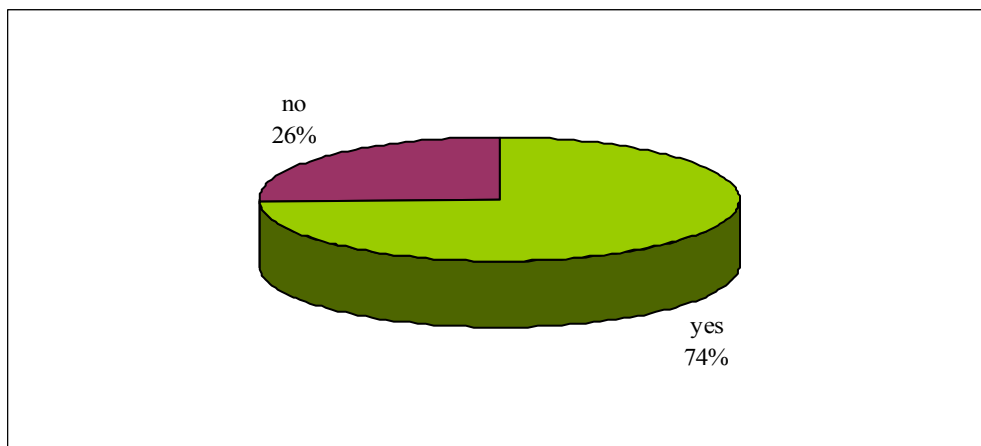
**Fig. 10. Respondents' participation in the fishing zone management which designated the areas for fishing and aquaculture**

In the practice of fishing zone management, the respondents solely agreed that the zone management has helped alleviate the conflict between the fishers and fish farmers in utilizing the aquatic resources in the same fishing ground (Fig. 11). All the respondents (100%) answered 'yes'.



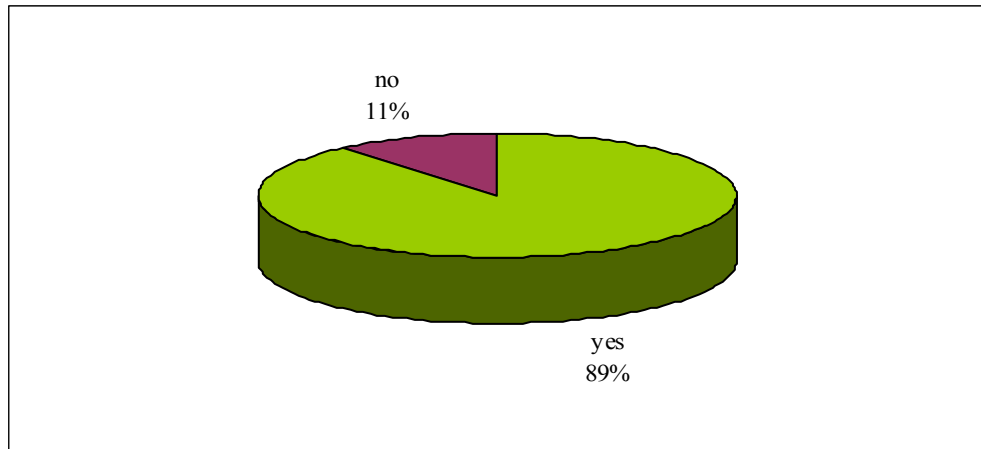
**Fig. 11. Respondents' acceptance that fishing zone management alleviated the conflict among them in using the same fishing ground**

Fig. 12 shows that 74% of the respondents accepted the fishing zone management. They recognized that the zone management is useful to prevent non-local fishers from fishing in the zone.



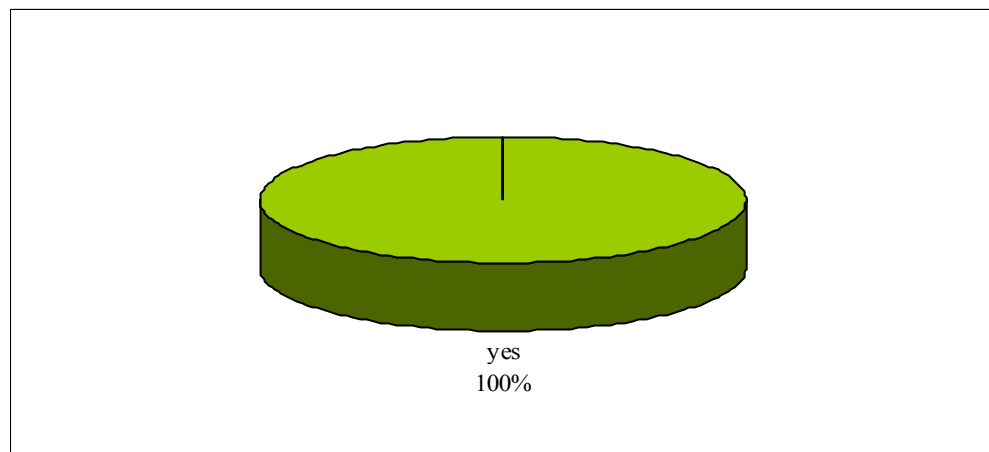
**Fig. 12. Respondents' recognition that the fishing zone management prevents non-local fishers from fishing in the zone**

Fig. 13 shows that 89% of the respondents indicated the need to seek legal approval from the Pakklong Ao.Bo.To. Council or higher authorities on the fishing zone management in order to strengthen their agreement and social endorsement. Nevertheless, 11% of the respondents disagreed that their agreement and social endorsement should be legally approved.



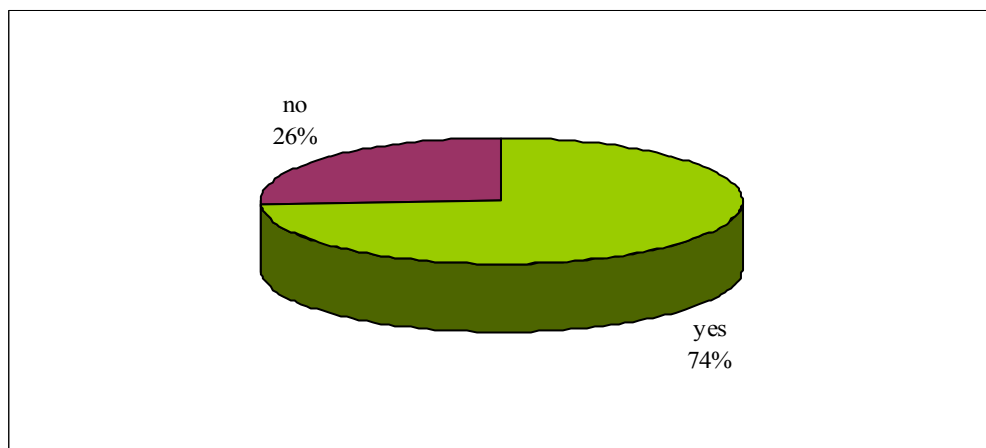
**Fig. 13. Respondents' expectation on the legal approval of the fishing zone management**

Fishing day has been the key rule in assigning definite fishing operational day for the fishers and fish farmers. Fig. 14 indicates that all respondents knowing the rule very well. The fishers can fish on odd calendar days meanwhile, the fish farmers on even calendar days.



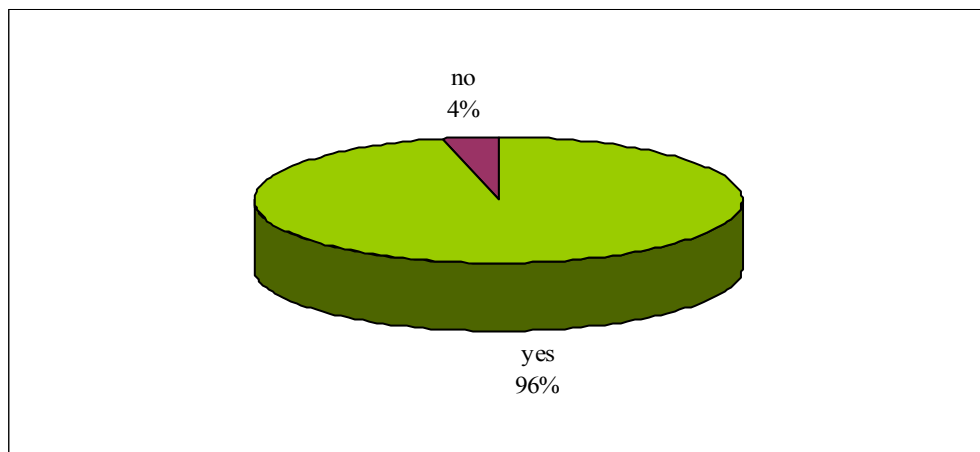
**Fig. 14. Respondents' recognition of the rule on fishing day operation**

However, a large number of respondents (74%) did not remember well the rule as shown in Fig.15. Actually, the rule was not meant to assign the allowable type of fishing gear, mesh size and fishing season to do fishing in the fishing zone management.



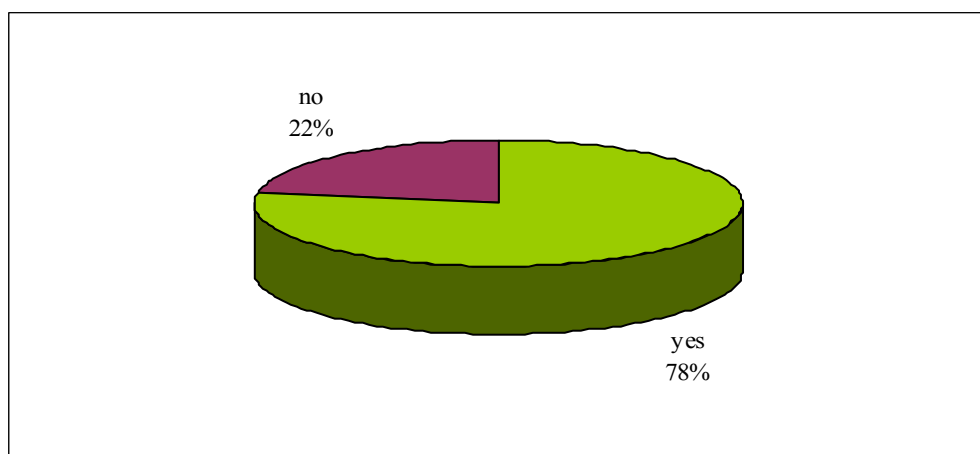
**Fig. 15. Respondents' recognition on the rule of allowable fishing gear, mesh size and fishing season**

Most of the respondents (96%) recognized the punishment when fishing gear particularly a crab trap is lost or destroyed by push net operation for fish bait (Fig. 16). The punishment under the rule is in terms of fine to compensate for the costs and based on the number of fishing gear lost or destroyed.



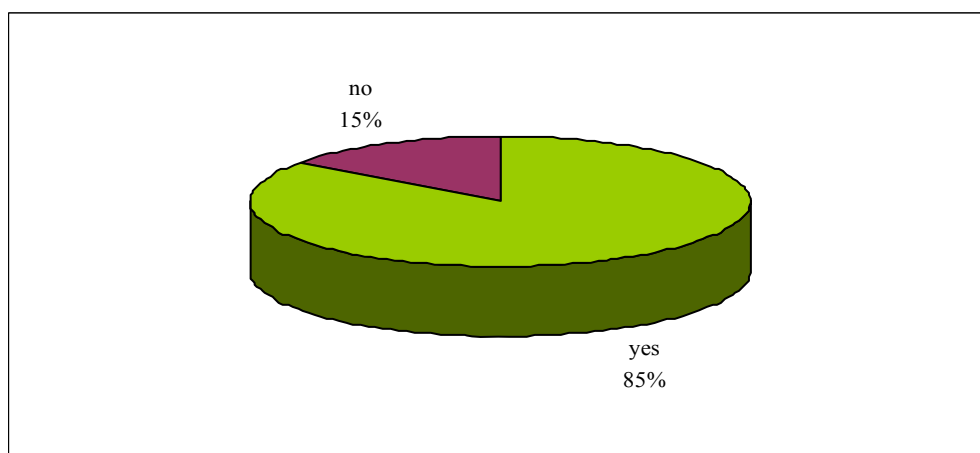
**Fig. 16. Respondents' recognition of the punishment under the rule through compensation for destroyed fishing gear**

The endorsement of stakeholders' agreement is very well known by the fishers, fish farmers and other stakeholders particularly those living in village nos. 1, 6 and 7. Certainly, this led to the endorsement by 78% of the respondents as seen in Fig. 17.



**Fig. 17. Respondents' recognition of the endorsement of stakeholders' agreement on the fishing zone management**

The suggestion that the practical application by the fishers and fish farmers in the self-management approach of the fishing zone management should be promoted to solve the conflict between crab trap and crab gill net fishers, was supported by 85% of the respondents (Fig. 18).

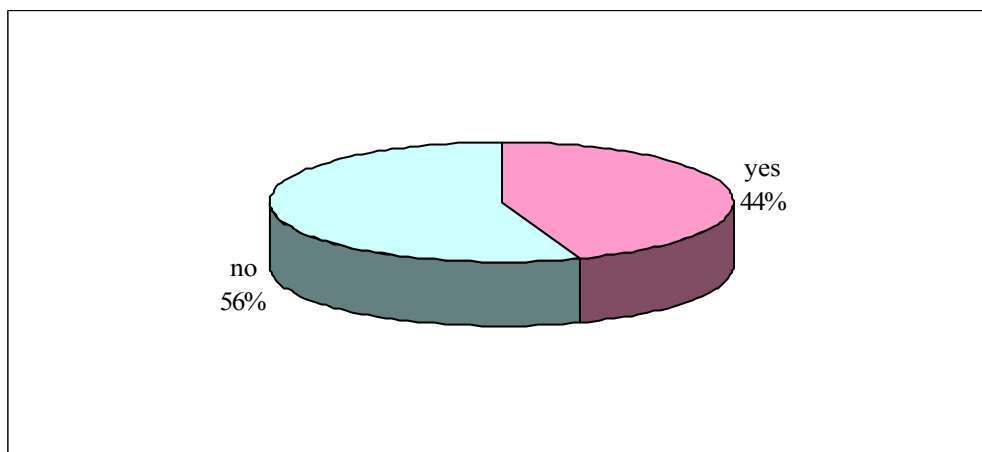


**Fig. 18. Respondents' support of the suggestion for solving the conflict between crab trap and crab gill net fishers**

### ***Stakeholders' participation in the fishing zone management***

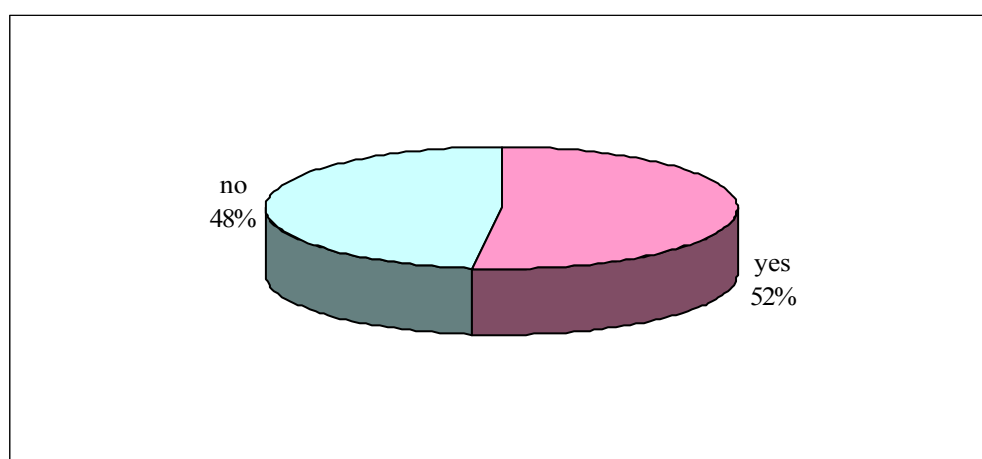
The respondents had been the key participants in the process of setting up the agreement and rule on fishing zone management. They took part in the conduct of the problem and solution analysis, democratically voted for the best solution suited for the problem, and approved the agreement or rule during their meeting. To determine the extent of the respondents' participation in the agreement's setting-up process, the project staff collected data by interviewing the respondents. The result is presented in seven steps indicating the detailed process of the respondent's participation in the setting up of the agreement, where each step was mainly conducted in meetings at the community level.

Fig. 19 shows that 44% of the respondents raised the common problems occurring in the community during the meeting. The other 56% said that they did not speak in the meeting because they felt shy to speak in public or in the meeting.



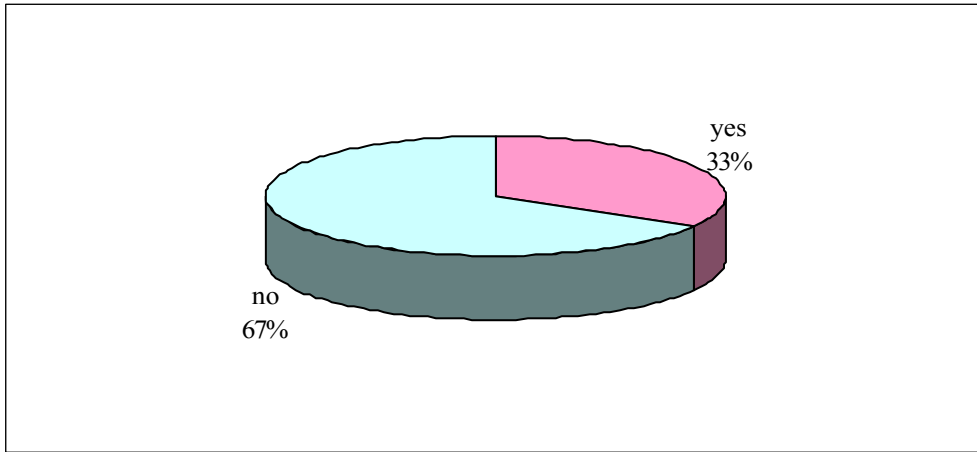
**Fig. 19. Respondents' participation by raising the common problems occurring in their community**

After the respondents raised and defined the problems, they discussed in detail how the problems have affected their fishing and aquaculture operations. From the total respondents, 52% indicated their interest in exchanging information through discussions at the meetings (Fig. 20). The remaining 48% said that they did not make much comments during the discussion.



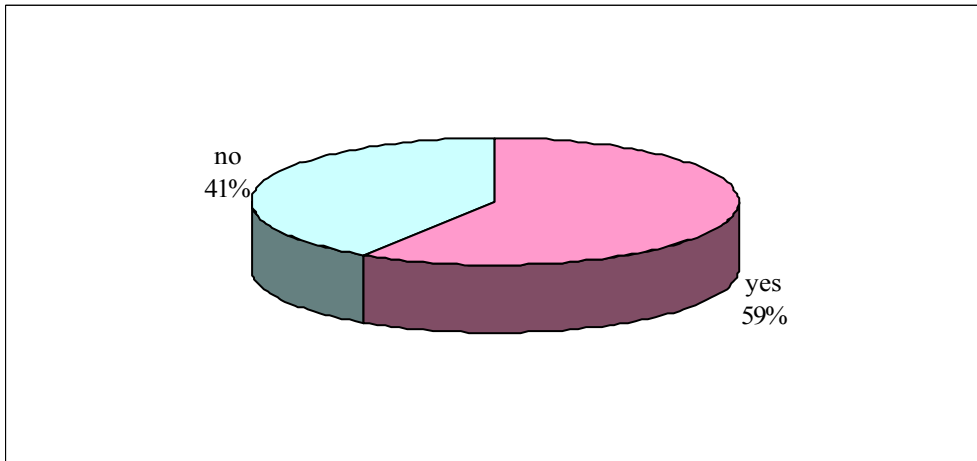
**Fig. 20. Respondents' participation in exchanging information through the discussions at the meeting**

It was not surprising that the respondents' participation in taking the key role in the discussion was rather low (33%). These respondents said that their role was concentrated in leading the other users during the discussion on the problems and in finding out a proper solution to the problems for the benefit of all users. However, as shown in Fig. 21, a relatively big number of respondents (67%) indicated that they did not take active part in the discussion.



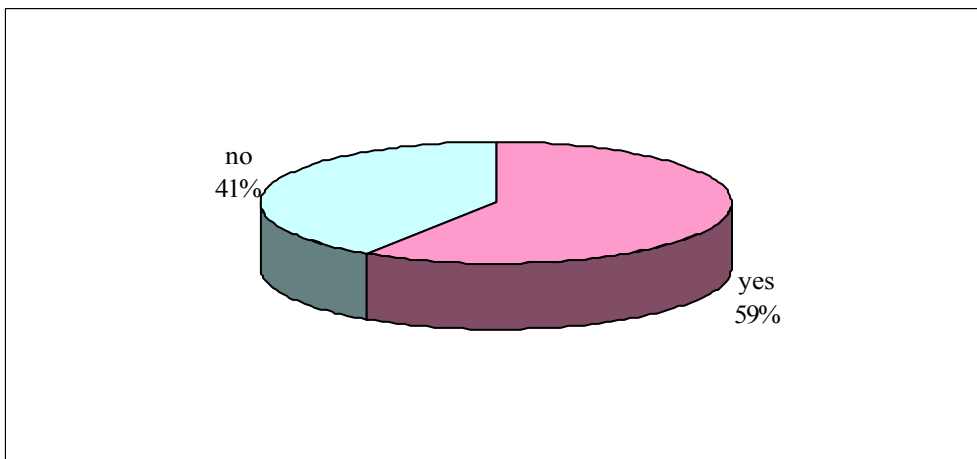
**Fig. 21. Respondents' participation in taking key role in the discussion**

The respondents also participated in selection of the proper solution to the problems through voting. As shown in Fig. 22, 59% of the respondents voted to support a proper solution but the other 41% indicated that they did not vote.



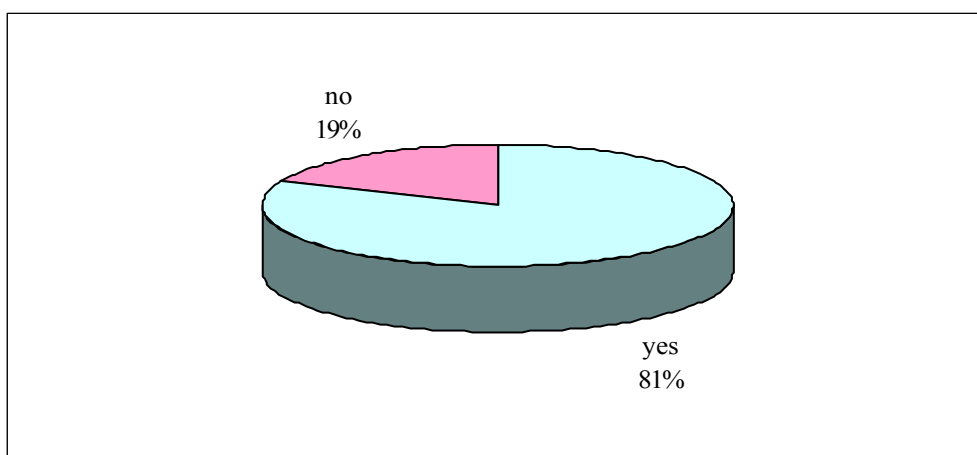
**Fig. 22. Respondents' participation in voting to select a proper solution to the problems**

Similarly, the respondents also indicated that they voted to approve the agreement during the meeting (59%) but 41% said they did not vote. Fig. 23 shows the indicative support of the respondents in this particular step in the setting up of the agreement.



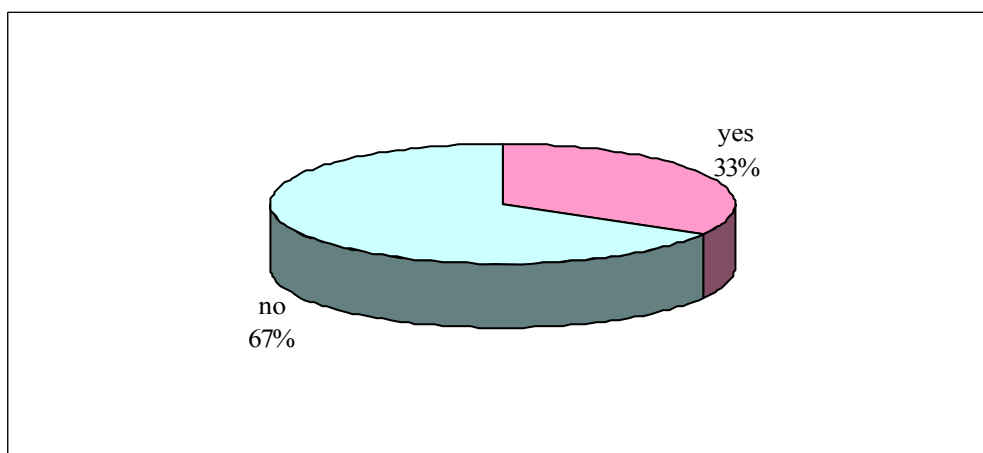
**Fig. 23. Respondents' participation in voting to set up the community agreement**

After its establishment, the endorsed agreement has been practiced and respected by the respondents. As shown in Fig. 24, 81% indicated that they sincerely and concretely obeyed the agreement although another 19% did not practice and respect the agreement. Their responses as shown in Fig. 21 however, show an evidence of support of the endorsed agreement by a large number of the stakeholders.



**Fig. 24. Respondents' participation in practicing and respecting the endorsed agreement**

Fig. 25 shows that majority of the respondents (67%) did not agree to shift the agreement from what has been traditionally approved at the local level to one that is legally approved, in securing their fishing operation. The other 33% however, agreed to the possible change as proposed.



**Fig. 25. Respondents' participation in agreeing to shift the agreement from what was traditionally approved to be legally approved**

#### ***A contribution to self-management on the fishing zone***

At present, the respondents continue to obey the agreement on the fishing zone management and strongly appreciate their own way of managing the fishing zone. However, they also recognize that their self-management of the fishing zone might not be sustained in the future. So, they suggested means to strengthen the agreement on the fishing zone management (Fig. 26). The top-three suggestions included the need for the local fishers to respect the agreement as indicated by 55% of the respondents. The agreement should be shifted to become a sub-district regulation/consensus/ordinance as expressed by 15% of the respondents. Furthermore, 11% of the respondents wanted to shift the agreement from traditional to a legislative document.

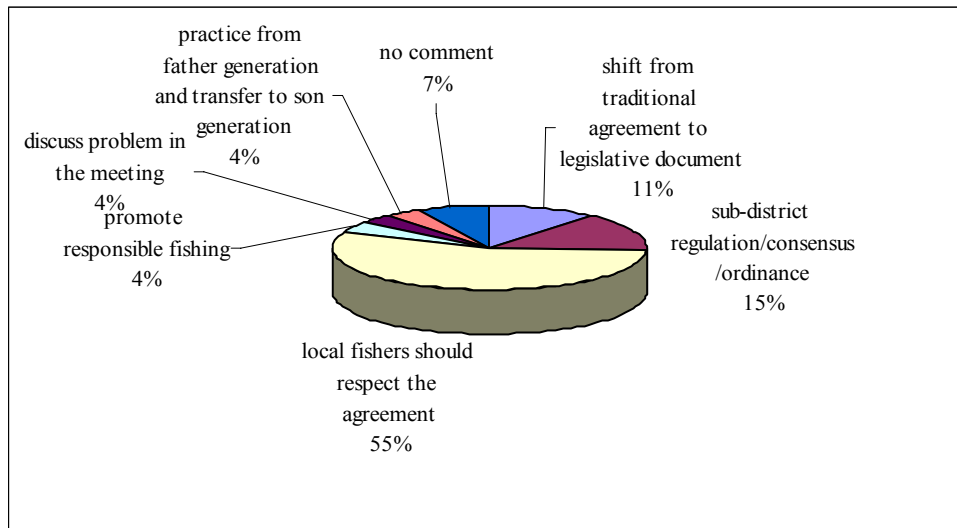


Fig. 26. Respondents' suggestions on how to strengthen the community agreement on the fishing zone management for fishing and aquaculture

Considering that the respondents have followed and practiced the community agreement for more than four years, their suggestion for the local fishers to also respect the agreement is a vital evidence of their strengthened support of the agreement. Probably, their traditional practice may have more meaning and empowerment than a legislative approval.

***Opportunity and link of traditional-and-legal practices***

The stakeholders have taken advantage of the geographic boundary of the fishing zone management to alleviate their conflict on the use of the same fishing ground. This demonstrated their strong support of the concept of community-based fisheries management (CBFM) within a clearly defined boundary [6]. Although the stakeholders have demonstrated their support of the CBFM approach specifically in setting up of a community rule in Pakklong Sub-district, such rule still has an uncertain implication. The stakeholders still continue to irresponsibly operate push net and crab traps, even if these types of fishing gear have been prohibited and not legally recognized or defined in the Thai Fisheries Law, 1947, Section (7) and (32) to operate in a restricted fishing ground and during certain fishing seasons.

The stakeholders traditionally participated in carrying out a conflict resolution under the fishing zone management. They socially recognized the community rule on fishing day operation under the defined fishing zone management. By following the community rule, the stakeholders' conflict in fishing has been reduced if not totally eliminated. On the other way round, they mutually continue to do fishing operations. While the fish farmers use push net for fish bait, they also allow the crab trap fishers to fish inside the 200 m boundary around their cage culture areas on even calendar days. The crab trap fishers on the other hand, put their crab traps away from the 200 m boundary on odd calendar days.

The Pakklong Sub-district Administrative Organization Council has the full authority and function to manage and control the use of coastal resources in its own boundary, as defined under the Ao.Bo.To. Act, 1994 [17]. It has been very noticeable that the council does not take either positive or negative reactions to the compliance and practice of the community rule. The council still allows the stakeholders to freely practice the community agreement provided that this does not create any social problem in the community.

The Pakklong Ao.Bo.To. Council has not submitted the community agreement to higher authority offices such as the District Office and the Provincial Office of Fisheries for approval. This could be because the means of fishing operation used by both stakeholders are not legally legitimized. Therefore, the community compliance is not considered a sensible and sustainable manner to exercise or promote. Considering such reasons, the gap between the traditional and legal practices certainly remains wide, bringing down to some extent the opportunity to combine and institutionalize both stakeholders as a community-based organization or entity to take charge of controlling the community agreement.



In actual practice, the institution of a community-based organization or body should be established first. Then, the community-based organization will be delegated a series of rights to fish such as [6]:

- The right of exclusion: the right to limit access to the territory
- The right to determine the amount and the nature of the use right in the territory
- The right to extract benefits from the use of the resources within the territory
- The right to future returns from the use of the territory

These rights are anticipated to bring security, exclusivity and permanence to the community-based organization in managing the coastal resource within a certain defined boundary [18]. The practice of CBFM in Pakklong Sub-district is in no doubt a classic example where both stakeholders have not received the series of rights to fish.

To legally recognize the community rule, the stakeholders may have to change their means of fishing operation. Fisheries officials should start educating the fish farmers and crab trap fishers to understand the external cost of the fish products. The officials should also explain to both stakeholders the implication of increased extraction of the coastal resources. However, such approach could bring unfair economic welfare to the stakeholders as this means that one party could gain the benefits from resource exploitation, while the other party could face deprivation from such benefits [19].

#### ***Practice and awareness to sustain resource use***

Both fish farmers and crab trap fishers have recognized that their means of fishing operations could have impacts contributing to the vulnerability of the sustainable resources. In this regard, each user continues their respective ways of sustaining the responsible use of the fisheries resources to secure their livelihood and employment. Now, the fish farmers continue to buy fish bait more frequently instead of doing push net operation. Although in some instances they still do push net operations, this is limited only around the 200 m boundary within their cage culture establishments.

The crab trap fishers also have their own means of strengthening their manner of responsibly using the coastal resources. The crab trap fishers established themselves into a fishers' group using crab traps. Such group establishment was initiated by local a Thai non-governmental organization, the Thai Environmental Institute. The institution of the group has received support both in kind and in terms of capacity building from CMDEC and SEAFDEC/TD. The main activity of this group is to conduct a crab bank activity, where every member of the group donate and put gravid crabs into the crab bank cage. Therefore, every member could continue to use crab traps with 2.5 inches mesh size of the bottom net.

Releasing gravid crabs into the crab bank cage is mainly aimed at enhancing the crab resources. This activity provides a good experience to the crab trap fishers who are members and non-members of the crab trap fishers' group. They cited that releasing the gravid crabs into the cage has been effective in enriching the recruitment of the crab resources, because they have started to get much higher yields at present compared with their yield during the pre-conduct of the crab bank activity.

To demonstrate its strong support to the group's activity, SEAFDEC/TD took the chairperson of the fishers' group using crab trap to visit a crab resource enhancement project in Japan. The chairperson relayed the experience he gained from Japan to the group members. He cited that the Japanese fishers marked a sign on the crab carapace before releasing the gravid crabs back to the sea to remind other fishers to release the caught marked-crabs back to the sea for enhancing purposes. This experience is also now being practiced by the group members.

Nowadays, a number of the fishers' group members who use crab traps release gravid crabs into their own crab cage. This is an evidence that members are aware of the sustainable use and conservation of crab the resources.

## Conclusion

The clearly defined boundary of the coastal areas in Thailand has the main purpose of reducing any conflict between small-scale and commercial-scale fishing boats. The community-based fisheries management (CBFM) approach has been considered appropriate in enhancing the stakeholder's participation in managing the clearly defined boundary of the coastal areas. In its totality, this approach helps reduce any social conflict in the fisheries sector.

The practice of coastal zone demarcation in Chumphon Province is an outcome of the locally based coastal resource management project. The actual coastal zone demarcation originated from the stakeholder's democratic participation in a consensus to establish a designated coastal area within the legal framework of the Thai Fisheries Law, 1947. The coastal zone demarcation of Pakklong Sub-district, Pathew District, Chumphon Province became a legal legislative through a notification from the Chumphon Provincial Office on 4 November 2002.

Within the boundary of coastal zone demarcation of Pakklong Sub-district, the fishing zone management for fishing and aquaculture has been implemented. The fishing zone management is a means to alleviate the conflict between fishers and fish farmers competing within the same fishing ground. The zone management has also served as a mechanism to control the number of newcomers and the capacity of the fish cage culture ensuring also that this is friendly to the coastal environment. The local stakeholders conventionally use or employ in the territory of the zone management, the recognized areas reserved for coastal aquaculture establishments and as cruising lanes for fishing boats. Certainly, the defined fishing zone management for fishing and aquaculture has been established through the stakeholder's participation in the community consensus.

The fishing zone management for fishing and aquaculture was socially reached only by a community endorsement without any legal legislative approval after the political crisis in September 2006. The fish framers and crab trap fishers remain as the main stakeholders making use of the fishing zone management for fishing and aquaculture. They agreed to take advantage of the clearly defined area for fishing and aquaculture to solve their conflict in fishing. They also agreed to assign specific fishing days as a mechanism to solve such conflict, and continue to recognize and respect such community agreement.

The community agreement could secure the fish farmers to continue push net operation for fish bait within the 200 m boundary of their fish cage culture areas on even calendar days. Similarly, the crab trap fishers are safe to do crab trap fishing on odd calendar days without their crab traps being destroyed by push net operations. However, such community agreement may not be effective much longer because it has no legal framework. This could be mainly due to the fact that push net operation for bait is not legally recognized. Therefore, both stakeholders are not legitimate to establish themselves into a community-based organization to take the function of managing the coastal resources.

Fortunately, the fish farmers and crab trap fishers continue to have a good sense of awareness on the sustainable use of the coastal resources. The fish farmers now try to buy fish bait as a means of minimizing their push net for fish bait operations. The crab trap fishers on their part, release gravid crabs into crab cages to enhance the stock of the crab resources.

This practice and result of the study may be considered an example of an uncertain community-based fisheries management for sustainable use of the coastal resources. However, this practice has also evidently showed that the resource users participated in a functioning coastal resource management based chiefly on their common interest, conventional means and ways of life.

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## Annex I

**Thai Fishery laws translated from Compilation of Fishery Laws (In Thai)  
of Bureau of Fisheries Administration and Management,  
Department of Fisheries,  
Ministry of Agriculture and Cooperatives, 2003<sup>1</sup>**

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**Article 4.** in this Act:

- (1) “aquatic animal” means an animal living in water or having a part of its life cycle in water, or living in tidewater area, i.e., fish, shrimp, crab, horseshoe crab, mollusk, turtles, tortoise, or reptile, including their eggs or swamps, mammal, sea-cucumber, sponge, coral coralline, and marine algae, including their shells or crusts or any part of them, and includes other water plant as specified by the Royal Decree;
- (3) “fishing appliance” means a machinery, instrument, accessory, component part, arm, pole, stake, or vessel, which is used in fishing operation;
- (13) “licensed fishing appliance” means fishing appliance, the name, description, and method of operation of which are specified in the Ministerial Regulation;

**Article 5.**

The Minister of Agriculture shall take charge and control of the execution of this Act., and shall have the power to appoint a competent official and to issue Ministerial regulation fixing the rates of fishery taxes and fees not exceeding the rate in the Schedule annexed to this Act and determine other activities for carrying out this Act. Such Ministerial Regulations shall come into force upon their publication in the Government Gazette.

**Article 7.**

The Provincial Council, with the approval of the Minister, is empowered to make a notification determining fisheries with their province to be in the category of preservation fisheries. Fisheries which are not included in the notification under paragraph one shall be regarded as public fisheries.

Article 32

The Minister or provincial governor in his jurisdiction and with the approval of the Minister, is empowered to issue a notification determining.

- (1) the size of mesh and dimension of every kind of fishing appliance, the size, kind, number and parts of fishing appliance, which permitted in fisheries;
- (2) any kind of fishing appliance which is absolutely prohibited to be used in fisheries
- (3) the distance between each stationary gear;
- (4) the methods of using every kind of fishing appliance;
- (5) the spawning and breeding seasons, fishing appliance and methods of fishing in any fisheries during the said seasons;
- (6) the kind, size and maximum number of aquatic animals the fishing of which is permissible
- (7) certain kinds of aquatic animals the fishing of which is absolutely prohibited.

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<sup>1</sup> Thai Fishery Laws translated from Compilation of Fishery Laws (in Thai) of Bureau of Fisheries Administration and Management, Department of Fisheries, Ministry of Agriculture and Cooperatives, 2003 by Coastal Habitats and Resources Management Project: CHARM, November 2005

## Annex II

### Notification of the Ministry of Agriculture and Cooperatives

#### **Re: Determination of Areas in which Fishing Appliance, i.e. Trawls and Push nets used with motor vessels, are prohibited<sup>1</sup>**

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Whereas it is known that the coastal areas is habitat of young aquatic animals and a place where they spawn and fishermen have used manpower and small mobile fishing appliances and stationary gear in their fishing for long times. At present, however, there appear many persons using trawls attached with bags with motor vessels in their fishing causing a large numbers of larval aquatic animals, mostly of economical value, and eggs of aquatic animals in shallow coastal water to be caught and destroyed. Moreover, it appears that such fisherman has intruded a stationary gear area of the other person and causes damage and often makes a quarrel among them. In order to conserve young aquatic animals and their eggs from being caught or destroyed, the Ministry of Agriculture deems expedient to determine area in which the using of trawls with motor vessels in fishing in shallow coastal water are prohibited;

By virtue of Article 32 (2) and (4) of the Fisheries Act B.E. 2490 (1947), the Ministry of Agriculture issues the Notification as follows:

**Clause 1.** No person shall, absolutely within the area of 3,000 meters (75 sen) from the coastal water line measuring at the time of fishing and of 400 meters (10 sen) surrounding a place of all kinds of stationary gear permitted for fishing in the sea or gulf or bay in any province, use a trawl with any motor vessel by any method. Exemption shall be allowed to the act of a competent official for academic purpose and obtains a written permission from the Director-General of the Department of Fisheries.

**Clause 2.** the Notification of the Ministry of Agriculture, Re: Determining of the Area in which Trawls and Push Nets are Prohibited, dates February 17, B.E. 2507 (1964) and Notification of provincial governors with the approval of the Ministry of Agriculture that are contrary to or inconsistent with this Notification shall be repealed from the day this Notification comes into force.

**Clause 3.** This Notification shall come into force when the period of thirty days from the date of its publication under section 60 of the Fisheries Act B.E. 2490 (1947) has elapsed.

Given on July 20, B.E. 2515

(Signed)

**P. Kannasuth**

**(Mr. Preeda Kannasuth)**

**Permanent Secretary to the Ministry of Agriculture  
Acting Minister of Agriculture**

### Annex III

#### Notification of the Ministry of Agriculture and Cooperatives

##### Re: Prohibition of Fishing of Berried Female Crabs

---

Whereas the Ministry of Agriculture and Cooperatives considers that a sea crab is an animal of economical value because of its good tasted, which is popular among domestic consumers as well as for exportation. It is found from the academic survey that if it is left undisturbed for a while at the period when its eggs are out of its crusts, each female crab may give birth to a large numbers of young crabs. The fishing of berried female crabs during spawning season beginning from October to December every year, therefore, destroys a crab variety. It is expedient to impose measures to conserve sea crabs by controlling the fishing of them within such period in order to leave female crabs to breeding before being caught for consumption or for sale;

By virtue of section 32 (7) of the Fisheries Act B.E. 2490 (1947), the Ministry of Agriculture and Cooperatives issues the Notification as follows:

1. No person shall, during October to December every year, fish the following crabs with their eggs out of crusts by any methods:
  1. *Scylla serrata* (Forskall)
  2. *Portunus pelagicus* (Linnaeus)
  3. *Charybdis ferriatus* (Linnaeus)
2. This Notification shall not apply to the act of a competent official for academic experiment or research purpose, which obtains a written permission from the Director-General of the Department of Fisheries.

This Notification shall come into force when the period of thirty days from the date of its publication under section 60 of the Fisheries Act B.E. 2490 (1947) has elapsed.

Given on July 11, B.E. 2526

(Signed)

**Bor-rom Tantein**  
**(Mr. Bor-rom Tantein)**  
**Deputy Ministry**

**Acting for Ministry of Agriculture and Cooperatives**

## Annex IV

### Notification of the Ministry of Agriculture and Cooperatives

#### Re: the Prohibition of Certain Kind of Fishing Appliance in the Determination of Areas of the locality of Chumphon Province<sup>2</sup>

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Whereas the Ministry of Agriculture and Cooperatives considers that coastal areas, in the locality of Pakklong Sub-district, Pathew District, Chumphon Province, is the habitat of many kinds of aquatic animal and spawning ground of aquatic animal which is economical value to develop national economics and secure small-scale fisher's employment. At present, however, it appears a person use an effective fishing appliance to fish causing an over-exploitation and decline of aquatic animal. To protect and conserve aquatic animal and its egg from destruction, the Chumphon province shall solve the problem and prohibit a certain kind of fishing appliance using in the determination of areas which is implemented under the community-based fisheries management project. This aims to achieve an enhancement and sustainability of aquatic animal to long term uses.

By virtue of section 32 (2) and (4) of the Fisheries Act B. E. 2490 related to section 31, 36, 48 and 50 of the constitution of the Kingdom of Thailand; the Chumphon provincial governor by approval of the Ministry of Agriculture and Cooperatives issues the notification of the Ministry No. 0528/10491 given on September 18 B.E. 2545 (2002) as follows:

1. prohibit any person shall use a certain kind of fishing appliance as follows:
  - (1) trawl with motor vessels
  - (2) push net with motor vessels
  - (3) dredges with motor vessels

absolutely with in the coastal areas of the Pakklong Sub-district, Pathew District, Chumphon province beginning from the Bangbird Mt. at point 1 of Latitude North 10° 59' 20" and Longitude East 99° 30' 25", from point 1 straights with East direction (distance of 3 km.) to point 2 at Latitude North 10° 59' 20" and Longitude East 99° 32' 00", from point 2 straight down South to point 3 ( far from Lamyai coastline 3 km) Latitude North 10° 53' 40" and Longitude East 99° 33' 00", from point 3 straight with Southwest direction to point 4 (Koh Rang) Latitude North 10° 49' 05" and Longitude East 99° 29' 55", from point 4 straight with Southwest direction to point 5 (far from Khao Bangyai Mt. coastline 3 km) Latitude North 10° 46' 50" and Longitude East 99° 27' 00", from point 5 straight with West direction ends with coastline (distance 3 km) to point 6 Latitude North 10° 46' 50" and Longitude East appeared in the map of the Notification.

2. This Notification shall not apply to the act of a competent official for academic experiment or research purpose, which obtains a written permission from the Director-General of the Department of Fisheries.
3. This Notification shall come into force when the period of thirty days from the date of its publication under section 60 of the Fisheries Act B.E. 2490 (1947) has elapsed.

Given on October 4 B.E. 2545

**Mekhintara Methawikool**  
**(Mr. Mekhintara Methawikool)**  
**Governor of the Chumphon Province**

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<sup>2</sup> Marine Conservation Measurement, the Locally Based Coastal Fisheries Management Project in Pathew District, Chumphon Province, the collaboration of Southeast Asian Fisheries Development Center/ Training Department and the Department of Fisheries, Thailand. TD/TRB/73, LBCFM-PD No. 37 (in Thai)

## Annex V

### Notification of the Ministry of Agriculture and Cooperatives

#### **Re: Conditions imposed by the Ministry of Agriculture and Cooperatives Regarding Permission to Aquatic Animal Fishing or Cultivation In Public Fisheries under the Fisheries Act B.E. 2490<sup>1</sup>**

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By virtue of section 16 paragraph two of the Fisheries Act B.E. 2490, the Ministry of Agriculture and Cooperatives deems expedient to impose rules and conditions in granting permission to individual persons or competent officials to fish or cultivate aquatic animals in public fisheries, so as to be a general guideline for the competent official as follows:

**Clause 1.** Fishing in public fisheries shall be in accordance with laws and ministerial regulations, notification, rules and regulations issued under the Fisheries Act B.E. 2490

**Clause 2.** Cultivation of aquatic animals in public fisheries shall be as follows:

2.1 Province shall notify public fisheries as places to be permitted to cultivate aquatic animals, by complying with laws and ministerial regulations, notifications, rules and regulations issued under the Fisheries Act B.E. 2490;

2.2 Any person who wishes to cultivate aquatic animals in public fisheries that has not been notified by Province as places to be permitted to cultivate aquatic animal under 2.1 must submit an application to Nai Amphor (District Sheriff) of Palad Amphor ( Deputy Sheriff of District) who is the head of Ging Ampor of that locality. Nai Amphor or Palad Amphor then reports his opinion to Province for consideration of granting permission on case by case basis,

2.3 The submission and granting permission to cultivate aquatic animals in public fisheries shall be in the Form and in accordance with the rules issued by the Department of Fisheries.

**Clause 3.** This Notification shall come into force when the period of thirty days from the date of its publication in the Government Gazette has elapsed.

Given on February 5, B.E. 2533

(Signed) **Charoen Kanthawong**  
(**Mr. Charoen Kanthawong**)  
**Deputy Ministry**

**Acting for Minister of Agriculture and Cooperatives**



**The Traditional Practice of Fishery Governance in Coastal Zone Management: the Case of Chumphon Province, Thailand**

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## Foreword

Under ASEAN-SEAFDEC Fisheries Consultative Group (FCG) Scheme, the Department of Fisheries (DOF) Thailand takes duty as the lead country among ASEAN member countries and the Training Department (TD) takes as a lead department of SEAFDEC to implement the coastal resource management program. This program is mainly supported by Japanese Trust Funds.

Under the coastal resource management program, the TD and the DOF collaborated in formulating and planning the integrated coastal resource management in Pathew District project (ICRM-PD), Chumphon Province. The goal of the project is to promote poverty alleviation and to achieve sustainable use of coastal fisheries resources. An accumulated knowledge, lesson learned and experience gained from the ICRM-PD should be basic and useful information to stakeholders such policy maker and project planning manager. The stakeholders may make use of this information to promote a sustainability of coastal fisheries resource in the Southeast Asian region.



Siri Ekmaharaja, Ph.D.  
Secretary-General

## Preface

The integrated coastal resource management in Pathew District (ICRM-PD), project, Chumphon Province, Thailand has placed a great emphasis on the practice of community-based fisheries management (CBFM) and co-management (CO) approaches. The SEAFDEC/TD, CMDEC, and the Chumphon provincial office of fisheries are main counterparts to facilitate the Pakklong Sub-district small-scale fishers and sub-district administrative organization to practice using the CBFM and CO approaches.

At the community level, small-scale fishers practicing CBFM approach performs reducing social conflict among them as the implication of the project. Therefore, they have applied their practice relevant to the project activity of coastal zone demarcation for fishing and aquaculture management. They have established community rules to control and manage fishing in the demarcated zone. They strongly and strictly respect the rules. This is an initiative activity to alleviate social cost and problems. In addition, these fishers have recognized that the coastal zone demarcation activity help facilitating them to easily discuss and define an agreeable solution.

The gained result of the study is anticipated to help policy-maker and project planner to promote appropriate activities and training course to institutionize and develop small-scale fisheries management body and institution. This fishers' institution and development is potential to locally support self-management and governance on coastal resources on its own jurisdiction to obtain a sustainability of the resources.

Phattareeya Suanrattanachai and co-authors  
May 2<sup>nd</sup>, 2008

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Phattareeya Suanrattanachai and co-authors  
May 2<sup>nd</sup>, 2008

# **The Traditional Practice of Fishery Governance in Coastal Zone Management: the case of Chumphon Province, Thailand**

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## **Abstract**

Fish-farmers and crab trap fishers have together made use of coastal zone demarcation of Pakklong Sub-district, Pathew District, Chumphon Province to reduce their social conflict in using the same fishing ground. The areas of coastal zone demarcation have distance of three km long from shoreline. This demarcated zone is marked for purposes of carrying out fish cage culture, cruising track for fishing boat and reserving for occupying shellfish culture. Fish-farmers and crab trap fishers have made agreement and social endorsement on defining fishing day and fishing ground to operate fishing in the marked areas. Fish-farmers can do fishing for bait by using small-scale push net fishing gear inside their cage culture engaged area. This area is less than two-hundred meters wide surrounding the cage. The farmers can do fishing on even date of calendar. Crab trap fishing can do fishing on odd date of calendar and placing crab trap fishing gear inside the two-hundred meters of the fish-farmers' culture areas. These stakeholders strictly respect the community rules that they themselves have established.

**Keywords:** fish-farmer, crab trap fishers, coastal zone demarcation, social conflict





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