

**Report of the National Workshop and On-site Training on the
Integration of Fisheries Management into Habitat Management**

Koh Kong Province, Cambodia, 6-9 August 2007



Southeast Asian Fisheries Development Center

The Secretariat

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Management of mangroves (Peam Krasop): A map was presented of a number of sections of various “stages” in terms of management (A, B, C, D,) where A was to most “managed” area. Question, what is the “legal” basis for the establishment of areas A to D.

Mr. Moneyneath highlighted the continuous loss of mangroves. Is a well managed area like the Peam Krasop better at maintaining their “boundaries”? Is a well defined area (with good maps) supportive of management and protection against encroachment.

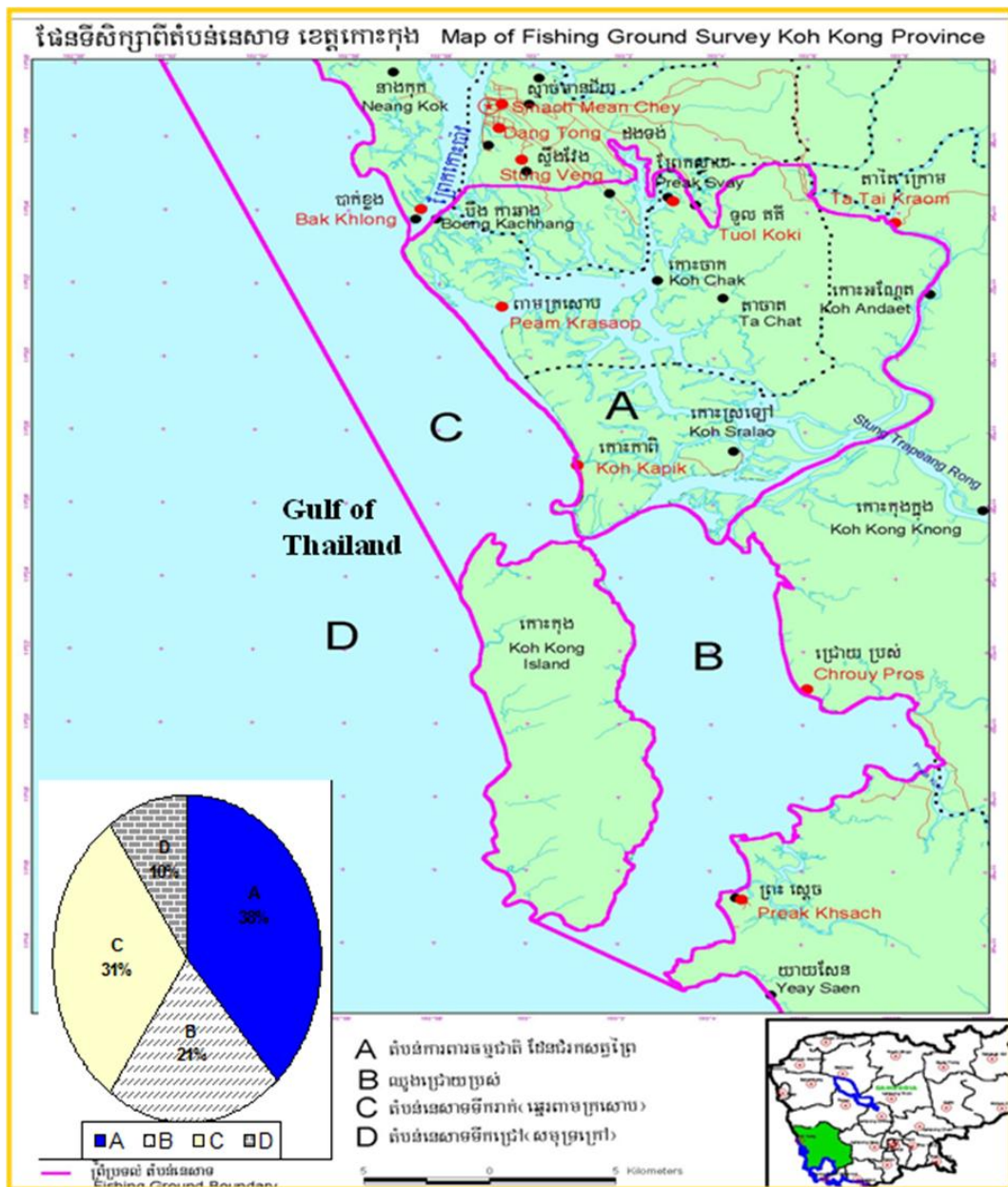


Figure 2. Map of Fishing Ground Survey Koh Kong Province

Community Fisheries: Maps from two areas was shown – both informative but in different styles. Both areas established “under” the sub-decree on community fisheries (which require a

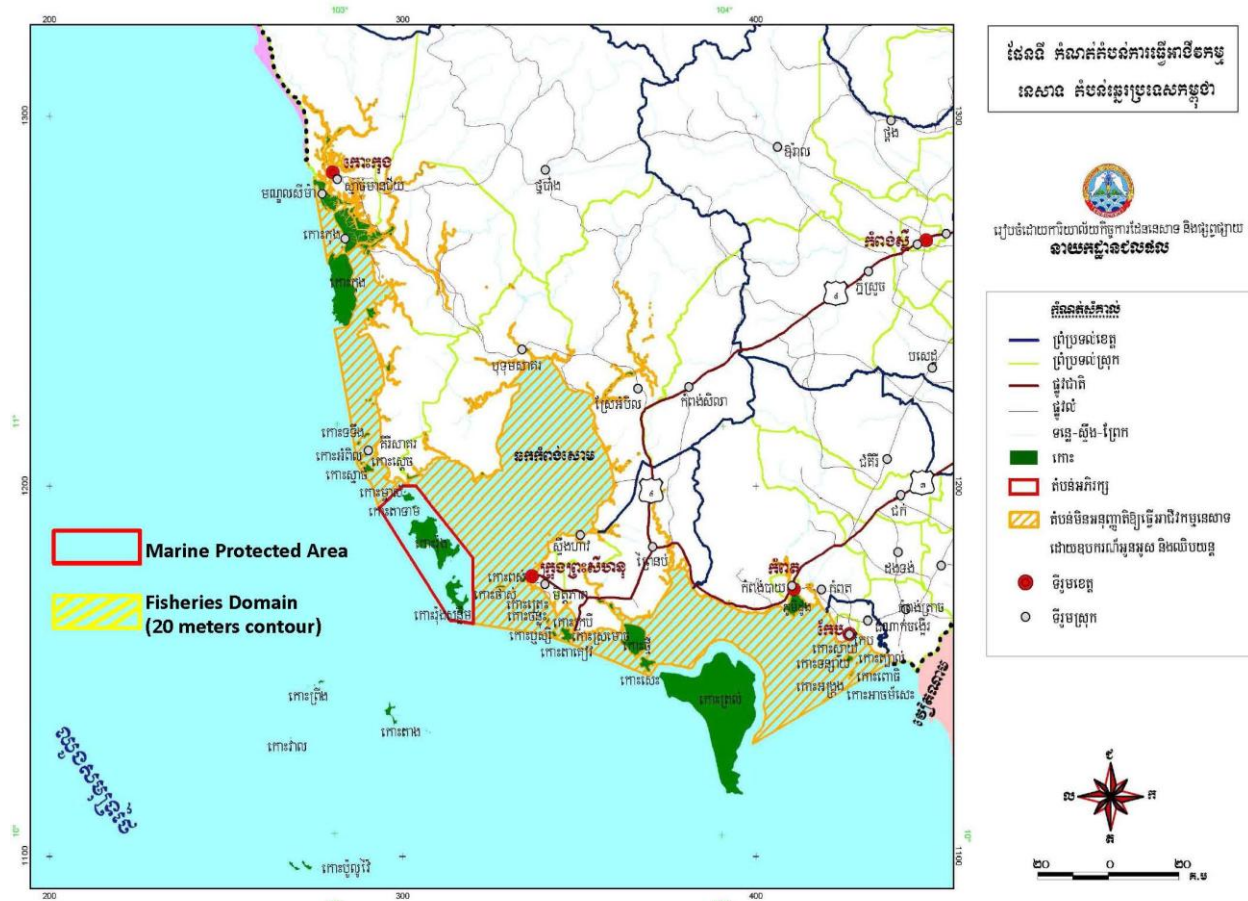


Figure 4. Map of the Inshore Marine Fisheries Domain in the Coastline of Cambodia

Is there any summary map for the different zones of marine fisheries domains, including the specific habitats?? And, is there any summary map for those of these areas that are being the focus of special management plans?

Office for Fisheries Resources Conservation to be established at the FiA

Conservation areas can be established in “inshore” areas (outside of the CF’s) without need of special sub-decree. Areas less common “offshore” exists (any examples?), and can be established but would require special decision or sub-decree. Does not exist yet.

Fish catches and capacity: Record of all fish catch needs to be established – and in what areas - and there is a need to get a view of the fisheries as such.

Conflicts: there are conflicts inside and outside of the CFs. There are conflicts between small and large scale fishing. Outsiders “should” report to the CF and follow their rules when fishing in the CF area. Fishing illegally in the CF area is leading to further conflict. Conflict with “outsiders” includes fishing by foreign vessels also inside the CF’s. This implication is not sure due to so far no complaints from CF.

Responses to the **intrusion of foreign boats** implies a need also to involve the navy, police, marine inspectors, etc and in general there is a call to get more stakeholders involved – including those from relevant agencies - to have their say.

Boundaries of CF are often still not clear or settled, leading to more friction. When establishing boundaries, there is a need to include stakeholders that are not members of the CF – this is not always the case. Not doing that, the boundaries might be clear to the CF members but not to others. To be able to “protect” the boundaries these need to be well established and recognized by others. A key problem is how to demarcate the CF area – mark the boundaries - and make that known to others. Poles and other means were discussed. These objects are, however, often removed by illegal fishers.

Need for the CF to find a link to the **commune laws** as the CF area might cover much of commune “territory”. This also should be considered with fish conservation areas that would be whole, or partly, under commune “territory”.

Shipping/sea transport: a frequent concern was the impacts of sea transports in the CF area including fishing activities and arguments were made for establishment of rules for sea transport and shipping. Question raised was if ways could be developed to get compensation for damage caused by shipping and travelling boats.

Outside pressure in terms of declining resources and increasing population with migration to coastal areas further add elements of tension.

Thai resource persons provided a background and introduction of the **Indo-Pacific Mackerel / Platoo** and the migratory patters in the western part of the Gulf of Thailand. They also provided indications that similar migration patterns could be taking place in the eastern part of the Gulf and in Cambodian waters. It was acknowledged that Platoo is common in Cambodian waters but there is limited knowledge (compared to that of the western part of the Gulf of Thailand) on the migratory pattern, most important spawning grounds, etc. It is, however, expected that similar pattern exist for the eastern Gulf, even down to the waters off Vietnam. The pattern of migration during critical stages of the life cycle needs to be studied. There is presently a closed season for the fishing of Platoo, with major fishing gear, during 15/1 to 15/3.

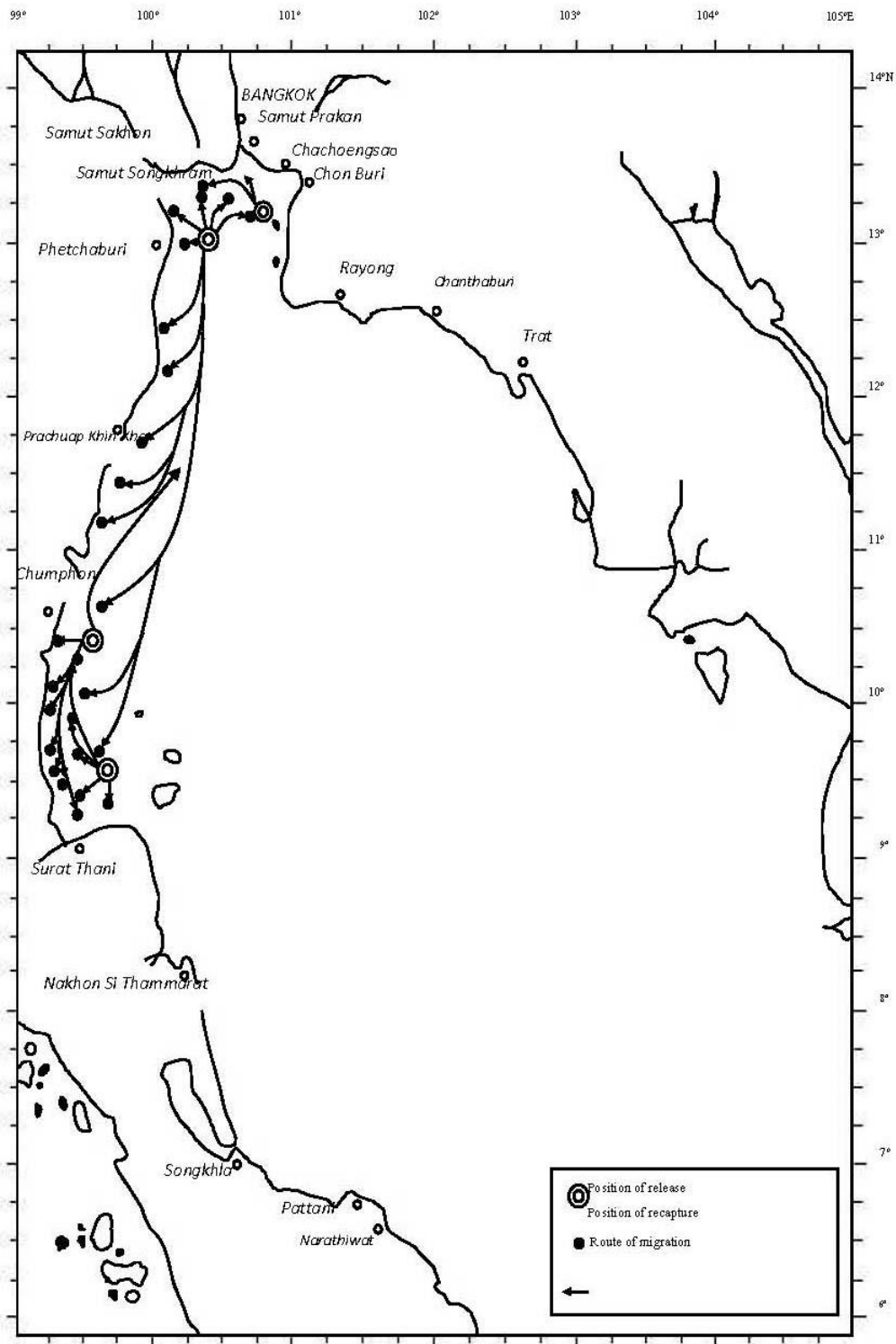


Figure 5 Migration Route of Platoo in the Western Gulf of Thailand

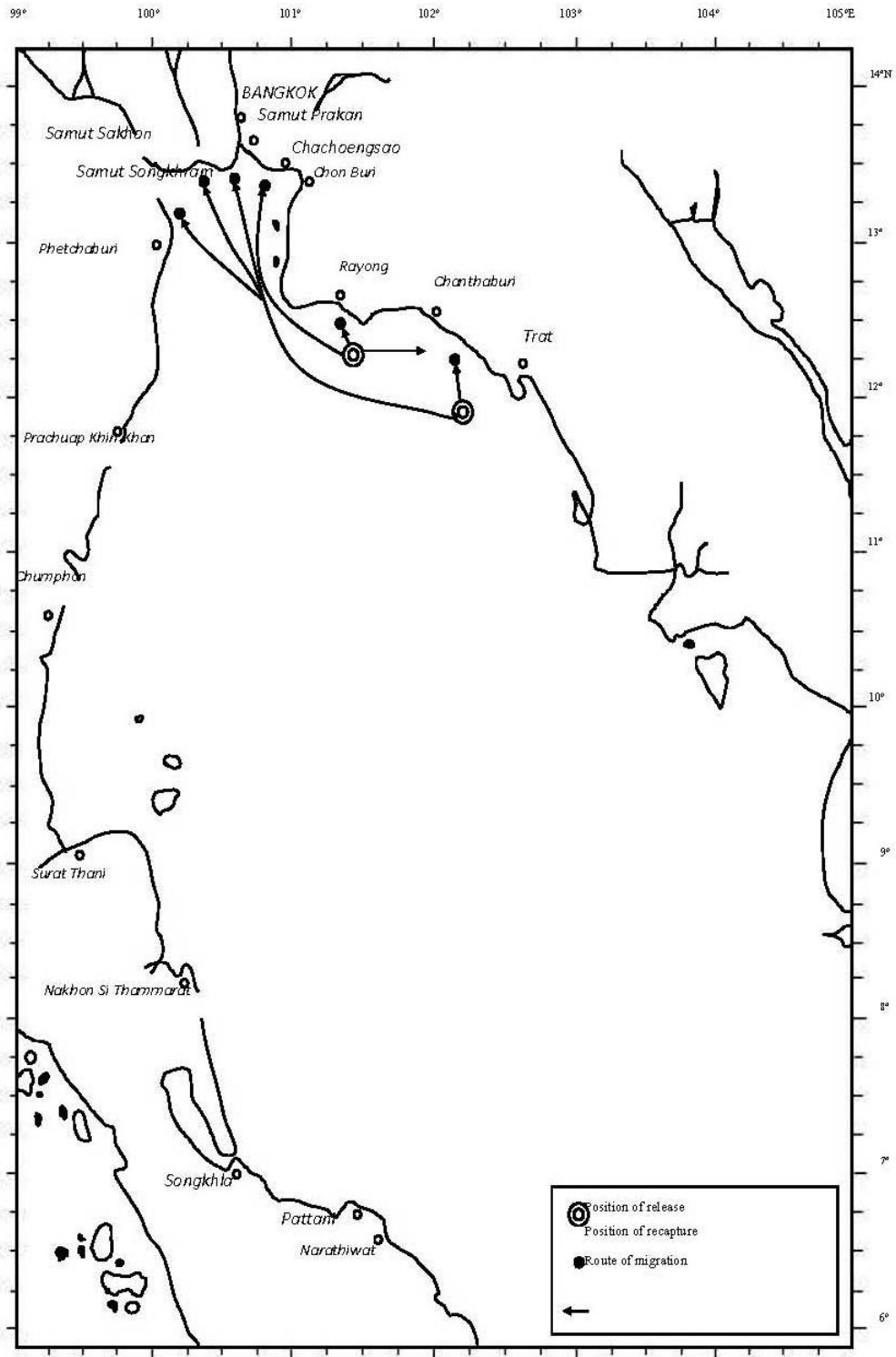


Figure 6 Migration Route of Platoo in the Eastern Gulf of Thailand

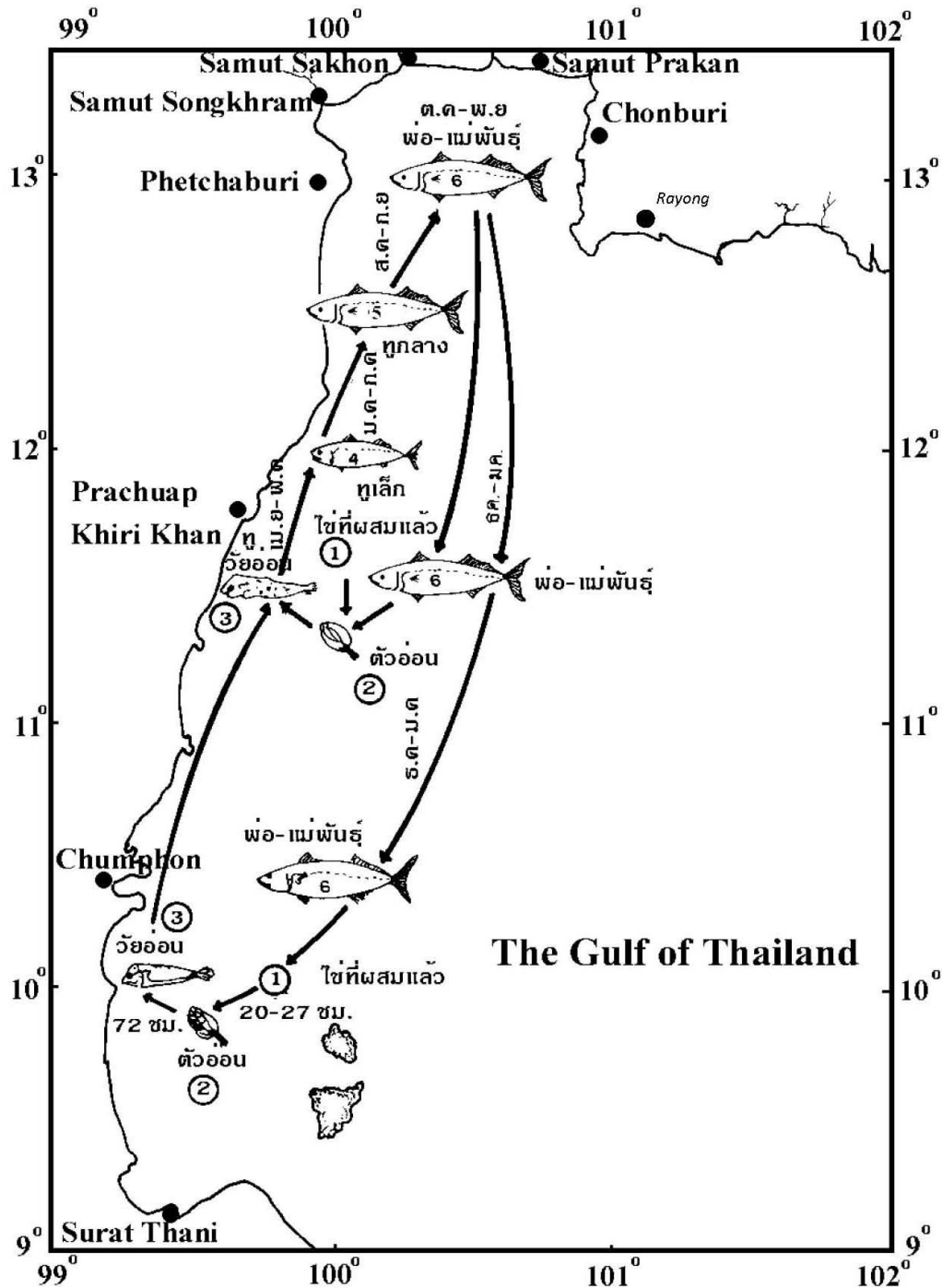


Figure 7 Migration Route of Platoo in the Gulf of Thailand, including Spawning Period

A general concern was raised on the **impact** of closed seasons (for grouper) on **poor people**/fishermen. In line with that, a call was made not only to look at “technical” aspects in the evaluation but also look at “**social**” and “**environmental**” aspect.

Is there any prospect or possibilities to develop **refugia/refugias relevant to Platoo** and in connection why not any refugias or conservation areas outside the 20 meter depth line, maybe as far

out as 3-5 km offshore. Example could be drawn from Chumphon Province where plans for the establishment of a larger area for Platoon (and other species) exist. Here the aim is, through the establishment of refugia, to work towards better management to complement other management measures. A recommendation was made to “look for” a fairly large area and focus on the most important part, in respect to critical stages of the life cycle.

Fishing of mackerel is prohibited in Cambodia within the marine fishing domain during its spawning season, from 15 January to 31 March.

Under the UNEP/GEF SCS Project there are **three refugia candidate** sites in Cambodia – one in Koh Kong, one in Kampot and one fairly large in the bay of Sre Ambel Kampong Som bay (Sihanoukville and Koh Kong). A question was raised on how to manage a large area like the one in Sre Ambel – which also could be needed to address in connection with larger areas in general, including potential areas for Platoon (and related species).

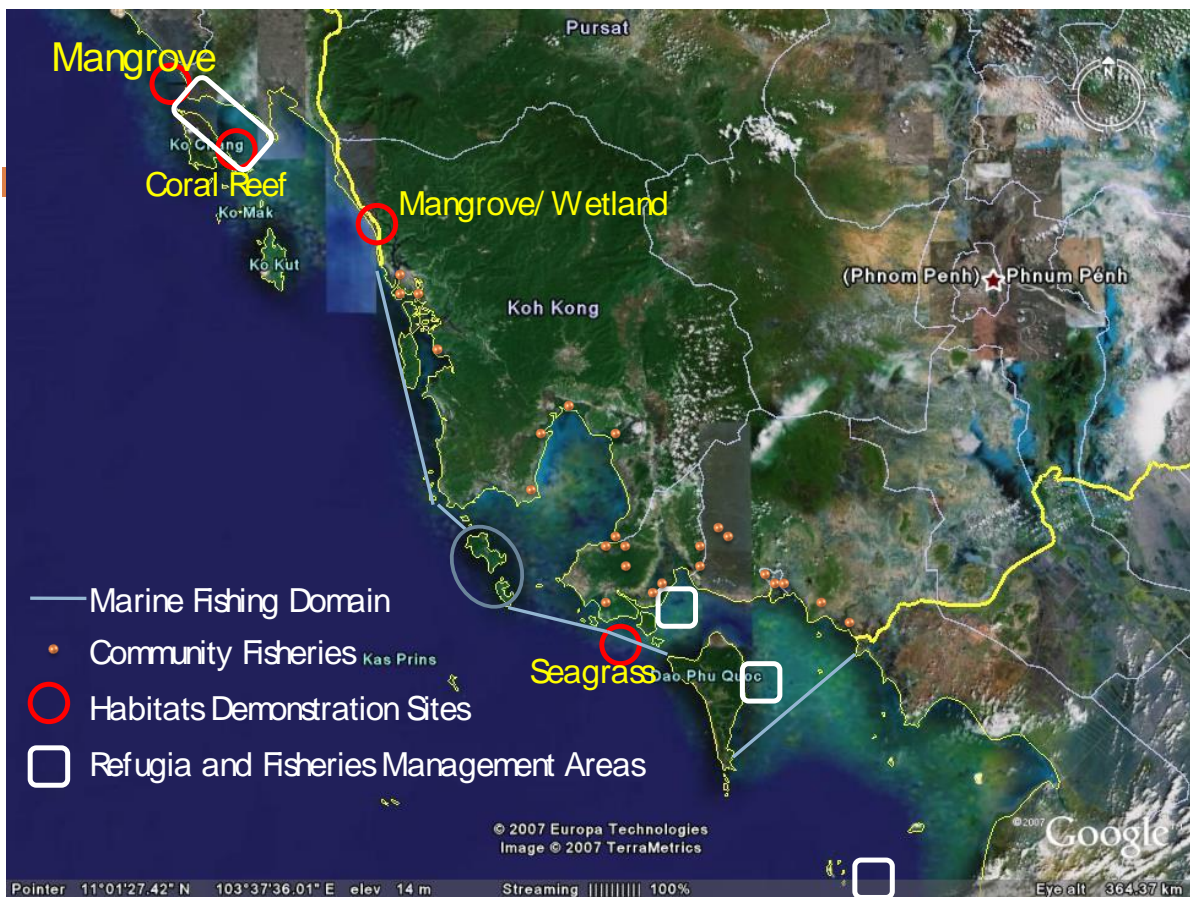


Figure 8 Maps of the Resources and Habitat Management Areas both Inside and Outside of the Cambodian Coastlines

A matching set of maps – it would be important to develop a fisheries profile of the areas (and immediately outside), including number of fishermen. Further there was a call to establish a cross-sectoral group and/or management board that should also ensure proper monitoring and evaluation. Again it is important to clearly **define boundaries** through stakeholder consultations.

The idea or concept of establishment of **larger fisheries resources conservation area(s)**, to complement and strengthen other management measures, was presented as an introduction to the group work..

It was generally agreed that there is a need to look at larger resources conservation area(s) that could complement – and strengthen – other management initiatives and zones. However, the meeting was clear in that most of the participants were not capable, or in the position, to discuss any tentative definition of the size and area for such “fisheries resources conservation areas”. Especially, it was obvious that the large group of participants from Community Fisheries, Commune Councils and District Offices could not, or would not, expand the discussion much beyond their own specific zones. The concept of “indicators on spatial boundaries” was not understood.

Rather than to discuss the size and shape of larger management areas, the focus of the group work were rearranged accordingly. The new task for the short group discussions was to view, for them, important aspects for CF's to become strengthened and in order to promote cooperation among CF's (and others). In summary of the three groups the following points were indicated:

- In general all groups favoured coordination and a lot of references was made to coordination between community to community – in response a practical question was how to promote this – possibly some kind of “fora” needs to be established
- Cooperation and sharing of experience among CF's with regards to the management of habitat and common species (such as blood cockle, crabs and some, to the CF's, important fish species)
- Follow up on the need to set standards and rules for boat transports and how to solve problems caused by travelling boats (who will/should issue regulations)
- Develop systems (poles or other) for establishing the boundary
- Habitat important but a major concern is the encroachment by “outsiders and rich people” that convert the land for private purposes
- Problems that, due to various reasons, include encroachment, fishing grounds are becoming smaller
- There is information missing on fish habitats and the fishing in the area
 - specific conflicts in fishing and the use of different gear
 - information to state and clarify the importance for fishing
 - information on specific rare species such as dugong
- Biodiversity – how to address that in the CF's
- Explore the suitability and acceptance of closed seasons to maintain a healthy fishery of target species (who will issue the regulations)
- Monitoring and control – cost implications, budget, costs for patrolling the areas
- Implications and costs for patrolling and how to solve conflict with neighbouring communities and outsiders
- Before moving too far look at culture and social aspects
- In general weak law enforcement
- Look at all legal aspects not yet known to the Community Fisheries and the Commune Councils – better understanding of laws needed

Summary:

In summary, and in follow up on the work management areas, SEAFDEC will, in consultation with relevant partners at each of the levels, work along three lines:

1. Follow up of priority action within Community Fisheries
2. Cooperation between Community Fisheries
3. Management of fisheries and habitat in areas outside of presently established areas to complement and strengthen these ones (to be followed with consultations in Phnom Penh).

The information, provided by the **Thai Group**, on trends in fisheries and habitat management in Thailand with a special focus on Trat was welcomed. Without going in details, special interest, as shown in questions and follow up responses, were targeted at the management of mangroves, Platoon and Crab. A special request was made to be able to gain further experiences on the Crab Banks being established in Thailand.

As a reference to upcoming process to develop an **agreement between Koh Kong and Trat Provinces**, facilitated by the UNEP/GEF SCS, to “strengthening of institutional arrangement for management of coastal resources and environment and integration to development of two provinces” the ongoing process and present status of the draft agreement being developed between Kampot and Kien Giang were presented.

During the meeting, references and discussions have been made on various management systems, locally based and others. It has been stressed that it is not sufficient to look at the fish and natural resources only – equally, and maybe more, important is to look at assess change in social, environmental, economic (local livelihood and provincial development), legal and institutional changes. To introduce, and highlight, the importance of finding ways to show and verify changes that has taken place as a result of the implementation of a certain management system – ways that are understandable to both central authorities (and policy makers) and the Community Fisheries and Commune Councils – the final session looked in aspects of the verification of change (or rather how to develop suitable indicators).

The session, a facilitated plenary discussion, had two sections; one more theoretical on the concepts of indicators and the other with inputs from Community Fisheries, Commune Councils and Districts on their perception of changes that had occurred (or not) in their area.

Introduced by the Thai resource persons: in summary, it was emphasised that indicators have to be developed, not only on the status of fish, natural resources and the habitat, as such – but more importantly on the “activity” of fishing and resources use (actions done by humans – this was actually highlighted during coffee break), social and cultural development, economic aspects (including markets), improved health, changes in local well-being and institutional development.

The inputs from the Community Fisheries was important and interesting in that there is a perception of changes taking place – although not (yet) categorised in a systematic way. The pictures that were provided was that in two Community Fisheries and Communes (*Chrauy Pros*

and Koh Khyong) they had noted that through their management efforts there had been improvements in the status of resources and availability of fish, crabs, etc – and as a result they felt that they had become better off. In three other areas (*Thmor Sar, Tameak and Chrauy Svay*) they could report that through their management effort there had been marked improvement in the status of the habitats with increases in crabs, fish, etc – nevertheless, the people in these three areas had become more poor. The reason was not because of the CF as such but due increases in fishing by outsiders in the CF areas – they felt this was linked to some resettlements and in-migrants to areas around the CF which led to higher population pressure and higher pressure on the resources within the CF, leading to less benefit to CF members.

A recommendation brought forward during the discussion was to follow up on these four provinces to **study the “fabrics of change”** and (outside) problems that lead to difficulties in spite of doing the right things. Another point being brought up, and followed up during coffee breaks, etc, is to work and look at paths forward to find **alternative and/or supplementary income opportunities** which would imply ways to provide opportunities for all family members including the women (in preparation for the meeting in Kampot an opportunity to link up with a **study** planned for Kampot on the **role of women**).

Recapture of other recommendations:

In follow up on the work management areas, SEAFDEC will, in consultation with relevant partners at each of the levels, work along three lines:

1. Follow up of priority action within Community Fisheries
2. Cooperation between Community Fisheries
3. Management of fisheries and habitat in areas outside of presently established areas to complement and strengthen these ones (to be followed with consultations in Phnom Penh).

by Dr. Magnus Torell, Senior Advisor SEAFDEC-Secretariat

National Workshop/ On-site Training on the Integration of Fisheries Management into Habitat Management

Koh Kong Province, Cambodia, 6-9 August 2007

I. Introduction

1. The National Workshop/ On-site Training on the Integration of Fisheries Management into Habitat Management was organized by Fisheries Administration – Cambodia, with the support from SEAFDEC-Sida Project, in Koh Kong Province, 6 to 9 August 2007.
2. The Workshop was organized as part of SEAFDEC-Sida collaborative project on “Capacity Building for Human Resource Development on the support to the Implementation of the Code of Conduct for Responsible Fisheries Management in the ASEAN Region”, implemented under framework of ASEAN-SEAFDEC Fisheries Consultative Group Mechanism. The Workshop was conducted as a follow-up to the results of the series of the events organized by SEAFDEC and other relevance agencies, aiming at promotion of human capacity building for coastal resources management by mobilizing the lessons learned from projects/initiatives based on the experiences in Koh Kong with references to others related provinces/projects, in line with the Code of Conduct for Responsible Fisheries Management and its Regional Guidelines.
3. Objectives of the Workshop were to:
 - Follow up on recommendations made during consultation held in Koh Kong (and elsewhere) in 2006 with special focus on the integration of fisheries management into habitat management;
 - Review management approaches to fisheries and habitat management in Koh Kong Province and neighboring areas;
 - Provide an update and awareness on the “rights” for coastal villagers to access resources and rights to sustain their living along the coast – including their rights to be setting up houses, etc. along the coast;
 - Provide background and training on the concepts and requirements for establishment of “Fisheries Refugia”, as promoted by the UNEP/GEF SCS Project near/in the Cambodia-Thailand border;
 - Review and recommend on the suitability of developing a larger (than existing management areas/refugia candidates) for fisheries resources conservation
 - Provide information and training on available information on for reproduction important life-cycle stages for Indo-Pacific Mackrel (Platoo);
 - Provide indications on spatial boundaries for fisheries resources conservation area in and around Koh Kong with indications of links to refugia candidates, protected areas, etc.;
 - Promote human capacity building for coastal resources management by mobilizing the lessons learned from projects/initiatives based on the experiences in Koh Kong with references to others related provinces/projects including experiences from Trat Province in Thailand; and
 - Look into ways of developing (performance) indicators to monitor/evaluate the impacts of attempts to establish fisheries resources conservation areas and efforts to monitor and record fishing capacity in promotion of sustainable development of coastal resources management (in Cambodia).

4. It was expected that following outputs would be achieved:
 - Tentative spatial boundaries established for a larger fisheries resources conservation areas in and around Koh Kong Province with indicators of links to refugia candidates, protected areas, etc.;
 - Awareness provided on fisheries and habitat management systems applied or planned in Koh Kong Province;
 - Information provided on the “rights” of coastal villagers to natural resources and settlement; and
 - Board recommendations provided on ways to develop indicators to monitor/review management practices.

5. Participants attended the Workshop were officers from Fisheries Administration – Phnom Penh, Koh Kong, Sihanoukville, Kep and Kampot Provinces; officer from Ministry of Environment; members of the commune councils; representatives from Coastal Based Natural Resource Management Learning Institute, UNEP/GEF South China Sea Project, Department of Fisheries Thailand, Local Fisher and Administrative Organization in Trat Province, Department of Marine and Coastal Resources; Community Fisheries; as well as representative from SEAFDEC Secretariat and Training Department. The list of participants appears as Annex 1.

II. Opening of the workshop

6. Dr. Magnus Torell, Senior Advisor of the SEAFDEC Secretariat, welcomed and thanked participants and resource persons of the Workshop, and he also briefly remarked the important of the Workshop in human capacity building to support the establishment of the spatial boundaries for a larger fisheries resource conservation area and awareness to integrate fisheries management into habitat management through locally-based coastal resources management for coastal Cambodia and neighboring areas.

7. Mr. Tham San, Deputy provincial governor of Koh Kong province, welcomed the participants and resource persons to the Workshop; and he also thanked to Fisheries Administration and SEAFDEC through SEAFDEC-Sida program to organize this Workshop again in Koh Kong province that it would provide at opportunity for capacity building for sustainable fisheries management and development through the integration of fisheries management and habitat management; his opening remarks appeared as Annex 2.

8. Mr. Pirochana Saikliang, representative of Department of Fisheries Thailand, and UNEP/GEF South China Sea Project National Coordinator for Thailand, welcomed the participants and resource persons to the Workshop and thanked the organizer for inviting resource persons from Thailand. He also expressed his willingness to provide useful inputs to the Workshop and also for future closer coordination with Cambodia and other relevant agencies to raise awareness on and address the importance of fisheries refugia and trans-boundary fish stock of Cambodia and Thailand, particularly stocks of indo-pacific mackerel (Platoo) in the Gulf of Thailand.

9. Mr. Nao Thouk, Director General of Fisheries Administration Cambodia, welcomed resource persons and participants; and appreciated the support of SEAFDEC-Sida and UNEP/GEF South China Sea Projects as well as delegations from SEAFDEC Secretariat and Training Department; his speech appear as Annex 3. He stressed the importance of coastal resources and natural conservation, which good example is everywhere now in Thailand, having “crab-banking” programs in order to conserve the area in the coastline and at the same time to restock its population.

III. Adoption of Agenda and Arrangement of the Workshop

10. Agenda and arrangement of the Workshop were adopted and appear as Annex 4.

IV. Project and Programs Presentation/Discussion

Issues and Solutions for Coastal Zone Management in Koh Kong, Cambodia

11. Mr. Vann Monyneath presented and provided an overview of the status of some of the major habitats – mangrove, coral, and sea-grass beds, along the coast of Cambodia. It was specially pointed out that there was still a gradual loss of mangroves, approximately declined by 9% during 2002 to 2005. Major trends in coastal development were also highlighted, such as increasing population pressure, infrastructure based economic development and urbanization, and poverty related destructive practices, environmental pollution, and degradation of natural resources (coral reefs, coastal fisheries, mangroves, seagrass, forest, etc.). However, he noted that increased fish catch was observed since the year 1998 of totally about 60,000 ton/year. This may be due to rehabilitation programs in the coastline of Cambodia, such as re-planning of mangrove activity, promotion of conservation of mangrove and seagrass for eco-tourism. A special point was made on increasing problems with the “non-existing” waste management. His presentation appear as Annex 5.

12. The Workshop noted some major international and regional related initiatives in coastal zone management in Cambodia, whose experiences and lessons learned could be shared and used for Koh Kong as well, including:

- Donor partners to CZM in Cambodia
- Coastal Zone Management Project in Cambodia (Danida)
- Management of Coastal Resources (IDRC/Canada)
- Participatory Natural Resources Management and Land use Planning (GTZ)
- Integrated Coastal Management in Sihanoukville (PEMSEA/IMO)
- Community Based National Resource Environmental Management (D & D Program)
- UNEP/GEF South China Sea Project
- NGOs, LI

Management Approaches to Fisheries and Habitat including Local Area Coastal Resources Management in Koh Kong

13. To meet the concern on how to integrate the management of various habitats of various types under the new fishing law in the local area, a panel session was conducted for this, and it was made up of:

- Mr. Kim Nong, PMCR Project
- Mr. Chuan Kimchea, CFDO/FiA
- Mr. Oul Vibol, Fisheries Domain/FiA
- Mr. Bouy Roitana, Licensing/FiA
- Mr. Vann Monyneath, CZM/MoE
- Mr. Prak Sovat, Fishers from Koh Kong Province

14. Mr. Kim Nong presented experience of participatory mangrove resources management in Peam Krasop, Koh Kong Province (*Annex 6*). For management of mangroves in Peam Krasop, the map showed a number of sections of various “stages” in terms of management area A, B, C, and D. Where A was to most “managed area”. The concern was the “legal” basis for establishment of areas A to D.

15. Development of Community Fisheries (CF) in Cambodia was presented by Mr. Chuan Kimchea. There are 10 CFs established in the coastline of Koh Kong Province with the support and collaboration with PMCR, CZM, IDRC, SEILA, and FAO. He highlighted that the CF management system has empowered the CF Committees (CFC) and CF Members to be able to: set up the management and monitoring system of the coastal resources use in their CF; develop CFC structure, roles and responsibility; develop by-law and internal regulations; demarcation of CF boundary and mapping; make an agreed area with FiA; and develop CF Area Management Plan (CFAMP). Noted that all CFs have their management and action plan, however, all plans are still not implemented. His presentation appear as *Annex 7*.

16. Mr. Kim also presented maps of community fishery in two areas – both informative but in different styles. Both areas were established under the sub-decree on community fisheries. The discussion was clear that there is a “management need” to address the fishing activity “outside” – thereby strengthening the efforts being made “inside”.

17. It was noted that although CFs have the support from FiA (fisheries office), local authorities, NGOs, and other institutions, major issues and challenges are, for example: how to make CFs fully functioning with the management plan and action plan are in place; how to strengthen cooperation and support from relevant stakeholders; how to address the issue “illegal” fishing activities in the CF area; and options and supports for CF’s livelihoods. It was strongly recommended that all CFs should have conservation areas and alternative livelihood activities should be included in the CFAMP to improve their livelihoods.

18. Mr. Ouk Vibol presented Management of Marine Fisheries Domain in Cambodia (*Annex 8*). Marine fisheries domain is defined as marine water and brackish water bodies that extend from the coastline at the higher high tide to the outer limits of the exclusive zone of the country. There are two zones of the fisheries domain under the new fishing law – “inshore” up to 20 meters depths and “offshore” outside of the 20 meters depth line up to the outer limit of the EEZ. Furthermore, the law specifies number of specific habitats within marine fisheries, such as mangroves, coral reefs, seagrass beds, etc. that are important habitats for aquatic species and plants, and these are very critical habitats.

19. Mr. Vibol informed the Workshop that the fisheries management area (protected area, conservation area or fisheries refugia) can be established without sub-decree, unless in community area and with agreeing from community member and FiA.

20. Four key points of information regarding fishing license in Cambodia was presented by Mr. Roitana Bouy (*Annex 9*):

- Fishing boats or vessels capacity of engine higher than 33 hp, the fishing license is issued by FiA; and for those under 33 hp will be issued by Department of Agriculture Forestry and Fisheries in its location;
- No need for fishing license for small-scale fishing gear who operates in the inshore marine fishery domain;

- Agreement from Ministry of Agriculture, Forestry and Fisheries after permission from the Council Ministers, is needed for foreign vessels that operate in off-shore waters of Cambodia; and
- Foreign vessels with Cambodian flag that operate in the international ocean must have permission from the Council Ministers.

21. Mr. Prak Sovat, representative of fishers from Koh Kong provided information on major issues and problems in their fishing area before the establishment of Community Fisheries in the year 2006, including illegal fishing (of outsiders catching fish in CF's area), and low catch (about 1-2 kg/day of shrimp). After the establishment of the CF's management area, capacity has been built for monitoring/patrolling and it was found that shrimp catch has increased to approximately 10-12 kg/day, and mud-crab increased everywhere in the CF's area. However, the major problem is that there are still illegal fishing activities, and there is a lack of budget to support monitoring activities, as well as a low capacity enforcement (presently they have slow speed patrolling), and a low price for the catch. Furthermore, they need knowledge on fish processing and marketing, etc. After most of the members of the CF found that it is difficult to deal with these several constraints; they are now less active in meetings and in the managing of their CF's area.

22. After having presentation made from the Cambodian's site, Thai group shared experience on the crab-banking programs, particularly on the project initiated by SEAFDEC Training Department in Chumphon Province – Gulf of Thailand.

“Rights” for coastal villagers to access resources and rights to sustain their living and settlement along the coast

23. Two studies – “Rights for Coastal Villagers to Access Resources after Resettlement”; and “Asserting Rights, Defining Responsibilities”, were presented by Mr. Sim Bunthoeun and Mr. Meng Kimsan, respectively (*Annex 10*). One key message from the first study was that people are still going back to fishing after removing their house and fixed the construction, and the resettlement provided an opportunity for local people to improve their access to the market, and better infrastructure. About the later study, it was informed that the management of all fisheries in Cambodia is the responsibility of Ministry of Agriculture, Forestry and Fisheries (MAFF), administrated through Fisheries Administration (FiA).

24. Within FiA, The Community Fisheries Development Office is to be established for all the issues related to CFs. Decision on the use of fishery resource and its management has to be approved by the State and all CF actions have to abide by the rules of the State. It was noted that after CF establishment, people in the area of these two studies are more aware of their rights to fish and particularly their rights to stop illegal fishing activities.

Conflicts and Conflict Resolution as perceived by people in Koh Kong Province – Need to Monitor and Record (Active) fishing capacity (including IUU)

25. Based on cooperation between FiA and FAO Project “Strengthening Capacity in Fisheries Information Gathering for Management”, Mr. Suy Serywath presented the summary of the opinions provided through the project by fishers and villagers during the consultation in Koh Kong (*Annex 11*). It was found that there are three main conflicts in the CFs of Koh Kong, including:

- Different type/level(size) of fishing gear in shallow water body (trawlers, crab traps, shrimp gill-nets, etc)
- Foreign fishing vessels, and
- Fishers from same community and those from other communities.

26. Mr. Serywath presented the causes of conflicts, and key recommendations from the CF members to FiA and other relevant agencies for conflict resolution. It was noted that outsiders “should” report to the CF and follow their rules when fishing in the area. Fishing illegally in the CF area is leading to further conflicts. This implication is not sure due to so far no complaints from CF.

27. Response to the intrusion of foreign boats implies a need also to involve navy, police, marine inspectors, etc. and in general there is a call to get more stakeholders involved – including those from relevant agencies.

28. It was informed that boundaries of CF are often still not clear or settled, leading to more conflict. When establishing boundaries, there is a need to include stakeholders that are not members of the CF – this is not always the case. Not doing that, the boundaries might be clear to the CF members but not to others. To be able to “protect” the boundaries they need to be well established and recognized by others. Key problem is how to demarcate the CF area – mark the boundaries – and make that known to the others; setting of poles and other means were discussed.

29. It was noted that there was a need for the CF to find a link to the commune laws, as the CF area might cover much of commune “territory”. This also should be considered with fish conservation areas that would be entirely, or partly, under commune “territory”.

30. Noted on a sequence concern was the impacts from sea transports in the CF areas including fishing activities and arguments where made for establishment of rules for sea transport and shipping. A question raised was if ways could be developed to get compensation for damage caused by shipping and travelling boats.

31. It was noted that outside pressure, in terms of declining resources and increasing population with migration to coastal areas, further add elements of tension.

Concepts and Requirements for Establishment of “Fisheries Refugia”, as promoted by the UNEP/GEF/SCS Project in the Gulf of Thailand

32. Progress of the process for establishment and management of the Fisheries Refugia in the coastline of Cambodia and its linkage with the coastline of Vietnam (Kien Giang Province) was presented by Mr. Ouk Vibol, and Mr. Va Longdy (*Annex 12* and *Annex 13*, respectively). 10 activities for operational management of the fishery refugia, under UNEP/GEF South China Sea Project, were presented. Works are more emphasized on the development of a fishery profile at the refugia sites, as well as development and establishment of mechanisms, measures to manage and to monitor, evaluation and procedures for enforcement of the refugia and sharing experience and lessons learned in managing refugia. Two sites, within Kampot seagrass beds demonstration site, were identified for refugia – Prek Ampil and Koh Toch. The full operation of refugia will be implemented from August 2007 under supervision of the Cross-sectoral management board and management advisory group established by provincial declaration.

Introduction to the suitability of developing a larger (than existing management areas/refugia candidates) for fisheries resource conservation

33. To provide recommendations to work on the development of larger fisheries management conservation areas, introduction to the need to work on the larger-scale management areas was made by Mr. Worawit (*Annex 14*) based on inputs and recommendations from a sequence of workshops organized by SEAFDEC-Sida in Bangkok and that organized in Phu Quoc by UNEP/GEF/SCS. The concept with the aim at strengthening management initiatives. In general, it was considered to be useful to apply a management area that covers a larger geographical space than what is common for habitat management, local fisheries management areas, and most of the candidate refugia sites. This would help in strengthening management initiatives in such specific management areas. This could be an aggregation of small areas, allowing for management effort also in lifecycle stages outside of the smaller areas, including migration paths of importance. This introduction was used as a background for discussion during the later Group Work.

Introduction on Important Life-cycle stages of Indo-Pacific Mackerel (Platoo)

34. Introduction on important lifecycle state of Platoo in the Gulf of Thailand was presented by Mr. Pirochana Saikiang (*Annex 15*). In addition to that, Mr. Manoj Rungtratree presented catch data of Platoo in the Gulf of Thailand. Migratory patterns in the western part of the Gulf of Thailand were presented. They also provided indications that similar migration patterns could be taking place in the eastern part of the Gulf of Thailand and in Cambodian waters. It was acknowledged that Platoo is common in Cambodian waters but there is limited knowledge as compared to that of the western part of the Gulf of Thailand on the migratory patterns, and where the most important spawning area of Platoo is, etc. However, it is expected that similar pattern exists for the eastern Gulf, even down to the waters of Vietnam. The pattern of migration during critical stages of the lifecycle needs to be studied. Noted that there is presently a closed season for fishing Platoo, with the major fishing gear, during 15 January to 15 March.

35. General concern was raised on the impact of closed seasons (for grouper) on the poor people/fishers. In line with that, a call was made not only to look at “technical” aspects in the evaluation but also at “social” and “environmental” aspects.

36. Noted that there is prospect or possibility to develop refugia/refugias relevant to Platoo and in connection why not any refugias or conservation areas outside the 20 meters depth line. Noted also that example could be drawn from Chumporn Province where plan for establishment of a larger area for Platoo (and other species) exists. Here the aim is that, thorough establishment of refugia, to work towards better management to complement other management measures. A recommendation was made to “look for” a fairly large area and focus on the most important part in respect critical stages of the lifecycle.

37. Under UNEP/GEF/SCS Project, there are three refugia candidate sites in Cambodia – one in Koh Kong, one in Kampot and one fairly large in the bay of Sre Ambel Kampong Son bay (Sihanouk Ville and Koh Kong). A question was raised on how to manage a large area like the one in Sre Ambel – which also could be needed to address in connection with larger areas in general, including potential areas for Platoo (an related species).

38. Noted on the support from SEAFDEC Japanese Trust Fund on Platoo’s tagging program that will be started in 2008. And it was also noted that bilateral technical seminar between Thailand

and Cambodia could be organized with the aim to exchange and sharing experience on the management of Platoon and other similar commercial important species.

Development of Spatial Boundaries for Fisheries Resource Conservation Area in and around Koh Kong with Indications of Links to Refugia Candidates, Protected Areas, etc.

39. This session was carried out through the group work.. The idea of establishment of larger fisheries resources conservation area(s) is that these could complement – and strengthen – other management initiatives and zones. However, the Workshop was clear in that most of the participants were not capable, or in the position, to discuss any tentative definition of the size and area for such “fisheries resource conservation areas”. Especially, it was obvious that the large group of participants from community fisheries, commune council and district offices could not, or would not, expand the discussion much beyond their own specific zones.

40. Rather than to discuss the size and shape of larger management areas, the focus of the group work was rearranged accordingly. The new task for the short group discussion was to view, for them, important aspects for CF’s to become strengthened and in order to promote cooperation among CF’s (and others). Results of the group work appear as *Annex 16*.

41. In summary of the groups the following points were indicated:

- In general all groups favored coordination and a lot of references were made to coordination between community and community – in response a practical question was how to promote this – possibly some kind of “fora” needs to be established.
- Cooperation and sharing of experience among CF’s with regards to the management of habitat and common species (such as blood cockle, crabs, and some, to the CF’s, important fish species).
- Follow up on the need to set standards and rules for boat transports and how to solve problems caused by travelling boats (who will/should issue regulations)
- Develop systems (poles or other) for establishing the boundary
- Habitat important but a major concern is the encroachment by “outsiders and rich people” that convert the land for private purposes.
- Problems that, due to various reasons including encroachment, fishing grounds are becoming smaller.
- There is information missing on fish habitats and the fishing in the area:
 - o Specific conflicts in fishing and the use of different gear
 - o Information to state and clarify the importance for fishing
 - o Information on specific rare species such as dugong
- Biodiversity – how to address that in the CF’s
- Explore the suitability and acceptance of closed seasons to maintain a healthy fishery of target species (who will issue the regulations)
- Monitoring and control – cost implications, budget, costs for patrolling the areas
- Before moving too far, look at culture and social aspects
- In general weak low enforcement
- Look at all legal aspects not yet known to the Community Fisheries and the Commune Councils – better understanding the laws needed.

Management Experiences from Trat Province

42. Information on the current management and system for fisheries and other important habitats in Trat province were presented by various representatives, including Trat Governor, fisheries officer of Trat, fisheries officers from Central (ecosystem and economic aspects, technical officer from Department of Marine and Coastal Resources, and fishers from Trat Annex 17.

43. The information, provided from the Thai Group, in trends in fisheries and habitat management in Thailand with specific focus on Trat. Specific interest, as shown in questions and follow up responses, were targeted at management of mangroves, mackerel (Platoo), and crab. A special request was made to be able to gain further experiences on the crab banks being established in Thailand.

UNEP/GEF Cooperation Framework for Koh Kong and Trat

44. Policy and framework for cooperation in eco-system and resource management between Kampot and Kien Giang Provinces was presented by Mr. Ouk Vibol (Annex 18). The goal of the cooperation between the two provinces aims to conserve biodiversity, and reverse environment degradation trends for sustainable use of resources, particularly for improvement of livelihoods of the local communities. Programs and its action plan for implementation were also presented. Noted that this policy and framework can be revised later for effectiveness of the implementation.

45. As referred to the upcoming process to develop an agreement between Koh Kong and Trat Province, facilitated by the UNEP/GEF/SCS, for “strengthening of institutional arrangement for management of coastal resources and environment and integration to development of two provinces” the ongoing process and present status of the draft agreement being developed between Kampot and Kien Giang were presented. The process between Kampot and Kien Giang has come farther than that between Koh Kong and Trat.

Ways of Developing (Performance) Indicators to Monitor/Evaluate the Impacts of Attempts to Establish Fisheries Resources Conservation Areas and Efforts to Monitor and Record Fishing Capacity in Promotion of Sustainable Development of Coastal Resources Management (in Cambodia)

46. During the Workshop, references and discussions have been made on various management systems, locally based and others. It has been stressed that it is not sufficient to look at the fish and natural resources only – equally, and maybe more, important is to look at social, environmental, and economic (local livelihood and provincial development), legal and institutional changes.

47. To introduce, and highlight, the importance of finding ways to show and verify changes that have been made as a result of the implementation of a certain management system – ways that are understandable to both central authorities (and policy makers) and the Community Fisheries and Commune Councils – the final session looked in aspects of verification of change (or rather how to develop suitable indicators).

48. This session, a facilitated plenary discussion, had two sections: one more theoretical on the concepts of indicators and the other with inputs from Community Fisheries, Commune Councils and Districts on the three perceptions of changes that had occurred in their areas.

49. Introduced by Thai resource persons: in summary, it was emphasized that indicators have to be developed, not only on the status of fish, natural resources and the habitat, as such – but more importantly on the “activity” of fishing and resources use (actions done by humans – this was actually highlighted during the coffee break), social and cultural development, economic aspects (including markets), improved health, changes in local well-being and institutional development.

50. The inputs from the Community Fisheries were important and interesting in that there is a perception of changes taking place – although not (yet) categorised in a systematic way. The picture that was provided was that in two Community Fisheries and Communes (Chruay Pros and Koh Khyong) they had noted that through their management efforts there had been improvements in the status of resources and availability of fish, crabs, etc – and as a result they felt that they had become better off. In three other areas (Thmor Sar, Tameak and Chrauy Svay) they could report that through their management efforts there had been improvements in the status of the habitats with an increase of crabs, fish etc – nevertheless the people in these three areas had become more poor. The reason was not because of the CF as such but due to increases in fishing by outsiders in the CF areas – they felt this was linked to some resettlements and in-migrants to areas around the CF which led to higher population pressure and higher pressure on the resources within the CF leading to less benefit to CF members.

51. A recommendation brought forward during the discussion was to follow up on these four provinces to study on the “fabrics of change” and (outside) problems that lead to difficulties in spite of doing the right things. Another point being brought up, and followed up during the coffee breaks, etc, is to work and look at paths forward to find alternative and/or supplementary income opportunities which would imply ways to provide opportunities for all family members including the women (in preparation for the meeting in Kampot an opportunity to link up with a study planned for Kampot on the role of women).

Conclusion and Recommendations

52. In summary, and in follow up on the work management areas, SEAFDEC will in consultation with relevant partners at each of the levels work along three lines:

1. Follow up of priority action within Community Fisheries
2. Cooperation between Community Fisheries
3. Management of fisheries and habitat in areas outside of presently established areas to complement and strengthen these ones (to be followed with consultation in Phnom Penh)

Closing

53. Mr. Ing Try, Deputy Director-General of Fisheries Administration, Cambodia thanked the participation of representatives from Koh Kong, Kep, Sihanouk Ville, Phnom Penh, and Kampot Provinces. He also thanked the representatives from Department of Fisheries of Thailand, Trat fishers, Department of Marine and Coastal Resources, as well as people from CBRNM-LI for sharing information and experience in the Workshop.

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**Welcome Speech of H.E Governor of Koh Kong Province in the Occasion of Opening National Level Training Workshop on “Fisheries Resource Management Concentration via Fish Habitat Area Management”
6-9 July 2007, Koh Kong Province, Cambodia**

- Respect H.E Nao Thouk, Fisheries Administration Director General
- SEAFDEC
- National and International honorable guests
- Ladies and Gentlemen!

First of all I would like to express my warmest welcome to the presence of all ladies and gentlemen, all national and international guests who came to national level training workshop on “Fisheries Resource Management Concentration via Fish Habitat Area Management” in Koh Kong Province of our magnificent Kingdom of Cambodia.

It is considered as the most solemn days for our Koh Kong Province where Fisheries Administration in cooperation with SEAFDEC (SEAFDEC-Sida Project) chose to be a venue to prepare the project national level training workshop in second time. The workshop will be an opportunity to help strengthening the capacity of fisheries officers and of all concerned institutions at all levels on strengthening cooperation with neighboring countries for fisheries resource management concentration via the arrangement and management of natural fish habitat areas in place.

Distinguished Guests, National and International honorable guests!

At the present time, fisheries sector has played an important role in contribution to maintain the balance of food security and national economy development. In general observation, it is showed that majorities of Cambodian citizens prefer fish to other fisheries production, particularly the coastal and island areas settlers of our Koh Kong Province almost wholly depending on fisheries sector to sustain their daily living. Fisheries sector is not only a source to generate income, employment the people in the province, but also a huge contribution to poverty alleviation of the citizens in the province that parallel to the Cambodian Royal Government policy. Respected Her Excellencies, His Excellencies, Ladies and Gentlemen, National and International Honorable Guests!

I would like to take this opportunity top to tell the general aspect of Koh Kong Province that has geography adjacent to coastal areas and assembles with many clusters of island having shapes and giving good potential to fisheries sector that is abundant of all kinds of fish resources and has many fresh beautiful natural sites for serving tourism sector in many places too.

In our Koh Kong Province, fisheries sector obviously has played an important role in contribution to generate employment and is a source to provide income to many ten thousands of citizens in town and to many citizens who came from other outsider areas. Furthermore fisheries sector also contributes to provide delicious foods for attracting national and international guests who come to

visit our Koh Kong Province and helps to maintain stabilities of food security and the provincial economy development too.

Her Excellencies, His Excellencies, Ladies and Gentlemen, National and International Honorable Guests!

Concerning with our Workshop at this time, I strongly believe that this is a good added opportunity to our whole workshop participates in discussion, giving recommendation and exchange good experiences receiving from the past implementation of works from each other aiming to stimulate new ideas for implementing the arrangement to demarcate area and to manage safe fish habitat areas at the coastal municipality and provinces of Cambodia as well as at the areas adjacent to borders of neighboring countries too, especially the cooperation arranges between Koh Kong and Trat Provinces, Thailand.

Once again, on behalf of Koh Kong Authorities, people of Koh Kong province and myself I totally support to all plans to establish safe fish habitats and assist to take working measures to increase the stock of fisheries resources in the province of the country and in the region to be re-abundant.

Finally, I wish the whole workshop to have a good carrying out and to get a fruitful success as the expectation and wish your stay and extension of stay for recreation in Koh Kong Province get a convenience and extreme satisfaction.

Thank You!

Translated by Mr. Heng Samay

Opening Speech
H.E. Nao Thuok
Director General of Fisheries Administration Cambodia

H.E. Governor of Koh Kong Province
Mr. Director of Department of Agriculture the Koh Kong Province
Dr. Siri Ekmaharaj, SEAFDEC General Secretary
SEAFDEC Delegates
National and International Honorable Guests

Ladies and Gentlemen

First of all, I would like to express my extreme pleasure and thanks to H.E. Governor of Koh Kong for permitting and making the organization of this National Workshop happen. At the same time, I also would like to thank Southeast Asian Fisheries Development Center (SEAFDEC) delegates, national and international guests, officers participating in giving national and international presentations, and all participants who have spent their precious time to come to the national workshop on “Integration of Fisheries Management into Habitat Management” which is a part of implementation of activity plan in South-east Asia Area that also include Kingdom of Cambodia. In conjunction with the plan that has been taken by Board of Trustees in the occasion of Important New-Millennium Meeting, we have paid attention to the workshop to enhance knowledge and human resource development activities for sustainable use and management of fisheries resources and for Southeast Asia fishing conflict reduction, especially our Kingdom of Cambodia.

On behalf of the Fisheries Administration and myself, I would like to thank all national and international presenters, SEAFDEC Secretariat, particularly Dr. Magnus Torell, Senior Advisor of SEAFDEC, Dr. Woranwit Wanchana, Policy Component Manager of SEAFDEC (Sida-SEAFDEC), Mr. Suryan Vichitlekarn, SEAFDEC Policy Program Coordinator, and our colleagues, taking their effort to cooperate/coordinate in organizing the workshop and enabling the arrangement of the workshop to pursue with its planned scheduled date.

DISTINGUISHED GUESTS, LADIES AND GENTLEMEN

The workshop that we will participate this time is a great result emerging from good and close cooperation between Fisheries Administration of Cambodia; and SEAFDEC. Under Training and Strengthening Human Resource Capacity program aiming to extend work of Cambodian coastal resources management, conservation and maintaining via the integration of fisheries management into habitat management to enable all fish species safely live, breed and spawn from generation to generation.

In this context, the present Cambodian human resource development and the capacity enhancement of management work are critical after the fisheries reform. Human resource development and enhancement of working capacity have been gradually carried with noticeable achievements. Fisheries Administration as well as Ministry of Agriculture Forestry and Fisheries (MAFF) have recognized the importance of human resource development and enhancement of working capacity since human resource factor has played a significant role in achieving all objectives of Cambodian fisheries resource management and development.

Previous capacity building and enhancement for Royal Government officers in fisheries still remain a major problem. Furthermore lack of fisheries experts at remote areas is one of the big aggravated problems of the department of fisheries to challenge with at present.

To solve this problem, it is necessary for the Fisheries Administration to have a clear and suitable human resource development plan responding to the real needs at present time as well as in the future. At the same time, in order to achieve a clear and suitable human resource development plan, it is required a plan to build human resource capacity develop for timely implementing response to policy program of the Cambodia Government needs human resource development that it is an important key to national economic development, particularly to reduce poverty and to upgrade people's daily livelihood which is a main target of the Cambodia government. In this regard, the needs of human resources with high competent capacity and capacity to improve the situation is a very important factor to ensure national success and to play a key role in ensuring the sustainability of Cambodian fisheries sector development.

As you all knew that the present fisheries management system, especially coastal fisheries resources management of Cambodia had been limited, these due to technical and budget problems. Under extension of SEAFDEC-Sida project for strengthening the capacity of coastal fishery resource management and follow up the recommendation from the last work shop in workshop on 27-31 March 2006, habitat management is one of the main issues to promote, develop and manage. Therefore, this workshop will concentrate on sharing experiences/learning from varies implemented projects in Koh Kong province, in coastal of Cambodia, as well experiences from Trat province of Thailand. The exchange of experience and information is not only to promote close collaboration among nearing area in Cambodia, but it also with neighboring countries, to promote high efficient management action and to explore other new idea as an input for future improvement and development.

Following this very important national workshop I hope that we will achieve a suitable human resource development strategy cooperation for habitat management in the Kingdom of Cambodia as well Thailand (Trat province), and it is enabled us to clearly understand the trans-boundary experiences and issues. Therefore I would like to take this opportunity to appeal you ladies, gentlemen, resource person, participants should share and deeply study more all past existing experiences. Although we have participants who came from regional, national, provincial and community levels with different knowledge and experiences, we should pick up all good lessons/experiences for deeply sharing and discussions to exchange ideas for exploring more new ideas for effective implementation of fisheries resource management at their own areas.

Once again on behalf of Ministry of Agriculture Forestry and Fisheries (MAFF) as well as Fisheries Administration, I would like to highly admire supports from SEAFDEC and all experts, particularly sponsor, SEAFDEC-Sida who has initiated and supported this project. I also realize that this sympathy is very essential support to encourage and enable the coastal fisheries resource management task increasingly achieving more success.

Finally I wish all participants getting success in the discussion and learning more all new experiences for strengthening capacity and human resource development for integration of fisheries management in to habitat management in Koh Kong province, Cambodia and as well Trat province, Thailand.

I would like to declare the workshop open.

Thank you!

Agenda and Arrangement of the Workshop

DAY ONE: 6 AUGUST 2007, MON.

Registration

1. Introduction

National Anthem Salutation

Welcome Address by SEAFDEC; Dr. Magnus Torell

Welcome Address by Governor (Vice) of Koh Kong Province

Welcome Address by Governor of Trat Province; Mr. Bunchui Keardsukhon

Opening Speech by H.E Nao Thuok

2. Project and Programs Presentation/Discussion

2.1 SEAFDEC-Sida Project Presentation

On-site training/Workshop on the integration of fisheries management into habitat management, Cambodian representative to SEAFDEC – WG

Introduced by Mr. Suy Serywath

2.2 Issues and Solutions for Coastal Zone Management in Koh Kong, Cambodia,

Introduced by Mr. Vann Monyneath

The presentation is an introductory follow on the earlier presentations done in Koh Kong and Kampot, respectively. Further, communication will be done with Mr. Monyneath on the items to include. It is however expected that with **four to five slides** summarize geographical, social, environmental and economic aspects and based on the look towards a set of coastal development options – including, as recommended, options based on cooperation with the neighboring Trat Province in Thailand. If a (set of) map is available on existing, suggested or potential areas for specific developments onshore and offshore for Koh Kong that would be welcomed – including information on environmental importance – and where fisheries are in this coastal planning process.

A short time for clarification will be set aside – in general it is expected that presentation will lead into the panel presentation under Agenda 2.3

2.3 Management approaches to fisheries and habitat including local Area Coastal Resources Management in Koh Kong

The session will be in **Panel format**, facilitated by **Mr. Sim Bunthoeun** CBNRM-Li

The panel will be made up of:

- Mr. Kim Nong, PMCR Project Leader
- Ms Kaing Khim, CFDO/FiA
- Mr. Ouk Vibol, Fisheries Domain/FiA
- Mr. Buoy Roitana, Licensing/FiA
- Mr. Vann Monyneath, CZM/MoE (with reference to earlier session)
- Fisherman, Koh Kong

What is expected from the introductions of the panel members is to, based on **presentations of maximum 3 to 4 power points**, to introduce:

- Development of locally based management systems with a basis in habitat management (mangroves, coral reefs, seagrass beds, as available) and the integration of fisheries in that management of the area. Systems for monitoring and record of the resource use, socially development and environmental status). The final slide would, as available, be a map of the managed area (areas if more areas are managed). The map should, if possible, be in sufficient scale to see the size of the area relative to the coastal waters of Cambodia, off Koh Kong. **Mr. Kim Nong**
- Development of Community Fisheries or locally based management systems with a basis in fisheries management and with an indication on how habitat management is integrated the management of the area. Systems for monitoring and record of the resource use, socially development and environmental status). The final slide would, as available, be a map of the managed area, and/or Community Fisheries. The map should, if possible, be in sufficient scale to see the size of the area relative to the coastal waters of Cambodia, off Koh Kong. **Ms. Kaing Khim**
- Management of the Fisheries Domain with a short explanation of the Fisheries Domain concept which leads into the management of habitats of various types under the new fishing law. Short examples on habitats that are prepared for management under the UNEP/GEF South China Sea Project (selected demonstration sites and other sites in Koh Kong Province). The path to integration of fisheries management can, without further explanation to be done with a reference to the refugia concept, with a note that it will be presented under another agenda point. One slide on the expected role of Province, Communes and central authorities in the development process. Any intended systems for monitoring and record of the resource use, socially development and environmental status. The final slide would, as available, be a map of the managed area, and/or Community Fisheries. The map should, if possible, be in sufficient scale to see the size of the area relative to the coastal waters of Cambodia, off Koh Kong. This one might need to have around five slides one for each type of habitat chosen for presentation. **Mr. Ouk Vibol**
- Short review of management instruments and areas or zones designated for any special purposes, such as the 20 meter depth as a limit to how close to shore trawlers, etc. are allowed to fish. Other zones, seasonal or permanent, if any developed for fisheries management. Any management measures outside the “managed” areas. Licensing, restricted ownership, etc. as available. Indications on environmental aspects are integrated into in fisheries management arrangements. Systems for monitoring and record of the resource use, socially development and environmental status. The final slide would, as available, be a map of the different zones, as applicable, including the 20 meter depth curve. The map should, if possible, be in sufficient scale to see the size of the area relative to the coastal waters of Cambodia off Koh Kong. **Mr. Buoy Roitana**

- The prepared input from the **Fisherman** should allow for personal reflection on the various attempts to manage resources, fishing efforts, habitats and the environment with a view on how they look at these efforts in providing for more sustainable fisheries and more secure living conditions and better livelihood. No slides are needed (based on comments made by villagers at an earlier workshop).

2.4 “Rights” for coastal villagers to access resources and rights to sustain their living and settlements along the coast

Introduced by Mr. Sim Bunthoeun, CBNRM-LI followed by **prepared input** from Province/Commune Council/Fishermen

This is in principle an introduction based on a study made by the CBNRM-LI in cooperation with FiA and others. The study was presented at a symposium in Siem Reap organized by the ICSF (International Collective in Support of Fishworkers) together with FiA on “Asserting Rights, Defining Responsibilities: Small-Scale Fishing Communities and Fisheries Management Perspectives in Asia”. The study was broader than just for marine fisheries, but the presentation will, in a not more than 20 minutes, introduce and high-light some aspects of relevance to the situation in coastal areas – and if possible with specifics for Koh Kong.

It as expected that the presentation would activate a **discussion** – drawing upon inputs from fishermen in Koh Kong – and Trat – Commune Councils, Governors Offices, as well as other. To trigger off these discussions a, or two, short prepared inputs from provinces and local level will be made following the presentation.

DAY TWO: 7 AUGUST 2007, TUE.

2.5 Conflicts and conflict resolution as perceived by people in Koh Kong Province – need to monitor and record (active) fishing capacity (including IUU)

Introduce by Mr. Suy Serywath/FAO-Sida and with comments by fishermen

The session is a follow up on earlier inputs by the FAO/Sida Project “Information Gathering for Fisheries Management”. In a presentation of not more than 20 minutes (around five power point slides) the FAO/Sida focal point should draw out and summarize the opinions provided by fishermen and villagers during consultations in Koh Kong on major areas that were felt as providing basis for conflicts with respect to fishing and habitat management, as well as indications provided on how to solve the difficulties. As available, one slide should highlight suggestion for and the expressed need to monitor and record (active) fishing capacity – including IUU and encroachment of larger vessels.

Fishermen from Koh Kong – and Trat – should be asked to prepare short inputs on their opinions/experiences with regards to conflicts and conflict resolution. Following this time would be provided for a plenary discussion.

2.6 Concepts and requirements for establishment of “Fisheries Refugia”, as promoted by the UNEP/GEF SCS Project in the Gulf of Thailand

Introduced by: Mr UNEP/GEF South China Sea/Mr. Ouk Vibol with follow up by Mr Va Longdy

This session is to provide a short (again not more than 20 minutes) technical background to the concepts, including definitions, and requirements for establishment of “Fisheries Refugia”, as promoted by the UNEP/GEF SCS Project in the Gulf of Thailand. The presentation should include a map with candidate sites in Koh Kong (and Trat) waters indicated the planned sites with the size and location. As the “refugias” are not yet fully developed and implemented this presentation is to be done separately from the presentations in Agenda point 2.3.

The provide further insights in the developments in Cambodia another short presentation will be made on the process so far in Cambodia with present experiences, involvements through workshops, etc

The presentations should be followed by discussion and questions and answers

2.7 Introduction to the suitability of developing a larger (than existing management areas/refugia candidates) for fisheries resources conservation

Introduced by: Dr. Worawit Wanchana

This session is the introduction to one of the key elements of the workshop, namely to provide a recommendations on the spatial boundaries for management of fisheries resources conservation areas (see below on introduction to the working groups). The background that will be provided is based on inputs and recommendations from a sequence of workshops in Bangkok and Phu Quoc, Vietnam (UNEP/GEF). Another set of background is provided by the sequence of sessions held earlier during this event. The introduction will be pointing at the large variety – and abundance – of different management initiative. All quite site specific and of limited sites. The idea here is that to strengthen the management initiatives in specific habitats, in specific refugias, in community fisheries areas there is a need to work on a larger-scale (or smaller scale in mapping terms) management areas – which could be an aggregation of small areas, allowing for management effort also in life cycle stages outside of the smaller areas, including migration paths of importance. This obviously would further strengthen the argument for improved dialogue on management between Cambodia and Thailand, in the area of Koh Kong and Trat.

2.8 Indications on important life-cycle stages of Indo-Pacific Mackerel (Platoo)

Introduced by: Mr. Pirochana Saikliang (UNEP/GEF South China Sea Focal Point for Thailand) and Mr. Manoj Rungratree (Director of Eastern Marine Fisheries Development Center)

With the scope of larger fisheries resources conservation areas, the reference to some of the fish stocks of “traditional” smaller pelagic fish, like Indo-Pacific Mackerel (Pla Tu). This short presentation will briefly indicate aspects related to reports on the presence in Cambodia waters (also off Koh Kong) during important stages of the life cycle. The presentation will include a reference to the presence in Thai waters and the management effort (closed seasons) being implemented there, including the suggestion of developing a fairly large refugia off the Chumpon coast. The intention is to provide an additional set of background to be considered during the group on, as applicable, also have views on these type of species and their important spawning/nursery areas, etc.

2.9 Introduction to Group Work

Introduced by: FiA or SEAFDEC

Group Work will focus on development of spatial boundaries for fisheries resources conservation area in and around Koh Kong with indications of links to refugia candidates, protected areas, etc.

Group Work Presentations

Reporting of Group Work and discussion

DAY THREE: 8 AUGUST 2007, WED. FIELD TRIP

AM (This program was cancelled due to the unsuitable weather condition in the area)

Take the car/van to visit the ecotourism mangrove forest area at Peam Krasoap CF, to fact finding the livelihood activities of Peam Krasoap CF.

PM

After lunch, presentation of the results of the visit will be made for further discussion and exchanging experience. Followed by Panel of the

2.10 Management experiences from Trat Province by Trat Governor, DOF, DMCR, and Trat Fisher

It is expect to have active inputs from people from Trat and Thailand throughout the event, but this session will allow for two or three short presentations on management experiences in line with general thrust of presentations outlined, with possible inputs on:

- Fisheries management
- Habitat management
- Integration between fisheries and habitat management/refugia development
- Views from fishermen and the governors office

This session will be organized in **Panel format**, total duration of about 3 hours, to be facilitated by Mr. Somsak Chullasorn, Regional Expert on Coastal and Marine Fisheries

The Panel will be made up of

- Mr. Bunchui Kerdsukhon, Governor of Trat Province
 - o To provide information on importance of fisheries sector in Trat Province
 - o To suggest on integration of habitat and fisheries management
- Dr. Anuwat Nateewathana, Department of Marine and Coastal Fisheries Resources (DMCR) Representative
 - o Major issues related to habitat management system and supports from DMCR to management of coastal resources, including mangrove, coral reef, seagrass, and national park
- Dr. Joompol Sanguansin, Fisheries Department Senior Expert on Fisheries Ecology and Former Head of Trat Fisheries Provincial Office
 - o To sharing experience on the management issues regarding the success story on
 - o The change of using stationary set net to another fishing gear, and
 - o Facilitation of the provincial announcement for the bi-values fisheries management area in Trat Bay
- Mr. Surat Keardmali, Head of Trat Fisheries Provincial Office
 - o To provide information on current situation of coastal fisheries resources in Trat, major issues (such as IUU fishing, MCS system, conflicts among fisheries, etc.)
- Mr. Pongpat Boonchuwong, Director of Fisheries Economics, Department of Fisheries Thailand
 - o To provide information on process of economic evaluation of natural coastal resources

- Mr. Chanarong Rounsri, Local Community Network for Monitoring of IUU fishing in Trat Bay
 - o To provide information related to capacity building for monitoring IUU fishing in Trat Bay.

During the discussion, information on the current system, legal and activities in supporting management of habitat and fisheries, focusing in Trat Province, will be presented briefly and discussed. The Training/workshop will look at how to improve/strengthen coastal fisheries management, particularly to the integration of system for integration of habitat management into fisheries management. It is expected that the discussion could provide direction and ways to improve the integration of habitat and fisheries management in Koh Kong.

DAY FOUR: 9 AUGUST 2007, THU.

2.11 Presentation of (UNEP/GEF) cooperation framework for Koh Kong - Trat

Introduced by: Mr. UNEP/GEF and/or Mr. Ouk Vibol

During this session, a short presentation will be made on the basis parts, and the status of development and implementation of the cooperation framework being worked out between Koh Kong and Trat province with the facilitation of the UNEP/GEF/SCS Project. Reference will also, as needed, be made to a similar framework being developed between Kampot and Kien Giang Provinces and support to local capacity building in Kampot and possibly Kien Giang provided through the WAP.

The framework as such are not up for discussion, rather inputs and comments are expected on the general value of initiatives like this/these develop a promote links between neighboring provinces.

2.12 Look into ways of developing (performance) indicators to monitor/evaluate the impacts of attempts to establish fisheries resources conservation areas and efforts to monitor and record fishing capacity in promotion of sustainable development of coastal resources management (in Cambodia).

Introduced/facilitated by: Facilitated by Mr. Suy Serywath, Fisheries Administration – Cambodia

This session is part of a connections effort to work out ways to measures the implications of implemented management efforts (and lack of implementation) through some reference points or indicators. These should refer to social, resource sustainability, economic, institutional, etc aspect. Without intention to comet o major conclusions, the session is a first brainstorming to see what people perceive in this context.

A facilitator that has a bit of background will be selected from the group.

2.13 Wrap up and make conclusion of the workshop


2.14 Clarification of the next step for SEAFDEC-Sida

3. Closing the Workshop

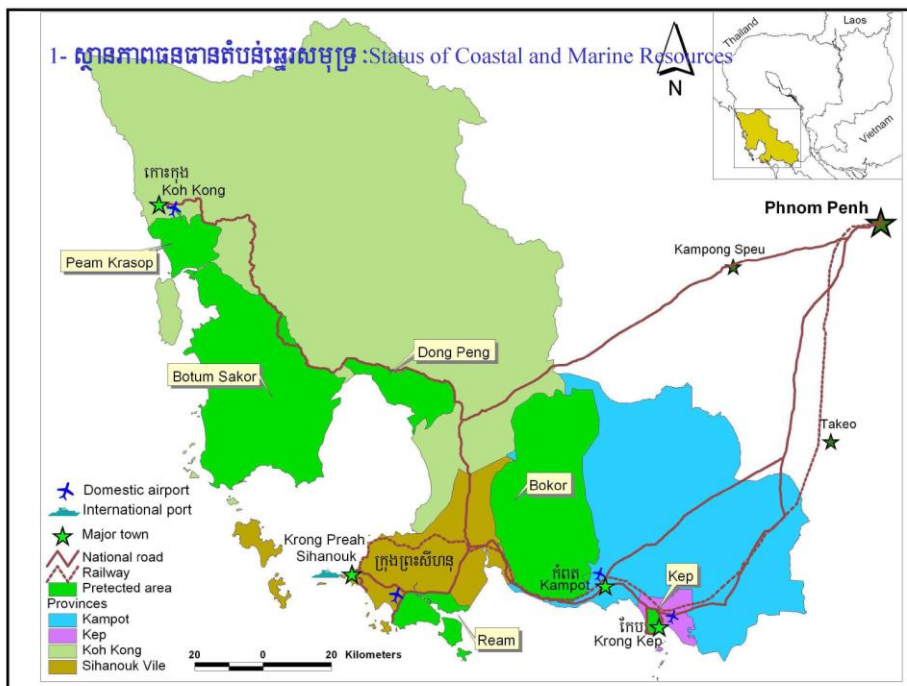
Note: Seek to incorporate active inputs and participation from commune councils and fishers

Issues and Solution for Coastal Zone Management in Cambodia

by Vann Momyneat Deputy Director General, Ministry of Environment

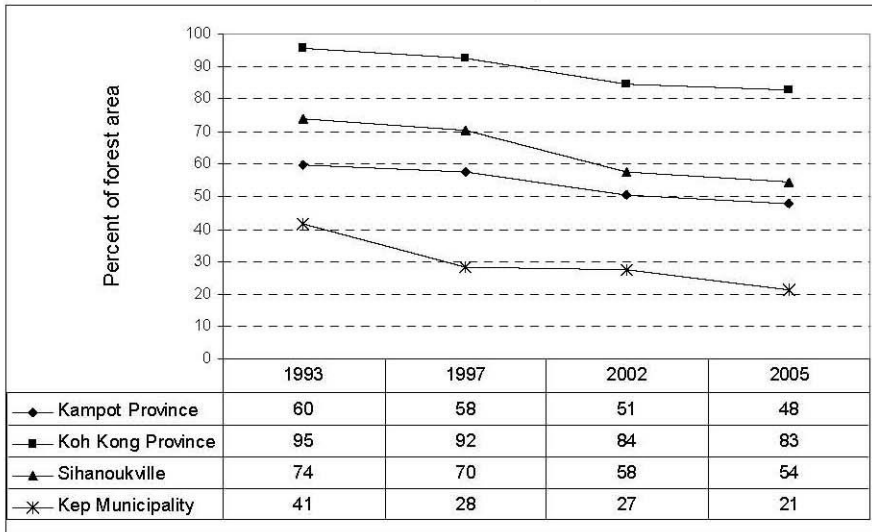


ប្រធានបទ : បញ្ហា និងដំណោះស្រាយ សំរាប់គ្រប់គ្រងបរិស្ថានតំបន់ឆ្នេរសមុទ្រកម្ពុជា
 រៀបចំសំរាប់សិក្ខាសាលាជាតិ
 ស្តីពីការប្រមូលផ្តុំគ្រប់គ្រងធនធានជលផលតាមរយៈការគ្រប់គ្រងដែនជំរកត្រី
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 លោក វ៉ាន់ មុនីនាថ អគ្គនាយករង ក្រសួងបរិស្ថាន
Issues and solution for Coastal Zone Management in Cambodia
 Prepared for
**National Workshop on site Training on the Integration of Fisheries Management into
 Habitat Management**
06-09 August 2007, Koh Kong
Vann Momyneath
Deputy Director General
Ministry of Environment



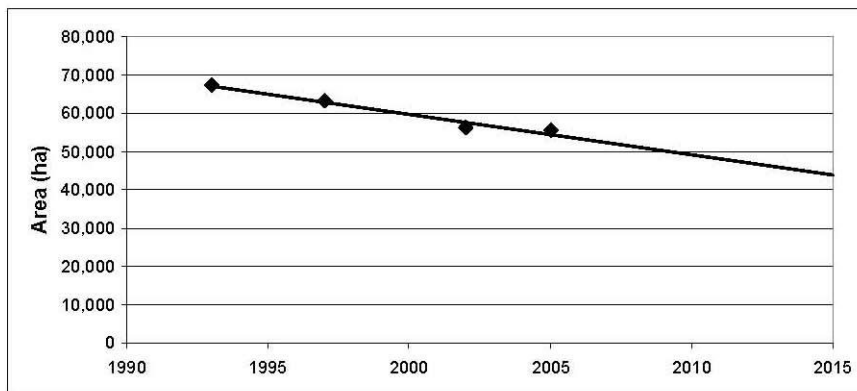
តំបន់ព្រៃឈើខេត្ត-ក្រុងឆ្នេរសមុទ្រ : Forests in the coastal area

ផ្ទៃដីព្រៃនៅតំបន់ឆ្នេរគិតជាភាគរយប្រៀបនឹងផ្ទៃដីក្នុងប្រទេស និងក្នុងតំបន់ឆ្នេរ



ព្រៃកោងកាង និងបញ្ហា Mangroves and issues

ការផ្លាស់ប្តូរផ្ទៃដីព្រៃកោងកាង ២០០២-២០០៥ : បាត់បង់ ៨,៨២ភាគរយ
Change mangrove distribution from 2002-2005 (-8,82%)



ផ្តាច់ និងបញ្ហា Coral reef and issues

ការប៉ាន់ស្មានពីវិសាលភាពផ្តាច់ក្នុងដែនទឹកក្នុងខេត្តក្រុងតំបន់ឆ្នេរ

ផ្តាច់:

- ៧០ ប្រភេទ ហើយគ្របដណ្តប់
- ខេត្តកំពត ៩៥៣ ហិកតា
- កោះកុង ៦០២ ហិកតា
- ក្រុងព្រះសីហនុ ១១៩៨ ហិកតា
- ក្រុងកែប ៥២.២ ហិកតា

Corals:

- 70 species corals
- Estimated coral reefs area cover in coastal water:
- Kampot: 953 ha
- Koh Kong: 602 ha
- Sihanoukville: 1,198 ha
- Kep: 52.2 ha

ស្មៅសមុទ្រ និងបញ្ហា : Seagrass beds and issues

ការប៉ាន់ស្មានពីវិសាលភាពស្មៅសមុទ្រក្នុងដែនទឹកក្នុងខេត្តក្រុងតំបន់ឆ្នេរ

ស្មៅសមុទ្រ:

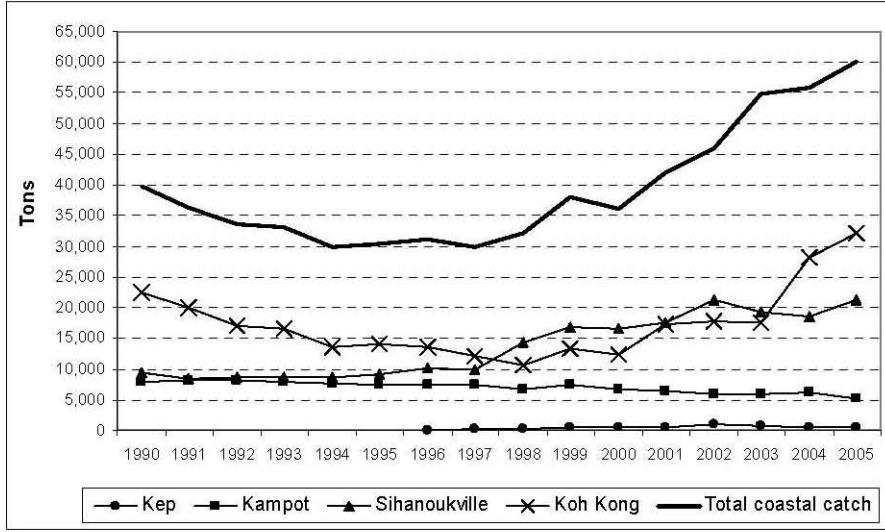
- ៩ ប្រភេទ ហើយគ្របដណ្តប់
- ខេត្តកំពត ២៥.២៤១ ហិកតា
- កោះកុង ៣.៩៩៣ ហិកតា
- ក្រុងព្រះសីហនុ ១៦៤ ហិកតា
- ក្រុងកែប ៣.០៩៦ ហិកតា

Seagrass beds:

- 9 species seagrass
- Estimated seagrass area cover in coastal water:
- Kampot: 25,241 ha
- Koh Kong: 3,993 ha
- Sihanoukville: 164 ha
- Kep: 3,096 ha

ផលនេសាទ : Fish catch

ផលនេសាទប្រចាំឆ្នាំក្នុងតំបន់ឆ្នេរសម្រាប់ខេត្តក្រុងនីមួយៗ និងផលនេសាទសរុបប្រចាំឆ្នាំ



2. បញ្ហាអភិវឌ្ឍន៍ឆ្នេរ : Coastal development issues

- សំពាធប្រជាជន: ៣.៦ ភាគរយ ចនេចរ : Population Pressure : AAGR (3.6 %), Migration
- អភិវឌ្ឍន៍សេដ្ឋកិច្ច ទីក្រុង ទេសចរណ៍ ស្រែបង្កា ស្រែអំបិល : Economic Development Urbanization
Tourism Development Shrimp Farming, Salt Production
- ភាពក្រីក្រ: ការអនុវត្តជីវភាព គ្មាននិរន្តរភាព : Poverty : Destructive Livelihood Practices
- បរិស្ថាន : ការបំពុល ការធ្លាក់ចុះធនធានធម្មជាតិ : Environment: Pollution (solid waste) Degradation of
Natural Resources (coral reefs, coastal fisheries, mangroves, seagrasses, forests)

3. ដំណោះស្រាយ : Solutions

៣.១ ក្របខ័ណ្ឌគោលនយោបាយ

៣.២ ក្របខ័ណ្ឌច្បាប់

៣.៣ ក្របខ័ណ្ឌស្ថាប័ន

៤-៤ ក្របខ័ណ្ឌតំបន់ និងអន្តរជាតិ

3.1 Policy involved CZM

3.2 Legal involved in CZM

3.3 Institutions involved CZM

3.4 Regional and International Involved CZM

3. 4 Regional and International Involved CZM

- ដៃគូផ្តល់ជំនួយ ដើម្បីគាំទ្រការគ្រប់គ្រងតំបន់ឆ្នេរសមុទ្រ នៅក្នុងប្រទេសកម្ពុជា Donor partners to CZM in Cambodia
- គំរោងគ្រប់គ្រងតំបន់ឆ្នេរសមុទ្រកម្ពុជា-ដានីដា CZM project (Danida)
- គំរោងការចូលរួមគ្រប់គ្រងធនធានតំបន់ឆ្នេរខេត្តកោះកុង Participatory Management of Coastal Resources (IDRC/Canada)
- គំរោងការចូលរួមគ្រប់គ្រងធនធានធម្មជាតិ និងការប្រើប្រាស់ដីធ្លី-Participatory Natural resource management and Land Use Planning (GTZ)
- គំរោងគ្រប់គ្រងតំបន់ឆ្នេរសមុទ្រក្រុងព្រះសីហនុ Integrated Coastal management in Sihanoukville (PEMSEA/IMO)
- កម្មវិធីគ្រប់គ្រងបរិស្ថាន និងធនធានធម្មជាតិ នៅឃុំ-សង្កាត់ Commune and Community Based National Resource Environmental Management (D & D Program)
- គំរោងគ្រប់គ្រងតំបន់ឆ្នេរសមុទ្រឈូងសមុទ្រចិនខាងត្បូង-South China Sea Regional Project (UNEP/GEF)
- គំរោងអង្គការក្រៅរដ្ឋាភិបាលនានា NGOs, LI

Experiences of Participatory Mangrove Resources Management in PKWS, Koh Kong Province

by Kim Nong, Deputy Director of EE Department

Ministry of Environment and PMCR Project Leader

Abstract

Koh Kong province in western Cambodia, resting on the Gulf of Thailand, boasts one of the most impressive mangroves stands remaining in Southeast Asia. Adapted to life in brackish water, mangrove trees bring multiple environmental benefits to coastal areas, such as providing a protected breeding ground for a variety of aquatic life, but in Koh Kong, the mangrove forest in Peam Krasaop Wildlife Sanctuary (PKWS) was under threat as waves of new arrivals sought livelihoods from the area's rich resource base. Mangrove trees have many practical uses; for instance, they can be made into superior-quality charcoal. Abundant fish and seafood also attracted foreign boats that over-harvested nearby waters that made negative impact to coral reef and seagrass.

Today, however, there are clear signs that a collaborative environmental management project has reined in the destruction and helped communities move closer to a sustainable economic model through participatory management of coastal resources, especially mangrove and sea-grass resources. Now, in those areas, it would say 90 percent of the recovery is done. With the PMMR project began in December 1997 and as now call PMCR, the PMMR team set out to improve the social climate. It attempted to build understanding between local people and all levels of government by organizing workshops, meetings and field acting. To deepen the parties' appreciation of what was possible; it organized visits for local authorities and villagers to other areas with community-based natural resource management projects. It was important for community members to change their attitudes and to implement their own plans. As a result, communities have undertaken a mangrove tree-planting program, patrolling, developed a waste-management system and created a fish sanctuary under community federation and co-management concept.

Within Cambodia, the most project has been successful, not just in restoring some of Koh Kong's threatened resources, but also in allowing communities to develop the capacity to plan their own futures and rethink their economic relationship with the coastal environment both their own community and with other communities.

I. Summary

Koh Kong province in western Cambodia, resting on the Gulf of Thailand, boasts one of the most impressive mangroves stands remaining in Southeast Asia. Adapted to life in brackish water, mangrove trees bring multiple environmental benefits to coastal areas, such as providing a protected breeding ground for a variety of aquatic life.

But in Koh Kong, the mangrove forest in Peam Krasaop Wildlife Sanctuary (PKWS) was under threat as waves of new arrivals sought livelihoods from the area's rich resource base. Mangrove trees have many practical uses; for instance, they can be made into superior-quality charcoal.

Abundant fish and seafood also attracted foreign boats that over-harvested nearby waters that made negative impact to coral reef and seagrass.

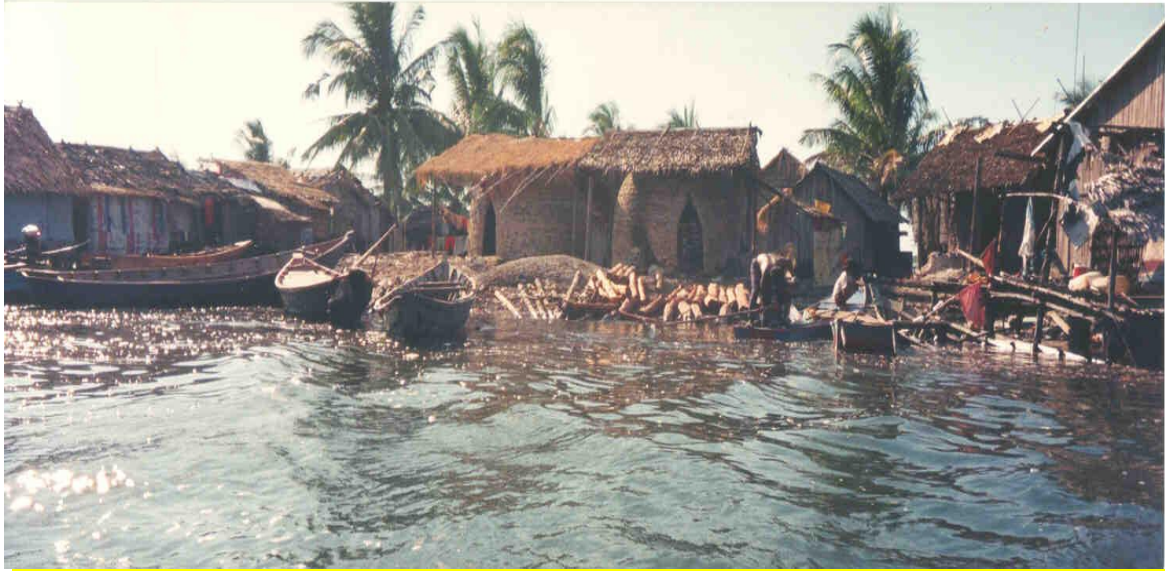


Figure A6-1 Mangrove Charcoal Kiln

Collaborative Progress

Today, however, there are clear signs that a collaborative environmental management project has reined in the destruction and helped communities move closer to a sustainable economic model through participatory management of coastal resources, especially mangrove and sea-grass resources. “When we started our program in December 1997, there was a lot of destruction of the mangrove, and illegal fishing activities” said Kim Nong, a deputy director with Cambodia’s national environment ministry and a driving force behind the Participatory Management of Mangrove Resources project, supported by Canada’s International Development Research Centre. “But we’ve been working with local people to understand the special environmental benefits of the mangrove, coral reef and sea-grass. Now, in those areas, I would say 90 percent of the recovery is done.” (IDRC-2006)



Figure A6-2 Before and After Replanting of Mangrove

The biggest challenge in Koh Kong has not been finding a technical solution to the area's environmental woes, but rather building social networks so that communities, local authorities, and provincial and national officials can work together. "When we first started," PMMR team explains, "most people in government said 'this is the responsibility of the government, not local people.' They didn't accept that local communities should be involved in managing the coastal resources."

Communities Are Central

With the project began in December 1997, the Participatory Management of Mangrove Resources team set out to improve the social climate. It attempted to build understanding between local people and all levels of government by organizing workshops and meetings. To deepen the parties' appreciation of what was possible; it organized visits for local authorities and villagers to other areas with community-based natural resource management projects. It was important for community members to change their attitudes and to implement their own plans.

As a result, communities have undertaken a tree-planting program, patrolling, developed a waste-management system and created a fish sanctuary. Charcoal-making from mangrove trees has largely been stopped, as has the former practice of dynamite fishing. In Koh Kong, says Dr. Marschke, "the norms have been changed in terms of what's acceptable and what's not. Most people don't feel comfortable to go out and blast fish any-more.

The project has been successful in allowing communities to develop the capacity to plan their own futures and rethink their economic relationship with the environment.

Within Cambodia, the project has been successful, not just in restoring some of Koh Kong's threatened resources, but also in allowing communities to develop the capacity to plan their own futures and rethink their economic relationship with the coastal environment both their own community and with other communities.

II. Background

- Mangrove destruction for being use as charcoal producing and shrimp farming 1990-1999 (about 70% of mangrove forest areas destroyed for Shrimp and Charcoal Producing)
- Diagnostics studies at project of PKWS, KK 1997-2000
- Participatory Action Research of Mangrove Resources PMMR Team
- Capacity Building of Human Resources (Training/Workshop on Mangrove, Fisheries Resources and Co-management; Community Fisheries Management Training)
- Learning Experiences of CBNRM by study tours both national and international levels

III. Changing both People Attitude and Coastal Environment through Learning by Doing

- Community organizing

- Information learning & sharing
- Participatory patrolling
- Building with other community development workers
- Advocacy on policy and legal reforming
- Develop local management plan, i.e. mangrove planting, mangrove alternative livelihoods, etc.

IV. Scaling out and scaling up of community's planning through co-management

- Established community federation
- Integration of coastal resource management
- Participation of fisheries conflict resolution
- Building common voice for local fisheries resource management
- Expanding local communities network both in-sites PA and out-site sustainable CRM

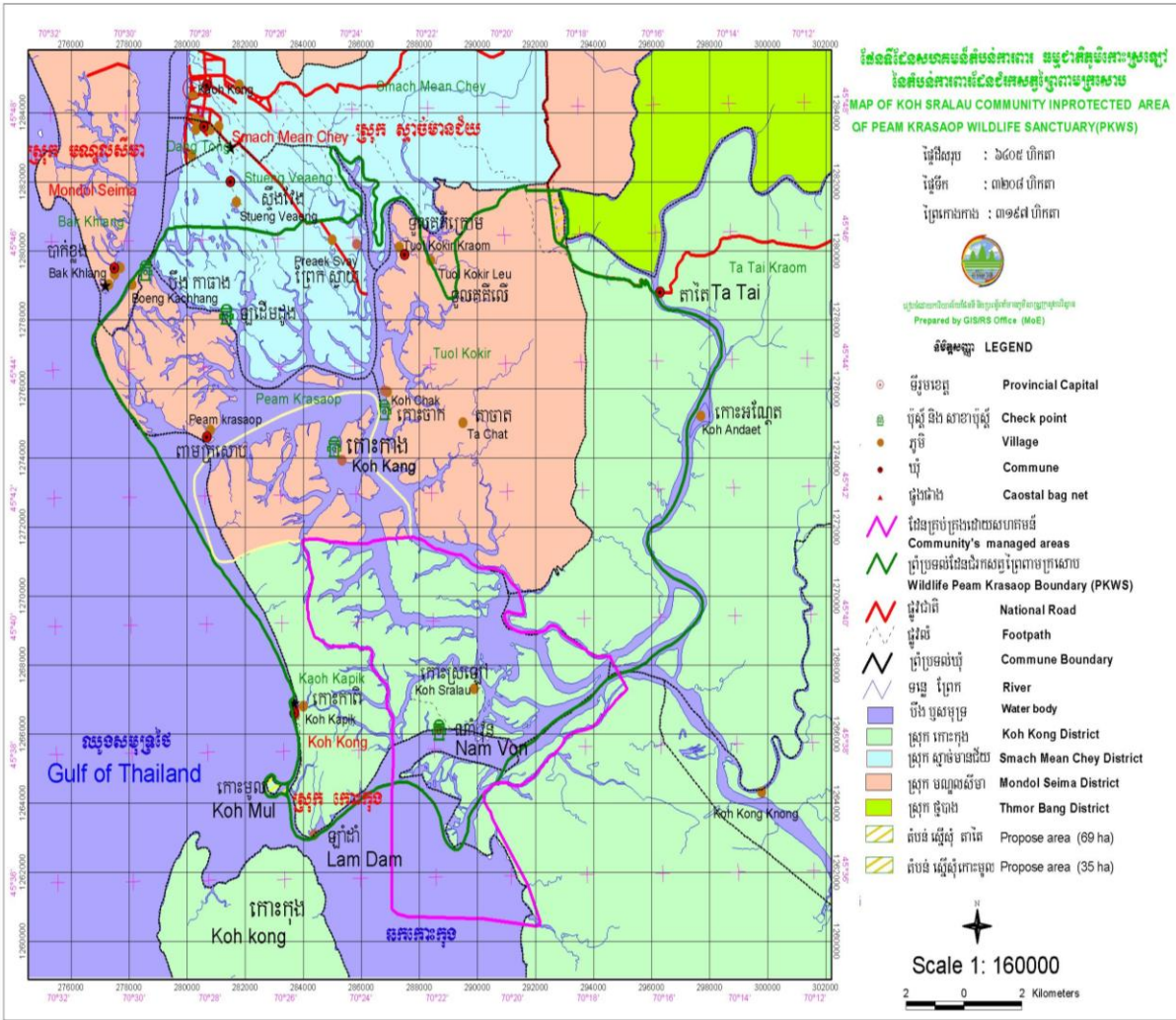


Figure A6-3 Map of Koh Kong Community in Protected Area of Peam Krasoap

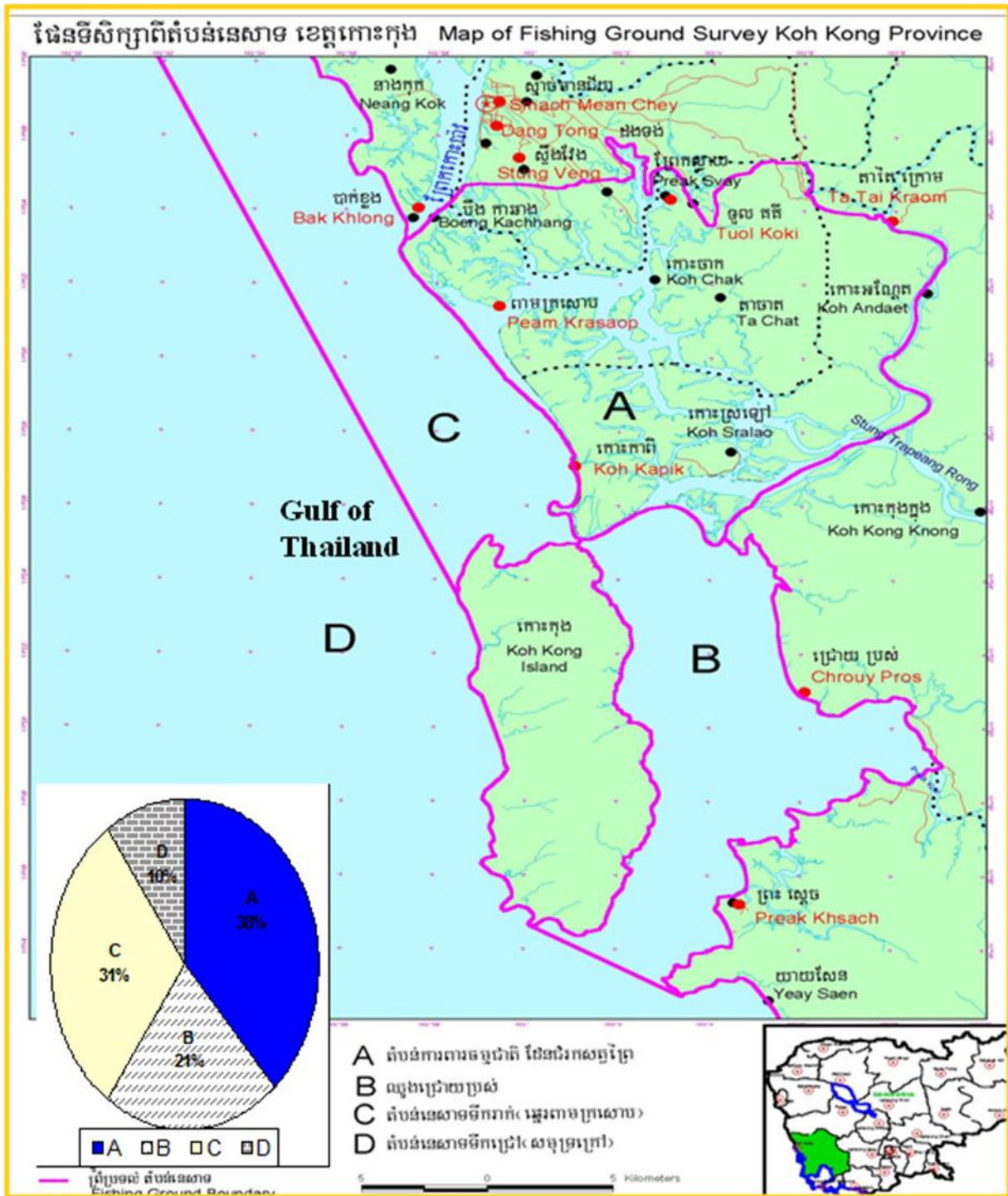


Figure A6-4 Map of Fishing Ground Survey in Koh Kong Province

Community Fisheries development in Koh Kong Province, Cambodia

*By Chhuon Kimchhea and Kaing Khim
CFDO/ FIA*

ABSTRACT

Community fisheries development has become extremely important in Cambodia since the government began reform of fisheries management policy by releasing 56% of the total area of fishing lots throughout the country. The facilitation of community fisheries development is needed in order to help to manage the released areas as well as other areas within the fisheries domain.

There are more than 500 Community Fisheries now established in Cambodia. Among those 41 CFs are established in coastal areas. In Koh Kong Province, there are 10 CFs established by provincial fisheries office in collaboration with PMCR, CZM, IDRC, SEILA and FAO. With strong support from these organizations, community fisheries committees (CFC) and CF members are able to set up their management systems and monitoring system of resource use in CF. The CF management system has empowered the CF committees and CF members to be able to develop the CFC structure, roles and responsibility, develop by-law and internal regulations, demarcation CF boundary and mapping, make an area agreement with FIA, and develop CF area management plan (CFAMP).

Community fisheries area management plans are essential for the functioning of community fisheries, as they indicate how the community intends to manage, develop, conserve, and use the fisheries resources in a sustainable way. Through participation in developing CFAMP, the communities were able to identify key problems and analyze them in order to find appropriate solutions. These solutions were then incorporated in management plans for the areas of each of the community fisheries.

The management plans specify activities to be undertaken by the community fisheries to address each of the identified problems. Details of all activities, resources required, responsible persons, and time frame of implementation are included in each plan. Throughout the planning process, the community fisheries committees participated actively and showed that they felt the plans would be useful to improve the management of their community fisheries. However, in order for these plans to be implemented it is clear that there needs to be additional capacity building of the community fisheries and institutional and material support.

I. Background

At the end of the year 2000, the Royal Government of Cambodia introduced a reform of fisheries policies by releasing 56% of the total area of fishing lots throughout the country. This was mostly led to a significant benefit to the livelihoods of people in remote areas, particularly the people whose livelihoods are dependent on fisheries resources. This reform empowers community members to manage their own fishery resources through the establishment of Community Fisheries

(CFs), allowing participation in conservation and boosting effectiveness of utilization of local fishery resources in equitable and sustainable manner.

The rationale for this wide-ranging reform was driven by factors, such as conflict between small-scale and large-scale fishing, and the observation that local fishermen with small fishing grounds were struggling to maintain their livelihood.

In response to the reform, FIA has been committed to building its capacity to improve the quality and effectiveness of fisheries management and promote the successful establishment community fisheries nationwide, following identified goals and plans. The successful outcomes of six year period 2001-2006 highlight the commitment of the FIA despite the many difficulties and problems faced in its efforts to complete its duties as a technical agency and representative of the Ministry of Agriculture, Forestry and Fisheries.

At present, there are 509 Community Fisheries established in Cambodia. Among those 41 CFs are established in coastal areas. In Koh Kong Province, there are 10 CFs established in 26 villages, 9 communes and 3 districts. Most of them were established in 2001 and have completed the registration of memberships, by-laws, internal regulations and area maps.

II. CF areas in Koh Kong

All CF areas in Koh Kong Province have been demarcated and mapped. A total of 68,409 ha of community fisheries areas are under the protection and management of 26 villages organized into 10 community fisheries organization. Below is a map showing CFs in the coast line area of Cambodia.

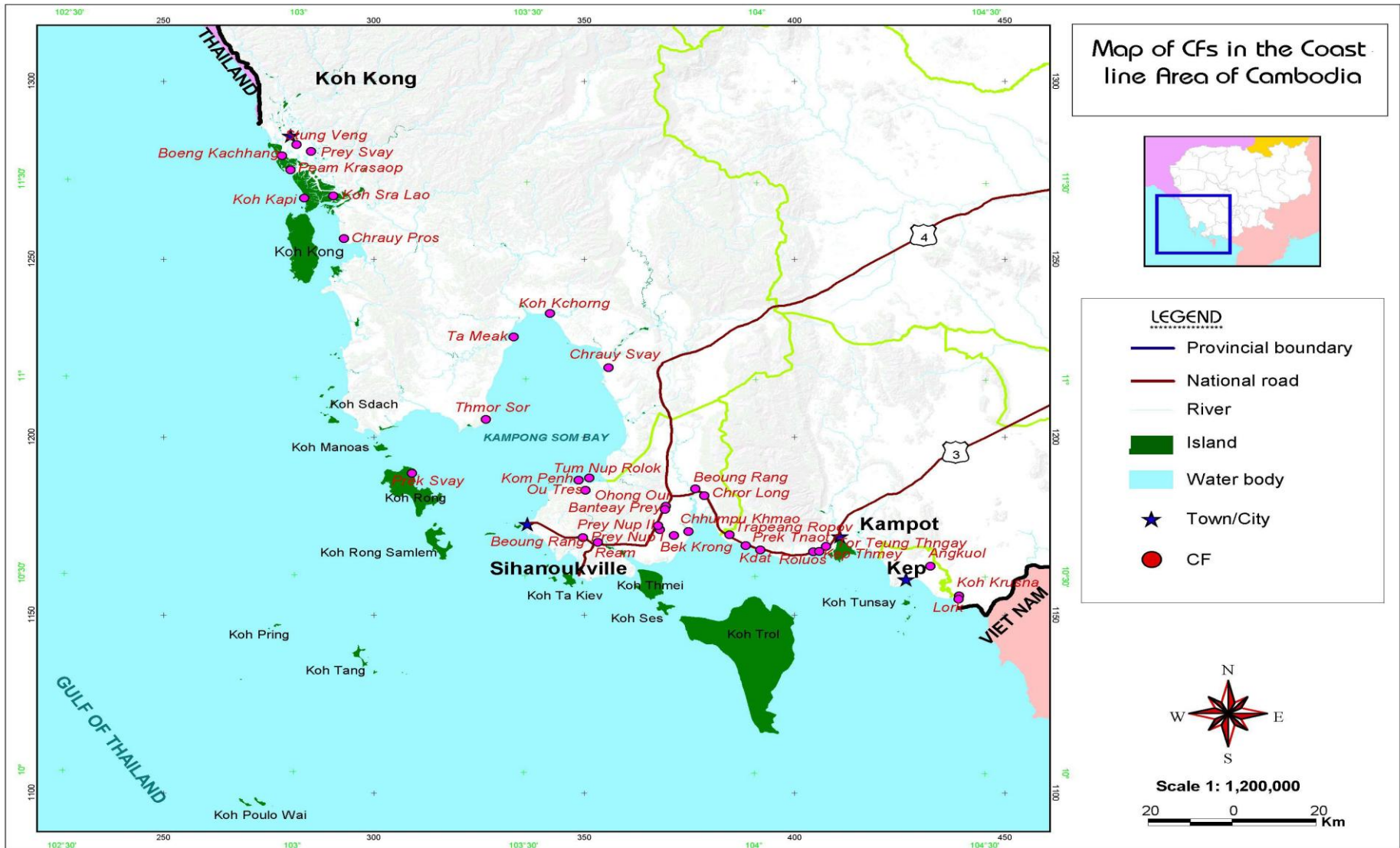


Figure A7-1 Map of CF in the Coastline of Cambodia

III. CF development in Koh Kong

The CF establishment and development in Koh Kong Province was started in 2001 after the fisheries reform, by the provincial fisheries office in collaboration PMCR, CZM, IDRC, SEILA and FAO. With the support of these organizations, the local communities have been able to organize community fisheries and set up their management systems and monitoring system for resource use.

IV. Establishment of community control over resource use

The facilitation teams began by meeting with local authorities to discuss the concept of community fisheries and to gather information on who are primary users of each fishing ground. The facilitators then visited each village and held discussions with the people about resource use to identify primary and secondary users. Participatory resources assessment (PRA) was conducted in each location and information collected from all social categories of each village (old, young, male, female, etc.). Through this exercise, problems, constraints and opportunities were identified for each location. Subsequent meetings and a congress were held at each village and eventually each village elected a village CF committee to represent the people of that specific village. After village CF committees were elected and initial by-laws and internal regulations for resources used drafted, workshops were held at each site with all the village representatives and central CF committees were elected. The central CF committees then appointed their own secretary, treasure, extension, patrolling team from among their members.

By-laws and internal regulations for resource use were formulated at village level and discussed and negotiated into a common set of by-laws and regulations by central CF committee. The by-laws cover everything from types of fishing permitted, size of fishing gears, timing of use, protection of wildlife, protection of mangrove forest, sea grass, etc. Each site is mapped and demarcated to inform outsiders of the boundaries of the CF site. Some communities have divided the protection responsibilities for the resource into village allocated areas under a common set of rules and regulations while other sites have agreed to protect and manage the resource in common.

V. Facilitation process

The process of CF development use in Koh Kong is summary bellow:

1) Contact with local authorities

- letters of authority are provided from the provincial authorities and delivered to the district governor by facilitation team
- objectives and work involved are clearly explained
- district governor and other authorities are kept informed and involved in the process

2) Identification of users

- primary and secondary users are identified through local authorities, village chiefs and local fishermen
- discussions are held to ensure accuracy of information

3) Participatory resource assessment

- for each site PRA is conducted with all the primary and secondary users regarding resource use, supply and demand, conflicts, etc.

4) Village meeting

- meetings are held in each village to discuss PRA results and review sketch maps
- to define the resources area that individual villages use and want to manage
- to elect village representatives to a village level CF committee
- to define objective of resources management and to draft rules and regulations

5) Congress

- held with village CF committee members, commune and provincial authorities to elect a central CF committee with representatives from each village
- to clearly define the resource boundaries
- to name those responsible for protection activities and extension work

6) Demarcation CF boundary and mapping

- CF resources are defined and mapped with GIS
- demarcation and mapping is completed

7) By-laws and regulations

- These are finalized for each CF site CF committee and make public with maps to inform all other potential users as to the location and user obligations for a given resource
- the by-laws and regulations are being endorsed and signed by CF committees, commune chief, district governor, the provincial fisheries chief and by the provincial director of agriculture department

8) Management plans

- the CF committee in consultation with their members and fishermen in general draft a 3 year operation plan defining activities and actions related to resource protection, management and enhancement as well as benefit distribution.

VI. CF management systems

Each CF has an organization structure which leads by a Chief and deputy Chief and has secretary, treasure, extension and patrolling. The number of CF committee has 5 to 11 persons depending on decision of congress. The CF committees were elected by secret, free and fair election by people and CF members. The person with highest vote is the Chief of CF; person with second highest Vice-Chief. Women are encouraged to be candidates. The elected CF committee has a term of 5 years and right to lead and manage the CF in accordance with article of the sub-decree. The CF committee has the following duties: draft by-law and management plans and operate in accordance

with them; seek technical and financial support; represent CF in mediation and conflict resolution; manage finances in transparent manner; make decision on CF accordance with by-laws; participate in consultations; report violations; conserve resources and CF area; perform other functions as instructed by fisheries competent authorities; appeal if agreement for CF not renewed. Only the CF committee has authorities to apply to FIA to request approval of CF area agreement. The CF committee request technical assistance from fisheries officials or individuals to draft CF area agreement. In order to manage CF, the CF committee has set rules and responsibilities, draft by-law and internal regulations participate in demarcation CF boundary, develop CF area management and action plans for operation.

VII. Monitoring system of resource use in CF

In order to monitor the resource use in CF, the CF committee has developed monitoring system by resource mapping, fishing gear use, annual fish catch by fishing gear based and following of the internal regulation of fishing use.

VIII. Current status

There are now 10 CF organizations overseeing protection and management of 68,409 ha of mangrove forest / fishing grounds within Koh Kong Province. The people and committees are taking their new responsibilities very seriously and are actively working to stop destructive fishing practices such as electric fishing and other illegal activities from forest cutting to wildlife poaching. Provincial fisheries staffs, responsible for law enforcement in each district, are assisting the communities with enforcement of their rules and regulations.

The CF committees are now working to develop their office and to acquire boats and radios for effectively protecting their community fisheries. Illegal fishing continues to be a problem both within and outside of community fisheries, however steady progress is being made in controlling destructive practices especially within the community fisheries grounds. It is a new programm and effective development will take time. Recently, the CF committees of 3 CFs (Tameak, Chroy Pros, Peam and Krasaop CF) has develop community fisheries area management plan. The priority activities proposed were creating fish sanctuaries and protected areas to improve fish stocks and mangrove forest.

IX. Issues and challenges

Although CFs has support from fisheries office, local authorities, NGOs and other institutions, they still face some issues and challenges as follows:

- Most CFs are not fully functioning.
- Most CFs have not developed management plans, but some have developed management plans but not yet put them into action.
- Cooperation and support from relevant stakeholders are still limited but growing.
- Some projects or activities have supported to CFs emphasis on capacity building, but few of them supported with livelihood activities.
- Illegal fishing activities are still doing in CFs areas.
- Limited livelihood options.

X. Conclusions

The basic strategy in community fisheries is to transfer responsibility for resource protection and management from government to local resident communities. Although there are some issues mentioned above, but there was steady progress towards the development of community fisheries in Koh Kong Province. Capacity of CF members and committees has increased. Local people are actively participating in the decision making process of CF development such as the election of CF committees, the preparation of CF by-laws and internal rules, the CF boundary demarcation, and the preparation of CF area agreements and management plans. Most CFC and CF members understand the importance of managing fisheries resources through community fisheries management. The communication between CF and local authorities, relevant institutions and NGOs has also improved.

XI. Recommendations

- All CFs should have conservation areas.
- Alternative livelihoods activities should be included within the community fisheries area management plans (CFAMPs). Also important is training people how to run and manage these livelihood activities in order to improve their livelihoods.
- To support CFs, opportunities need to be identified to improve and diversify livelihoods, develop community specific livelihoods strategies, develop natural resource management plans, and provide support to CFs and individuals in testing livelihood opportunities and providing technical training.
- Alternative livelihood activities in CF management are not necessary to focus on only fisheries related activities; the non fisheries related income generating activities are also equally important to produce both direct benefits to improvement and function of community fisheries management.
- Capital input is one of the important factors to operate and achieve higher incomes generated by alternative livelihood activities.
- The creation of income generation activities (small or large activities) should be highly considered in order to provide suitable incentives to increase the level of people's participation and benefit earning for CF management in a sustainable way and for poverty alleviation.
- Local authorities and relevant institutions (including NGOs) need to fully support CF activities.
- In addition to Livelihoods, Quality of Life interventions should be promoted. Major quality of life needs include clean drinking water, hygienic waste disposal and toilets, and simple hand washing with soap before handling food. These actions could greatly reduce sickness and death in children.

Management of Marine Fisheries Domain in the Kingdom of Cambodia

by Ouk Vibol

Deputy Director of Fisheries Domain and Extension Division, Fisheries Administration

Abstract

Marine Fisheries Domain is defined as marine water and brackish water bodies that extend from the coastline at the higher high tide to the outer limits of the exclusive economic zone of the Kingdom of Cambodia. Based on Law of the Fisheries the marine fisheries domain is divided into 4 areas, inshore fishing area, offshore fishing area, fisheries conservation area, seagrass area, and coral reef area and mangrove forest area including mangrove and forests zone. This division is more efficiency in managing the marine resource.

Generally the areas comprising seagrass, mangrove and coral reef are very critical habitat for fish and marine animal, so that the Fisheries Administration classifies as fisheries resources protected and conservation areas as well as fisheries refugia. The establishment and management of these areas need to be passed by sub-decree. However, these actions might not need sub-decree if it is done within community fisheries area and supported by that community member, local authorities and Fisheries Administration.

With the idea of establishing protected area applied in Chroy Pras community fisheries the resources is increasing.

I. Marine Fisheries Domain

Marine Fisheries Domain refers to marine water and brackish water bodies that extend from the coastline at the higher high tide to the outer limits of the exclusive economic zone of the Kingdom of Cambodia.

II. Division of Marine Fisheries Domain

The Marine Fisheries Domain is divided into:

- Inshore fishing area, which extends from the coastline at higher high tide to 20 meters deep line;
- Offshore fishing area, which extends from the 20 meters deep line to the outer limits of the exclusive economic zone of the Kingdom of Cambodia;
- Fisheries conservation area, seagrass area, and coral reef area which are habitats for marine aquatic animals and plants;

- Mangrove forest area including mangrove and forests zone, which are important feeding and breeding habitats for aquatic animals, and protected inundated areas.

III. Fisheries Management

Marine fisheries management areas comprising islands, seagrass areas, coral reef area, and mangrove forests which are important for fisheries resources sustainability shall be classified as Fisheries Resources Protected and Conservation areas.

IV. Legal Framework for Fisheries Management Area

- The legal procedure for the creation or nullification shall be determinate by sub-decree.
- The establishment of fisheries management area (protected area, conservation area or fisheries refugia) can be done without sub-decree, unless in community area and with agreeing from community member and FiA.

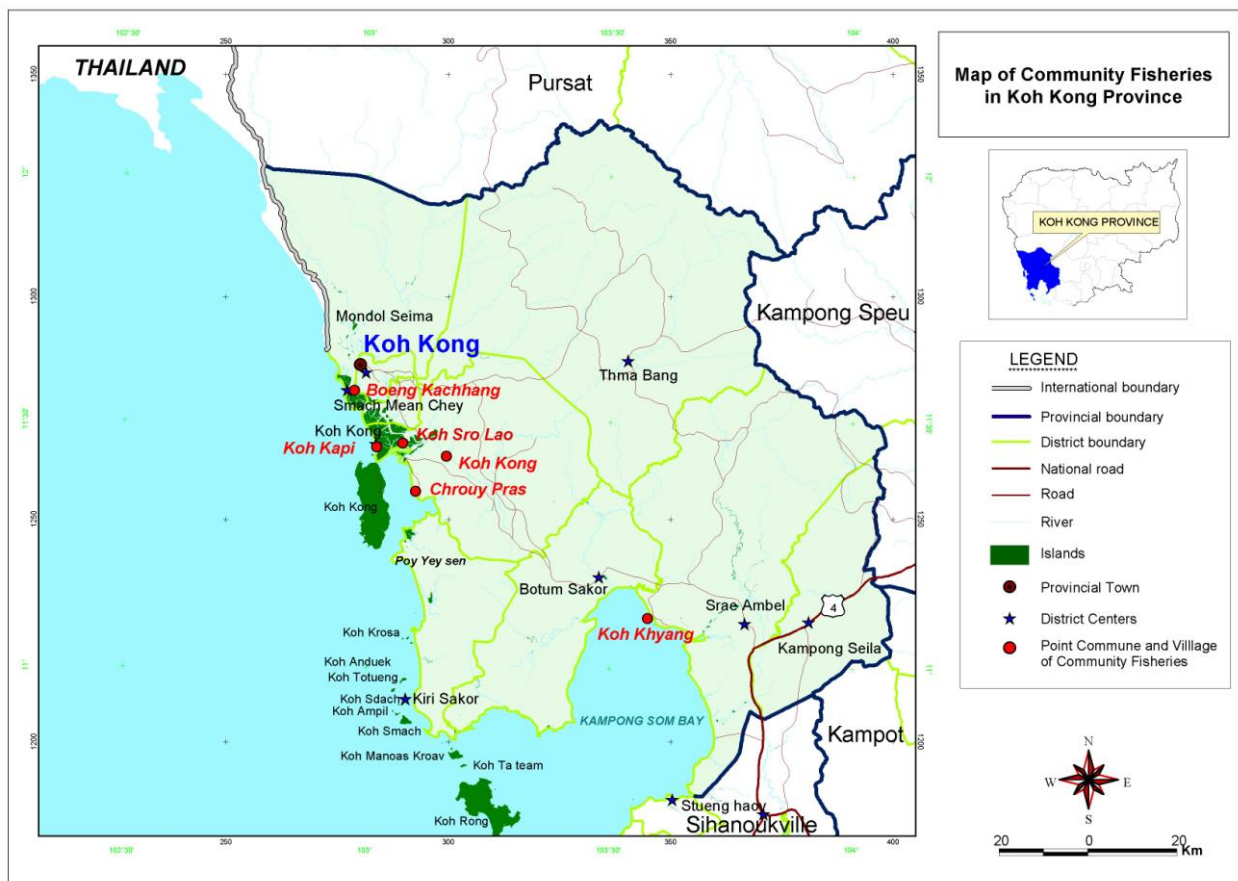


Figure A8-1 Map of Community Fisheries in Koh Kong Province

Fishing License in Marine Fishery of Cambodia

by Roitana Buoy, Deputy-Director of Fishing License Division, Fisheries Administration, Cambodia

1. Introduction:

Cambodia is located in Southeast Asia between 8⁰ and 12⁰ North latitude and 102⁰ and 108⁰ East longitude. It covers a surface area of approximately 181,035 km². Cambodia is bordered by Thailand and Laos on the North and Vietnam on the East and South. The Gulf of Thailand is of the Western coast. Fifteen of the 25 Cambodian provinces and cities are considered freshwater fishing provinces with numerous fishing grounds.

Cambodia's marine fisheries extend over a small area compared to its neighboring country. The coastline extends from the Thailand border in the north to the Vietnamese border in the south, a distance of 435km. From the shoreline, Cambodia water extends to 200 nautical miles. The claimed exclusive economic zone (EEZs) covers 55,600km² (World Resource Institute, 1994).

The total coastal population is about one million, comprising of fulltime fishers (40%), part-time fishers (30%), and government officers and business people (30%). This represents about 5% the total population in Cambodia. The coastal area covers two provinces; Koh Kong and Kampot, and two municipalities; Sihanoukville and Kep.

2. Fisheries Legislations

The Fisheries Law was updated and adapted on May 2006 in order to provide a framework to manage Fisheries Administration's recent policy reforms, and to effectively address changing fisheries issues. The national consultation for the law was conducted and presented the outcome of each consultation to Fisheries Administration.

The Royal Decree on the establishment of fisheries community was adapted on May 2005 to open the access to be adapted the Sub-Decree on fisheries community management. The Sub-Decree on fisheries community was first adapted on June 2005 and than revised and recently adapted on March 2007.

Sub-Decrees for marine fisheries reserves and threatened and endangered species are currently being drafted

3. Marine Fisheries Management

3.1 Marine Fisheries domain: there were classified into 4 groups (Fisheries Law, Article 11):

- **Coastal Fishing domain:**

The coastal fisheries are the fishing activities of small/family scale that operating in fishing zone 1, which was extended from shore line up to 20 meters depth line. This group of fishermen uses small fishing boats with or without engines with power less than 50 Hp. The fishermen catches fish free without licenses round year for fishing boats without engines, but the fishing boats with engine must be licensed and pay for a period of 1 year leased term.

They use all different kind of the fishing gears except trawl, push net with engine, light fishing and others are illegal fishing gears.

- **Off-Shore fishing domain or Commercial Fisheries:**

Commercial fisheries is the fishing activities of large scale that operating in fishing zone 2, which from the 20 meters depth line up to Exclusive Economic Zone limit. This group of fishermen uses fishing boats with engines with power more than 50 Hp. All fishing boats must be licensed and pay fishing fee for a period of 1 year leased term. They use all different kind of the fishing gears including single trawling, but except pair trawling, light fishing and others are illegal fishing gears.

- **Reserved fishing areas** or coral reef areas are habitats for marine life.

- **Inundated forest areas:** include areas of mangroves and forests which are covered with tidal water and important feeding, spawning and breeding habitats for marine life and Inundated areas protected. (see Figure 1).

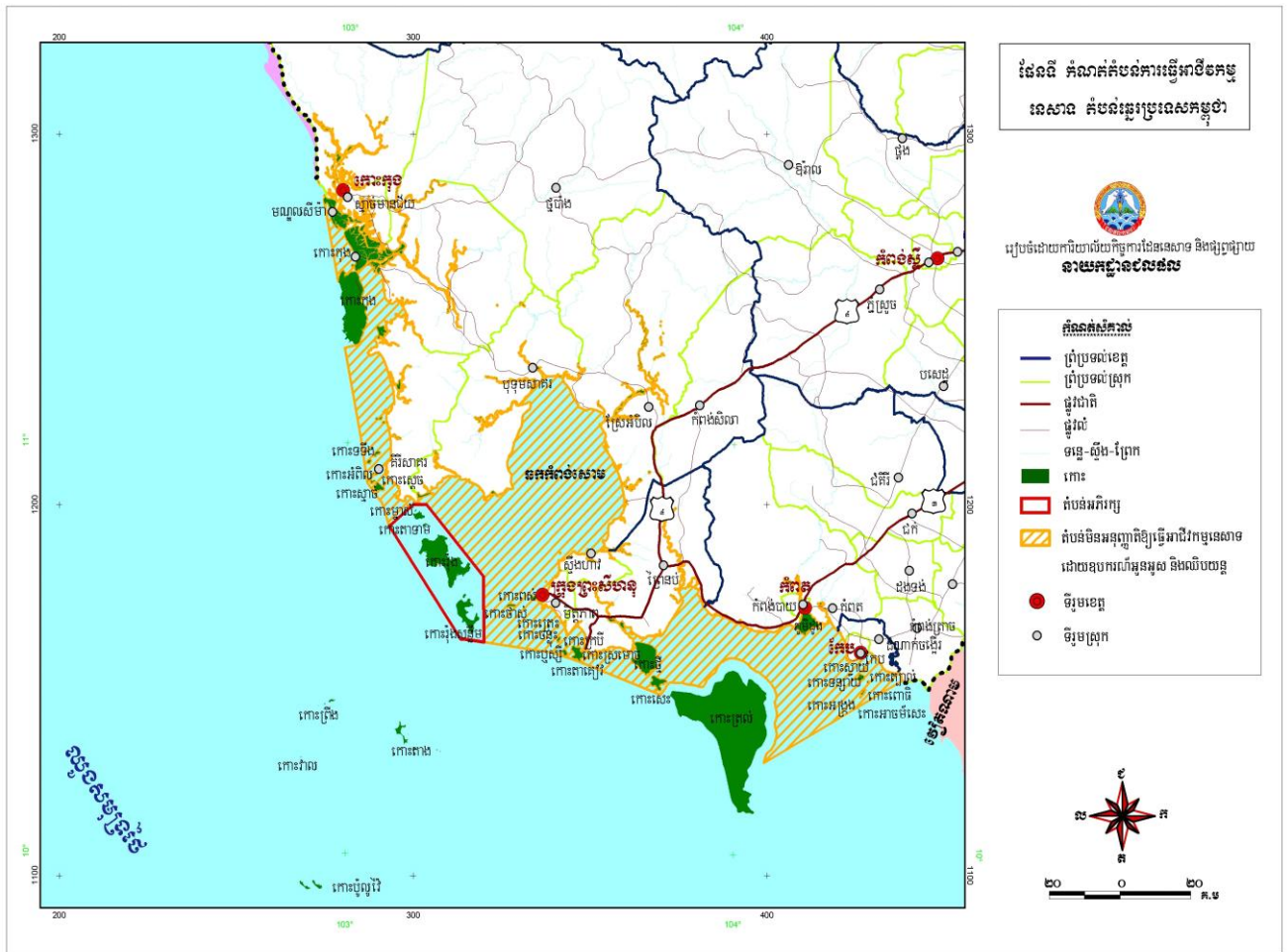


Figure A9-1 Marine Fishing Domain in Cambodia

3.2 Marine Fishing Gear.

Fishing gear was divided into 3 types (Fisheries Law, article 30): family-scale fishing, middle-scale fishing and industrial fishing and areas of operating were (Fisheries Law, article 31): family-scale fishing, for subsistence purposes only, shall be conducted at anytime in protected fishing boundaries and family fishing areas, and during the closed reason in inland fishing lots or marine fishing domains by using small-scale family fishing gears. Middle-scale fishing shall be conducted only in protected inland fishing domains or in marine fishing areas by using middle-scale fishing gears. Industrial fishing shall be conducted only in fishing lots of inland fishery domains or marine fishery areas by using industrial fishing gears.

Small scale-family fishing gears were: spear, V shape dip-net of mouth less than 2.5m, hand help-crab lift-net less than 30 set, cast net of length less than 6 m, gill net of length less than 20 m, V shaped coastal dip-net, small handle drag net of length less than 5 m, hooked line less than 10 hooks

Fishing gear allowed to do fishing by contributing fee were: arrow shaped fence trap, barrage trap, fence trap, Mackerel purse seine, pelagic purse seine, anchovy purse seine, trawl, small shrimp purse seine, coastal handle drag net, shrimp gill net, Dasyabatus gill net, Scomberomorus gill net, Crab gill net, Pomfret gill net, Island gill net, Sardine gill net, Large fish gill net, Sea bass gill net, Clupea gill net, V shaped dip-net of mouth larger than 2.5m, hand help crab lift net more than 30 sets, cast net longer than 6m, Engine push net, big handle drag-net of length longer than 5m, V shaped small shrimp dip-net, Round shaped squid scooping net, Squid trap, Crab trap, Vase trap, Mollusks scraper, fish poll hole, mussel wooden stake, hook long-line more than 10 hooks

4. Fishing License in Marine Fishery:

According to the Fishery Law the fisheries licensing system in Cambodia is divided in term of the capacity and the ability of the fishing gear.

- Fishing boat or vessel has got the capacity of engine is higher than 33 horse power (Hp), the fishing license is issued by the Fisheries Administration, and engine's capacity of fishing boat is lower than 33 Hp, the fishing license is issued by Department of Agriculture Forestry and Fisheries in its location.
- All small scale fishing gears no need fishing license, to do fishing in the marine fishery domain.
- Foreign vessel, getting the right to do fishing in the off shore of Cambodia, must have an agreement from Ministry Agriculture Forestry and Fisheries after getting permission from the Council Ministers.
- Foreign vessels using Cambodian flag, do fishing in the international ocean have to have permission from Council Ministers.

Table 1 Restriction of Marine Fishing Fee 2007 in Cambodian EEZ.

No.	Type of Fishing gear	Unit	Payment (Riels)
1	Trawl	1 house power	27,000
2	Beval scraper	1 house power	27,000
3	Coastal handle drage net	1 meter	3,500
4	Mackerel purse seine and others siene-net	1 meter	4,600
5	Shrimp gill net	1 meter	200
6	<i>Clupea</i> gill net	1 meter	100
7	Others gill net	1 meter	200
8	Arrow shaped fence trap	1 set	867,000
9	Cast net (longer than 6m)	1 set	4,600
10	Crab gill net	1 meter	100
11	Hand help-crab lift-net	1 set	400
12	Crab trap	1 set	500
13	Squid trap	1 set	1,500
14	Fish trap	1 set	5,000
15	Shrimp stationary bag net	1 set	50,000
16	Small Shrimp stationary bag net	1 set	25,000
17	Mollusks scraper	1 set	1,200
18	Hook-line more than 10 hook		400

4000 Riels=1USD

5. Right-Based fisheries:

Cambodian people have right to fish or use the fishery resources is regulated by the competent authority, Ministry of Agriculture Forestry and Fisheries and Fisheries Administration reserved the right to grant fishers access to fishing grounds and associated resources.

Fisheries license holder has to follow fisheries regulation and circulation and not violate any of the conditions contained in his/her license. Small-scale fishing gear is no license requirement, permitted year round and everywhere in both inland and marine fishery domains. No others requirement is requested such as diving, swimming, insurance license, etc.

The fisheries license will not be provided to the trawlers and push netters (less than 33Hp) do fishing in the shallow coastal fishing area (from shore to the 20 meter dept line).

Fisheries Administration still not yet have the limited entry or freezing access to fisheries resource, because no scientific fisheries data to show the stock declining.

6. Conclusion and recommendation

Over-fishing, IUU fishing is the main indicators, which was leaded unsustainable fisheries. Fishing licensing system would be more reflect able to the fisheries situation and income of the fishermen. The restriction of the fishing licenses for selected gear and seasons is very considerably importance for fisheries management. The accurate scientific data is very useful indicators to evaluate, calculate to formulate the fishing licensing. The participation of community fisheries in coastal fisheries management is a mandate for evaluate the feasibility to delegate the management power and grant appropriate fishing right.

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Community Based Natural Resource Management Learning Institute

By Sim Buntboeun and Menh Kimsan, CBNRM Learning Institute

Abstract

1. Background of rural livelihood change

Economic diversification within national economies, away from a high dependence on the extraction of natural resources, is seen by many development specialists as both a path leading to greater economic growth and an indicator of it. Most economies in the world have gone through stages of evolution which tend to start in a predominantly natural resource extracting place and gradually move to agriculture followed, or paralleled by, the development of manufacturing and service sectors. Diversification of economic activities at the household levels is seen as an important part of this process. In terms of poverty alleviation, diversification is seen both as: a) a coping strategy of the poor to deal with increasing uncertainty in rural areas, as a result of the degradation of natural resources, increasing competition and the encroachment of global influences, and b) as a development strategy for enabling the poor to graduate out of poverty.

2. Effort to address the issue

This is not to say that research has not been carried out into this area of development. On the contrary, there is a wide field of recent research that looks at the drivers and inhibitors of livelihood change in specific situation (see reviews such as Haggblade *et al.*, 2002) and this has provided a breadth of examples of how specific factors operate in those situations. Some researchers have gone a stage further and developed frameworks for addressing the issues surrounding specific groups of people such as herders (Little *et al.*, 2001) or of developing guidance on broader policy options for intervention in rural sector change (see Lanjouw, 1999)

3. The Cambodia Situation

In the Cambodia situation rural poverty is very high and the rate of rural growth is low, and mainly based on primary production (such as fisheries, forestry, wildlife, salt production and agriculture). Increasing population pressure, changes in harvesting technology, and expanding and changing demand from markets are leading to increased and unsustainable pressure on natural resources which will ultimately lead to a decline in the livelihood outcomes of those people who depend upon those resources. This is not helped by a policy environment, aimed at the development and management of the primary sectors. Where there is little policy harmonization across sectors.

Natural Resources and environmental management (NREM) and participatory community development are seen, in the long-term, as a key twin track approach to rural development in Cambodia. The government and donor community are supporting the decentralization of these two roles commune councils.

4. The Research Project

The DFID funded *Aquatic Resource Dependency and Benefit Flows Project* (ARDB) was a short research project (from January 2005 until August 2005) implemented by IMM of the UK, the Community Fisheries Development Office (CFDO) of the Department of Fisheries (DoF) and the Community Based Natural Resource Management Learning Institute (CBNRM LI), both based in Cambodia. It had two aims: 1) to build capacity amongst government and NGO staff in understanding the importance of livelihood diversification as a potential tool for natural resource management, and 2) to further our understanding of how factors that support or inhibit rural household diversification may apply in the Cambodian coastal context and beyond. The current report reviews the background to, and the findings of, that research. The research involved four distinct phases of research:

- 1) A review of project literature from around the world to identify which factors may be important in allowing or constraining people's efforts to change their livelihoods.
- 2) A brief review of the historic evaluation and current position of livelihood diversification in rural Cambodia.
- 3) The identification of a selection of examples of efforts to facilitate livelihood change in Cambodia through interaction with ongoing projects supporting livelihood change and from research literature and policy documents specifically related to the Cambodian experience.
- 4) Field research carried out in five communes in the coast of Cambodian. A draft framework of influencing factors was developed using secondary sources of global and Cambodian experiences and this was then tested and refined in the field.

5. The Findings of the Field Research

The findings of the field research broadly characterize the dependency of aquatic resources users and define the factors which have allowed or constrained livelihood diversification in the communities which were studied. These findings were validated with both commune-level representatives and provincial-level representatives. The results of the analysis of the data from the field were then further validated through a meeting of the LEDCON Group in Phnom Penh. The key points are summarized below:

- 1) The dependence of some coastal people on coastal aquatic resources is very high and this largely relates to the opportunities offered by the diversity of ecosystems and species that provide people a wide range of opportunities to suit their changing needs under differing financial, seasonal and environmental conditions.
- 2) For most aquatic resource users studies, dependence on aquatic resources is based on the benefits that it generates, not deep rooted cultural factors. Where viable alternatives offer better or equivalent benefits, people will generally take them up.
- 3) For household in coastal areas, livelihood diversification seems to be an essential part of livelihood strategies.
- 4) Where they have the capacity, households actively seek to integrate related but diversified activities.
- 5) Household livelihood strategies, and the ways in which they change, are often closely linked to the household social resources – the networks of family, friends, neighbors, employers and patrons – that surround them.

- 6) Geographical mobility is also important part of the livelihood strategies of at least some people on the coast.
- 7) Location, especially the proximity to markets, plays an important part in determining how people seek to diversify.
- 8) The diversify and outcomes of household livelihood strategies are often linked to the age of household members and the size of the household.
- 9) Gender has a strong influence on how individuals contribute to household livelihood.
- 10) Poorer groups are active in seeking out the skills and knowledge they require in order to diversify, enhance or their livelihood activities. Usually they acquire these from parents, family, friends, neighbors or employers.
- 11) Health is a major factor in determining livelihood strategies and outcomes, with households that have suffered as a result of disease or disability constituting an important part of the poorest groups.
- 12) Households use a range of sources to access the financial resources they need for livelihood diversification. Formal credit access is limited by collateral requirements but many sources of finance seem to be available through the informal sector and social networks.
- 13) Awareness of local markets and the role they play in the viability and sustainability of new livelihood activities seems to be relatively good although there are some cases of too many people becoming involved in new activities creating competition and even conflict.
- 14) The ability or need to diversify is rarely dependent on a single “push” or “Pull” factor. Rather it is a combination of factors that link together to make change possible, desirable or necessary.
- 15) Government policies and the way in which they are implemented to have important and widespread impacts on people livelihoods. In the coast, this has often been manifested through measures to protect and conserve coastal resources.
- 16) Development interventions that address the complexities of people’s livelihoods are essential and are likely to be more effective than single – issue interventions.

Implication for the future

The literature provides support for current research but this research highlights the importance of adapting such options to local conditions. In general participants of the LEDCON group, who are actively involved in rural development work, indicated that the findings would apply equally to the inland as well as the coastal communities, again with some refinement.

The key findings suggest important considerations that should inform and influence strategies that government and NGOs might wish to adopt in the development of rural livelihood change. The key considerations for moving forwards are as follows:

1. Because livelihood diversification is already an important part of the livelihoods of many aquatic resource users, support for livelihood change could play an important role in reducing dependence on aquatic resources and improving aquatic resource management, where diversification moves people away from dependence on aquatic resources. The agencies concerned with NREM need to start to take livelihood diversification much more seriously as a mainstream strategy for NREM in Cambodia.
2. Livelihoods and the factors that affect them in coastal areas are complex. Interventions need to be built on the stand that complexity and how it evolves. They also need to strengthen existing livelihoods, especially the social resources which play such an important role in these communities

3. Being close to foreign markets (particularly Thailand and Vietnam) creates opportunities for livelihood diversification and change which are not always available elsewhere in Cambodia. Greater emphasis on better linkages with regional markets is likely to provide new opportunities in the future
4. Better linkages and information flows between coastal communities and national markets would also increase local people's choices regarding their livelihoods. It could also increase their share of benefits. Given the importance of their role, it will be necessary to involve middlemen in this process
5. Given the cost and frequency of ill health in the communities studied, improved access to effective, low-cost health care facilities and services would play a major role in helping households to improve their livelihoods, especially for the poor
6. In the short to medium-term relevant, vocational skills and knowledge seems to be a priority for livelihood improvement, especially for the poor. However, improved access to appropriately costed formal education is also necessary in the medium to long term
7. Standardization of credit mechanisms is unlikely to address the needs of many stakeholder groups. The development and widespread availability of appropriate credit mechanisms that are suited to the needs and capacities of different stakeholder groups are critical for improving the outcomes and the speed of livelihood change.
8. Formal title over land is very important for people to diversify their livelihoods and to access credit (especially for larger loans) to take up different livelihood opportunities
9. The livelihoods of different households and different stakeholder groups in coastal communities are often very closely interlinked and interdependent. Interventions for rural livelihood improvement should be aware of this connectivity and avoid creating greater polarity in communities. When selecting partners it will be important to consider working both with:
 - a. group who already have the capacity to change and who can stimulate growth in the local economy; and
 - b. poorer group who need more support to help them take advantage of new opportunities and who otherwise may be marginalized by the development process
10. Government policies have complex effects at the local level. There is a need to be much more proactive about understanding the impacts of policy decisions and feeding this understanding back into the policy process
11. To understand and respond to the complexity of the livelihoods of the rural poor, interventions should be:
 - a. multi-agency approaches which bring together a diversity of skills, knowledge and experience;
 - b. formal and informal networks, that are flexible and needs driven, to bring these together rather than establishing new formal agencies.

Substances of Presentation made at the Workshop

CBNRM Learning Institute works with partners to analyze and improve this approach, as CBNRM stands to play an integral role in poverty alleviation, sustainable livelihoods and resource management, conservation, and decentralization policies and strategies of the Royal Government of Cambodia.

Strategic Objective

1. **Human Resource Development:** to build conceptual, analytical, research, and documentation skills of facilitators, researchers and practitioners within relevant NGOs and Government partners at national, provincial and local levels.
2. **Knowledge Building and sharing:** to identify, analyze, and share lessons and experiences of various approaches to community based natural resource management across the country.
3. **Partnership Building:** to build networking linkages among organizations and institutions supporting community based resource management strategies at local, national and regional levels.
4. **Institutional Arrangement and Policy Support:** to improve institutional capacity and understanding of the policy context which influences CBNRM practices at the field level.

I. The Study on Rights for Coastal Villagers to Access Recourses after Resettlement

Key Finding from the Study

1. Resettlement still pushing people back to fisheries

After people remove their house and fixed the contraction, people seem not forget to go

back to the fisheries because the new housing has providing only land for fixing house, but there is no cultivation land for producing crops. So most of people in Peam Krosob still is fishing as usual for their livelihoods.

2. Resettlement has slide impact:

On poverty, but 60% - 80% still stable while the other 20% is moving in poverty “Reason 5% reaches, because they are the middlepersons in the village, while another 70%-75% are stables in term of poverty income generation. However, the 20% became move into poverty because difficult in finding job “Lab our / fishing labor and net mender.

3. Resettlement making safety:

People feel fresher “in term of health” after settle their house, they can grow vegetable, doing livestock by themselves which those products are not really contain chemical.

4. Resettlement linking people to market:

There are many people “ Leaded household” Expressed that people in the village fell much easier to access to market so they can not only sale their products, but they can access to the capital for enhancing their livelihood activities and some of there are already diversified their livelihood strategy.

5. Conclusion:

Resettlement is providing the opportunity to local people for improving the linkages rural people to town and access to market, and better infrastructure as well.

6. Recommendation:

Resettlement would provide more option to local people for enhancing and diversifying their livelihood strategy if larger land is giving to each individual family. (larger land is meaning that not for housing but for vegetable or rice farming).

II. The Study on Asserting Rights, Defining Responsibilities

Background of the Study

Regional Workshop on Asserting Rights, Defining Responsibilities: Perspectives from Small-Scale Fishing Communities on Coastal and Fisheries Management in Asia was held in Preah Khan Hotel, Siem Reap, Cambodia from 3 – 8 May 2007. The study on this topic was led by MBNRM LI, and composed of relevant Government and NGOs as the following:

- **Leading Agency:** CBNRM LI
- **Study Team:** CBNRM LI, CFDO, VSG, and FACT
- **Partnership:** WFC, OGB, FAO, FiA, SEAFDEC, and CEPA
- **Financial Support:** ICSF, SEAFDEC, and IDRC

Objective of the Study

- To document and explore the understanding that fishing communities have about their rights to fisheries and coastal resources, as well the obligations and responsibilities associated with these rights.
- To document and discuss the initiatives being taken by fishing communities to assert their rights and to fulfill their responsibilities.

Study Sites

- Inland case study was undertaken in Bak Amrek-Doun Ent community fishery, Prek Loung Commune, Ek Phnom District, Battambang Province.
- Coastal zone case study is undertaken in Tum Nup Rolok community fishery, Tum Nup Rolok Sangkat, Stung Hav Precinct, Sihanouk Ville Municipality.

Study Approach

- To collect the secondary data to add to the case studies.
- To conduct interviews with household, elders, village chief, community members; non-members and committee in the community fisheries.
- To validate the result of the field work and the secondary data finding

Key Finding from the Study

1. Types of Fishing

- Small-scale or family fishing in Cambodia is open to anyone and does not require a license to operate. It is done in floodplain areas, in fishing lots during the closed season

and in rice fields. In the marine fishery domain, it is done in the fishing zone from the coast to a depth of 20 m.

- Medium-scale or middle-scale fishing require a license and is operated only in the open access area of inland or marine fishery domains by using middle-scale fishing gears.
- Large-scale fishing refers to the fishing lot system and dai fishery in inland fisheries, and the offshore marine fishing in waters 20 m depth to the limit of the Exclusive Economic Zone (EEZ).

2. Major Fishing Areas

- Cambodia is divided into 3 main regions – the Tonle Sap Basin, the Mekong River Basin and the coastal zone.
- The Mekong, Tonle Sap River/Tonle Sap Lake and Basac Rivers and many of their tributaries, numerous lakes and the floodplain comprise a wide range of different habitat types such as marshes/swamps, shrub lands, grasslands, flooded forest to rice fields and reservoirs.
- In the coastal zone, mangroves, seagrass beds and coral reefs, sandy beaches and tidal flats are the main important habitats found.

3. Decision Maker in Fishery Use and Management

- According to Article 9 of the new Fisheries Law, “fisheries domains belong to state property.”
- The management of all fisheries in Cambodia is the responsibility of the Ministry of Agriculture, Forestry and Fisheries (MAFF), administered through the Fisheries Administration (FiA).
- Within the FiA, the Community Fisheries Development Office (CFDO) is responsible for facilitating community fisheries (CF). Even with the establishment of the CF, decisions on fishery use and management have to be approved by the State and all CF actions have to abide by the rules of the State.

4. Awareness and Mindset of the Local People about Their Right to Fish and Stop Illegal Fishing Activities

- After the CF establishment, the people in the 2 study sites became more aware of their right to fish and particularly, their right to stop illegal fishing activities.
- With this new awareness and mindset, local people were encouraged to take bolder steps to stop illegal fishing.
- The CF has also created a mindset on the local people’s responsibility to fishery management and conservation. Specifically, there is a strong resolve to protect the mangroves and flooded forest in the 2 study sites by restricting its use and putting up conservation areas.

5. Inadequate Awareness of the Rights to Fishery Resource of the Local People

- The CF needs the capacity (e.g. negotiating skills) to assert their rights.
- To develop their capacities, the CF at present needs the technical and funding support of facilitating organizations such as NGOs or provincial/municipal departments.

6. A Better Understanding of Small-Scale Fisheries is Fundamental in Pursuing Actions on CFs in the Future

- Beyond all the talk about the State's decisive role or the increasing participation of communities in fishery management, it is in the realm of small-scale fisheries where local people make daily decisions on resource use for their survival.
- The right to do small-scale fishing has always been practiced and thus considered "traditional" by local people. There are very few studies looking into this type of fisheries.
- In addition, there is very little direct documentation on customary practices or traditional fishery management systems.

Conflicts and Solution of Fishing Activities in Community Fisheries in Koh Kong Province

by Suy Serywath, Fisheries Administration

Abstract

Under cooperation between Fisheries Administration of Ministry of Agriculture, Forestry and Fisheries with FAO-Sida; the project “GCP/RAS/199/SWE strengthening capacity in fisheries information gathering for management” had been implemented from January 2005-June 2006. There are two phases included of 15 specific activities; and 9 among 15 activities in first phase were implemented in Fisheries Community (FC) along the coastal of Cambodia.

Existing social economic and fishing activities of coastal area were reviewed, as well consultation with member of FC to find conflicts and resolution in their livelihood. Several main constraints such as healthcares, education, infrastructure, job etc were found in daily life of local people in coastal community; and conflict natural resources users among fisher-fork in the same community, out community, destructive fishing gear and foreign fishing vessels.

Some messages from local FC refer to poverty alleviation through providing skills as alternative job as well pay attention to social fair. Law enforcement, by-law in CF (boundary, administration), establishment fish refugia/ conservation and restrict to illegal/destructive fishing activities as well protect/eliminate to foreign fishing vessels, are needed to promote/encourage in order to restore both natural fisheries resource and food security for local FC.



The conflict and solution of fishing activities in community fisheries in Koh Kong Province

**Suy Serywath, Fisheries Administration,
06-09 August 2007, Koh kong province, Cambodia**

I. Review project activities

Under LOA between FAO and FiA, the project to be implemented into two phase, through total 15 specific activities in fishing communities along the coastal of Cambodia; since January 2005-June 2006.

Phase 1:

Activities 1-9 ha been implemented, in which sought to describe general socio-economic condition in coastal area with a focus on analyzing existing conflicts in fisheries and resource use and formulating recommendation for conflict resolution.

Phase 2

Activities 10–14 aimed at generating some basic information and data on the status of coastal capture fisheries by establishing a data collection system for a basic catch assessment and conducting such a catch assessment, however, these two activities did not carried out yet, due to time constrain as well wrong direction objective of the project.

II. Consultation among five CFs in Koh kong province refer to conflict and solution in fishing activities

There are three main conflicts in fishing activities in FC

- 1- Difference type/level of fishing gears in shallow water body (trawler, Crab's trap, Shrimp's net etc.);
- 2- Foreigner's fishing vessels;
- 3- Fisherman from same community and fisherman from other communities.

III. Cause of conflict in fishing activities

- 1- Poverty, Education, Health, Population, Depletion/decrease of resources, Initiative new idea (destructive, modern fishing gears);
- 2- Lack of public awareness on legislations (fisheries law, by-law etc.);
- 3- Lack of Law enforcement;
- 4- Some small number of authorities support illegal fishing both foreign and local illegal fishing;
- 5- Lack of honesty, solidarity, sharing for living caused by prolonging civil war.

IV. Message from FC member to solve the conflicts

- Law enforcement (relevant authorities restrict/respect law enforcement) both local and foreign fishing activities;
- Community boundaries, habitat management/conservation area (with basic concrete information), community by-law, providing awareness (legislation, right of using natural resource);
- Restrict/punish or eliminate to whom always support to illegal fishing activities both domestic and foreign;
- Need support development project from both government and NGOs into FC;
- Need appropriate alternative job by providing skills (farming system, aquaculture, honey farming, parking etc.)

Conclusion/Recommendation

- ✓ It is necessary need skills (alternative job) to provide to local FC to reduce pressure to fisheries resources as well conflicts;
- ✓ Restrict law enforcement; and promote fisheries habitat/refugia/conservation area management in FC;
- ✓ It is necessary need contribution/support both financial and guideline/leading from government (relevant institutions) and NGOs to develop in FC;
- ✓ Last but not less, honesty/ respect each others/sharing for living, solidarities, should have majority appeared in FC as well relevant agencies (maybe need time).

Thanks

Process of Establishment and Management of Fisheries Refugia

by Ouk Vibol

Developing a Mechanism for Integrating Fisheries and Habitat Management: the Fisheries Refugia Approach

UNEP/GEF Regional Working Group on Fisheries considered that the concept used to develop and mechanism should:

- Focus on fish life cycle and critical habitat linkages
- Promote sustainable use rather than prohibition, and
- Include communities in all aspects of planning and development

Regional Working Group on Fisheries: Definition of Fisheries Refugia

“A spatially and geographically defined, marine or coastal area in which specific management measures are applied to sustain important species (fisheries resources) during critical stages of their lifecycle, for their sustainable use”

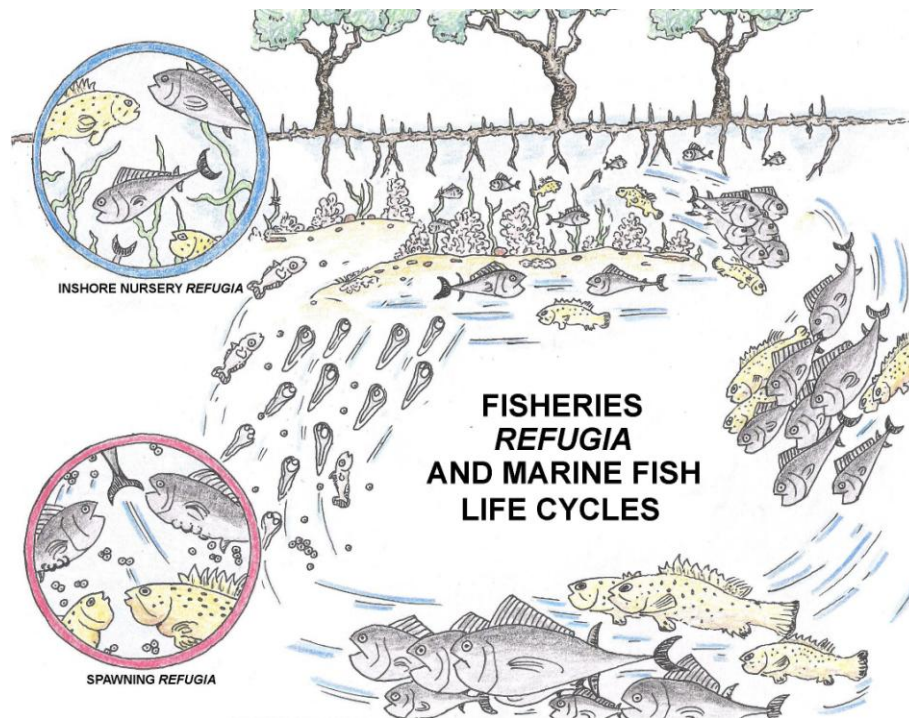


Figure A12-1 Fisheries Refugia and Marine Fish Lifecycles

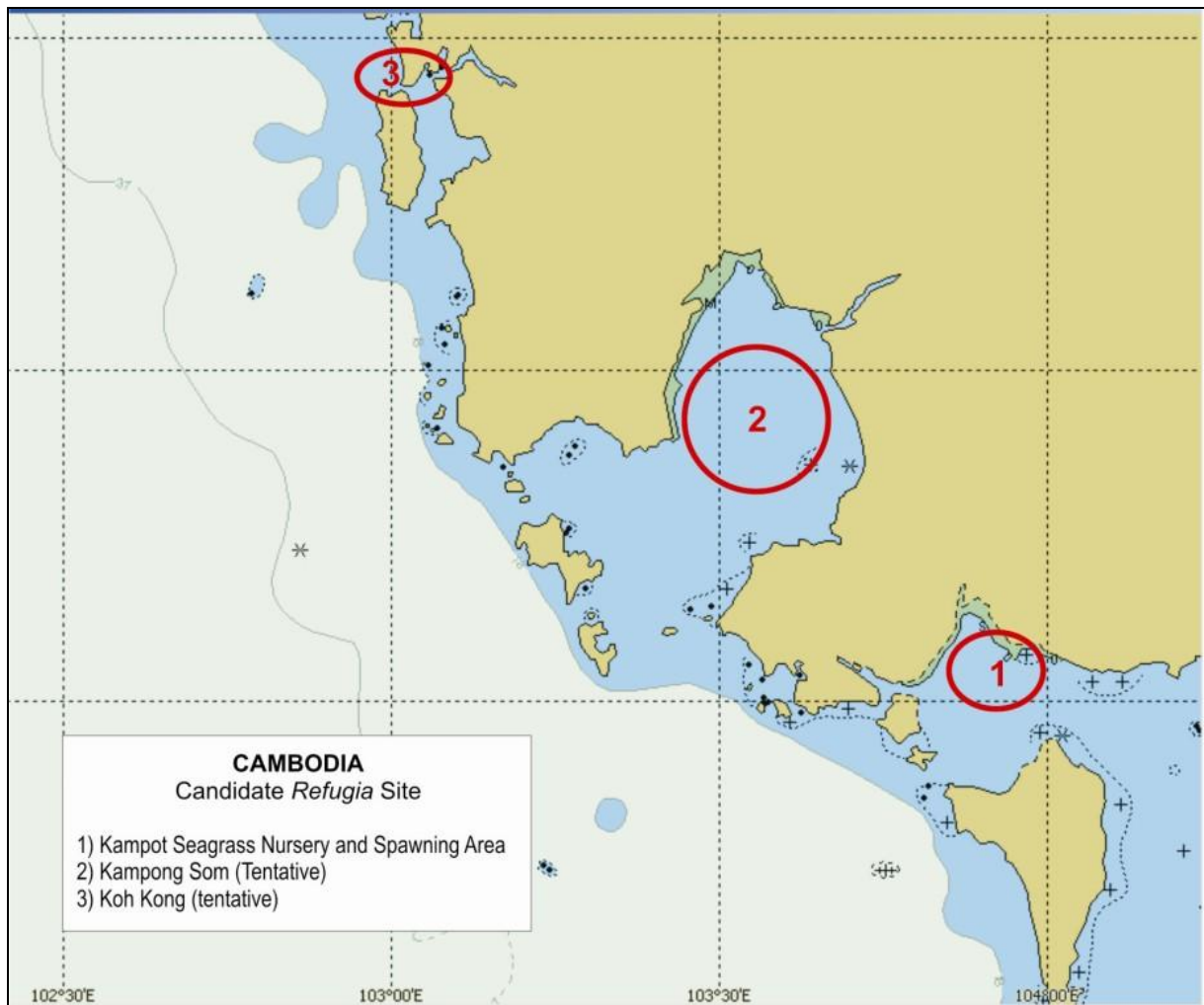


Figure A12-2 Candidate Fisheries Refugia Sites – Cambodia

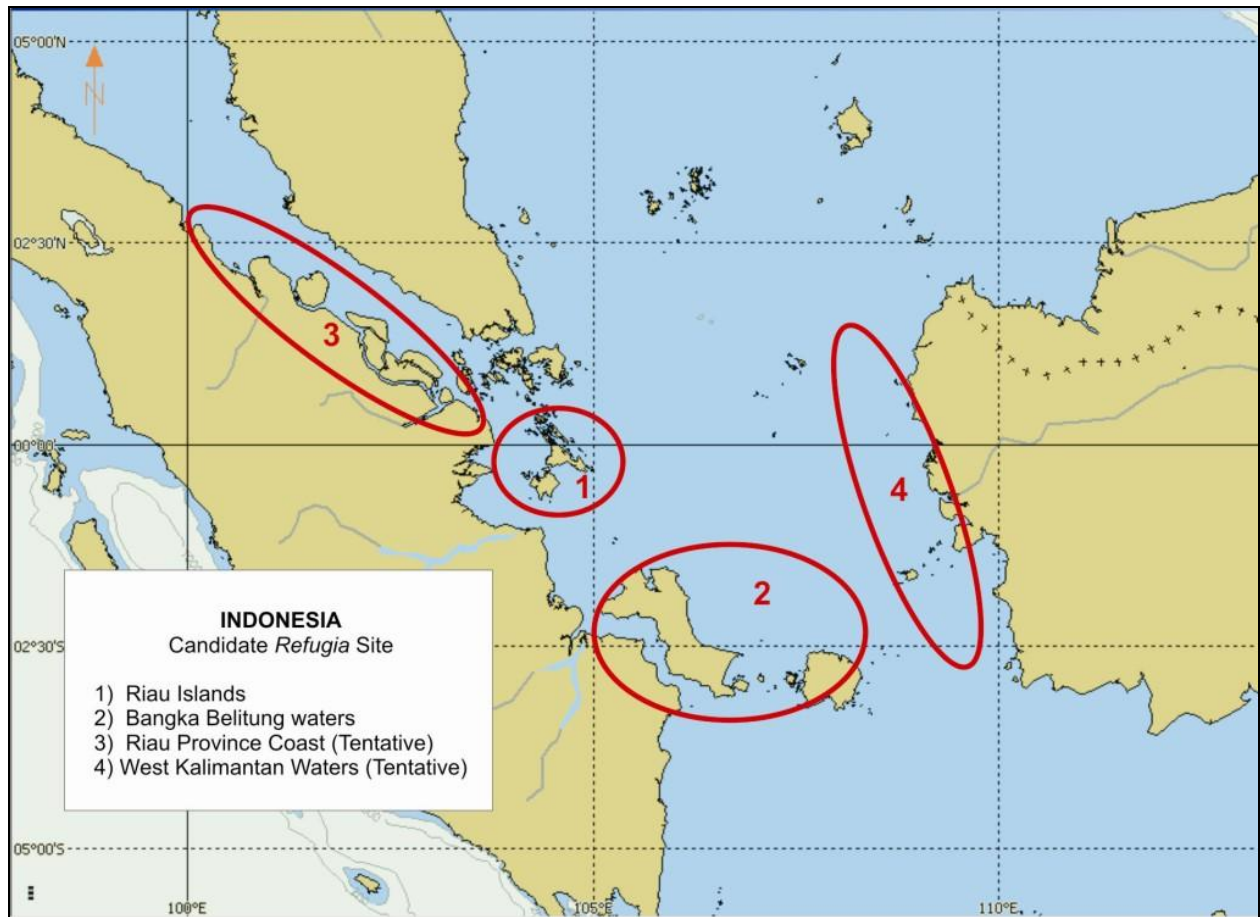


Figure A12-3 Candidate Fisheries Refugia Sites – Indonesia

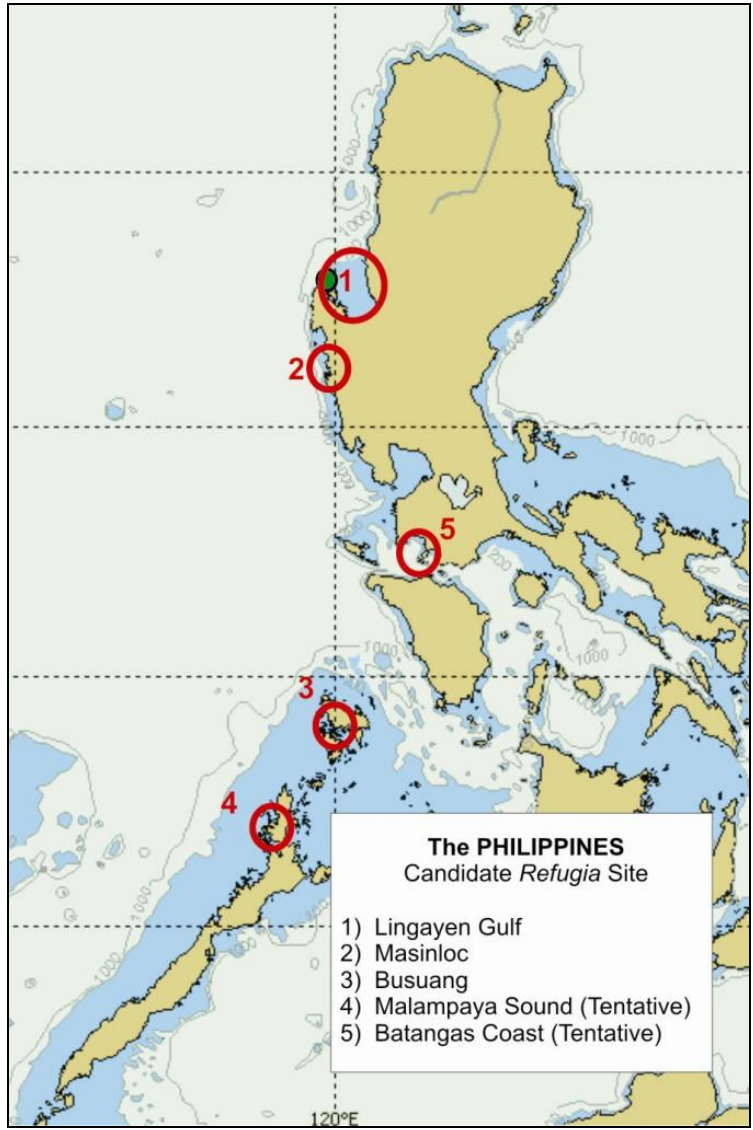


Figure A12-4 Candidate Fisheries Refugia Sites – Philippines

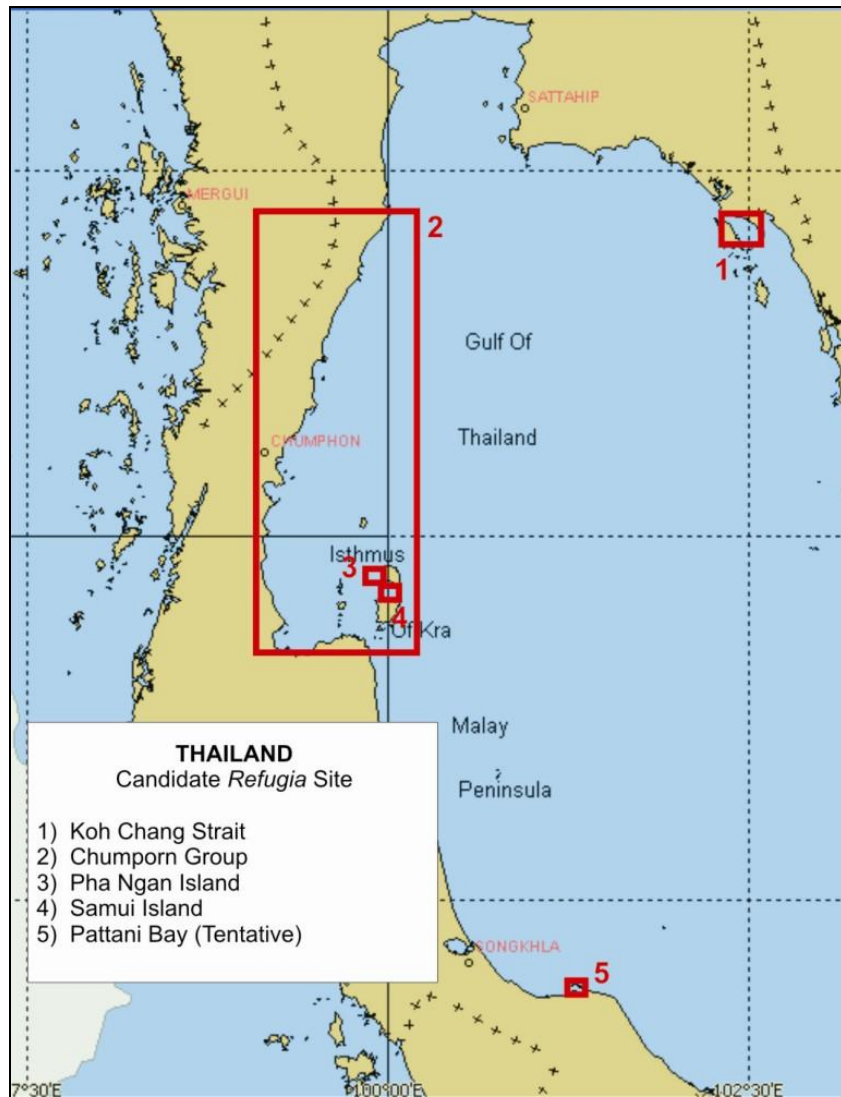


Figure A12-5 Candidate Fisheries Refugia Sites – Thailand

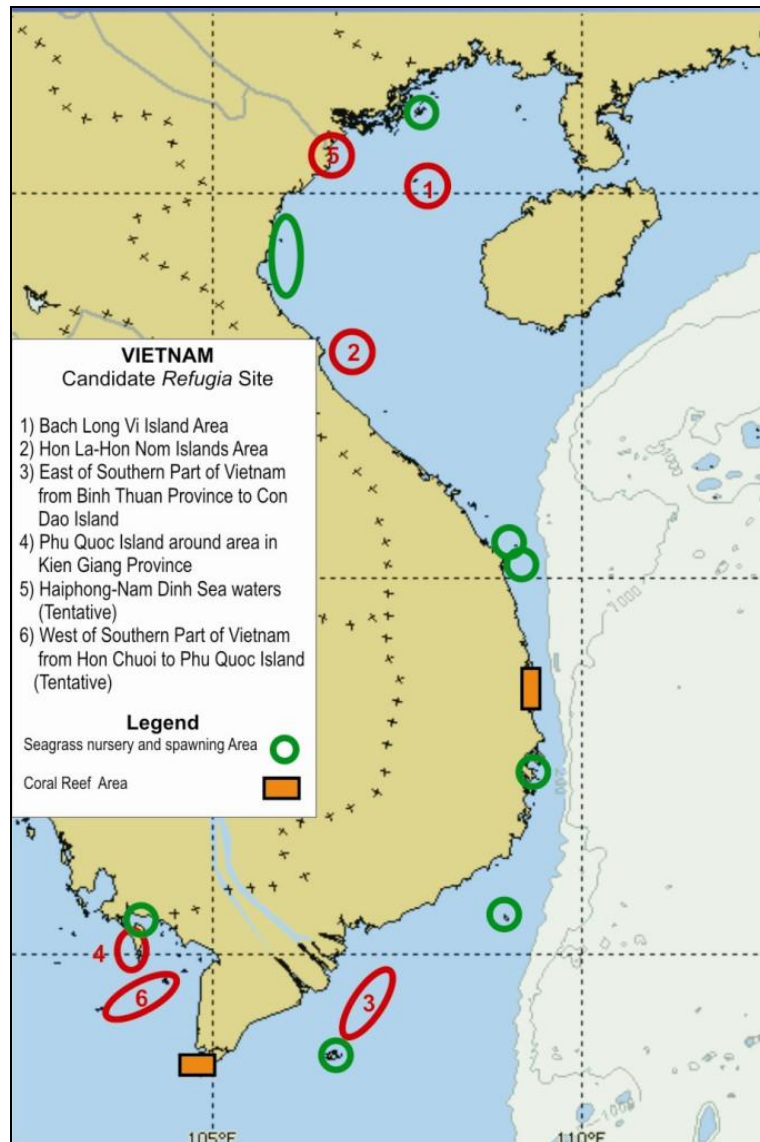


Figure A12-6 Candidate Fisheries Refugia Sites – Vietnam

Objective of Fisheries Refugia Management

Implement operational management of fisheries refugia at the selected sites, with an aim to improve longer-term sustainable yields of target resources.

Activities of Management

10 activities agreed for operational management under UNEP/GEF South China Sea Project

1. Formally establish cross sectoral consultative group/management board

Cross-sectoral consultative group/management board must contain representation of all major stakeholder groups to guide establishment of fisheries refugia

2. Preparation of an inventory of spawning and nursing grounds

Stakeholders consultation with local fishers.

Anticipated output is an inventory of known fish spawning and nursing area at the site, including seasonally of spawning. Production of a preliminary map of possible sites.

3. Agreement on selected fisheries refugia site and demarcation of the boundaries of the site

Stakeholders' consultation to define the boundaries of known fisheries refugia

4. Development of a fisheries profile at the site

Stakeholders' consultation aimed at refining information about known refugia. Anticipated outcome of this activity is a report detailing: the status of important fisheries resources; annual production and value of living marine resources harvested from the site; the number/type of fishing vessels/gear used in the area; the number of individuals/families involved in fishing and associated management issues. This report will also make recommendations for fisheries management measures to be applied in fisheries refugia at the site.

5. Development of mechanisms and measures for refugia management

Stakeholders consultation and participation in development of fisheries management measures within the fisheries refugia areas. Enact ordinance/regulation for relevant measures. Select indicators for monitoring effectiveness of fisheries refugia. Key outcomes of this activity will be the adoption of these management frameworks for the participation of community members in the establishment and management of fisheries refugia.

6. Establishment of procedures for the enforcement of fisheries

This activity involves the establishment of a community-based fisheries refugia management team at the site. This team will be comprised of local community members, including fish buyers and fishing sector representatives.

7. Publish and disseminate guidelines for the management of fisheries refugia sites

This activity involves the preparation of guidelines for implementation of fisheries refugia management measures for dissemination to local community groups.

8. Implementation of operational fisheries management at the site

Operational management of the site involves stakeholder consultation and involvement in the process of implementation of fisheries management measures. Periodic evaluation of stakeholder effectiveness in management.

9. Monitoring, evaluation and review of management

Monitoring of fisheries refugia effectiveness, and improvement of fisheries management measures at the site.

10. Dissemination of lessons learned on refugia establishment and management

- Preparation and republication of materials.

Where Cambodia is in the Process

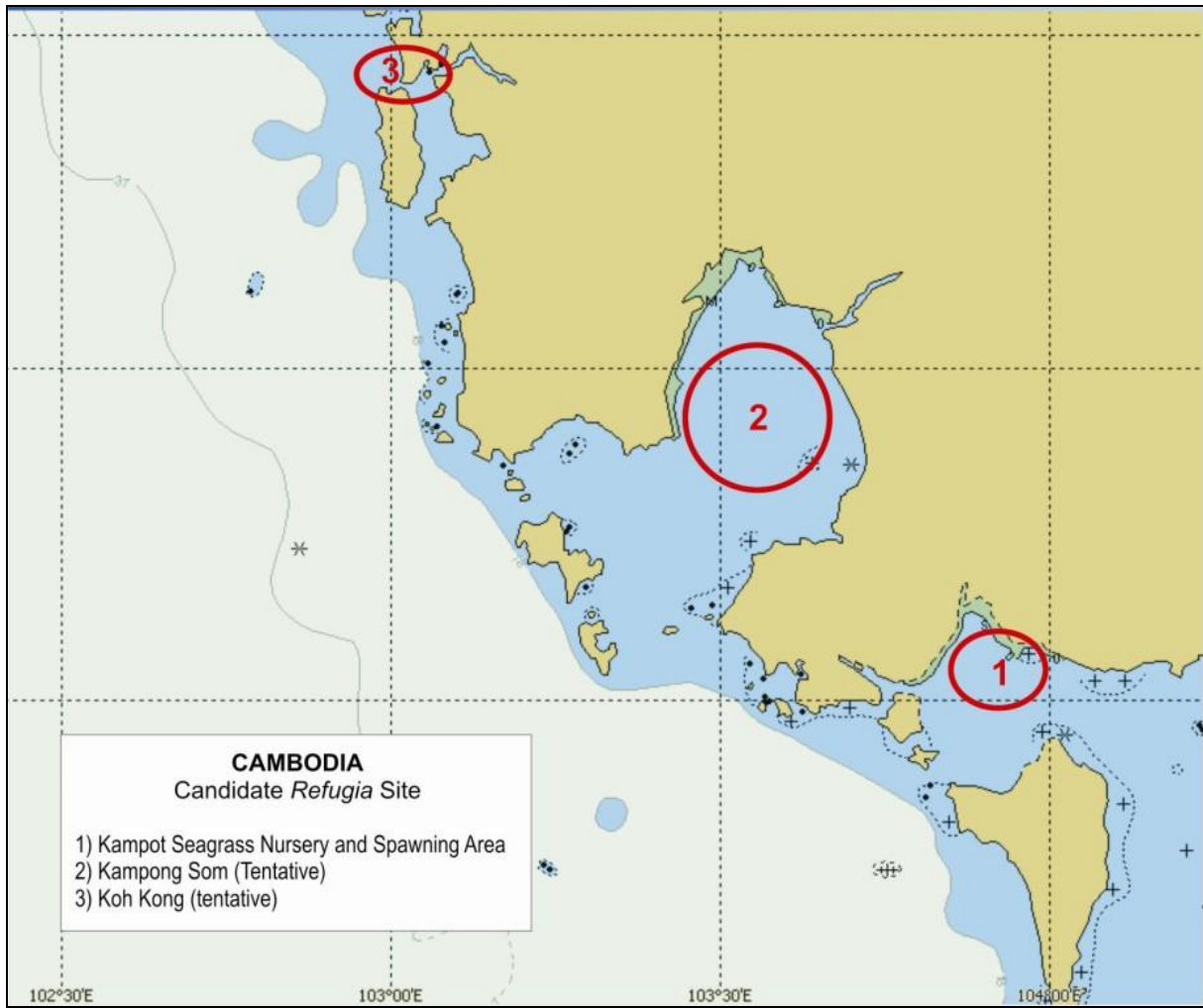


Figure A12-7 Selected Site of Fisheries Refugia

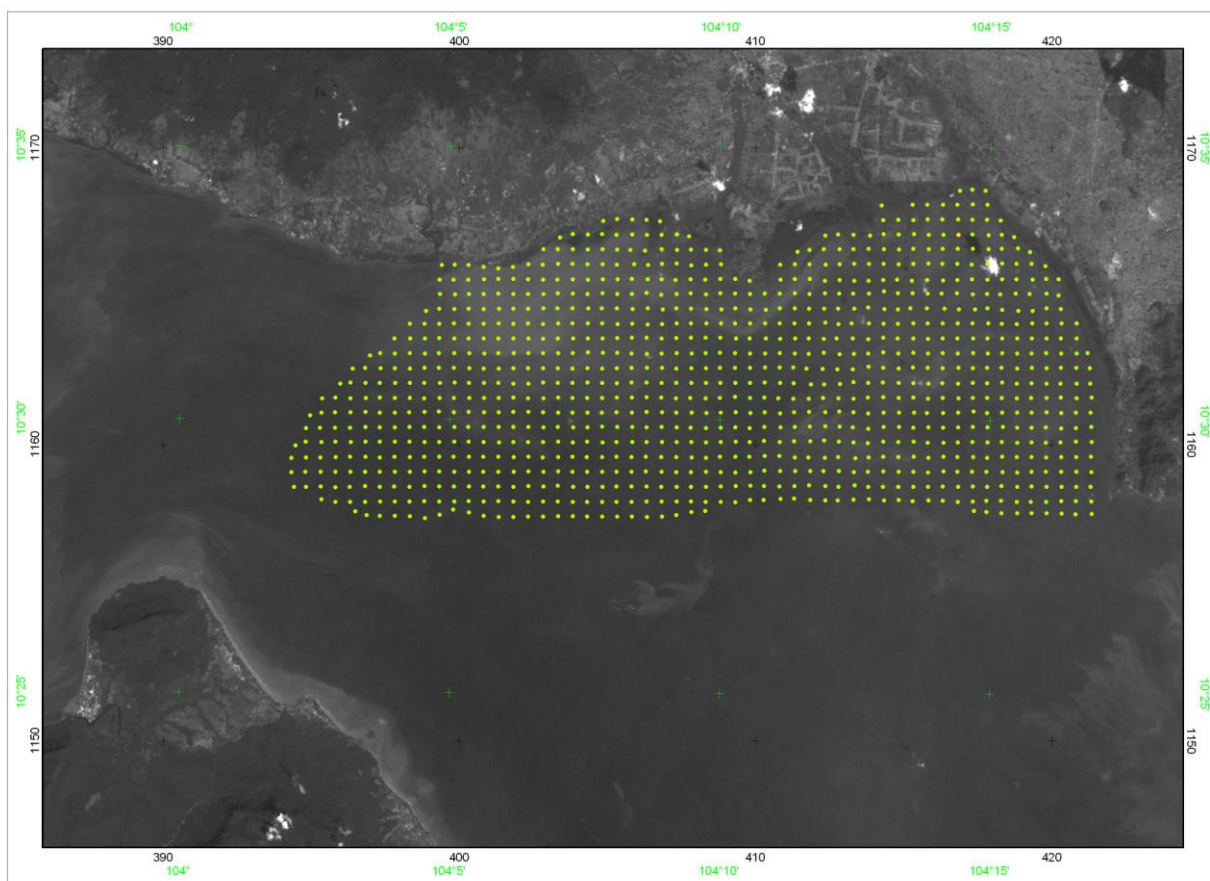


Figure A12-8 Maps of Seagrass Demonstration Site in Kampot Province

Process of Establishment and Management of Pilot Fisheries Refugia in Seagrass Demonstration Site in Kampot Province

- Two sites were ideally identified for refugia within seagrass beds (spawning site in Prek Ampil and nursing site in Koh Toch) for grouper.
- Cross-sectoral management board and management advisory group were established by provincial declaration
- Most information within seagrass are available including seagrass distribution and biodiversity within seagrass
- Assessment and monitoring guideline of the resources have been developed
- Some key persons from fisheries community and commune council were built in refugia concept by sending them to visit Phu Quoc island
- The full operation of refugia will be implemented from August 2007 to May 2008.

Rule and Process of Fisheries Refugia Establishment in the Coastal Zone of Cambodia

by Va Longdy, Fisheries Sub-component's Assistance, Fisheries Administration

Introduction

- The fisheries refugia concept have been seen since 19th Century, but it is just popular in the early of 2000.
- In Cambodia, this concept has been seen long times ago but it was just established after the national workshop during 27-30 March in Koh Kong Province because during the workshop there were some translations differently as Stock Sanctuary Area, Conservation Area or Fish Habitat.

Definition of Fisheries Refugia

- Oxford Dictionary: Refuge is place of shelter from pursuit or danger or trouble.
- Fisheries refugia definition: Spatially and geographically defined, marine or coastal areas in which specific management measures are applied to sustain important species during critical stages of their lifecycle, for their sustainable use.

Process of Fisheries Refugia Establishment

Mainstream the concept of fisheries refugia → Study and select areas for fisheries refugia establishment → Stakeholder meeting → Define location of fisheries refugia (mapping) → Post an announcement → Propose to get approval technical institution

Under the support by UNEP/GEF South China Sea Project, the concept of fisheries refugia was mainstreamed to the coastal provinces/municipalities fisheries officers.

- On 17 October 2006, Fisheries Sub-Component's working group held a meeting to gather information on fisheries refugia selection proposed by the coastal provinces/municipalities fishery offices.
- On 27 December 2006, Fisheries Sub-Component's working group held an stakeholder meeting in Sihanouk Ville to consult with fishermen, fishery communities and local authorities on fisheries refugia selection proposed by Sihanouk Ville fisheries office.

Table 2 Process of Fisheries Refugia Establishment – Kep Municipality

Location	Habitat Type	Target Species	Closing Season	Prohibited Gears	Reason
Angkol Village	Seagrass	Dugong			Community fisheries
Kep Village	Seagrass	Fish		Trawl	Fish spawning

Thmey Village		Dolphin			
	Seagrass	Fish		Trawl	

Table 3 Process of Fisheries Refugia Establishment – Kampot Province

Location	Habitat Type	Target Species	Closing Season	Prohibited Gears	Reason
In front of Phnom Dong	Seagrass	Dugong, Sea turtles, and cetacean	June to December	Trawl, Push net, Scomberomorus gill net, Beach seine	Abundant in biodiversity and has rare species: Dugong, Sea turtles & Dolphin
Koh Smao	Mangrove	Vinegar Crab	October to December	Catching the carbs	Spawning season
Prek Ampil	Coral	Multiple fish brood stock	May to December	Trawl, Push net, Beach seine, hook & line	Have many kind of fish brood stock

Table 4 Process of Fisheries Refugia Establishment – Koh Kong Province

Location	Habitat Type	Target Species	Closing Season	Prohibited Gears	Reason
Coastal area of Thmor Sor to Andong Tek Commune		Blood cockle	March to May	All gears catch blood cockle	Seed of blood cockle were caught and export to Vietnam
Koh Sra Lao and Chroy Bros Village	Seagrass	Grouper	October to December	Trawl, hand push net, beach seine	Grouper has been dramatically decreasing
Coast in front of Chroy Bos, Thmor Sor Commune		Juvenile Mantis Shrimp	October to December	Trawl, Push net	Stomatopods are commercial species
Deep water area in front of Bro Teal Village to An		Juvenile Pomfret	June to August	Trawl, Push net	Pomfret are commercial species

Chaet Village					
Coast of Andong and Thmor Sor Commune	Mangrove	Juvenile sting ray	April to May	Trawl, Push net	Now Sting ray is not abundant in this area.
Behind Andek Island to Krasa Archipelago		Juvenile Cephalopod	October to December	Light-luring boats, gill net	Cephalopods are commercial species

Table 5 Process of Fisheries Refugia Establishment – Sihanouk Ville

Location	Refugia Size	Total Size	Habitat Type	Target Species	Closing Season	Prohibited Gears
Prek to Teng Estuary	10 ha	?	Mud	Blood Cockle	October to March	All gears catch blood cockle, except by hand
Chroy Lean	40 ha	111 ha	Mud	Blood Cockle	October to March	
Prek Smeh Estuary	20 ha	688 ha	Mud	Blood Cockle	October to March	
Prek Kandal	20 ha	512 ha	Mangrove	Vinegar Crab	From 13 th of waxing moon to 2 nd of waning moon in 9 and 10	All gears catch Vinegar crab
Lor Tek Trey	?	300 ha	Seagrass	Dugong	November to January	Coastal surrounding net
Khos Angko Tekthla commune	10 ha	100 ha	Mud	Blood cockle	October to March	All gears catch blood cockle, except by hand
Prek KonKuk Phnom Touch Village	10 ha	?	Mangrove	Vinegar crab	From 13 th of waxing moon to 2 nd of waning moon in 9 and 10	All gears catch Vinegar crab

Requirements to Establish Fisheries Refugia

Law and participation from people and local authority are needed in order to establish refugia

- Fisheries refugia outside community fishing area: Article 12 of Law on Fishery

- The establishment or releasing **Fishery Management Areas** must be issued by the proclamation of MAFF's Minister
- Legislative procedure to establish or release **Fisheries Management Areas** must be issued by Sub-decree
- Fisheries refugia inside community fishing area: Fisheries refugia can be included within the fishery communities' statute and internal regulation or management plan of communities fishing areas.
 - Article 12 of Sub-Decree "Legislative procedure of Agreement on communities fishing areas must be issued by the proclamation of MAFF's Minister
(proclamation NO. 316 Prar Kar/Kar.Sar.Kar dated 13 July 2007 on Principle Guidelines on Fishery Community)
- In case of fishery communities are already established but do not include in fisheries refugia yet, what shall we do?
 - Article 26 of the Sub-decree: the Agreement on Community fishing area is valid not more than 3 years from the date signed by FiA.
 - Article 31 of the MAFF's Proclamation NO.316: Statute and internal regulation can be amended unless there are support more than half among the member of fishery community's important meeting.

Rights on Using Fishery Resources of Fishery Community's Non-Member

Article 14 of the Sub-decree: People, fishery community's non-member, have rights to go in and out and use fishery resources inside the community fishing area by following the fishery community's statute, internal regulation, community fishing area's management plan and legislations regarding fishery sector.

Laws Related to Concept of Fisheries Refugia

- Proclamation NO.258 Prar.Kar/Kar.Sar.Kar dated 12 August 2002 on Crab and Blood Cockle fishing in marine fishery domain of Cambodia. Since and gillnet with less than 6 cm mesh size is not permitted for crab fishing and less than 2 cm mesh size is not allowed for catching blood cockle.
- Proclamation NO.259 Prar.Kar/Kar.Sar.Kar dated 12 August 2002 on Prohibition of using electro fishing gear, seine or gillnet with small mesh size less than 1.5 cm and all kinds of mosquito net in inland fishing domain of Cambodia.
- Proclamation NO.052 Prar.Kar/Kar.Sar.Kar dated 31 January 2002 on Type of drag fishing gear to exploit short-necked clam (*Paphia undolata*). Drag fishing gear to exploit short-necked clam are permitted at Koh Khachorng area with the following criteria:
 - Boat engine not over 33 hp or vehicle engine not over 66 hp.
 - Drag fishing gear is not over 1.2 m length with minimum mesh size 1.2 cm
 - Fishing activities is allowed from 1 November to 31 August 2007

- Article 16 of Law on Fishery on closing season for medium-scale. From 1 June to 30 September is closed for Inland fishery domain northern part of Chaktomuk and from 1 July to 31 October is closed for Inland fishery domain southern part of Chaktomuk.
- Article 27 of old Law on Fishery on Prohibition of fishing mackerel within marine fishing domain during its spawning season from 15 January to 31 March.
- Article 49 of Law on Fishery on Prohibition of trawl fishing with engine in the coastal area.
- Article 98 of Law on Fishery on Law violation's punishment in level one that gives 3-5 years prison sentence and all evidence things that confiscated to be state wealth or destroyed and dismiss the agreement or permitted letter from someone who violate the law: land clearing, leveling the ground of inundated forest and mangrove or warping around inundated forest and mangrove, destruction of seagrass and coral reefs and destroying eco-system of coral reefs and seagrass.

Recommendations and criteria for Fisheries Resources Conservation Area

by Dr. Manus Torell and Worawit Wanchana, SEAFDEC-Secretariat

Through a sequence of meetings and consultations discussions has been held on the perspective of fisheries resources conservation and management and more specifically how to integrate fisheries management into habitat management. The sequence includes meetings with the UNEP/GEF South China Sea Project, FAO Bangkok, a special session at SEAFDEC 2 July 2007 and a further feedback provided during the meeting of the UNEP/GEF South China Sea Project Fisheries Working Group on Phu Quoc, Vietnam, 10 – 13 July 2007.

In general it was considered to be useful to apply a management area that cover a larger geographical space than what is common for habitat management, local fisheries management areas and most of the candidate refugia sites (under the UNEP/GEF/SCS) thereby allowing for these areas to be incorporated into a larger “fisheries resources conservation area”. This would help to strengthen the existing management effort in these areas. This would also allow for a more comprehensive integration of fisheries into habitat management by making it possible to have different types of habitats, including various stages of the life cycle of fish into the same management framework. Another benefit would be that it would be possible to start to assess – also in economic terms – the value of habitats to the fisheries outside of the habitat or string of habitats.

Common understanding with regard to “management areas”

Trans-boundary areas (between countries or between provinces): an area with shared or agreed, or coordinated management in a border region. Typically such an area would be fairly large.

Large geographical management area: National fishery, forestry and/or environmental authority/ Provincial /State authority. Purpose would be to protecting/manage a stock or extended habitat

- Multi purpose (seagrass, tidal flats/beaches, mangroves, corals, etc)
- Marine protected area
- Conservation zone
- Fishery management area
- Resource conservation area
- Refugia

Small scale management area :community / district level

- Small community management areas
- Rights based
- Traditional management practices
- Smaller area
- Small zones limiting the effects of local efforts

Element of a larger management area

1. A large scale management area could be made up of an aggregation of small areas (e.g. a stretch of coastline with a nearshore management area which comprises of a series of community/district management zones – that could be linked to stretches in neighbouring provinces and/or countries).
2. Alternatively – a string of management areas/ habitats which are linked through their relationship to a stock's different stages of its life-cycle. (an example - in rivers this would be called the “string of pearls” of protected habitats spaced along the length of a river.
3. A similar example would be “pockets” of habitat along a coastline – individually providing local benefits but also provide a string of habitats.
4. Combinations of 1, 2 and/or 3
5. most countries have a nearshore artisanal fishing “zone” or limit (excluding trawlers and pushnetters), which are generally poorly enforced and a continual source of conflict – in fact the focus on rights and community level fisheries is in part a response to the fact that the artisanal fishing zone is so poorly enforced that these alternative approaches may become more effective at reducing conflict in localized areas.

Recommendations were established to work on the development of larger fisheries management conservation areas. The main criteria are:

- To build upon an aggregation of smaller management areas (established for local fisheries and/or habitat management)
- To recognise the existing zoning schemes (like trawling free zones)
- To take note of the seasonality in fishing and fish migration/spawning, etc.
- Identify management purpose (prevention of destructive gears, protection of habitats/seabed for sedentary non migratory species; protection of critical habitats spawning nursing grounds for migratory species, limitation of effort, preservation of rights/limitation of access)
- Identify scale and the effect which is intended
- Identify the linkages between the small & medium size areas or medium and large size areas
- Take note and build upon, as applicable or available, rules and regulations established for management of fisheries, habitats and/or environment
- Build social and traditional aspects into planning and design

Introduction on Important Lifecycle Stages of Indo-Pacific Mackerel (Platoo)

*by Mr. Pirochana Saikliang, UNEP/GEF South China Sea Project National Fisheries Focal Point for Thailand,
Department of Fisheries, Thailand*

Summary

Introduction

The Indo-Pacific mackerel (“Pla-Too” in Thai language) found in the eastern coast of the Gulf of Thailand was identified as *Rastrelliger brachysoma*. The fish can be caught by some fishing gears such as bamboo stake traps, anchovy purse seines and purse seines and the catch results of those gears could be explained as follow.

The Bamboo Stake Traps

The bamboo stake traps in Trat Bay or Ao Trat can be operated throughout the year. The Indo-Pacific mackerel contained about 74.35% of the total catch. They were abundant in April and December. Most of them were 9.0-14.9 cm in total length. However, the fish found in April were mostly 10.5 cmTL, similar to those found in December, which were also 10.5 cmTL. This could say that there were 2 generations of Indo-Pacific mackerel came in Trat Bay yearly.

The Anchovy Purse Seines

The studies during 1999-2001 resulted in that there were 3 groups of the *Rastrelliger*, namely the *R. kanagurta*, *R. brachysoma* and unidentified *Rastrelliger*. The *R. brachysoma* were abundant during July-September. When 5-mile zoning was considered, catch of the *R. brachysoma* was rather prominent in the zones of 10-15, 15-20 and 20-25 mile than 0-10 and 25-30 mile off-shore.

Size of the *R. brachysoma*

The studies in 2001 showed that the *R. brachysoma* sized larger than 14 cmTL were caught almost every month from February to December, except for August and October when the *R. brachysoma* was smaller than 14 cmTL. The *R. brachysoma* caught by the purse seines were bigger than that found in the bamboo stake traps in Trat Bay.

Larval and juvenile *R. brachysoma*

Larval distribution of the *R. brachysoma* had been studied since 1959, the results of its occurrence could be summarized as follow:

Year	Locality	Month
1959-1961	South of the Chang Island	Apr., Oct.
1984	The Chang Islands	Jun., Jul, Sep., Nov.
1987	South of the Chang Island	Apr., Nov.
1997-1998	not found	-
2002	not found	-
2003-2004	not found	-

Spawning Periods

It is still not clear and not enough information now to consider the spawning periods. Besides, the evidence of larval distribution is still insufficient.



REVERSING ENVIRONMENTAL DEGRADATION TRENDS
IN THE SOUTH CHINA SEA AND GULF OF THAILAND
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Indications on important life-cycle stage of Indo-Pacific mackerel in the Gulf of Thailand

National Workshop/On-Site Training on the Integration into
Habitat Management

Koh Kong, 6 - 9 August 2007

Koh Kong City Hotel, Cambodia

Mr. Pirochana Saikliang

UNEP/GEF National Fisheries Focal Point for Thailand

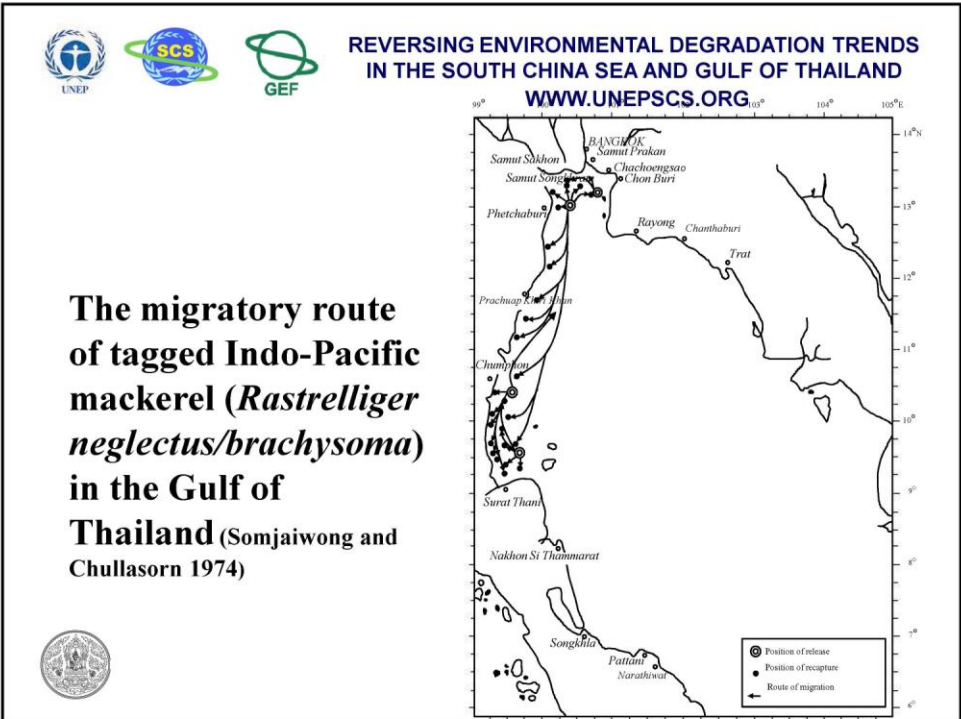
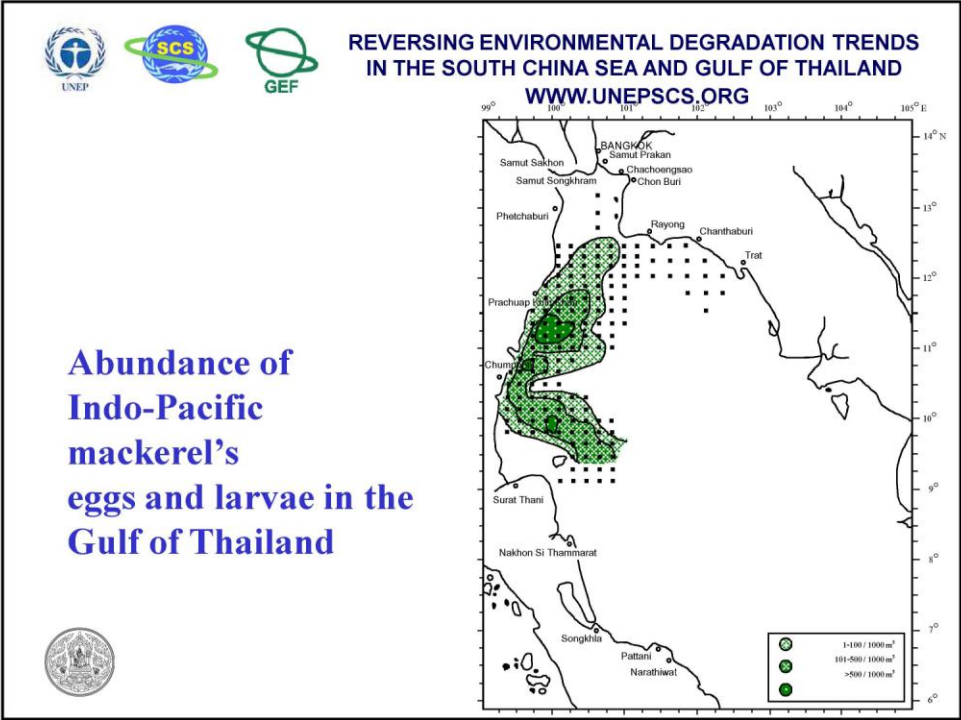
Department of Fisheries, Thailand



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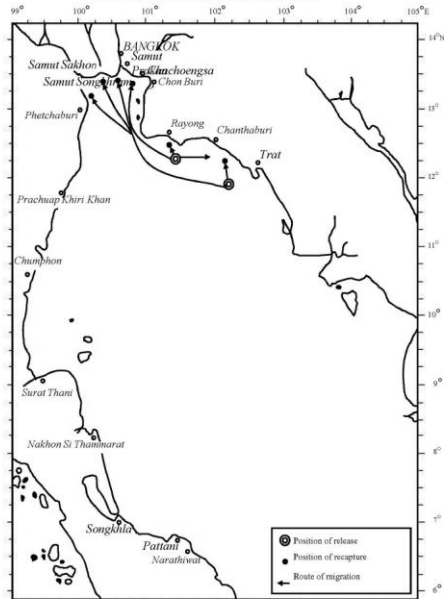
Indo-Pacific mackerel (*Rastrelliger neglectus/brachysoma*)





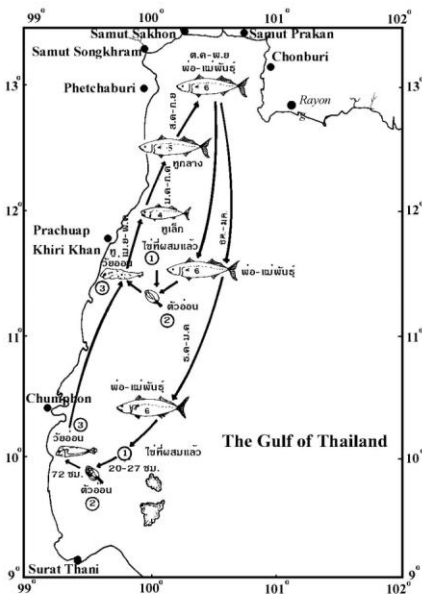
REVERSING ENVIRONMENTAL DEGRADATION TRENDS
IN THE SOUTH CHINA SEA AND GULF OF THAILAND
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**The migratory route
of tagged Indo-Pacific
mackerel (*Rastrelliger
neglectus/brachysoma*)
in the Gulf of
Thailand (Somjaiwong and
Chullasorn 1974)**



REVERSING ENVIRONMENTAL DEGRADATION TRENDS
IN THE SOUTH CHINA SEA AND GULF OF THAILAND
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**Life cycle of Indo-Pacific
mackerel (*Rastrelliger
neglectus/brachysoma*) in
the Gulf of Thailand
(courtesy of the Marine Fisheries
Division)**





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IN THE SOUTH CHINA SEA AND GULF OF THAILAND
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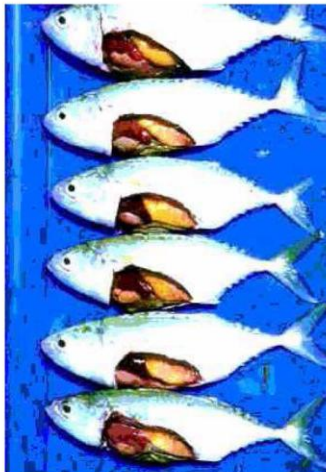
Refugia/Closed area&Season

The development of fisheries
refugia in the Gulf of Thailand

- Area 26,400 Sq.km.
- During 15th Feb.-15th May



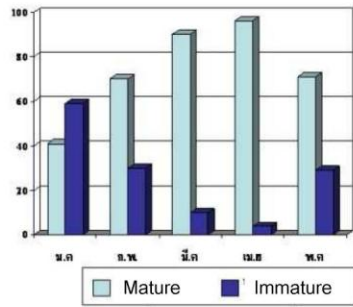
REVERSING ENVIRONMENTAL DEGRADATION TRENDS
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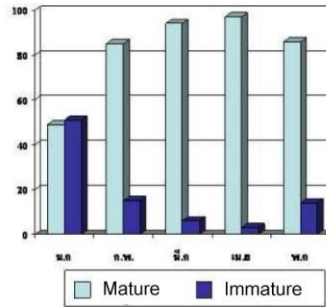
Indo-Pacific mackerel in spawning condition in the closed area



Indo-Pacific mackerel's Maturity Stage in the Management of the Prachuap Khiri Khan – Surat Thani Fisheries *Refugia* Site



Female



Male



Concept of Fisheries *Refugia*:-

Integrating fisheries into habitat conservation and management

- Better management critical habitats through “Fisheries *Refugia*”, which complement other management measures
- Fisheries *Refugia* - “Spatially and geographically defined, marine or coastal areas in which specific management measures are applied to sustain important species [fisheries resources] during critical stages of their lifecycle, for their sustainable use.”





Concept of Fisheries Refugia:-

Characteristics of Fisheries *Refugia*

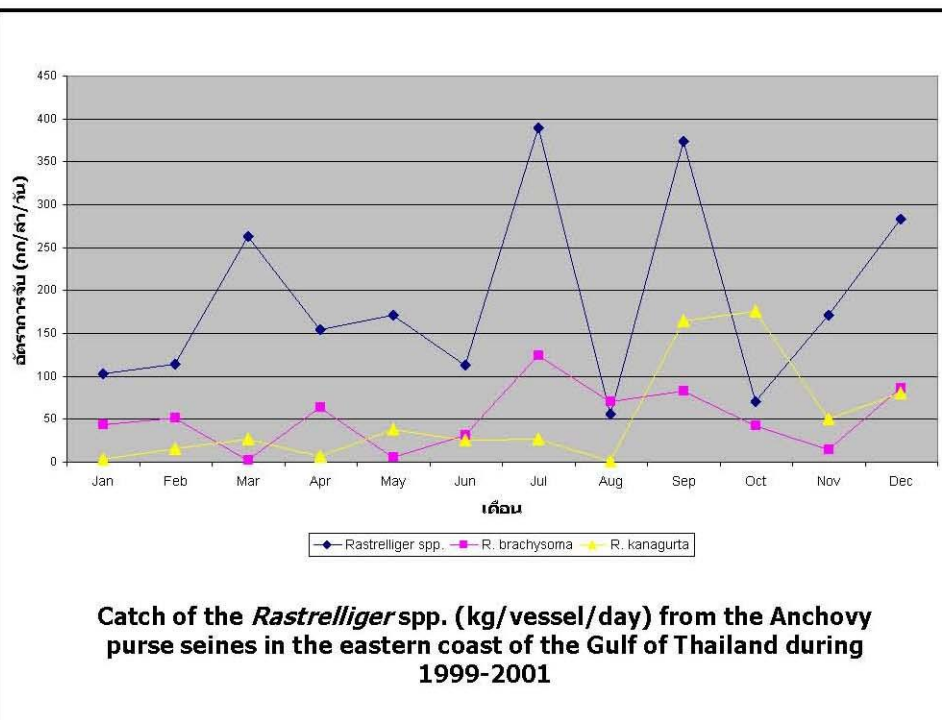
- NOT “no take zones”,
- Have the objective of sustainable use for the benefit of present and future generations,
- Provide for some areas to be permanently closed,
- Focus on areas of critical importance in fish life cycles,
- Have different characteristics according to their purposes,
- Be sub-dividable to reflect the differing importance of sub-areas to the species or species groups for which they are established.

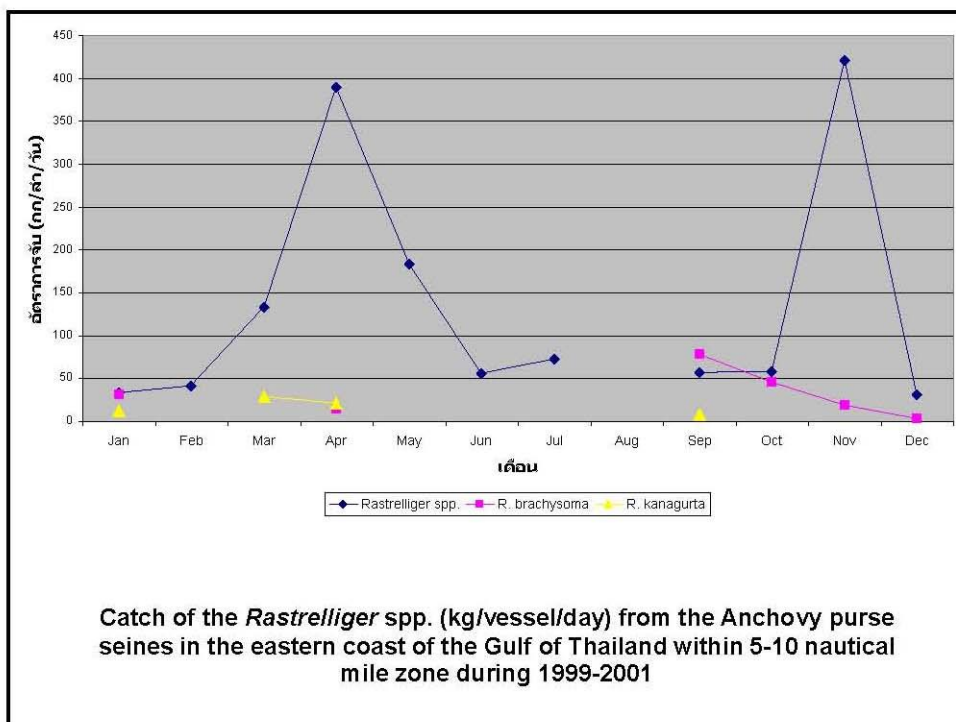
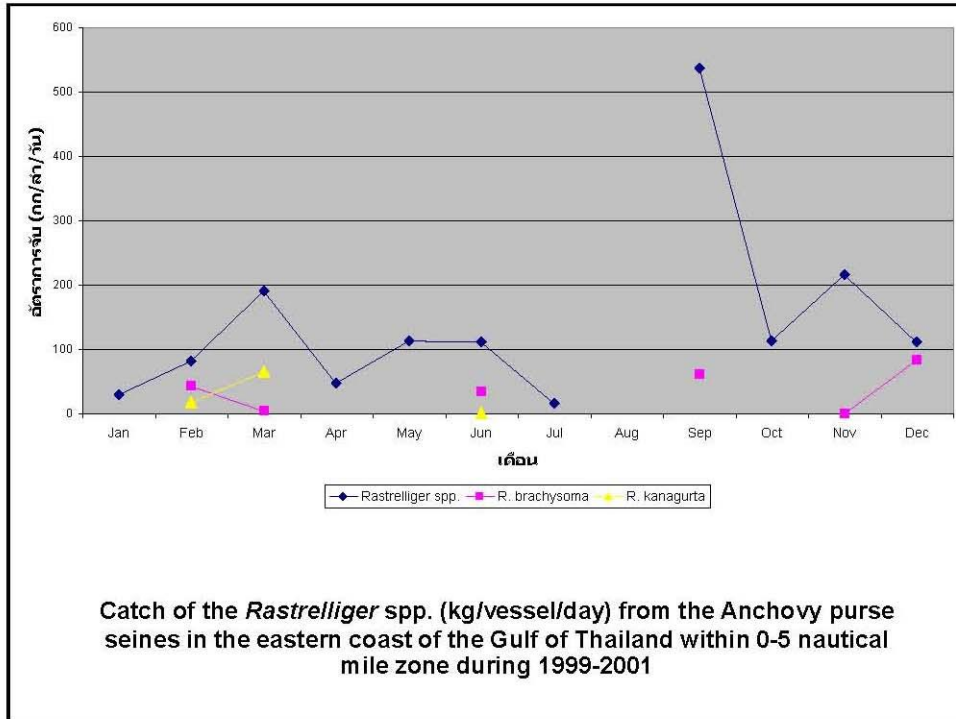


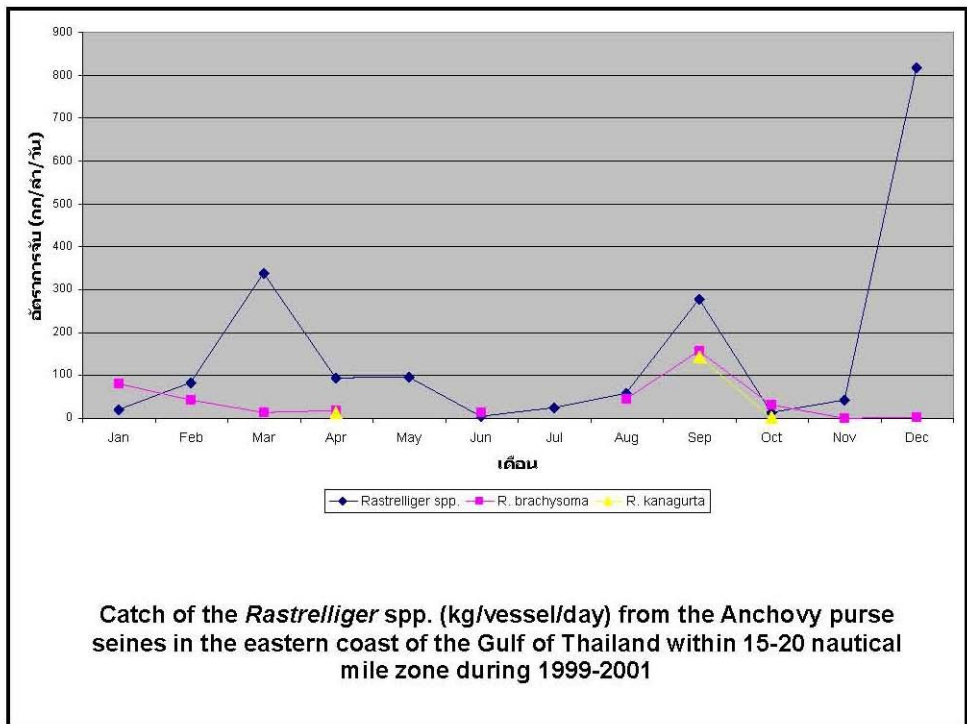
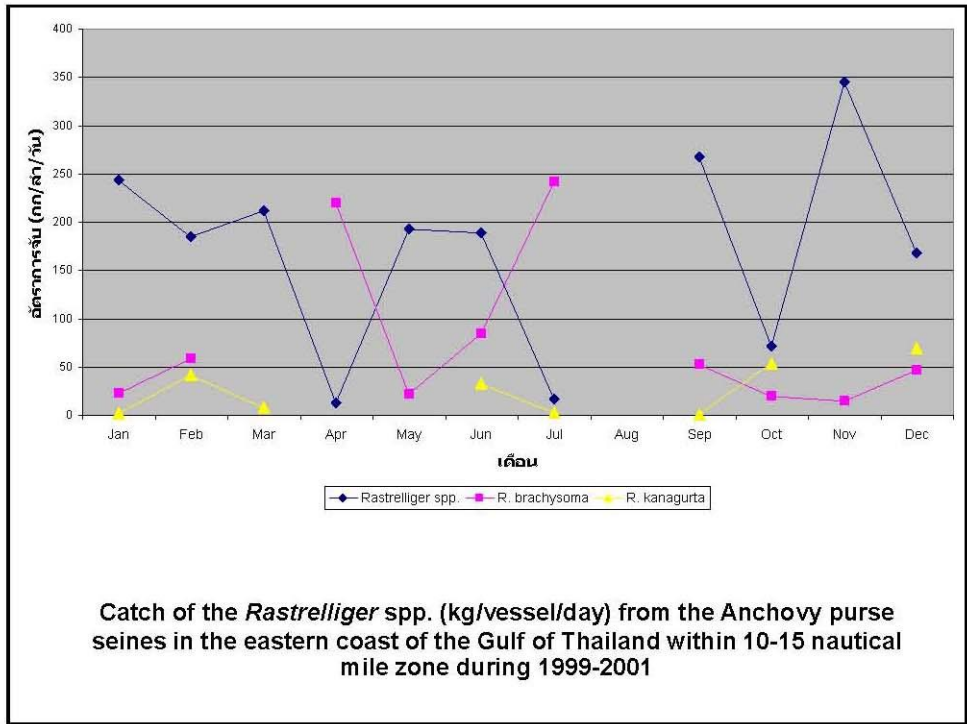
- Development of the Koh Chang Strait Fisheries *Refugia* Site (1)
- Nursery area for a large number of economically important fish species

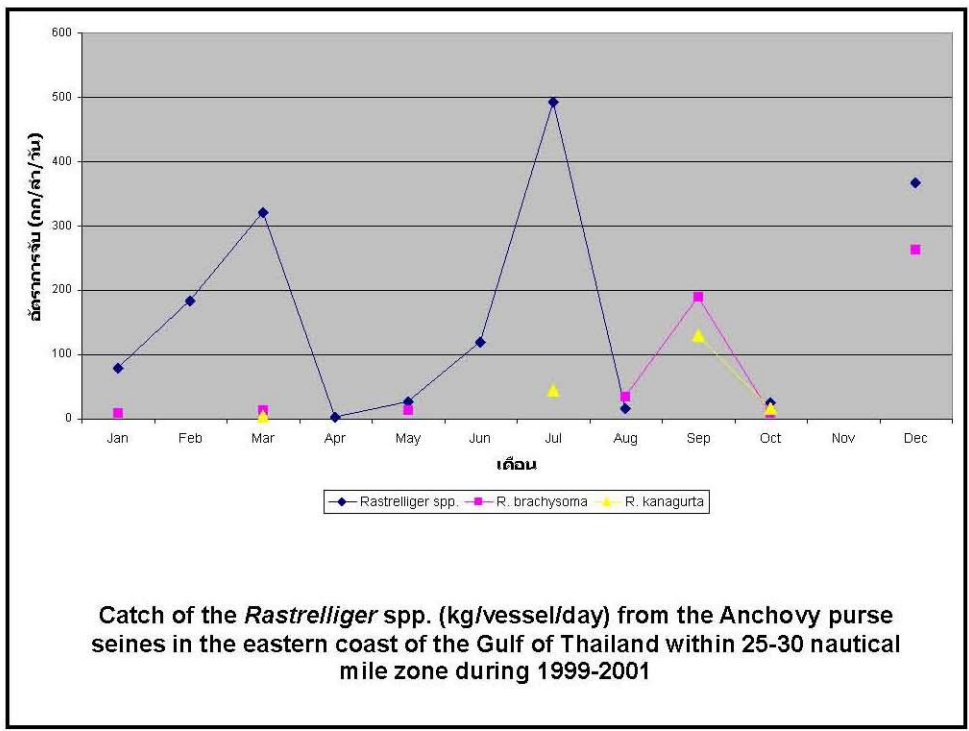
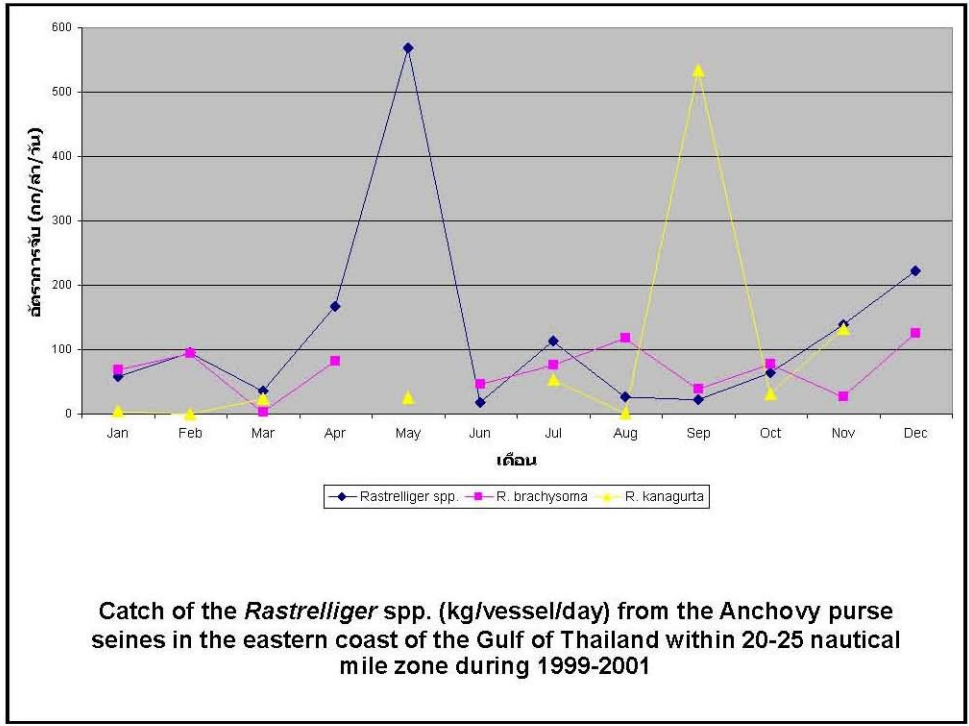


Rastrelliger brachysoma in the Eastern Coast of the Gulf of Thailand



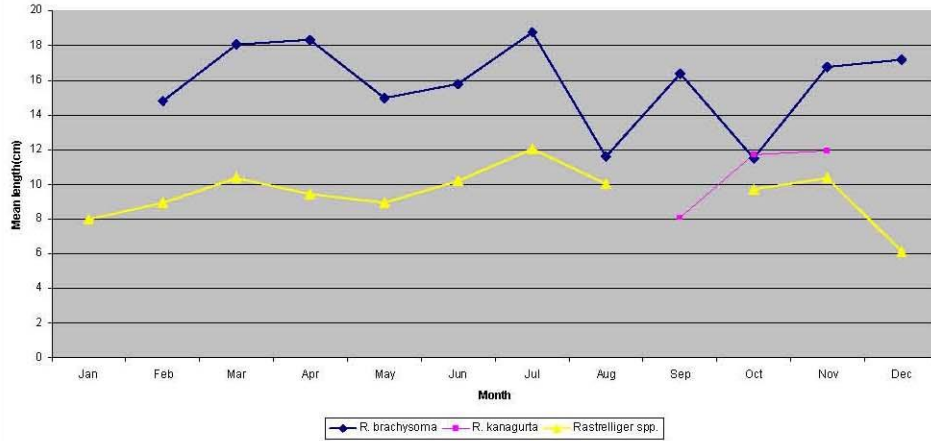






Length of the *Rastrelliger* spp. in 2001

แสดงค่าเฉลี่ยความยาวลำตัว(ซม.) ของปลาทู ปลาหลัง และ ปลาหูฉี่ ในปี พ.ศ. 2544



Larval and juvenile *R. brachysoma* in the Chang Island

Year	Locality	Month
1959-1961	South of the Chang Island	Apr., Oct.
1984	The Chang Island	Jun., Jul., Sep., Nov.
1987	South of the Chang Island	Apr., Nov.
1997-1998	not found	
2002	not found	
2003-2004	not found	

Results from the Group Work

Group One

Natural Resource Management through the Establishment of Marine Fisheries Resources Conservation Areas

Advantage	Problems	Solution
Increasing of mangroves, coral reef, and seagrass	Traders come to buy land as their own property	Enforcement of by law and regulation
Shrimp	Migratory species (migrate from one place to another)	Prohibition of using illegal fishing gear
Increasing in Nodular Ark	Availability of boats from outsiders to fish	Competent authorities
Increasing of fish and crabs	Capacity and unsustainable fishing gear using	Enforcement of by law and regulation
Provide fish refugia and / or other habitats	Availability of illegal fishing	Stop fishing during fish spawning season; Educate fishers to raise awareness of fish spawning season
Protect endangered species and economical important species such as Dugong, dolphin, seagrass, coral reef, mangroves, etc.	Availability of illegal fishing; lack of awareness and participation of local community in management	Enforcement of by law and regulation
Reduce over fishing capacity	Lose fishing ground	Before the establishment, it should be studies about impacts clearly and consult with relevant organization
Secure and sustain resources uses	Lack of budget and facilities	Organizations and competent institutes provide facilities and budget to manage
Carry out fisheries research	Not study and resource on its impact yet	Need to study and research on, trial.

Group Two

Artificial Fishery Refugia in Chroy Pros Bay

1. Basic information of fish refuge foundation

- It is a place of fisheries resources source
- Availability of conflict of fishing gear using
- Local people get less the benefit of resources
- It is sea grass existing area , small island and mangroves
- It is a habitat that provide natural feed
- Availability of Koh Kong island mountain to protect storm and sea waving

- Lose the dugong specie and some endangered fish species.

2. Strengthening artificial fish refuge ground

Advantage

- Fish refuge ground enlarger
- Fisheries resources more and more increase
- Illegal fishing decreased
- Living standard of local people more better
- Reducing of operation action of patrolling group
- Reducing of conflict

Impact

- Damaging some boats from Phnom Meas, Ta Ny and Koh Sdech communes.
- Lose fishing ground for some fishing gear

Group Three

Advantages

- Secure the stock of Nodular ark in three community fisheries areas.
- Easy to manage through collaboration
- Set up income
- Easy to go fishing by less capital cost

Disadvantage

- Cause traveling accident

Management

- Establish a working group of three community fisheries by participation from chief of community fisheries, commune council, Police Post, and District Fisheries Division to:
 - Organize the map and boundary
 - Prepare the plan of actions
 - Extend and communicate to seek out budget
 - Need a plan to do research and follow up activities
- The working group needs to meet and report their activities every two months.
- Promoting existing patrolling group in each community fisheries need to control fishing offenders, and enforce by law and regulation
- Close fishing from October to April, but hand using gear allowed to fish
- Set up a pole of cements to protect site and show the landmark of the site
- Follow up and control Nodular ark resources in order to evaluate the establishment and management of safety fish sanctuary ground

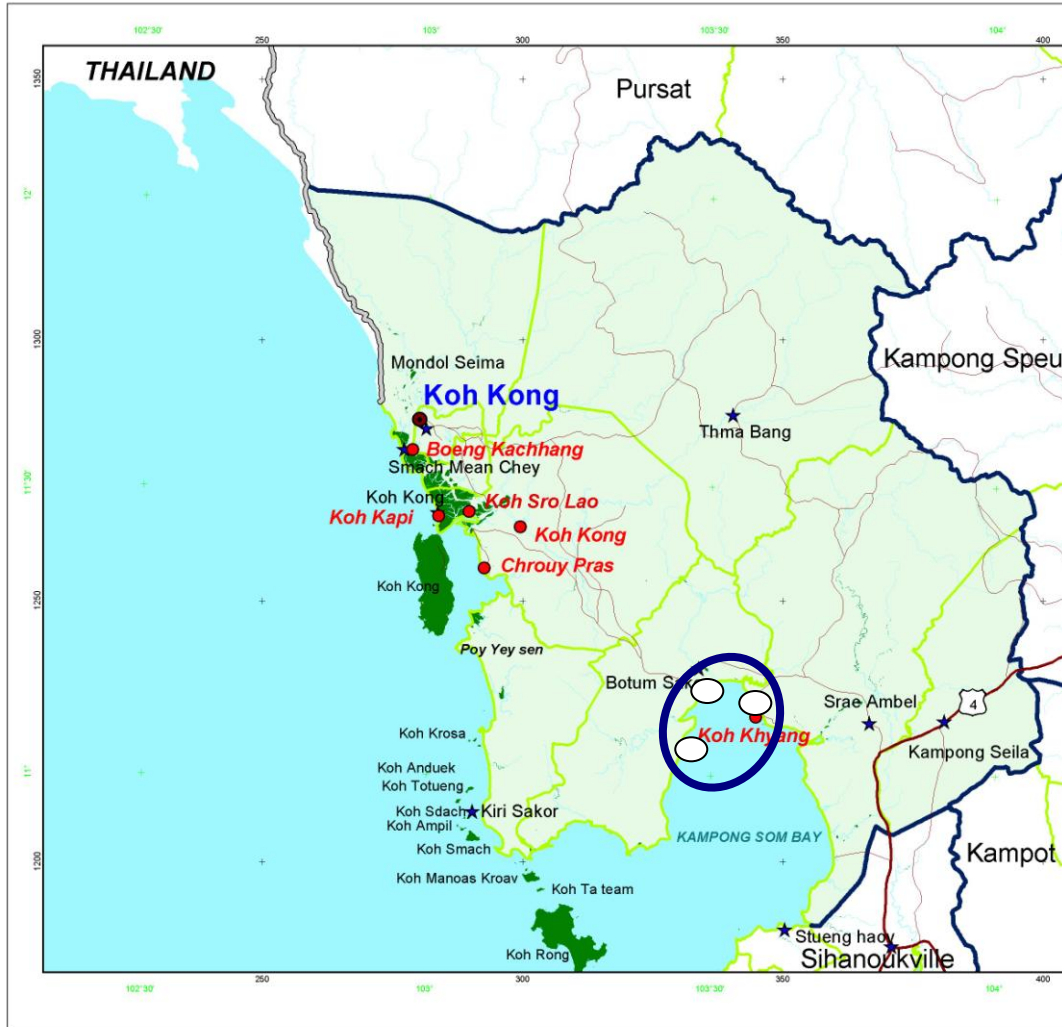
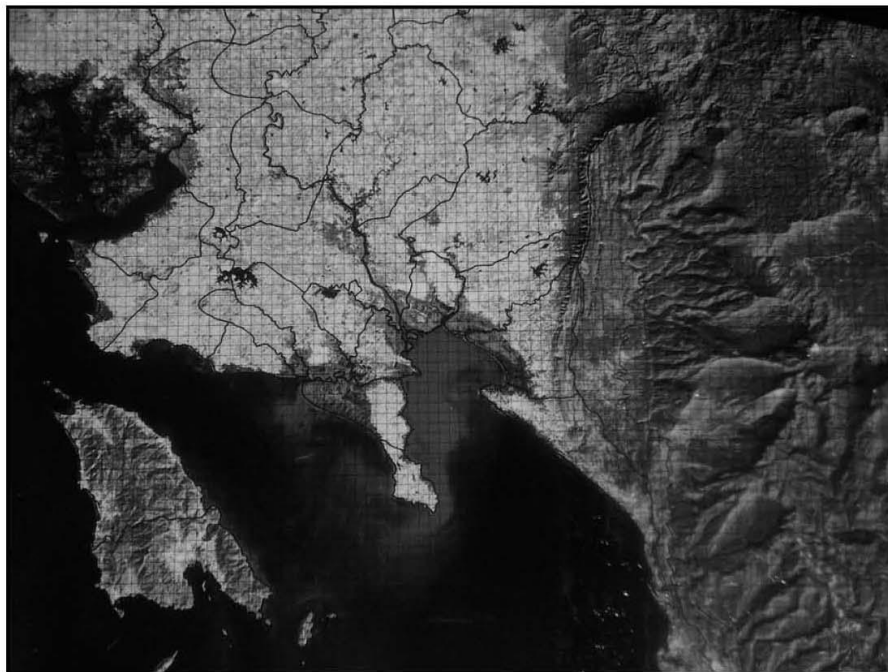
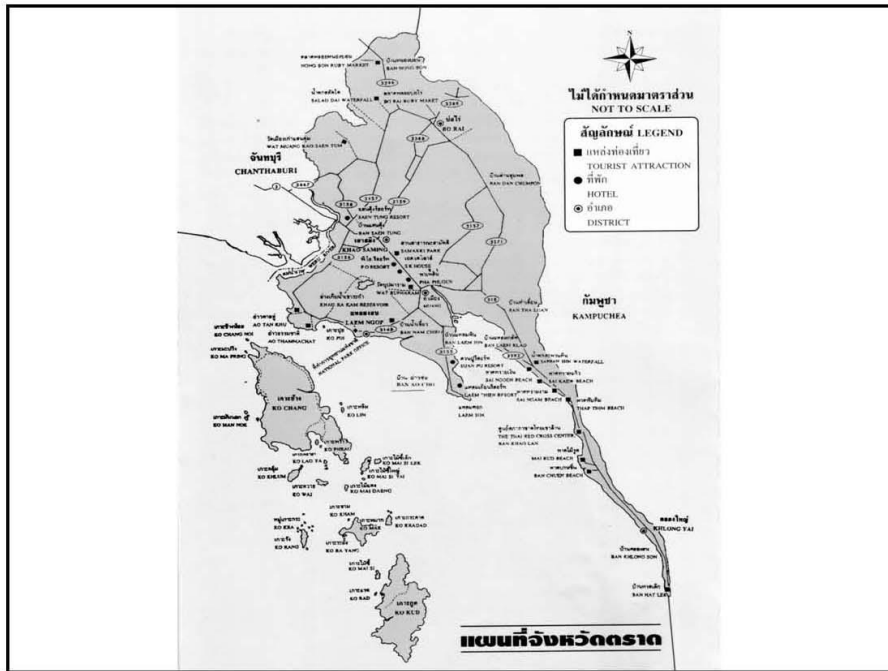


Figure A16-1 Maps Specie Nodular ark (*Anadara nodifera*); Site Community fisheries in Thmor Sar Bay Area; Community fisheries in Ta Meakh Bay Area; Community fisheries in Koh Kchorng Bay Area

Management Experience from Trat



**Reason of selection on Chong Chang Strait and
Trat Bay to be Fisheries Refugia**

- ◆ **Habitat of economics marine animals**
- ◆ **Spawning ground**
- ◆ **Nursery area**
- ◆ **Coral reefs , mangroves, sea grass**
- ◆ **Endanger species**
dolphins , sea turtle , dugong

Economics marine animals

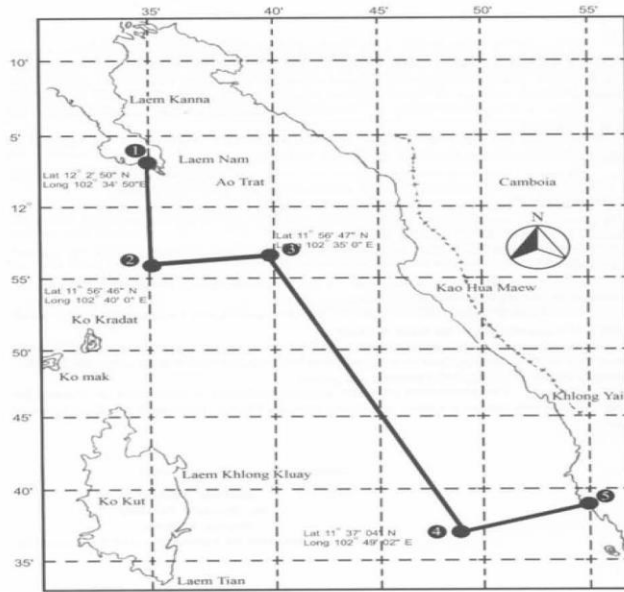
Indian mackerel	Spanish mackerel
Short – bodied mackerel	Threadfin bream
Monocle bream	Red snapper
Sardine	Bigeye
Grouper	Sea bass
Blackbanded trevally	Lizard fish
Mud crab	Swimming crab
Cuttle fish	Short neck clam
Mantis shrimps	marine shrimps

Spawning ground

Species	Spawning period	References
Sardine (<i>Sardinella</i> spp.)	Jun.-Aug.	Munprasit (1996)
Indo-Pacific Mackerel (<i>Rastrelliger brachysoma</i>)	Jun.-Aug. ; Dec.-Feb.	Sinanant
Spanish Mackerel (<i>Scomberomorus commerson</i>)	Jul.-Sep.	Supongpun and Chayakul (1980)
Threadfin bream (<i>Nesipterus</i> spp.)	May-Jun.	Singhagruiwan (1996)
Anchovy (<i>Stolephorus</i> spp.)	Jul.	Yuuksawat and Songchitsawat (1990)
Lizard fish (<i>Saurida</i> spp.)	May-Jul.	Singhagruiwan (1993)
Rainbow cuttle fish (<i>Sepia pharaonis</i>)	May-Aug.	Chotiyaputta (1989)
Banana prawn (<i>Penaeus merguensis</i>)	Jan.-May, Aug.-Dec.	Roongratri (1990)
Western king prawn (<i>P. latisulcatus</i>)	Nov.-Apr., Jul.-Sep.	Roongratri (1980)
Green tiger prawn (<i>P. semisulcatus</i>)	Jan-Jun, Sep.-Dec.	Roongratri (1992)
Shortneck clam (<i>Phaphia undulata</i>)	Aug.-Nov., Apr.-May.	Tuaycharoen <i>et.al.</i> (1985)
Jingo prawn (<i>Metapenaeus affinis</i>)	Aug.-Oct.	Tubtimwaeng (1979)
Monocle bream (<i>Scolopsis</i> spp.)	Nov.-Mar., Jul.-Sep.	Singhagruiwan

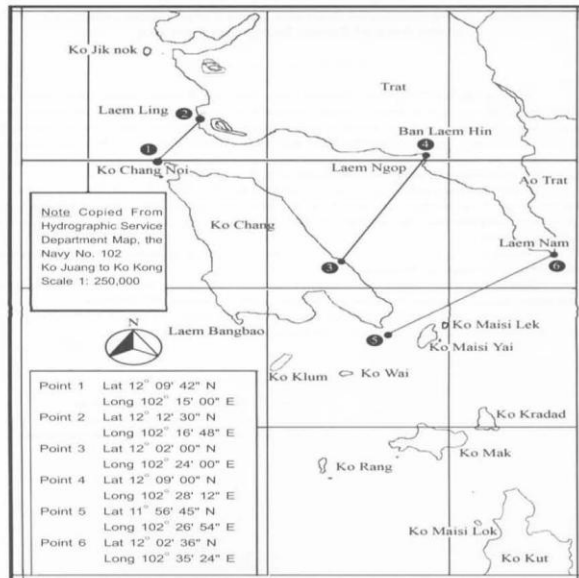
1. Notification of the M. of Agri. and Coop. Prohibition of any kind , category and size of surrounding nets with an electricity generator to fish in certain areas of the sea in Trat province
2. Notification of Trat province. Prohibit trawls , push nets and shell fish dredges in Chong Chang Strait.

Map attached to Notification of the Ministry of Agriculture and Cooperatives
Re: Prohibition of Any Kind, Category and Size of Surrounding Nets
with an Electricity Generator to Fish in Certain Areas of the Sea in Trad Province,
B.E. 2538 dated on January 24, B.E. 2528



Map attached to Notification of Trad Province

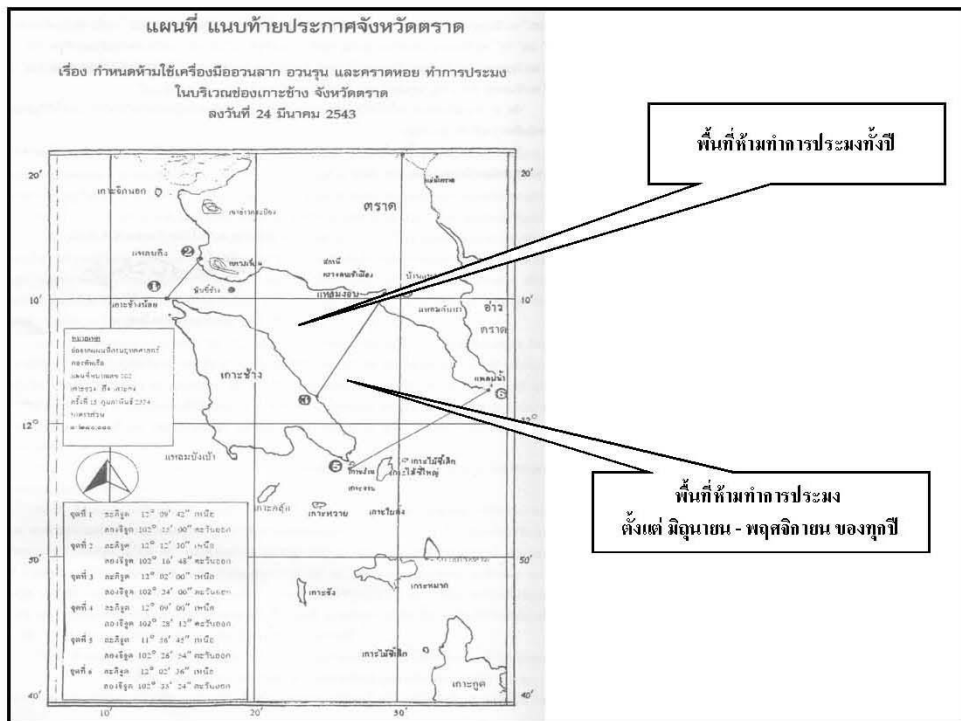
Re: Determining the Area in which Trawls, Push Nets and Shellfish Dredges are Prohibited,
in Fishing at Strait of Chang Island, Trad Province, B.E. 2543 dated on March 28, B.E. 2543



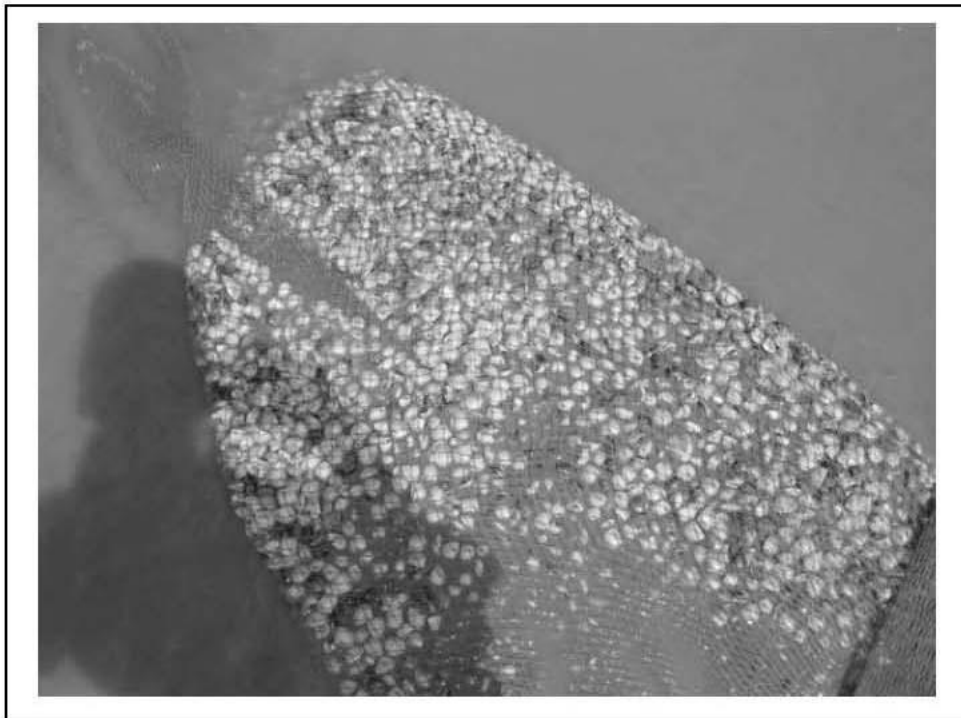
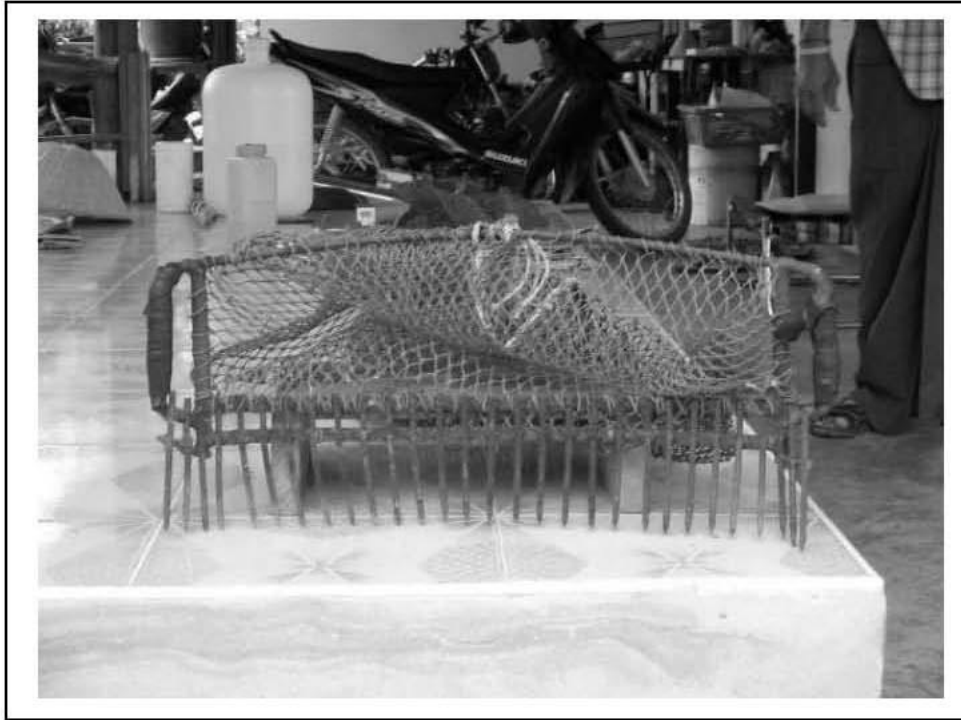
Other notification

Prohibit- trawls , push nets , dredges in 3,000 m.
offshore area

- dolphin , sea turtle , coral , sea cow
- berried female crab
- etc









ประเด็นสำคัญของ

กฎ ระเบียบของคณะกรรมการส่วนตำบลแหลมกลัด เพื่อการอนุรักษ์ทรัพยากรหอยขาว
(หอยตลับ)

1. ห้ามทำการประมงหอยขาว ที่มีขนาดความยาวต่ำกว่า 3.3 เซนติเมตร
2. ห้ามทำการประมงหอยขาว ในเขตอนุรักษ์หอยตลับพื้นที่ตลอดทั้งปี
3. ห้ามใช้เครื่องมือลวด หรือเครื่องมือชนิดอื่นใดที่คล้ายกัน ทำการประมง หอยขาวระหว่างเดือนกรกฎาคม – เมษายน ของทุกปี
4. ห้ามใช้เครื่องมือทุกลชนิดที่ใช้ประกอบกับเครื่องยนต์ทำการประมงหอยขาว
5. ผู้ที่จะทำการประมงหอยขาวในพื้นที่ ต้องได้รับอนุญาตจากองค์การบริหารส่วนตำบลแหลมกลัด และปฏิบัติตามระเบียบอย่างเคร่งครัด
 - เสียค่าธรรมเนียม
 - อนุญาตให้อับได้คนละไม่เกิน.....กิโลกรัม/วัน
6. ผู้ฝ่าฝืนมีโทษปรับไม่เกิน 1,000.00 บาท

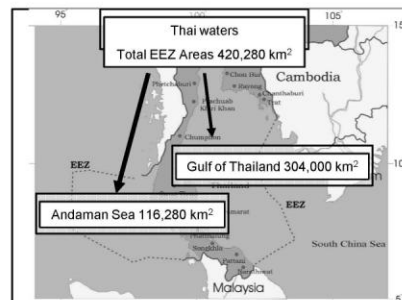
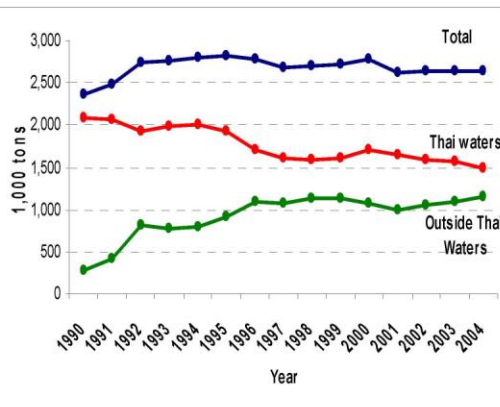
Thai Marine Fisheries

Resource Rent Assessment

Overview on Fisheries Sector

- **Fisheries sector contribute 1.3 % of total GDP**
- **Employment 2 mil.**
 - 40% fishermen and fish farmers
 - 60% related and support industry
- **Fisheries production 4.1 million tonnes**
 - Marine capture fisheries 65 %
- **Fisheries trade: Export US\$ 4,600 mil.**
- **Fish consumption 35 kg (per capita)**
- **Thai fisheries production contributed 20 % of Southeast Asia production**

Marine Fisheries



Fishing vessels registered 16,432

- Trawlers 39 %
- Falling nets 26 %
- Gill nets 19 %
- Purse seiners 10 %
- Others 6 %

Outside Thai Waters

- Indonesia - Malaysia - Myanmar
- Middle east - Africa

Fleet Structure

- Type of vessel
 - Engine out board
 - Engine in board
- Size of vessel by length
 - <14 meters
 - 14-18 meters
 - 18-25 meters
 - > 25 meters
- Type of fishing gear
 - Trawl (Otter-trawl, Pair trawl and Beam trawl)
 - Push net
 - Purse seine
 - Encircling gill net
 - Gill net and others

Status of Marine Resource

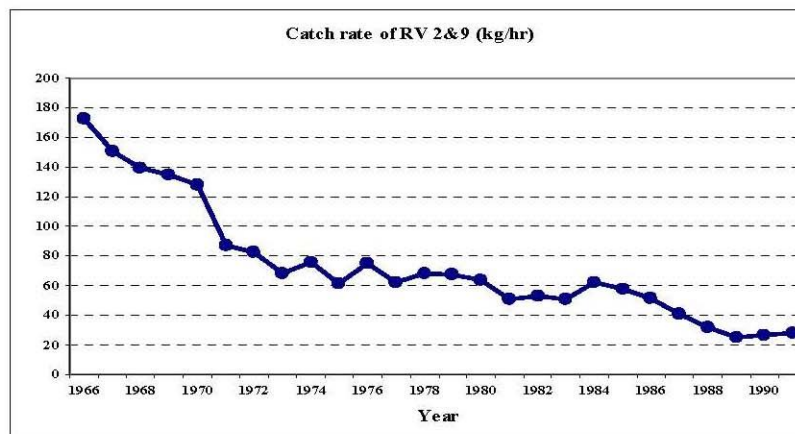
Demersal resources:

- Decreasing catch rate
- Excessive fishing effort
- Catch composition towards small sized
- Changes in benthic species
- Decreasing mean length overtime

Pelagic fish:

- Over exploitation: Sardines
- Fully exploitation: Indo-pacific mackerel, Anchovy, Small tuna, and Round scads
- Under exploitation: Spanish mackerel, Carangids, and Hard-tail scads

The catch rates (CPUEs) of demersal resources caught in the Gulf of Thailand during 1966 to 1991 of survey by Research Vessels



Problems and Constraints of Marine Fisheries Sector

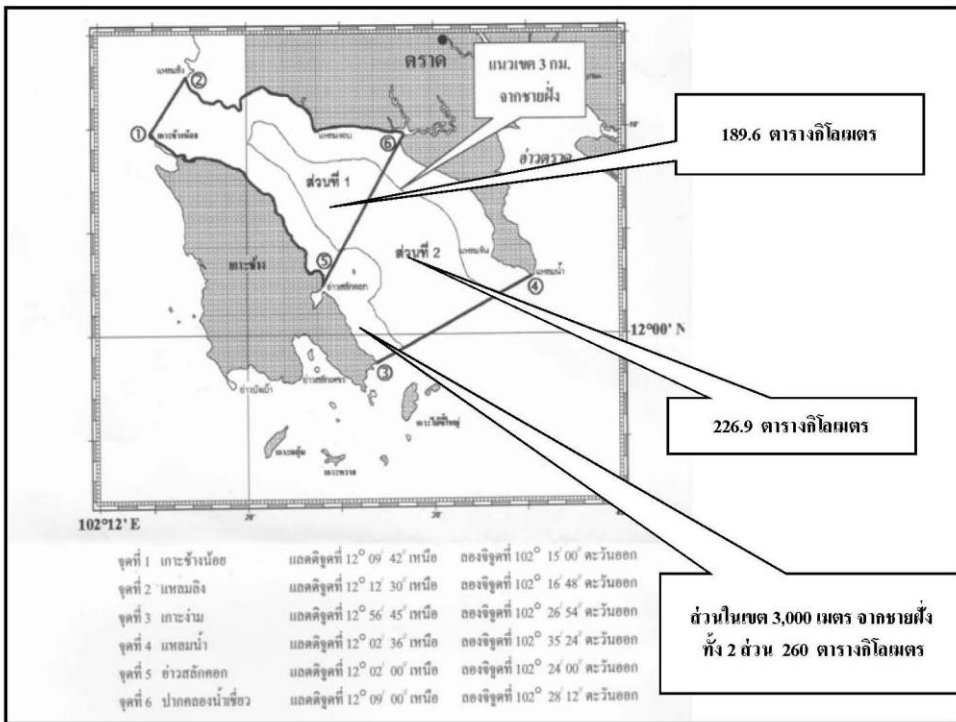
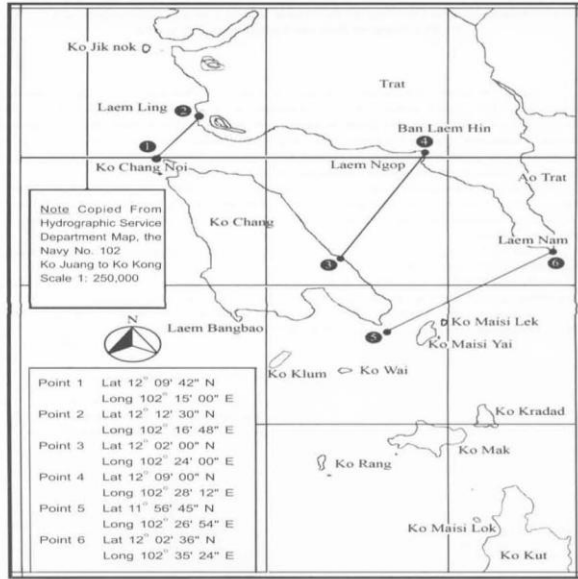
- **Fishing in the Thai waters faces overfishing problem that cause fisheries resources deterioration**
- **The conflict among the beneficial groups that exploit the resources**
- **The high cost of production; the fuel cost**
- **Shortage of labour supply in commercial fisheries urbanization and industrialization**

The Fisheries Management Regime

- **Area and Seasonal Closures**
 - **The upper southern area of the Gulf of Thailand (15 Feb-15 May)**
 - **Phang-nga Bay, Andaman Sea (15 Apr-15 June)**
 - **Other area**
- **Gear Restriction**
 - **The trawlers and push netters are not allowed to operate within 3 km from shore**
- **Limited Entry**
 - **Trawlers**
 - **Push netters**

Map attached to Notification of Trad Province

Re: Determining the Area in which Trawls, Push Nets and Shellfish Dredges are Prohibited, in Fishing at Strait of Chang Island, Trad Province, B.E. 2543 dated on March 28, B.E. 2543



**Socioeconomic Characteristics
of Small Scale Fishing,
Strait of Chang Island, Trat Province**

Type of Fishing Boat	No.
Trawl	24
Push Net	166
Anchovy Falling Net	51
Gill Net	181
Squid Trap	10
Squid Lift Net	123
Dredges	10
Total	565

**Resource Rent
Assessment**

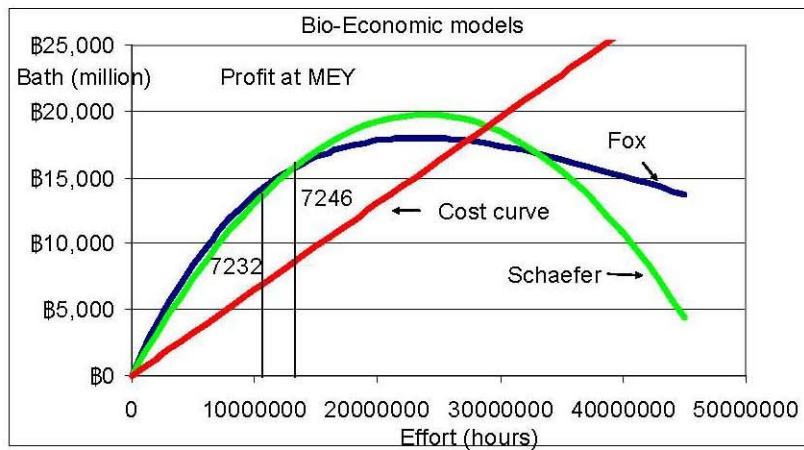
Applications of the Gordon-Schaefer and Fox's Models

(FAO, 2001)

- **Catch and Effort Data**
 - Total catches and total effort were available for the period 1973-1997
 - Fleets: Otter trawlers, Pair trawlers, Push netters and Beam trawlers

- **Biological Data**
 - CPUE of research vessel

- **Economic Data**
 - Cost data for 1998 were calculated as an average cost per unit of standard effort
 - Fixed price in 1998 were used for the fish



Model	Effort at MSY (million hours)	MSY (tonnes)
Gordon-Schaefer	23.9	1,036,428
Fox	23.3	944,632

**Gordon-Schaefer and Fox model results for the MSY,
MEY and open access situation in 1997**

Items	MSY		MEY		Open access		Actual (1997)
	Schaefer	Fox	Schaefer	Fox	Schaefer	Fox	
Effort (million hours)	23.89	23.35	14.48	11.48	28.95	27.27	29.92
Catch (thousand tonnes)	1,036.43	944.63	875.37	772.14	990.00	932.69	776.14
Resource rent (million Baht)	4,178	2,787	7,245.92	7,231.88	0	0	-809.15
Note: average price/kg = 19.05 Baht; cost/unit of effort = 651.44 Baht							

Policy and Framework for Cooperation in Ecosystem and Resource Management between Two Provinces: Kampot and Kien Giang Provinces

by Ouk Vibol, Deputy Director of Fisheries Domain

Information needed

- Legal based-lines
- Distribution and area of coral reefs, seagrass and mangrove
- Species richness of coastal fauna and flora
- Distribution and abundance of endangered-species
- Richness of marine resources and significances of living resources to local livelihood and economy of each province
- Threats to resources and environment
- Challenges in resource and environment management
- Draft map on distribution of resource or habitats for both sites for preparation single map for the entire transboundary waters

Goals and objectives

- Cooperation between two provinces for biodiversity conservation, reversing environment degradation trends and sustainable use of resources, and for improvement of livelihood of local communities

Programme and Actions

- *Programme 1 Strengthening institutional arrangement for management of coastal resources and environment and integration to develop policy of two provinces*
 - o Action 1 Review of existing legal documents of both provinces regarding management of resources and environment
 - o Action 2 Integration of resource and environment management to cooperative agreement between two provinces and conduct of joint meetings of the Management Board/Steering Committee once or twice a year.
- *Programme 2 Improvement of management effectiveness for resource and environment management in trans-boundary waters*
 - o Action 1 Additional inventory of biodiversity and resources for management purpose
 - o Action 2 Capacity building for scientific research, resource assessment and monitoring, management skill, and transferring knowledge and information to local authorities.
 - o Action 3 Study tour and workshop/seminar for local people, managers and policy makers for experience exchange in resource and environment management between two provinces and other in the region.

- Action 4 Strengthening information exchanges and sharing between two provinces and maintenance of the joint GIS database for uses in management of resources and environment
- Action 5 Joint management and control of illegal trade, exploitation activities of resources in the trans-boundary waters; and to stop catching area and endangered species.
- *Programme 3 Enhancement of public awareness on marine conservation and sustainable resource*
 - Action 1 Strengthening education capacity, communication system, and establishment of network of communication for enhancement of public awareness on marine resource sustainable use
 - Action 2 Development and distribution of public awareness materials and implementation of communication programmes regarding ecosystem importance and sustainable use of coastal resources
 - Action 3 Organization of exchanges programme for natural resources conservation and environment protection for youths and students of Kien Giang and Kampot Provinces
- *Programme 4 Development and execution of joint projects with supports from International Organization*
 - Action 1 Project for development and management of transboundary fisheries refugia belonging the two provinces
 - Action 2 Project for migratory and endangered species conservation.
- *Programme 5 Financial sustainability for long-term management and livelihood alternatives*
 - Action 1 Development fo programmes for livelihood alternatives, including technical supports for aquaculture, fisheries processing, tourism, animal raising and integrated farming system
 - Action 2 Development of models for community-based resource management
 - Action 3 Promotion for development of tourism in the trans-boundary waters
 - Action 4 Fund raising from international organizations for livelihoods, and resource and environment management

Implementation Terms

In the principal of cooperation, equality and co-development of project;

- Each province will delegate a focal point/ agency to response for the organization and implementation of the activities within the province under the leadership/guidance of the provincial governments
- The policy and framework for cooperation can be revised and adjusted after a duration of implementation, if necessary.
- In case of unpredictable problems(s) occurred, the partner has to inform the other at least 60 days in advance in order to have enough time to discuss and solve the problems(s)

- Both sides agreed to implement this policy and framework for the protection of the environment, conservation of biodiversity and sustainable use of the resources and human well-being of the two provinces
- This policy and framework document is duplicated in 10 copies with the same values/validity in three languages (Vietnamese, Khmer and English), Each side poses 5 copies.