

**Report of the Second Meeting of the Andaman Sea sub-region
Phang-Nga province, Thailand**

28-29 August 2012



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Report of the 2nd Meeting of the Andaman Sea Sub-region

28-29 August 2012

Le Méridien, Khao Lak, Phang Nga, Thailand

I. INTRODUCTION

1. The Second Meeting of the Andaman Sea sub-region was co-organized by the Southeast Asian Fisheries Development Center (SEAFDEC), with financial support by the Swedish International Development Cooperation Agency (Sida), the SEAFDEC-Sida Project and the Bay of Bengal Large Marine Ecosystem (BOBLME) Project on 28-29 August 2012 in Phang Nga province, Thailand.

2. The objectives of the Meeting were to provide platform of dialogue and cooperation on matters discussed during the First Meeting of the Andaman Sea Sub-region in 2009 such as integration of fisheries and habitat management, conservation measures for important migratory species (*Rastrelliger spp.* and *Hilsa*, etc.), management of fishing capacity, as well as combat IUU fisheries as well as to review the recommendations and actions suggested during the sequence of On-site events/sub-regional consultations/regional consultations conducted from 2009 to 2012 and to promote a defined and results oriented plan of implementation on identified priority actions on sub-regional concern.

3. A total of 45 participants from fisheries and marine parks agencies attended the Meeting from Indonesia, Malaysia, Myanmar and Thailand together with representatives from the Bay of Bengal Large Marine Ecosystem Project, Swedish Agency for Marine and Water Management as well as SEAFDEC officials and the members of the Regional Fisheries Policy Network. The list of participants is provided in **Annex 1**.

4. The Secretary-General of SEAFDEC, *Dr. Chumnarn Pongsri*, firstly welcomed the participants of the Meeting and appreciated the representation of the Andaman Sea countries delegates. He recalled the effort made by SEAFDEC with support from the Swedish International Development Cooperation Agency (Sida) on the process to strengthen cooperation of the Andaman Sea countries in addressing issues of integration of fisheries and habitat management and management of fishing capacity and combating IUU fishing. He encouraged the participants to share information and views in order to come up with the recommendation on the various concerns relevant to fisheries management in the context of the Andaman Sea sub-region. In capacity as chairperson, he then declared the Meeting opened. His Opening Remark appears as **Annex 2**.

II. BACKGROUND AND OBJECTIVE OF THE MEETING, ADOPTION OF THE MEETING

5. *Ms. Pattaratjit Kaewnuratchadasorn*, the SEAFDEC- Sida Project Manager delivered a brief presentation on the meeting background, objectives and agenda. The Prospectus of the Meeting appears as **Annex 3**.

6. Then, the Agenda which appears as **Annex 4** was adopted.

III. REVIEW ON THE IMPLEMENTATION OF THE RECOMMENDATIONS FROM PREVIOUS EVENTS DURING 2009-MID 2012

3.1 SEAFDEC-Sida Project

7. Mrs. Le Hong Lien, RFPN Member for Vietnam presented a brief review on the Implementation of the Recommendations from previous events during 2009 to Mid-2012 including sources of information (baselines) provided. Her presentation appears as **Annex 5**.

3.2 BOBLME Project

8. The updates on the BOBLME Project were presented by *Dr. Rudolf Hermes*, Chief Technical Advisor of BOBLME. His presentation appears in **Annex 6**. He extended his apologies to the Meeting for failing to involve India an additional Andaman Sea Country involved in the BOBLME Project in the 2nd Meeting for the Andaman Sea Sub-region. He however stressed to the Meeting that a continuous dialogue with India and the other BOBLME countries (Maldives, Sri Lanka and Bangladesh) is being undertaken to ensure that the aforesaid countries are kept abreast of all project developments.

9. In his presentation, he stressed that the Bay of Bengal has one of the largest marine ecosystem of the world, the BOBLME covers eight countries namely: Bangladesh, India, Indonesia, Malaysia, Maldives, Myanmar, Sri Lanka and Thailand where approximately 450 Million people depend from the Bay for livelihood. He highlighted to the Meeting that the project focuses on fisheries resources assessment, habitat degradation problems and management of important fisheries such as Hilsa, *Rastrelliger* spp (Indian mackerel and Indo-Pacific mackerel) and sharks. Moreover, it was stressed in the presentation that not only does the aforesaid issues comprise the key components addressed by the project but also towards human resources development.

10. Representative from Ministry of Marine Affair and Fisheries (MOMAF) of Indonesia pointed out that as per resource assessment data from the Central Government, *Rastrelliger kanagaruta* and *R. brachysoma* are overexploited hence they are now importing the said species. Efforts have been made by MOMAF to enhance fish production through the establishment of Fish Apartment. Dr. Rudolf Hermes added that other management such as closed season would be one of the ways to manage the mackerels. However, additional structure may not really solve overexploitation as there are no scientific evidence that mackerels are dependent on the said structures. In addition, Dr. Rudolf stressed that giving the mackerels and other fishery species time to mature can surely enhance the resources. Therefore he said, that temporal rather than structural interventions may solve the growing problem on overexploitation of mackerels.

IV. INTEGRATION OF FISHERIES AND HABITAT MANAGEMENT/REFUGIA AND TRANSBOUNDARY STOCKS AND HABITATS

11. Ms. Issarapon Jithlang, RFPN for Thailand presented on “**Integration of Fisheries and Habitat Management/Refugia and Transboundary Stocks and Habitats**” which appears as **Annex 7**. She reviewed the management and conservation areas which are also important nursery and spawning areas and act as critical habitats for the life cycle of the fishes, together with information on agencies responsible for the management. She also reviewed information on the migration of the *Rastrelliger* spp, and in the eastern part of the Andaman Sea the migration path

could be sub-divided into 2 areas: Northern Andaman Sea and Southern Andaman Sea. As part of the management measures of the Mackerel stocks she pointed out the necessity to integrate habitat and fisheries management by revisiting the concept of establishment of larger fisheries resources conservation areas in the Andaman Sea.

12. *Dr. Rudolf Hermes*, Chief Technical Advisor of BOBLME presented on the work progress under the BOBLME Project. It was highlighted that the Project adopts the Ecosystem Approach to Fisheries (EAF) with ten major areas of work in environment and fisheries as an approach to promote sustainable development, where there is really a need to incorporate fishery management during the planning stage. His presentation appears as **Annex 8**.

13. The Meeting was also informed that of the major areas addressed by the BOBLME Project ecosystem issues were on top the list. Among the concerns identified in this area is the biological status of fish stocks (particularly mackerels), the impact of fisheries on the environment, the external factors threatening the fisheries, etc. In the discussion of the impact of fishing gears used in the fisheries, references were made to trawls. Furthermore, with regards to gears catching endangered, threatened and protected (ETP) species as by-catch, purse seine was quoted to have occasional catches of turtles and may have significant effect to the ecosystem.

14. He also stressed that MPA/fish *refugia* is just one among many tools in EAF and should be combined with other management measures. He further stressed the importance of stakeholders' participation and consultation in fishery management plans and he stressed the importance of the scientific information and data to support for the establishment of MPAs. However, any information on where the spawning area, or presence of female mackerels are, can be a good indicator for the pro-active establishment of MPAs/fish *refugia*. The establishment can be amended once scientific data are available.

15. Noting the importance of stakeholders' participation through intensive consultation, he encouraged the Meeting to possibly form an inter-agency committee, a working group or agency task force to work with stakeholder groups. With regards to MCS, he pointed out to the Meeting to determine whether there are loopholes in the existing implementation schemes.

16. The project entitled “**Tagging Program for Economically Important Pelagic Species in the South China Sea and Andaman Sea**” was presented by *Mr. Abu Talib Ahmad*, representative from SEAFDEC/MFRDMD. In his presentation, the Meeting was informed of the regional synthesis on tagging activities, preliminary findings from genetic survey for population structure and Assessment of the Mackerel Fisheries in the Andaman Sea., focused on four major small pelagic species e.g. *Decapterus maruadsi*, *D. russelli*, *Rastrelliger kanagurta* and *R. brachysoma*. The Meeting took note the Fishery Improvement Project (FIP) for Indian Mackerel Fisheries in the Andaman Sea had been analyzed. His presentation hereto appears as **Annex 9**.

17. In this regard, he however reiterated that in order to augment the very limited data from the tagging project, genetic studies have been initiated to finally determine the population structure of mackerels and round scads while synchronously determining possible sharing of these species among countries bordering Andaman and South China Sea. He also informed the Meeting that BOBLME might supplement data gathered from the tagging project.

18. While also commending the scientific result of the project presented, the Meeting suggested that the information should be tangible and be translated to the policy makers for them to better understand critical matters as a basis for fisheries management decision.

19. In this regard, SG affirmed the Meeting that a mechanism should be developed where useful information are simplified and packaged to convey the result to non-technical fishery stakeholders and policy makers.

20. Raising concerns on the remaining years of the BOBLME implementation, Dr. Rudolf encouraged the Meeting to accelerate actions on stock assessment and related matters.

V. PROMOTION THE EFFECTIVENESS OF MANAGEMENT OF FISHING CAPACITY AND REDUCE IUU FISHING IN THE ANDAMAN SEA

5.1 MCS Networks and the establishment in the Andaman Sea (the MCS network revisited)

21. *Mr. Adi Wibowo*, RFPN for Indonesia presented on “**MCS Networks and the establishment in the Andaman Sea (the MCS network revisited) and aspects on “community-based”/local MCS**”. A number of vital topics were discussed, to include key partners of countries fringing the Andaman Sea area and the different approaches, responsibilities and initiatives of the said countries in implementing community/ local based MCS. The presentation also includes various activities from past SEAFDEC-Sida with BOBLME project events in CY 2009-2012. Furthermore, some major points recommended at the sub-regional events were discussed. His presentation appears as **Annex 10**.

22. The Meeting took note the importance of political will in Member Countries for MCS and fisheries management. It is important that the actual implementation should be implemented and not just only kept in the Reports. Furthermore, the Meeting noted that there are several agencies involved in the implementation of MCS, including the Navy, Marine Police and others.

23. The Meeting took note that illegal and destructive (IUU) fishing are among major activities destroying the resource base, hence activities should be identified to form an integral part in developing actions to reduce illegal and destructive fishing and to combat IUU fishing. There are two important issues to consider, these are: 1) Practical issues on how people at the local level can be involved in the formulation of possible policy recommendations; and 2) How to get the “top-level management” to provide commitments and to allocate resources for the implementation of these recommendations. Expressing support towards efforts to combat illegal and destructive fishing, SEAFDEC should follow up on these matters. There is a need to stress the importance to incorporate this to the policy framework of the Andaman countries and to include it to the recommendations from this meeting.

24. *Dr. Magnus Torell* complemented that fishing can be illegal without being destructive and vice versa. He further stressed the importance of political will as the catalyst for a successful project implementation as without such, all efforts will be in vain.

25. Recognizing the importance of MCS in combating IUU, the Representative from Myanmar raised to the Meeting that actual monitoring and data gathering in ports should be conducted and further suggested the need for onsite inspection of fishing gears and nets onboard fishing vessels including inspections of the species caught. He also suggested to the Meeting to explore the possibility of installing Vessel Monitoring System (VMS) on all vessels operating in Myanmar.

26. While supporting the suggestion from Myanmar Representative for the installation of

VMS, *Dr. Rudolf Hermes* suggested to the Meeting the necessity to identify first the steps to follow up on the suitable design before subsequent implementation of the same. Citing the case of India and Indonesia on their trans-boundary problems, the Meeting was informed that information sharing can harmonize the system. This may however be a far reach since even rules in each country have their differences and each unit may have domestic “trans-boundary” disputes. In reaction to this matter, SG viewed that not only does territorial dispute exists between countries but also within countries and between neighboring user groups and competing interests.

27. While developing and implementing national structures for the implementation of MCS, it was also recommended that Member Countries should work to include all types of vessels. The Meeting likewise recommended advance the establishment of improved networks for information sharing and the systems for data management.

28. Appreciating community participation as a vital factor in the successful implementation of any fisheries and habitat management project, the Meeting was encouraged to recognize the importance of stakeholder’s participation and the possibility of inviting high ranking officials and policy makers in the processes relevant to fisheries and habitat management. The attendance of the high-ranking officials to any Meeting might propel suggestions/ recommendations from the meeting into substantial action.

29. However, the Meeting was advised to carefully examine the recommendations made at this meeting and consequently synthesize and digest them a bit to find out how these recommendations best could be implemented and the functions needed to do that. Based on the recommendations from this meeting SAFDEC-Sida and BOBLME will come up with a specific and generic suggestions, and will possibly try to discuss with the Countries for further implementation.

5.2 Cooperation through the Vessel Registration and licensing system, vessel record and Inventory

30. *Ms. Keni Anak Ngiwol*, RFPN for Malaysia presented on “**Fishing Vessel Registration and Licensing Procedures in Andaman Sea Countries (Malaysia, Indonesia, Thailand and Myanmar)**”, the Meeting was noted of various systems applied in fishing vessel registration, licensing and institutional responsibilities among Andaman Sea countries. She also discussed the varying legislations among the countries mandating their respective legal institutions towards vessel registration and license to fish. Her presentation as appears in **Annex 11**.

31. It was highlighted in the presentation that SEAFDEC, with support from SEAFDEC-Sida Project, had already conducted initiatives towards managing fishing capacity. It was stressed that “fisheries can not be managed without management of fishing capacity and active fishing efforts”. Moreover, one of the major concerns highlighted to the Meeting was that, there is a need to record the number of vessels in order to be able monitor the number of vessels involved in fishing and to restrict fishing activities to avoid over-fishing. In support to the aforesaid need, she highlighted that a “Vessel Record and Inventory Form” had been introduced in the Region last 2009. It was however pointed out that no clear directions had been recommended by member countries for the use and applications of the forms.

32. *Mr. Kongpathai Saraphaivanich*, representative from SEAFDEC/Training Department updated **on the results of previous Experts Group Meeting for Promotion of Fishing License, Boats Registration and Port State Measures Project**. He informed the Meeting that since 2011 – 2012, two expert meetings had been conducted by SEAFDEC Training Department (TD) in

Bangkok. The first meeting in 2011, the Regional Core Experts Meeting on Fishing License, Boats Registration and Information Gathering on Export of Fisheries Products in Southeast Asia, recommended the development of a website in combating IUU fishing, collection of necessary information for fishing license and boats registration from each country and the development of the regional guidelines on fishing license and boats registration. Meanwhile, the second SEAFDEC/TD Expert meeting on Fishing License and Boats Registration was conducted in June 2012 and participants suggested that a data collection system in recording fishing vessels 24 meters in length and over per country in the region should be developed.

33. The representative from Malaysia added that the Department of Fisheries Malaysia a sole agency responsible for the registration of fishing vessels and issuing licenses to fish; hence it is easier to control the activities of the fishing industry and to manage the exploitation of fisheries resources. A license to fish is a requirement for all fishing vessels operating in Malaysian waters, including all small-scale vessels. Licenses are issued based on a zoning system where the near coastal waters are reserved for “traditional” fishing. There are three zones within the EEZ of Malaysia. The coastal area had already optimized their fishing operation resulting to moratorium on the issuance of license to fish. In addition to the zoning system (based on the size of the vessels) the zoning system facilitates the control of fishing activities and prevents conflict between larger and smaller scale users of marine and fisheries resources.

34. In Myanmar, the Department of Marine Administration and Department of Fisheries are responsible for registration and licensing of fishing vessel. The fishing vessel operating in areas above 5NM from shoreline should apply for license to fish while smaller vessels are allowed to operate in areas less than 5NM from the shoreline and they are not required to apply for license. However, small-scale fishermen are required to report to the local government prior to fishing operation. Both large and small-scale fishing vessels are required to report their total catch by species for compilation to the database as basis for controlling fishing capacity.

35. The representative from Thailand informed the Meeting that licenses are required for the type of fishing gear to use. There are 40 types of fishing gears listed that could be provided with a license to fish. The licenses are applicable for fishing activities in all of Thai waters except in conservation zones. Efforts were made to control destructive fishing capacity and trawls, push nets and fishing gears for catching anchovy are prohibited to operate in a range of 3,000 meters from shoreline. Meanwhile, conflict between large and small scale occurs in some provinces, as these provinces apply a conservation zone of up to 4,500 meter from the shoreline. In addition a program to promote the development of fishing rights between Thailand and Myanmar is already ongoing.

36. With regards to the system implemented in MOMAF – Indonesia, the Meeting was informed that both fishing vessel registration is under the Ministry of transportation and licensing is the responsibility of the Ministry of Marine Affairs and Fisheries. The registration procedures for fishing vessels are stipulated under the Indonesian Law of Shipping while the licensing for fishing activities are mandated under the Law of Fisheries. Furthermore, MOMAF – Indonesia also updated the Meeting on the new regulations and procedures on fishing vessel licensing for fishing in Indonesian waters. In these regulations licenses have to make reference to indicated fishing areas as Indonesia have established Fisheries Management Areas to control fishing capacity within the national waters.

37. In relation to the national systems presented, the Andaman Countries were encouraged to ensure the effectiveness of the existing system on fishing vessel registration and licensing

procedures in order to efficiently implement monitoring and control of the fishing vessels including fishing activities. Furthermore, the Meeting was requested to identify trans-boundary issues related to the monitoring and control of fishing vessels to possibly forge agreements between Countries around the Andaman Sea.

5.3 Port Monitoring and Monitoring of Landings by “neighboring” vessels

38. *Dr. Kyaw Kyaw*, RFPN for Myanmar presented on **“Port monitoring and monitoring of Landing by neighboring vessel – cooperation among Andaman Sea Countries”**. He emphasized the important role of the port state to implement effective port monitoring and inspections to be able to perform the essential tasks that are needed to monitor vessels at ports and to determine the legality of catches being landed. Effective and reliable port monitoring is fundamental in follow up and to improve fisheries management in the Region. He pointed out the need to establish good and transparent port monitoring mechanisms in sub-regions and the region. To strengthen the effectiveness and to reduce the landing of illegally caught fish it is necessary to establish good cooperation among all relevant sectors and institutions, as well as among neighboring countries. His presentation appears as **Annex 12**.

39. The representative from Indonesia stated that better information sharing as part of port monitoring system should be enhanced. He informed that in Indonesia, they have many fishing ports and he informed that they also have small fishing ports. In North Sumatra they have 27 fishing ports (government and private) and nearly 75% of landed fish are landed in private fishing ports, thus, making it difficult to compile reliable fish landing information.

40. The representative from Thailand informed that there are two kinds of monitoring being done fishing ports in Thailand: 1) The monitoring at ports of fish being landed, species, catch composition, etc (to provide a basis for Thai statistics on landed fish), and 2) The monitoring of larger fishing vessels, including foreign vessels and vessels that catch fish outside of Thai waters (using purse seines and trawls). With regards to actual **port inspection**, another unit is assigned for Phuket, Ranong and Satun Fishing Ports. The unit was made up of a composite team of the staff assigned, representing different departments and discipline. The involvement of Customs is important to conduct inspections on foreign vessel to determine the legal status of species of fish being landed in Thailand (the Thai DOF don't have any legal right to board foreign vessels. She added that DOF, Thailand have proposed a project on port monitoring and port inspections to FAO with the Phuket Fishing Port as a pilot site.

41. In addition, most of the fishing ports in Thailand are not under the DOF but rather managed by the Fish Marketing Organization (FMO). The FMO is a government enterprise. Neither “port state measures” nor “vessel inspection” is the main purpose of the FMO but rather the maintenance and renovation of facilities to ensure adequate hygienic standards allowing for improved quality of fish products being landed. Moreover, it is important to preserve fish and fisheries products through proper handling, preparation, refrigeration or freezing in food storage facilities at the port. It is important to maintain good water supplies to control and prevent epidemic outbreaks of infectious diseases from unsecured products (citing the green water technology). Furthermore, the participating countries were encouraged to take into account the principles of food safety hygiene and sanitation from the local level and up to national and international level to ensure good health of the people and good quality of exported products.

42. In reaction to the growing need for port inspection to meet a variety of demands, it was mentioned that the recognition of the importance of port monitoring (not only for fish products)

had existed for centuries. Furthermore, the point were raised that the bottom-line for “port managers” is how to effectively manage the ports. In the short run, Thailand and countries around the Andaman Sea can make special arrangements where they can discuss aspects on ways of managing the ports depending on who are the parties involved and to relate critical matters to the to the legal requirements (and implementation) of involved countries. The basic concern for many ports is not really the “policing” but rather to find ways of using the ports in a way that would improve the whole management not only on fish landing but including environmental concerns such as unhealthy environment in the ports and thus, affecting the quality of products being landed.

43. The representative from Thailand informed the Meeting that the Department of Fisheries, Thailand has no responsibility to inspect foreign fishing vessels as there is no specific law mandating the DOF to do such. Likewise, citing differences between the national laws of Andaman countries applicable to the implementation of Port State Measures, the Meeting was informed that the Thai National Fisheries Law can only be applicable to vessels from Thailand, carrying Thai flag.

44. The participants were advised to follow up in their respective countries on the possibility and options available accede to the FAO Agreement on Port State Measures. In relation to this, the Meeting was again made aware of the need to look into the existence of national laws that would facilitate the implementation of the Agreement, such as national legal frameworks that allows for the inspection of foreign fishing vessels. Furthermore, the documentation landed catches should be categorized to facilitate catch certification and onward distribution (processing, direct export, etc). The Meeting suggested that capacity building should be a priority and aiming towards common standards among Andaman and ASEAN countries based on regional applications of the FAO Guidelines (attached to the FAO Agreement).

45. *Dr. Rudolf Hermes*, Chief Technical Advisor of BOBLME informed the Meeting that FAO is creating a database in follow up to the implementation of Port State Measure. He clarified that BOBLME is not involved in the data collection for improved fisheries statistics. He also emphasized on the concrete need for capacity building on taxonomy for strengthened species identification allowing for improved records on species composition of landed. The BOBLME can support capacity building on taxonomy. In response to the suggestion made by BOBLME, SG Chumnarn expressed his appreciation to BOBLME for involving in development of capacity building for taxonomists thus improving record of species composition of catches in the Andaman region.

VI. THE VULNERABILITY OF SEA GYPSIES FISHERFOLK

46. *Ms. Pilaiwan Prapruit*, lecturer from Prince of Songkhla University (PSU), presented a comprehensive study on modern sea gypsies particularly the Urak Lawoi, known to be the first inhabitants of Lipe Island in Thailand. She explained about the location, area coverage and population density of Lipe Island and how they differ physically, demographically and economically from the general population on the mainland of Thailand. The Meeting was informed on the presence of three types of sea gypsies in the Andaman Sea. These are the Moken, Moklen and Urak Lawoi.

47. It was noted that Urak Lawoi are fishermen by birth who have their own identity, tradition, culture and livelihood and that in 5 years, Lipe Island have changed dramatically. The causes of

changes are both from physical and human driving forces that have had impacts on the island. Obviously, Urak Lawoi attempt to cope with the vulnerability to their livelihood and its consequences by applying their indigenous knowledge in flexible and adaptive way to provide a “cushion” to cope with the changes.

48. Expressing concerns, the Meeting inquired on how promoting tourism can conserve the fishery habitat around Lipe Island. The Meeting was informed of the Eco-tourism approach adopted in the area. It was also mentioned that since tourism progressed, no illegal fishing activities by local fishermen have been reported. The Urak Lawois who were trained to be tourist guides were also provided with extensive knowledge on the importance of the habitat. The meeting was informed of the Local Ecological Knowledge (LEK) also known as Local Indigenous Knowledge of the Urak Lawoi. The LEK made them appreciate better, compared with other groups of people, the ecology of the island and the surrounding marine ecosystem as they are dependent on the area for livelihood.

49. In anticipation to possible proliferation of tourists in the area, the Meeting recommended that there should be a practical control of the number of tourists. It was further recommended to expand the Working Group on MPA (BOBLME) to include quantitative and economic aspects of tourism in forthcoming studies on MPA and the management of protected areas. In response, Ms. Pilaiwan informed the Meeting that social impact of tourism in the Lipe area will be included in the follow-up study by the PSU that would include factors that affect the sustainable development of the area. However, she expressed concern on the lack of staff to undertake the study.

50. In relation to the socio-economic aspects of tourism business in the island, the Meeting was likewise advised on the importance to also consider and take into account the changes in lifestyle of the Urak Lawoi people and to determine, in consultation with the people, whether the lives of the people have changed – to the better or worse?? There was also an expressed concern on how the indigenous knowledge and traditions can be sustained while furthering development.

51. The Meeting was informed that there exists a local language for the Urak Lawoi. However, it was noted that no written documentation on their culture in their own language have been conducted by the Urak Lawoi as they have no written language. Likewise, it was mentioned that a study on the language of the Moklen and Urak Lawoi had been conducted but that did not include any written language. The Meeting was further informed that some students have conducted initial historical studies but not on their local knowledge of the sea. The Meeting was made aware that a book by Mahidol University- Thailand had been published that include their local knowledge and local perceptions of the sea. In addition, the Meeting was informed of the project entitled “IMPAACT” by the Victoria University – Canada, which is focused on the local knowledge of Moklen Tribe.

52. The Meeting acknowledged the need for conservation of the local knowledge of the Sea Gypsies (the Urak Lawoi) particularly on their perception of the sea including practices in maintaining habitats and means to sustain local fishing as this knowledge may disappear due to the stream of developments. Of special interest to this fisheries group was the reference to a selective trap fishing gear where a particular bait propelled the selectivity of the gear. In general, the Meeting stressed the need to better appreciate the importance and cultural heritage of local knowledge – and the rights of indigenous to sustain their livelihoods. SG added that SEAFDEC would continue to address the importance of local knowledge and the role of groups like the Urak Lawoi.

VII. STRENGTHENING OF SUB-REGIONAL DIALOGUE AND BILATERAL/ TRI-LATERAL COOPERATION AROUND THE ANDAMAN SEA AND BAY OF BENGAL

53. To initiate recommendations on the strengthening of bilateral/ trilateral cooperation and sub-regional arrangements for the Andaman Sea and Bay of Bengal, *Ms. Pattaratjit*, introduced to the Meeting a potential framework, primarily to be facilitated by SEAFDEC and BOBLME together with the National Partners. The immediate target would be to facilitate recommendations on sub-regional management arrangements in the eastern part of the Andaman Sea.

54. Following recommendations on the habitat and fisheries management (migratory path of *Rastrelliger* spp and related species) the meeting suggested that the Eastern Andaman Sea should be divided into 2 sub-sub-regions. The first area is the Northern Andaman Sea, from Phuket and up north, including areas of Myanmar and Thailand. The second area is the Southern part, from Phuket down south in into the Malacca Straits, including areas of Indonesia, Malaysia and Thailand. Suggested areas for strengthened cooperation, as presented, include aspects to improve habitat and fisheries management of mutual interest as a basis for trans-boundary dialogue, including options to build and formalize sub-sub regional based on local, trans-boundary practices among provincial agencies - even though they may deviate from the “central” norms.

55. Specific points raised by each of the participating Andaman countries are reflected in Section VIII (Conclusions, Steps to take by Countries, SEAFDEC and BOBLME). In addition, it was recommended to sustain the approach outlined during the Meeting and follow up with India and Bangladesh as additional dialogue partners. The Meeting promptly supported that recommendation.

56. The first round, or type, of agreement among countries, or groups of countries was in general anticipated to be based on bilateral and multilateral agreements depending on the number of countries to be involved in the development of a specific agreement. The Meeting, furthermore recommended for SEAFDEC, BOBLME and partners to apply, where applicable, the technique developed by the IUCN program “Mangrove for the Future” to facilitate dialogue among partners and countries in a given area or sub-region. The Meeting also advised SEAFDEC and BOBLME to coordinate with CORIN-Asia, IUCN and others facilitating cooperation in, and around, the Andaman Sea and try to support promising management options proposed by those and other partners.

57. In general the approach to facilitate dialogue and cooperation among countries and partners at sub-regional, and sub-sub-regional, level was adopted or supported by participants. The lessons learned from sub-regional dialogue and sharing of experiences can be adopted and pieces of “fragmented” results can be put together for future holistic analysis.

58. Furthermore, some participants indicated, with concern on the slow general progress of fostering cooperation in a range of areas, that the First Andaman Sea Meeting (in 2009) where more clear in recommendations on cooperation and ambitions to develop regional agreements over a range of aspects such as those raised in this meeting. These weak responses during this, the final session of the Second Andaman Sea Meeting, on progress towards sub-regional agreements shows a need for SEAFDEC, BOBLME and others to get back to the countries to get earlier (and present) recommendations and commitments confirmed to secure a solid platform for cooperation

and the development of agreements in the region.

VIII. CONCLUSION, STEPS TO TAKE BY COUNTRIES, SEAFDEC, BOBLME

59. A set of recommendations from the meeting were summarized in **Annex 15**. Based on these responses and earlier inputs from the Andaman Countries (sub-regional, on-site, etc), the final set of recommendations from the meeting will be developed and attached to the final report. The participating countries were also requested to provide recommendations on possible future priority steps to be undertaken by each of the countries. The summary inputs from the countries during the meeting was as follows:

Thailand:

- a. Study on Indian mackerel and Indo-pacific mackerel particularly on mtDNA.
 - i. *The representative from Thailand cited the aforesaid activity as one of the priority steps and requested support from BOBLME. The Meeting was informed of the support of Thailand for the conduct of assessment in the four present Andaman Countries.*
- b. Bring back the agreements from the First Andaman Sea Meeting i.e. Application of Port State Measures, etc. into action;
- c. Setting-up of Regional (MCS) Network on information sharing;
- d. Specific steps in relation to the Port State Measures (PSM) such as bilateral agreements to inspect fishing vessels from other countries. Agreements must follow and include criteria (outlined in the PSM Agreement) for inspection on board foreign vessels;
- e. Training of trainers on inspection and protocols for inspection following the Attachments of the FAO PSM Agreement.

Malaysia:

- a. Advised on continued related studies to trans-boundary stocks the Andaman Sea (Malaysia expressed their support and possible participation/collaboration);
 - i. *The study was proposed to be conducted in four countries under the umbrella of BOBLME Project.*
 - ii. *The issue on the use of foreign research vessel in Malaysia was raised and if the issue cannot be resolved, the Meeting indicated the need to resort to the use of Malaysian flag state research vessels. In conducting studies on mackerels the Meeting was advised to look not only on species related subjects but also on identification of areas (important habitats) within the coastal state waters including adjacent waters.*
 - iii. *Furthermore, the meeting was informed that M/V SEAFDEC 2 is not a foreign vessel, as it is owned by SEAFDEC. Citing the extensive experiences of the crew and researchers onboard, SG informed the Meeting of the benefits should M/V SEAFDEC 2 be used in the conduct of the studies in Malaysian and adjacent waters.*

In response, Mr. Abu Talib informed the Meeting that should M/V SEAFDEC 2 plan to undergo research studies in Malaysia, they will still need to secure permit from the Security Council, which oftentimes is disapproving such applications. Mr. Talib likewise informed the Meeting of the possible acquisition of one Malaysian research vessel for Malaysian research studies.

In view of the above issues raised, Dr. Rudolf informed the Meeting that foreign research vessels can work at Malaysian waters but there are limitations/ restrictions on the equipment onboard i.e. SONAR and RADAR and other equipment that can be seen as military intelligence equipment.

- b. Implementation of Fisheries Management in the Andaman Sea particularly on *Rastrelliger* spp. and related species building upon initiatives supported by the BOBLME initiative and SEAFDEC
- c. Fish stock assessment surveys for Indonesia, Malaysia, Thailand and Myanmar;
 - i. *The stock assessment should be conducted in the four Member Countries bordering the Andaman Sea with the use of M/V SEADFEK 2. However for Malaysia, the Meeting was informed that should studies be implemented, assessment activities in Malaysia should use Malaysian Flag Vessel due to existing stringent national measures to allow foreign fishing/ research vessels operation using similar methodology used in three other countries.*
- d. Promotion on the effectiveness of fishing capacity to include the 11 countries involved in the RPOA
 - i. *In view of the aforesaid, DOF-Malaysia informed the Meeting that the process is already moving forward as the 11 RPOA countries have already met in a dialogue. Note: all Andaman countries except Myanmar and India are involved in the RPOA.*

Indonesia:

- a. Possibility of more cooperation among Thailand, Malaysia, Indonesia and Myanmar for important pelagic species in support of improved management;
 - i. *Indonesia cited the *Rastrelliger* species and the very important fishery management needs among the aforesaid four countries bordering the Andaman Sea. The Meeting was informed of the critical importance of the articipation of SEAFDEC and BOBLME in collaboration with the Indonesian National Government.*
- b. Citing the unique implementation of Indonesia in implementing fisheries management, Indonesia offered their interest on sharing the process they undertake which may eventually improve data collection process:
 - i. *Considering that each country has the unique National Policy in fishery management, the representative from Indonesia reiterated the importance of sharing of experiences and techniques like vessel the marking in Indonesia (as the marking it is essential in the monitoring and the managing of vessels in the Andaman Sea sub-region). Furthermore, they*

suggest dialogue with Thailand on how Thailand collects the data from the landing sites.

Indonesia cited Banda Aceh data collection as a potential site for the fishery data collection to obtain reliable data in the area especially on the catch of mackerels.

- c. In relation to IUU, Indonesia can only share experiences on large-scale surveillance but needs further dialogue or forum on sharing of experiences in monitoring and surveillance of fishing vessels.
 - i. *In relation to the aforesaid suggestion from Indonesia, the Meeting was informed of the desire to conduct dialogue on forthcoming and continued step towards combating IUU Fishing with support from SEAFDEC and BOBLME - if possible not only in Andaman Sea but also in Malacca Strait.*

Myanmar:

- a. Follow-up with the other countries on research projects related to *Rastrelliger* spp.
 - i. *The Meeting was informed on the interest of Myanmar to conduct studies on Indian mackerel and Indo-pacific Mackerel and determination of the trans-boundary migration. Likewise, the Meeting was informed that assessment, breeding and population studies could be included.*
- b. Capacity building and cooperation with neighboring countries on Onsite inspection of fishing boat.

IX. CLOSING OF THE MEETING

60. The Secretary-General of SEAFDEC, *Dr. Chumnarn Pongsri* expressed his gratitude to the participants for their inputs during the two-day meeting in which a good exchange of views solidified closed cooperation among representatives. He affirmed that that this Meeting could be an important venue to set directions where priority projects and workable activities have been identified. He then declared the Meeting closed.

List of Participants

Indonesia

- Suwarso, M.Si**
Senior Researcher
Marine Fisheries Research Center for Fisheries Management and Conservation
Agency for Marine and Fisheries Research and Development, Ministry of Marine Affairs and Fisheries
Jl. Muara Baru Ujung,
Jakarta 14440, Indonesia
Tel : + 62 852 16980875
Fax : +62 21 6605912
E-mail : swarsorimf@gmail.com
- Cecep Ridwan Wahyuni**
Staff of Directorate of Fisheries Resources
Ministry of Marine Affairs and Fisheries
Jl. Medan Merdeka Timur No. 16
Jakarta Pusat 10110, Indonesia
Tel/Fax : +62 21 3453 008
E-mail : cecep.wahyudi1980@gmail.com
- Mahrus**
Staff of Program Cooperation Division
Directorate General of Capture Fisheries
Ministry of Marine Affairs and Fisheries
Jl. Medan Merdeka Timur No. 16
Jakarta Pusat 10110, Indonesia
Tel/Fax : +62 21 352 1781
E-mail : mahrus_mmaf@yahoo.com
- Matius Bangun**
Division Head,
Capture Fisheries Marine Affairs and Fisheries Office of North Sumatera Province
Provincial Marine and Fisheries Office, North Sumatra
Jl. Sei Batu Gingging No.6
Medan North Sumatera 20154, Indonesia
Tel : +61 456 8819
Fax : +61 4153338
E-mail : mt.bangun@gmail.com
- Arik Sulandari (Ms.)**
Staff of Program Cooperation Division
Directorate General of Capture Fisheries
Ministry of Marine Affairs and Fisheries
Jl. Medan Merdeka Timur No. 16
Jakarta Pusat 10110, Indonesia
Tel/Fax : +62 21 352 1781
E-mail : arik_keuangan@yahoo.com

Rina Herawati (Ms.)
Staff of Program Cooperation Division

Directorate General of Capture Fisheries
Ministry of Marine Affairs and Fisheries
Jl. Medan Merdeka Timur No. 16
Jakarta Pusat 10110, Indonesia
Tel/Fax : +62 21 352 1781
E-mail : rina_hrwt@yahoo.com

Richard Rumpet
Senior Researcher

Malaysia

Department of Fisheries Malaysia
Fisheries Research Institute Sarawak
Jalan Perbadanan, Bintawa
P.O Box 2243, 93744 Kuching
Sarawak, Malaysia
Tel : +60 8 2334144
Fax: +60 8 2331281
E-mail: richardrum@yahoo.com

Jackson Anak Clive Jusak
Fisheries Officer

Department of Fisheries Malaysia
Sarawak State Marine Fisheries Office
Level 15, Bangunan Sultan Iskandar
Jalan Simpang Tiga, Peti Surat 1375
93728 Kuching Sarawak Malaysia
Tel : +60 82 240 046
Fax: +60 82 415 499
E-mail: jackson@dof.gov.my

Halijah bt Mat Sin (Ms.)
Director,

Department of Marine Park Malaysia
Aras II, Wisma Sumber Asli
Putrajaya, Malaysia
Tel : +60 3 888 61379 62628
E-mail: halijahmatsin@nre.gov.my

Mazidah bt Ab. Hamid (Ms.)
Fisheries Officer

Department of Fisheries Malaysia
Wisma Tani, Block 4G2, Precint 4
Federal Government Administrative Centre
62628, Putrajaya, Malaysia
Tel : +60 3 8870 4664
Fax: +60 3 8889 2180
E-mail: mazidah@dof.gov.my

Htun Win
Director,
Research and Development Div.

Myanmar

Department of Fisheries
Conner of Bayint Naung Rd. and
Bayint Naung Avenue, West Gyogone
Insein Township Road
Yangon, Myanmar
Tel: +95 1 647532
Fax: +95 1 647533
E-mail: twtunwinkyi1@gmail.com

Kitty Sein (Ms.)
Deputy Director

Planning and Statistics Department
Ministry of Environmental Conservation and Forestry
Building No. 28, Nay Pyi Taw, Myanmar
Tel : +95 67 405376
Fax: + 95 67 405012

Htay Lwin Oo
Deputy Director
(Nautical)

Department of Marine Administration
Dockyard Main Rod, Dawbon Township
Yangon, Myanmar
Tel : +95 59 42808, +95 1 553091
Fax: + 95 1 556047
E-mail: hlwinoo@gmail.com

Thailand

Praulai Nootmorn (Ms.)
Director,
Marine Fisheries Research and
Development Technological Institute

Department of Fisheries,
Kaset-Klang, Phaholyotin Rd., Chatuchak
Bangkok 10900, Thailand
Tel : +66 2 9406559
Fax : +66 2 9406559
E-mail: nootmorn@yahoo.com

Poungthong Onoora (Ms.)
Chief,
Marine Law Studied Group

Legal Affairs Division
Department of Fisheries,
Kaset-Klang, Phaholyotin Rd., Chatuchak
Bangkok 10900, Thailand
Tel : +66 2 561 2928, 562 0600-15 Ext. 2121
Fax : +66 2 5612928
E-mail: poungthong.marine@gmail.com

Bundit Kullavanijaya
Chief,
Ladkrabang Fish Inspection office

Department of Fisheries,
Kaset-Klang, Phaholyotin Rd., Chatuchak
Bangkok 10900, Thailand
Tel: +66 2 3609117
Fax : +66 2 3609112
E-mail: kullavanijaya@hotmail.com

Suchart Ingthamjitr
Director,
Fisheries Licensing and Management
Measure Section

Department of Fisheries
Fisheries Administration and Management Bureau
Department of Fisheries
Kaset-Klang, Phaholyotin Rd., Chatuchak
Bangkok 10900, Thailand
Tel: +66 2 579 9767
Fax : +66 2 561 4689
E-mail: sucharting@gmail.com

Wudtichai Wungkhahart
Director,
Andaman sea Fisheries Research and

Department of Fisheries
77 Moo 7, Sakdidej Road
Vichit Sub District, Muang District

Development Center

Phuket Province 83000, Thailand
Tel : +66 7 6391138
Fax : +66 7 6391140
E-mail: wungkahart@yahoo.com

Kumpon Loychuen
Chief,
Ranong Marine Fisheries Station

Department of Fisheries
157 Moo 1, Sapanpla Road
Paknam Sub-District , Muang District
Ranong Province 85000, Thailand
Tel: +66 7 7812365-6
Fax : +66 7 7812365
E-mail: k_loychuen@yahoo.com

COLLABORATING PARTNERS

Bay of Bengal Large Marine Ecosystem Project

Rudolf Hermes
Chief Technical Advisor

BOBLME
77 Moo 7 Sakdidej Raod
Makham Bay, Tambol Vichit, Muang District
Phuket 83000, Thailand
Tel: +66 8 44395209
Fax: +66 76 391864
E-mail: rudolf.hermes@boblme.org

Swedish Agency for Marine and Water Management

Lars Johansson
Senior Fisheries Officer

Box 11930 SE 404 39
Goteborg, Sweden
Tel: +46 705129973
E-mail: larsingen@hotmail.com

Peter Funegard
Senior Analyst

Box 11930 SE 404 39
Goteborg, Sweden
Tel: +46 706899325
E-mail: peter.funegard@havochvatten.se

Prince of Songkla University

Pilaiwan Prapruit (Ms.)
Research Lecherer

Marine and Coastal Resource Institute
15 Karnjanayanit Road
Hat Yai, Songkla 90110, Thailand
Tel: +66 8 19597443
E-mail: ppilaiwa@yahoo.com

Observer

Rick Gregory
Consultant

P.O. Box 3, Prasing Post Office
Muang District, Chiang Mai 50205
Thailand

Tel: +66 8 495 03740
E-mail: richgregory1@gmail.com

SEAFDEC

The Secretariat

Chummarn Pongsri
Secretary-General

SEAFDEC/Secretariat
P.O. Box 1046, Kasetsart Post Office
Bangkok 10903, Thailand
Phone: +66 (2) 940 6326
Fax: +66 (2) 940 6336
E-mail: sg@seafdec.org

Magnus Torell
Senior Advisor

E-mail: magnus@seafdec.org

Tadahiro Kawata
Technical Coordinator

E-mail: kawata@seafdec.org

Nualanong Tongdee (Ms.)
Information Program Coordinator

E-mail: nual@seafdec.org

Pattaratjit Kaewnuratchadasorn (Ms.)
SEAFDEC-Sida Project Manager

E-mail: pattaratjit@seafdec.org

Sawitree Chamsai (Ms.)
Policy and Program Officer

E-mail: sawitree@seafdec.org

Sawitree Chamsai (Ms.)
Policy and Program Officer

E-mail: sawitree@seafdec.org

Training Department

Kongpathai Saraphaivanich
Section Head,
Information and Communication
Technology Section

P.O. Box 97 Phrasamutchedi
Samut Prakan 10290, Thailand
Phone: +66 2 425 6100
Fax: +66 2 425 6111
E-mail: kongpathai@seafdec.org

Penchan Laongmanee (Ms.)
Section Head,
Fishing Ground & Fishery
Oceanography Section

E-mail: penchan@seafdec.org

Natinee Sukramongkol (Ms.)
Fishery Oceanographer

E-mail: natinee@seafdec.org

**The Marine Fishery Resources Development
and Management Department (MFRDMD)**

Abu Talib Ahmad
Special Department Coordinator

Taman Perikanan Chendering
21080 Kuala Terengganu, Malaysia
Tel: +609 6175940, 6171543
Fax: +609 617 5136
E-mail: abutalib@seafdec.org.my

SEAFDEC Regional Fisheries Policy Network (RFPN) Members

Leng Sam Ath
RFPN for Cambodia

SEAFDEC/Secretariat
P.O. Box 1046, Kasetsart Post Office
Bangkok 10903, Thailand
Phone: +66 (2) 940 6326
Fax: +66 (2) 940 6336

Adi Wibowo
RFPN for Indonesia

Sisamouth Phengsakoun (Ms.)
RFPN for Lao PDR

Keni Anak Ngiwol (Ms.)
RFPN for Malaysia

Kyaw Kyaw
RFPN for Myanmar

Ronnie O. Romero
RFPN for the Philippines

Issarapon Jithlang (Ms.)
RFPN for Thailand

Le Hong Lien (Ms.)
RFPN for Vietnam

Secretariat of the meeting

Matinee Boonyintu (Ms.)

SEAFDEC/Secretariat
P.O. Box 1046, Kasetsart Post Office
Bangkok 10903, Thailand
Phone: +66 (2) 940 6326
Fax: +66 (2) 940 6336

Julasak Markawat

E-mail: julasak@seafdec.org

OPENING REMARKS

By Dr. Chumnarn Pongsri, SEAFDEC Secretary-General

Distinguished delegates from Indonesia, Malaysia, Myanmar and Thailand, representatives from academic, Dr. Rudolf Hermes, Chief Technical Advisor of the BOBLME Project, honorable guests from Swedish Agency for Marine and Water Management, my colleagues from SEAFDEC, Members of the Regional Fisheries Policy Network, Ladies and Gentlemen, Good morning,

It gives me a great pleasure to welcome all of you and chair the Opening Ceremony this morning of “The 2nd Meeting of the Andaman Sea Sub-region” which is co-hosted by the SEAFDEC-Sida Project in cooperation with the BOBLME Project. We would like to express our deepest appreciation to all of you for sparing your valuable time to take part in this important gathering.

Please allow me to recall you on the process of the initiative in the promotion of sustainable fisheries around the Andaman Sea Sub-region under the SEAFDEC-Sida Project that started in 2009. Activities have been implemented by promoting dialogues among Andaman Sea Member Countries namely Indonesia, Malaysia, Myanmar and Thailand with aims to achieve the long term sustainable use of fisheries resources, habitats and mitigate impacts of climate change on the livelihoods of the fisherfolk of the Andaman Sea Sub-region. The SEAFDEC-Sida Project in cooperation with the Bay of Bengal Large Marine Ecosystem (BOBLME) Project has worked together to promote key concerns on fisheries and habitat management through the concept on Ecosystem Approach to Fisheries, fishing capacity, reduce IUU fishing, aiming towards sustainable management actions for the Andaman Sea Sub-region.

Along with the efforts that the SEAFDEC-Sida Project has made in close collaboration with the BOBLME Project to promote sustainable fisheries and protection of the marine environment of the Andaman Sea. The SEAFDEC-Sida Project emphasized throughout these few years on the necessity to understand the importance of habitat and management fisheries and reduce IUU Fishing around the Andaman Sea at local levels. A sequence of the On-site Workshops have been conducted during 2010-2011, in cooperation with Member Countries in Medan, Indonesia, Langkawi, Malaysia, and Satun and Ranong, Thailand. Furthermore, the dialogues to promote sub-regional arrangement also took part at sub-sub-regional Consultative events for the southern and northern Andaman Sea, respectively, in 2010 and 2011 by providing venues to review problems and suggest solutions on matters of importance to fisheries and habitat management, the movement and life cycle of *Rastrelliger* spp, basic for enforcement of rules and regulation as well as to explore options to develop arrangements for cooperation and management around Andaman Sea sub-region.

Ladies and gentlemen,

A continuation of the process has been deemed essential by all involved parties at regional, national and local levels. Hence, this Meeting gives the attention for the Andaman Sea sub-regional coordination in order to move forward for the management and coordination on areas of common interests among the Countries and to move from a period of initiating to action. The Meeting is intended to provide a venue for Member Countries to discuss for cooperation and to review the recommendations and actions suggested during the sequence of On-site events/sub-regional consultations/regional consultation and to promote a defined and results oriented plan of

implementation of identified priority actions of continued on sub-regional concern, such as environmental sustainability, integration of fisheries and habitat management (ecosystems approach to fisheries), conservation measures for important migratory species (*Rastrelliger spp* and *Hilsa*), management of fishing capacity, vessel registration, port monitoring etc as well as to combat illegal and destructive fishing. It is expected that we will agree on some concrete recommendations on how further cooperation between Andaman Sea Countries and SEAFDEC and BOBLME project to improve fisheries and habitat management and dealing with issues on illegal and destructive fishing in the Sub-region.

Finally, on behalf of the organizers, I would like to take this opportunity to once again welcome you all and I hope that, apart from learning more about our sea, our resources, we look forward to a successful output of your deliberations. Without further ado, it is opportune time for me now to declare the Second Meeting of the Andaman Sea Sub-region open. I hope you have a pleasant stay in Phang Nga. Thank you very much and have a good day.

PROVISIONAL PROPECTUS

I. Introduction

The growing understanding on the importance of coastal fisheries resources and marine ecosystems for the livelihood and sustenance of coastal communities has been followed by a rapid increase in the attention and calls in recent year on actions to take to improve the situation for affected communities. These communities are in the midst of pressures from a range of sources that need to be considered (natural and anthropogenic) such as impacts of environmental degradation, climate variability and climate change, natural calamities, illegal and destructive fishing methods, overfishing, etc. Actions/measures to counter and mitigate the effects of these situations and to attain sustainability of natural resources utilization, fisheries and other means of livelihoods should be promoted for generations to come. To meet these challenges in the Andaman Sea sub-region, SEAFDEC in cooperation with the BOBLME, has continued to provide platforms (in the region and in key sub-regions) to collectively address these environmental, natural resources, fisheries and human concerns. Similar approaches have also been implemented in South China Sea and Gulf of Thailand Sub-regions.

The Sub-regional cooperation for the management of fisheries in various sub-regions of the Southeast Asia has been an effective means in pooling managers and experts in addressing issues affecting fisheries sustainability and to highlight important baselines for continued action. Series of technical meetings/consultations have been carried out to encourage exchange of ideas, to explore strategies and to clarify challenges facing the Region. In the Region, the ASEAN and SEAFDEC has, together with the BOBLME Project, been promoting regional and sub-regional cooperation by continuing to provide venues for dialogues to enhance such cooperation in fisheries related aspects. One important focal area in the process is the strengthening of human capacity among fishing communities and related parties to improve the Integration of Fisheries and Habitat Management and the Management Fisheries Capacity including efforts to address climate change and adaptation. The sub-regional cooperation for the Andaman Sea sub-region is the main targeted area for cooperation under the present phase of the SEAFDEC-Sida Project. The Andaman Sea is an important section of the Bay of Bengal and, thus, a major priority for the BOBLME Project.

Within the Andaman Sea sub-region the need to cooperate to promote the implementation of priority action has been emphasised on matters such as management and utilization of trans-boundary stocks, promotion of habitat management by integrating aspects of fisheries management, building resilience and capacity for climate change adaptation. Furthermore, the importance to improve management of fishing capacity is a key concern, including initiation of sub-regional MCS Network, promotion of effective licensing schemes, port monitoring and ways to combat IUU Fishing (Illegal, Unreported and Unregulated fishing). Background, including baselines (including lack of basic information), are provided in documentation and reports from the First Andaman Sea Meeting (2009), sub-regional events and on-site events organized by SEAFDEC-Sida Project and BOBLME project 2009 to 2012.

The Andaman Sea Sub-regional dialogue on mechanisms for regional cooperation was, based on the SEAFDEC-Sida promotion, initiated in October 2009 by the conduct of the “First Meeting of the Andaman Sea sub-region”. Thanks to the cooperation with the BOBLME Project all Andaman Sea countries, including India, could take part in an Andaman Sea gathering for the first time. The recommendation and basic information provided through participating countries has been followed by a sequence of “On-site” Workshops on Capacity Building for Integration of Fisheries and Habitat Management and the Management of Fishing Capacity” in several localities in the sub-region (5 on-site workshops and 2 sub-sub-regional meetings, as well as an additional 2 on-site events and workshops and 2 sub-sub-regional meetings organized by BOBLME Project through CORIN Asia). The events were attended by representatives from relevant agencies (fisheries, transport, environment, etc.) from four countries encompassing the Andaman Sea sub-region (Myanmar, Thailand, Malaysia and Indonesia) to facilitate

meaningful dialogues between and among agencies and countries. In addition, the events also involved local stakeholders particularly fishermen groups and organization to focus on fisheries management and strategies for responses to climate change. These events have initiated the build-up of cooperative platforms by providing venues to review problems and suggest solutions on matters of importance to fisheries and habitat management, diversified livelihoods as well as to explore options to develop arrangements for cooperation and management around Andaman Sea sub-region.

In order to sustain the momentum of the activities that has been initiated through this mechanism, a continuation of the process has been deemed essential by all involved parties at regional, national and local level. In particular the recommendations given during the previous sub-regional meeting has to be highlighted as well as to strengthen collaborative efforts with other related international organizations and initiatives (e.g. BOBLME, Wetlands Alliance/CORIN Asia and Mangroves for the Future/IUCN). In addition priority interventions and strategies addressing various fisheries related issues in the sub region has to be discussed with an aim to become more action oriented. Aspects such as the integration of habitat management into fisheries management (as an ecosystem approach to fisheries, EAF) should give more emphasis and consideration to generate efforts and outcomes to better manage coastal environments and resources. The management of trans-boundary fish species, *Rastrelliger* spp. is also of great importance in this sub-region, especially in the eastern part. Other important species include, in the western part, Hilsa. In addition, the review of management systems and mapping of existing defined areas/zones in this sub region is essential and need to be an on-going activity. Apart from important information (baselines) it will be a basis for management interventions and the development of “larger fisheries resources conservation areas”. Likewise ways to manage of fishing capacity through vessel record/inventory and possible establishment of MCS network as well as other measures to counter/deter IUU Fishing.

First Meeting of the Andaman Sea sub-region, 20-22 October 2009, Phuket, Thailand

In addressing the issues mentioned above, the First Meeting of the Andaman Sea Sub-region was organized from 20 to 22 October, 2009, in Phuket, Thailand by the SEAFDEC-Sida Project in cooperation with the BOBLME Project. It was attended by representatives from the relevant agencies in countries surrounding the Andaman Sea Sub-region, namely: India, Indonesia, Malaysia, Myanmar, and Thailand. The meeting provided a venue to discussed matter regarding sub-regional fisheries issues threatening resource’s sustainability.

Integration of fisheries and habitat management, larger fisheries resources conservation areas (Fisheries Refugia)

The Meeting discussed and explored ways to introduce the concept of larger fisheries resources conservation areas by initiating a dialogue with the countries around the Andaman Sea. It provided set of concrete recommendations in establishing “larger fisheries resources conservation areas” including an aggregate of existing and effective smaller management areas (i.e. MPA’s, other *refugia*, etc) encompassing critical habitats of important trans-boundary fish species. As such, it was suggested that through designated focal points, an inventory of “management areas” or “conservation zones”, which were set up for different purposes, including accurate locations should be provided by Member Countries. To better understand functions of critical habitats and fisheries *refugia*, the relevant information on important habitats in the sub-region may also be sourced from relevant international organizations (e.g. IUCN, MFF, Wetlands International, etc) and from Member countries. On species specific measures, the Meeting suggested to develop management measures for *Rastrelliger* spp. and “Hilsa” species. Likewise, factors affecting their distribution/seasonal shifting must be given much attention such as the effect of shifts in oceanographic and weather patterns (climate change).

Monitoring, Control and Surveillance (MCS) Network, Vessel Record and Inventory

The 1st Meeting for Andaman Sea Sub-region also provided recommendations on the management of fishing capacity by the establishment of MCS network, strengthening of vessel record and inventory and port monitoring. The meeting recommended that initial activity to initiate sub-regional cooperation should focus on information sharing, identify key activities related on M, C and S and indicate responsible national

institutions on such activities. Importantly the activities should be within the legal framework of Member countries involved. Likewise, possible development of local MCS involving local populace and their knowledge maybe considered. The Meeting also recognized the need to have a sub-regional vessel record and inventory. With regards to port monitoring, it was a general consensus that the capacity building on MCS at national, provincial and local level will ultimately developed the capacity on port monitoring. Efforts to improve management of fishing capacity were recognized as important tools in combating IUU fishing.

Capacity Building, Climate Change and Local Knowledge

Matters regarding capacity building, climate change adaptation and importance of local knowledge in effective coastal resource management schemes were highlighted. Some examples were provided on how local knowledge and customary institutions (i.e. Indonesia) are vital in resource management. Such knowledge is essential in establishment of local MCS, resource management and in building up capacity for climate change adaptation. On capacity building, the meeting suggested that the activities be integrated in on-site trainings for communities in Andaman Sea. It also discussed measures on ways to mitigate the effect of climate change as cross cutting matter related to fisheries and habitat management includes social development. Actions on how to enhance resilience and adoptive capacity to the effects of climate change have also been discussed.

On-site Training/Workshop on Capacity Building for Integration of Fisheries and Habitat Management and the Management of Fishing Capacity

In order to strengthen the capacity of fishing communities and related stakeholders to improve the integration of fisheries and habitat management and the management of fishing capacity, the SEAFDEC-Sida Project in cooperation with the BOBLME Project organized seven (7) On-site Trainings/Workshops in various localities surrounding the eastern part of the Andaman Sea sub-region from 2010 to second half of 2011. These On-site Trainings/Workshops were co-organized by relevant institutions and participated by local stakeholders such as academe, local resource managers, NGO and fishermen’s organizations. These events envisaged educating and strengthening the capacity of stakeholders on various resources management systems for sustainable fisheries and sound habitat conservation. Information was provided and awareness was raised in order to enhance local adaptive strategies in response to effects of climate change to coastal communities and their livelihood. Moreover, these Workshops also aimed to seek collaborative means in managing fishing capacity and combating IUU fishing in the region by providing platform of lecture and discussions among participants. Relevant regulations and policies that have fisheries and habitat implications were also discussed during the events. Said workshops also exposed (through site visits) effective habitat management areas (i.e. Marine Parks) and were thereby providing concrete examples on how these management zones works and their benefits to the ecosystem and the population it supports. The salient information and recommendations from the series of Onsite-Training/workshop herewith provided below:

BOBLME, through CORIN Asia and in collaboration with its national Coordinators in Myanmar and Thailand, complemented these activities through workshops and consultations leading to an agreement of both countries on establishing a joint management structure, including planning and management committee, technical working groups and an advisory committee, for the Mergui Archipelago.

| Place and Date | Notable Discussions and Recommendations |
|--|---|
| Medan-North Sumatera Province, Indonesia, 19-22 July 2010 | The training/workshop provided management concepts and working strategies on the integration of fisheries management into management, management of fishing capacity, reduction (if not elimination) of Illegal Fishing, regional fishing vessel record and inventory, port monitoring, MCS, local/customary management practices, and regulations that has implications to fisheries. The meeting provided the participants with information of the activities under the BOBLME Project and on aspects of the “Environmental |

| Place and Date | Notable Discussions and Recommendations |
|---|---|
| | <p>Approach to Fisheries”.</p> <p>The workshop highlighted the importance to continue to enhance sub regional cooperation to further strengthen the capacity and improve the integration of fisheries and habitat management by Central government in collaboration with regional and other relevant organization. Specific activities recommended include, improvement of habitat condition (pollution control), fishing vessel inventory and strict enforcement of fishing zones, imposition of fishing control and improvement of licensing systems.</p> |
| <p>Langkawi, Malaysia, 23-26 November 2010</p> | <p>Similarly as mentioned above, this workshop was mainly aimed to provide information, raise awareness and capacity building on the integration of fisheries and habitat management. The workshop provided concrete examples of strategies in managing fisheries resources. To highlight, these include, the concept of responsible fishing capacity among communities, Community-based Fisheries Management and reduction of trawls by “Exit Plan” Program, Likewise the lectures provide answer to the objectives such as; the “Marine Park Program”, use of Artificial reefs as resource enhancement method, measures in managing fishing capacity, trans-boundary species, and reduction of illegal and destructive fishing. More importantly, the participants were exposed on the activities implemented by a Community-based Fisheries Management (CBFM). Further, relevant issues such as inter-boundary fishing practices, effects of light fishing in resource availability in localities, inter-lapping of functions among managers, unsustainable fishing methods (trawl by-catch) were raised and addressed during the workshop.</p> <p>The workshop provided varied recommendations/suggestions to answer the region’s fisheries problems. To highlight, it was recommended to develop collaboration between the fishermen associations from Malaysia, Indonesia and Thailand in the field of fisheries, conflict resolution, and marketing of fishery products and the concept of Marine parks was widely supported. On aspects pertaining to AR’s, the workshop also supports the measure and encourages the deployment in identified areas around the sub-region. In addition, the participation of local fishermen’s groups are essential in carrying out such activities particularly in determining appropriate designs, materials and identifying deployment areas. Further in developing of management strategies, the participation of various stakeholders was deemed vital. As such, in imposition of fishery regulation, local consultation is to be made. The importance of science-based data/information was also raised in support to formulation management measures.</p> |
| <p>Myeik district, Myanmar, 3-5 March 2011</p> | <p>Participants were informed on the several specific coastal habitat management programs (closed areas/season) being implemented in Myanmar. In particular, the Workshop suggests for diversified and alternative livelihood interventions, increase awareness on concepts of the CCRF and matters relating to fishery law enforcement (law implications to fisheries and issues on enforcements). Likewise, the management of small pelagic stocks (<i>Rastrelliger</i> and Hilsa) was also tackled. The workshop discussed measures for the management of fishing capacity that would improve fisheries management and support efforts to combat IUU fishing in the region.</p> <p>The workshop provided recommendations that would address the issues</p> |

| Place and Date | Notable Discussions and Recommendations |
|--|--|
| | <p>raised. The event stressed that several awareness-raising efforts are needed on measures that should be implemented for habitat protection and fisheries sustainability. Resource and habitat enhancement strategies were also recommended (AR's, mangrove rehabilitation, "crab bank", etc.). It was also suggested to explore options for the establishment of larger fisheries resources conservation areas incorporating the existing management areas. Practical/applicable MCS systems using local knowledge were also taken into consideration on ways to combat IUU fishing. Application of the ecosystem approach to fisheries concept to coastal communities was also recommended.</p> |
| <p>Satun Province, Thailand, 23-24 March 2011</p> | <p>The organization of the fisheries organization in La Ngu District in Satun Province was introduced to the meeting, including a field visit to follow up on the work of the organization. There was a general agreement that the local organization in La Ngu District was a good example to other villages and districts. The workshop provided information on the management of fishing capacity (fishing zones in Indonesia) and of the Integrated Coastal Resource Management (ICRM) in Malaysia which encourages community participation in fisheries management. Aspects on the status of Indo-pacific mackerel (and related species) in the region and its management plans was also presented. The development of AR's (designs and applicability) was also discussed as means of resource/habitat protection and rehabilitation. Several concrete recommendations were provided such as; strengthening of community involvement in fisheries management, livelihood interventions be provided, and assistance should be rendered to relevant groups in developing the product standards of communities. In addition, it was also recommended that Sida to consider pooling all stakeholders in this sub-sub region (Medan, Langkawi and Satun) to share knowledge, discuss common issues and come up with concrete measures/recommendation/actions to be taken.</p> |
| <p>Ranong Province, Thailand, 26-27 July 2011</p> | <p>Similar to the earlier training/workshops, this event considered to strengthen the capacity of fishing communities and related parties to improve the Integration of Fisheries and Habitat Management and the Management Fisheries Capacity. Site visits to management zone areas (Ranong Biosphere Reserve, Crab bank and Leamson Nat'l Park). The manifestations of climate change were provided to strengthen awareness on the matter and build up adoptive strategies and capacity. The status, problems and management of economic resources in Andaman sea as well as fisheries related practices which may cause conflict along borders were discussed for countermeasures to be formulated. The plenary discussion facilitated the exchange of knowledge and recommendations on fisheries management, adaptation to climate change, importance of vessel inventory, and ways of collaboration among local community and int'l agencies. It was recommended to promote and strengthen communities' role and involvement in fisheries management through participation with national and int'l agencies' activities. Further, fishing vessel/boat census was also promoted as well as the stringent enforcement of laws to protect critical habitats. In addition this would provide tool to combat IUU fishing and maintain harmonious trade along the trans-boundary area, it was recommended that Myanmar should explore options to providing catch certification/documentation for catches from Myanmar which is transshipped to Thailand fish ports, and for smaller vessels to establish agreements for procedures to certify of the catches at Thai landing sites.</p> |

Promotion of the sub-regional cooperation on the Andaman Sea

To broaden the area and the perspectives provided during the on-site events to include dialogue and the promotion of joint management approaches among neighbouring countries three Sub-regional Consultative Meetings were conducted in cooperation between SEAFDEC and BOBLME namely:

1. Northern Andaman Sea (Myanmar and Thailand), in Phuket, on 18 – 19 January 2011 (by BOBLME/CORIN Asia with a focus on a joint management plan for Myeik Archipelago).
2. Southern Andaman Sea (Indonesia, Malaysia and Thailand), in Phuket, on 11-13 October 2011
3. Northern Andaman Sea (Myanmar and Thailand), in Bangkok, on 13-14 March 2012

The meetings brought together officers from different relevant agencies to share and exchange the information with an aim to strengthen dialogue on possible sub-regional cooperative management arrangements. Background/baselines were introduced based on information provided during earlier on-site events/workshops organized in the southern and northern part, respectively. The meetings tackled/discussed sub-regional fisheries matters such as information on the coastal habitats and the need to integrate the fisheries management, appropriation of scientific studies for management of shared stocks, *Rastrelliger spp.*, harmonization of vessel classification or coming up of “conversion factors”, monitoring of vessel inter-boundary movements (including port-monitoring), information exchange/sharing, applicable incentive types to encourage licensing, ways to have updated oceanographic and relevant data, etc.

Institutions, NGOs and others related to fisheries and habitat management in the two Andaman Sea sub-regions took the opportunity to further emphasize the need to strengthen institutional and local capacity to be able to promote dialogue and management options to improve the integration of fisheries and habitat management. To cite some actions suggested were; coming up with joint management plans to protect coastal habitats not just from direct exploitative effects but as well from terrestrial sources, establishment of integrated mackerel management plan at sub-regional level and to improve database for vessel registration and licensing system to manage fishing capacity. Furthermore, some recommendations of national interest were of awareness building on how to maintain the stock assessment activities, control of encroachment of large fishing vessels, involvement of local groups in resource management, develop applicable incentive systems, etc. These sets of recommendations will be given much more attention and will serve as basis to further actions in support of the sub-region’s fisheries sustainability.

II. Objectives of the Meeting

The 2nd Meeting of the Andaman Sea sub-region aims to provide a venue to review the recommendations and actions suggested during the sequence of On-site events/sub-regional consultations/regional consultation and to promote a defined and results oriented plan of implementation of identified priority actions continuity. In specific, this instrument wishes to continue providing action oriented recommendations on sub-regional concern, such as environmental sustainability, integration of fisheries and habitat management (ecosystems approach to fisheries), conservation measures for important migratory species (*Rastrelliger spp*, *Hilsa*, etc.) management of fishing capacity, vessel registration, port monitoring etc as well as to combat IUU fisheries Furthermore, the Meeting will continue to provide platform of dialogue and cooperation on other relevant matters discussed during the 1st Meeting of the Andaman Sea Sub-region. The meeting will recapture, and update as relevant, baseline (background) information provided and generated during events organized 2009 to 2012.

The aim is to invite representatives from relevant organizations/agencies from Andaman Sea countries to further advance the process that was initiated since 2009 to promote regional cooperation. Facilitated through inputs/baselines provided by resource persons, participating countries should be able to have a meaningful dialogue, information/experience sharing in wide range of fisheries, habitat and human related matters of relevance to the region. The diversity of expertise that is expected in attend this meeting is envisaged to confirm (or identify new) and address concerns with regards to environmental and fisheries sustainability in the sub-region. The SEAFDEC-Sida Project in cooperation with BOBLME Project, the meeting will host with a main purpose to follow up on report on the results and outcomes of the

implementation of recommended actions suggested during previous meetings such as those indicated earlier and to provide a basis for an improved Results Based Monitoring with clear outputs and defined (measurable) outputs.

Expected Outcomes

Updates and information on recent developments

1. Information provided on recommendations from the 1st Meeting for the Andaman Sea Sub-region last October 2009 and sequence of on-site events organized in *Medan* (Indonesia), *Langkawi* (Malaysia), *Myeik* (Myanmar), *Satun* and *Ranong* provinces (Thailand) as well as of the Sub-regional Consultative Meetings of the Southern and Northern Andaman Sea.
2. Information provided on developments in the region since October 2009 and recommendations provided of relevance to the integration of fisheries and habitat management and the management of fishing capacity, port monitoring, combating IUU fishing and resource and habitat management. Available baselines (reports from earlier meetings) to be indicated.

Fisheries and habitat management/refugia and trans-boundary stocks

3. The criteria for defining suitable (larger) fisheries resources conservation areas as aggregate of existing and effective smaller areas (i.e. MPA's, *refugia* and other management areas) encompassing critical habitats as indicated by the October 2009 Andaman Sea Meeting and the following sequence of events, reconfirmed.
4. Information (baselines) on the abundance, migration/seasonal distribution of important fisheries resources such as *Rastrelliger* sp. and Hilsa species in Andaman sea area and call for additional research needed is to be provided.
5. Enhance cooperation, data/information sharing and sub regional cooperation for building research capacity and the management of related shared stocks.

MCS networks, vessel record, port monitoring, catch documentation and IUU fishing

6. Review was provided on the MCS Institutional matrix indicating (providing a baseline on) key institutions, functions and legal framework among MCs for the establishment of a MCS Network for the Andaman Sea.
7. Identify initial cooperation and elements to be addressed in establishment of MCS Network for the Andaman Sea Sub Region (e.g. information sharing) and study application of community-based MCS.
8. Indications provided on steps to take to design/develop and implement a cost-effective MCS System that allow for the integration of institutional responsibilities of relevant (key) institution/agencies and the needs of the Andaman Sea Countries.
9. Recommendations provided to ensure active involvement on the part of fishermen in the conduct of Community-based MCS and in resources conservation (link to habitat management).
10. Strengthened coordination and collaboration among neighboring countries in the Andaman Sea Sub Region to facilitate information sharing including identified steps to take to design and implement an (integrated) system for information and data management for the MCS Network.
11. Strategic steps are provided on ways for information sharing among MCs on vessel registration and processes on issuance of license to fish.
12. Recommendations provided on steps to take to monitor landings by "neighbouring" vessels and landing across boundaries (as a follow up to "port monitoring") including options to verify the origin and volume of the landed catch, including the location of fishing ground where the fish was caught or fishing ground.

Sub-regional cooperation, sub-sub-regional cooperation and Cooperation with Related Organizations

13. Awareness-raised among participating institutions from around the Andaman Sea on benefits of regional/sub-regional cooperation and inter-sectoral cooperation to promote appropriate fisheries and habitat management to achieve sustainable development.
14. Strengthened cooperation/coordination/collaboration of the various sectors and national agencies

- concerned/involved in fisheries and habitat management including the management of fishing capacity and combating illegal and destructive fishing in this sub-region.
15. Recommendations provided on further steps to provide a broader understanding on the context of legal and regulatory framework among the Andaman Sea countries including recommendations on the clarifications/improvement of legal aspects of fisheries management.
 16. Strengthened cooperation with other international fisheries related organization (e.g. BOBLME) in developing critical steps to develop trans-boundary or sub regional agreements for cooperation on fisheries issues related to habitat and fisheries management.

III. EXPECTED PARTICIPANTS

It is envisaged that participants of the Workshop will be:

1. Five representatives from the four ASEAN Andaman Sea countries namely: Indonesia, Malaysia, Thailand and Myanmar in the following aspects (20 persons):
 - a) Fisheries management in particular on the transboundary management (4 persons)
 - b) legal officer (4 persons)
 - c) responsible for the research on the shared stock species, *Rastrelliger* spp. around Andaman sea
 - d) Responsible for registration and licensing system, port inspection
 - e) responsible for the coastal marine resources/habitats and/or environment (4 persons)
2. Representative (s), through the support from BOBLME, from India Representative (s) from International organizations and regional projects such as FAO/APFIC, BOBLME, IUCN, Mangroves for the Future, Mangrove Action Project etc. (5 persons);
3. Scientists, Academicians (3 persons)
4. Regional Fisheries Policy Network (RFPN) Members (8 persons);
5. Representatives from SEAFDEC Secretariat, MFRDMD, and Training Department (10 persons).
6. Others (3 to 4 persons)

Total number of participant is approximately 30-35 people.

Agenda

- Agenda 1 Opening of the Meeting
- Agenda 2 Background of the Meeting, objectives of the Meeting and Adoption of the Agenda and Meeting Arrangement
- Agenda 3 Review on the Implementation from previous events during 2009-Mid 2012
- Agenda 4 Integration of Fisheries and habitat management/*refugia* and trans-boundary stocks and habitats
- Agenda 5 Promotion the effectiveness of management of fishing capacity and reduce IUU fishing in the Andaman Sea
 - 5.1 MCS Networks and the establishment in the Andaman Sea (the MCS network revisited) and aspects on “community-based”/local MCS
 - 5.2 Cooperation through the Vessel Registration and licensing system, vessel record and Inventory – building upon existing information (follow- up with individual countries)
 - 5.3 Port Monitoring and Monitoring of Landings by “neighboring” vessels
- Agenda 6 Vulnerability to changes of Sea Gypsies fisherfolk
- Agenda 7 Strengthening bilateral/tri cooperation and sub-regional of the Andaman Sea and Bay of Bengal
- Agenda 8 Conclusion, steps to take by countries, SEAFDEC, BOBLME
- Agenda 9 Closing of the Meeting

Annex 5





**Review on
the Implementation of SEAFDEC-Sida project
from previous events during 2009-Mid 2012**

2nd Meeting of the Andaman Sea sub-region

28 - 29 August 2012, Phang Nga, Thailand

1

SEAFDEC-Sida Project previous events 2009-2012


The 1st Meeting of the Andaman Sea sub-region

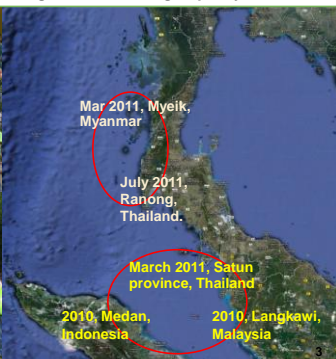
- Matters related to sub-regional fisheries issues threatening resource's sustainability were discussed:
 - The establishment of the larger fisheries resources conservation areas (*Fisheries Refugia*),
 - Monitoring, Control, and Surveillance (MCS) Network, Vessel Record and Inventory,
 - Capacity Building, Climate Change and Local Knowledge,
 - the geographical coverage of the Andaman Sea.



2

On-site Workshop/Raising Awareness on the Integration of Fisheries and Habitat Management and the Management of Fishing Capacity





Mar 2011, Myeik, Myanmar

July 2011, Ranong, Thailand.

March 2011, Satun province, Thailand

2010, Medan, Indonesia

2010, Langkawi, Malaysia

3

Two Sub-regional Consultative Workshops:



Northern Andaman Sea/Mergui Archipelago, 13-14 March 2012



Southern Andaman Sea, 11-13 October 2011

4

Key points discussed

- ▣ information on the coastal habitats and the need to integrate the fisheries management.
- ▣ appropriation of scientific studies for management of shared stocks, *Rastrelliger* spp.
- ▣ harmonization of vessel classification or coming up of "conversion factors",
- ▣ monitoring of vessel inter-boundary movements (including port-monitoring),
- ▣ information exchange/sharing,
- ▣ applicable incentive types to encourage licensing,
- ▣ ways to have updated oceanographic and relevant data, etc.

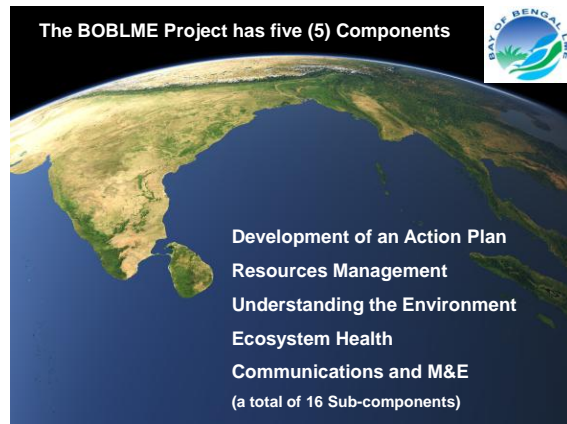
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The Bay of Bengal Large Marine Ecosystem Project

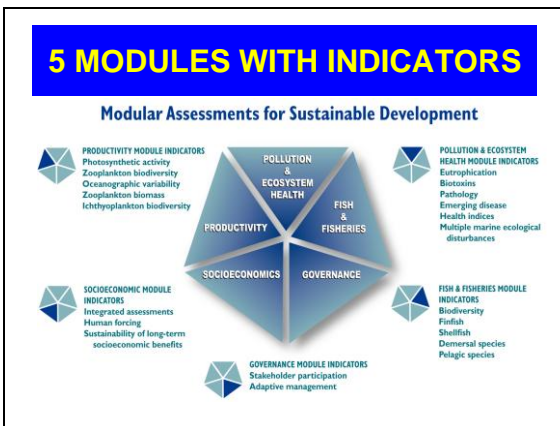
Rudolf Hermes
Chief Technical Advisor, BOBLME Project
2nd Meeting of the Andaman Sea Sub-region
28-29 August 2012

www.boblme.org



The BOBLME Project has five (5) Components

- Development of an Action Plan
- Resources Management
- Understanding the Environment
- Ecosystem Health
- Communications and M&E (a total of 16 Sub-components)

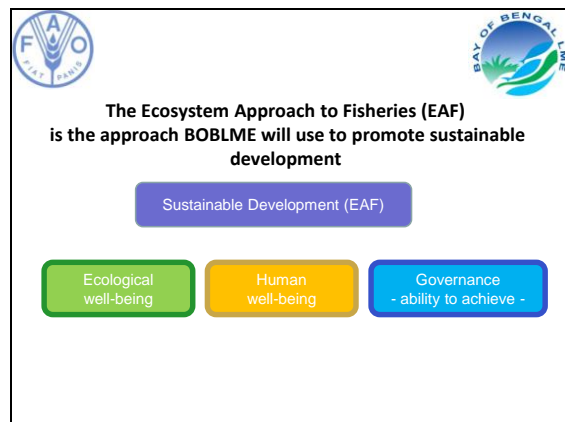



10 Major Areas of Work in Environment and Fisheries

- Transboundary Diagnostic Analysis and Regional Strategic Action Plan
- Integrated Coastal Management
- Policy Harmonization
- Fisheries Resources Assessment and Management
- Transboundary Critical Habitat Management
- Ocean Dynamics, Productivity and Climate Change
- Marine Protected Areas / Fish Refugia
- Ecosystem Health Indicators
- Land-Based Sources of Pollution
- Communications

Expected Outcomes of the BOBLME Project

- Improved well-being, greater resilience of coastal communities
- Healthier habitats and ecosystems, sustainable fisheries
- Stronger governance and regional cooperation
- Increased understanding and better knowledge
- Implementation of the Ecosystem Approach to Fisheries (EAF)

The Ecosystem Approach to Fisheries (EAF) is the approach BOBLME will use to promote sustainable development

Sustainable Development (EAF)

- Ecological well-being
- Human well-being
- Governance - ability to achieve -

Annex 7

Integration of Fisheries and Habitat Management/refugia and Trans-boundary Stocks and Habitats

Issarapon Jithlang
Regional Fisheries Policy Network for Thailand

*Southeast Fisheries Development Center (SEAFDEC)/Secretariat, P.O. Box 1046, Kasetsart Post Office,
Ladysao, Chatuchak, Bangkok, 10900*

Introduction

Decline in aquatic resources availability and habitats loss are major threats to the ecosystem health throughout Southeast Asia. This threat is facing all ASEAN countries. Overexploitation of fish resources and the use of destructive fishing practices are among problems threatening the sustainability of aquatic resources and marine and freshwater environments. Actions/measures to mitigate the effects of these threats should be promoted and implemented to secure the long term sustainability of resources utilization, fisheries and other means of livelihoods. Immediate attention should also be given to the need to protect and restore the coastal habitats in order to maintain nursery and spawning areas critical to the fisheries resources of the region.

In the ASEAN and Andaman Sea region national programs to manage and conserve has been initiated and national and regional consultations have been organized on the perspective of fisheries resources conservation and management. Gradually, there is an increasing awareness on the need to address and implement fisheries management integrated and coordinated with coastal habitat management through the promotion of an ecosystem approach to fisheries. More importantly, the focus on the important trans-boundary species such as *Rastrelliger* spp. and related species require regional and sub-regional cooperation and continued action need to incorporate already existing joint efforts to work towards the sustainability of fisheries and the conservation of important habitats to the benefit of people and environment in the region.

SEAFDEC, through the SEAFDEC-Sida Project, has been promoting sub-regional approaches to agree on management arrangements for the Andaman Sea (an important part of the Bay of Bengal). An important part of these approaches includes the integration fisheries and habitat management while recognizing the need to address and manage fishing capacity to reduce over-capacity and to combat illegal and destructive fishing. BOBLME and SEAFDEC, respectively, have been cooperating on the implementation of a sequence of consultations/events to build up consensus and general understanding among countries around the Andaman Sea. The events have successfully promoted regional and sub-regional cooperation on important aspects of fisheries and habitat management including other important aspects such as managing fishing capacity and to monitor trans-boundary movements of fishing vessels.

A major priority that emerged was the need to find and agree on common actions to conserve and protect important trans-boundary species. During the events it was emphasized that trans-boundary fish species such as mackerels (*Rastrelliger spp.*) and other related species where showing declining CPUE trends that indicated overfishing on migratory stocks in the Andaman Sea sub-region. To move towards improved conservation and regulation on fisheries of migratory (and coastal) stocks, it is important that “larger fisheries resources conservation areas” have a foundation in habitat management that incorporate already existing “management areas” such as MPAs, heritage sites, etc.

This paper will review information on establishment of habitat protection areas under national legislation of each (eastern) Andaman Sea country for instance; marine protected areas, Ramsar sites, heritage sites, man and biospheres, national park etc. which serve as important areas for spawning and nursery areas of aquatic resources. Furthermore, the paper will review information on *Rastrelliger* spp. as provided during the events. The paper will also discuss on the need to integrate fisheries and habitat management and initiatives for sub-regional management of the Andaman Sea sub-region. To succeed, there is a need to enhance cooperative integration of habitat management/refugia and trans-boundary stocks and habitats in order to obtain effective and suitable marine resources management in this sub-region.

Habitat management and conservation around the Andaman Sea

There are a wide range of coastal habitats along the Andaman Sea such as sandy shores, coral reefs, rocky shores, mudflats, mangroves forests and seagrass beds, which are important and both economically and ecologically valuable. They provide food, shelter, spawning areas and nursery grounds for marine species including commercially important species such as crabs, shrimp, fish and mackerel.

Along the coast of the Andaman Sea, countries have established schemes/measures to protect important habitats, fisheries resources, spawning grounds and other resources and areas. These areas are managed under different names and varying focus among Andaman Sea countries. For instance, the “regulated” areas include Marine Protected Areas (MPAs), Seasonal closure during critical periods, Heritage sites, Man and Biosphere areas as well as safety zones around shipping lanes and structures in the sea. The specific mandates and national legal framework providing instructions and restrictions for a broad range of institutions are involved in the management of designated areas. These institutions include, for example, fisheries departments, forestry departments, departments for environment, departments for marine and coastal resources, provincial and local authorities, etc. Established zones are often fairly site specific and of limited size.

A summary review of habitat management areas in the eastern Andaman Sea countries are provided below and a list of types of established areas/zones for each of the four countries are given in Annex 1;

Indonesia

The responsible agencies for marine resources management and conservation in Indonesia are composed of Ministry of Forestry, Ministry of Marine Affairs and Fisheries, and Ministry of the Environment. The Reserved zones for traditional fisheries are at least 12 miles from the Indonesian shorelines. Marine Protected Areas also include specific terrestrial areas to protect life support systems and to preserve the diversity of plant and animal species. Heritage Sites and/or Man and Biosphere areas includes Strict Marine Nature Resource Reserves, Marine Wild Life Sanctuary, Marine Recreational Park, Coastal Park, and Marine Natural Preservation areas. In addition, safety zones around shipping lanes in Indonesian waters are usually established around the straits, for example in Malacca Strait. Furthermore, ancient local wisdom and customs in some areas in Indonesia have proven successful in giving protection to the environment, habitat, living organisms and bio-eco-physical processes.

Malaysia

Several responsible agencies are mandated to protect important habitats are namely: Department of Fisheries, Fish Development Authority Malaysia, Department of Marine Park and Department of Environment. In Malaysia, they defined Zone A (0-5 nm) is reserved for traditional fisheries, for Traditional Fisherman & Traditional Anchovy Purse Seiner (Owner Operator). Marine Park is a sea zoned area at a distance of up to two nautical miles from the lowest sea level, except in Kapas Island in Terengganu, Kuraman Island, Rusukan Besar Island and Rusukan Kecil Island in Labuan. These areas are zoned for a distance of 1 nautical mile from the lowest sea level. Marine Parks are described in the Fisheries Act 1985. Malaysia has no seasonal closures during critical periods. Moreover, Wildlife Sanctuaries & Parks and safety zones around shipping lanes and structures in the sea (i.e. oil rigs) have been established with specific management responsibilities. Also, Fishermen Economy Groups are responsible for the management and protection of their areas, especially from encroachment by trawlers and those using prohibited gears.

Myanmar

The Ministry of Forestry, The National Commission for Environmental Affairs and The Department of Fisheries are responsible for the management and conservation of marine habitat in Myanmar. Regarding the management measures, trawl fishing is not allowed to operate within 5nm in the northern part and 10 nm in southern part from shore line. Off-shore vessels are not allowed to operate within 5nm in northern part and 10 nm in southern part from shore line. Lampi Island Marine National Park, which area coverage of 112.5 km², was established in 1996 to preserve the island's vast flora and fauna and coral reefs as well as the area around Done Island and Lampi Island within Mergui Archipelago that were established as shark fishing prohibited area. Some fishing grounds are closed to fishing from June to August for spawning. Wildlife sanctuaries (defined habitat reserves)

and safety zones around shipping lanes and structures in the sea (e.g. oil rigs) have also been established with fisheries management responsibilities.

Thailand

The Department of Fisheries, the Royal Forest Department and the Department of Marine and Coastal Resources, of the Ministry of Natural Resources and Environment are responsible for the management and conservation marine habitats and resources. There are many ministerial notifications for the marine management and conservation, which are under the responsibility of DOF such as prohibition of the use of type of fishing methods in some areas, establishment of restricted zones, and seasonal closure in certain marine areas.

Moreover, the establishment of national parks and fish sanctuaries falls under the National Park Act of 1961 and Fisheries Law of 1947. There are five categories of protected areas: national parks, national marine parks, wildlife sanctuaries. Twenty National Marine Parks have been declared. Two other MPAs have been designated as non-hunting areas but also encompass coral and mangrove habitats. Of the 20 National Marine Parks, 14 parks include coral reef areas, most of which are located in the Andaman Sea and only six are located in the Gulf of Thailand. Approximately 60% of the coral reef area is included within a protected area. There is no available information on the Fisheries Sanctuaries.

Information: migration of trans-boundary fish species, such as *Rastrelliger* spp.

Rastrelliger spp. comprises of 3 main species; *R. brachysoma* (Indo-Pacific mackerel), *R. kanagurta* (Indian mackerel) and *R. faughni* (Island mackerel). At the 1st Meeting of the Andaman Sea sub-region, information made by Ms. *Praulai Nootmoon* clearly indicated loops of migration across boundaries of Myanmar and Thailand, and Thailand, Malaysia and Indonesia, respectively. The mackerels (*Rastrelliger* spp.) are migratory species of fish and stocks are shared by several or all adjacent countries in the Andaman Sea. They are among the commercially most important small pelagic fish species in the region.

Presently, the trans-boundary fish stock of *Rastrelliger* spp. in the Andaman Sea is in general considered over-exploited and overfished in the Andaman Sea. The catches of Indian mackerel in the Andaman Sea indicate that the catches in Thailand of Indian mackerel are 30% over MSY. However, catches of Indian mackerel are relatively low in Indonesia and other parts of Thailand. Indian mackerel resources in Malaysia are being overfished – (when compared to total national landings). In Myanmar, there is also pressure on the mackerel species, but there are no specific indications on the status.

Rastrelliger spp. can be found, with some seasonal variations, in all areas of eastern Andaman Sea. More precise *Rastrelliger* spp. can be found all along the Thai Andaman Sea coast (Ranong, Phang-nga, Phuket, Krabi, Trang and Satun) as well as in Myanmar (Dawei, Myeik and Kawthaung). In the southern part, *Rastrelliger* spp is available down into Malaysia Malacca Strait (Selangor, Perak, Pinang and Kedah Perlis) and around Sumatra Island (Banda Aceh Waters, East Aceh and Eastern North Sumatera) (Hariyati, 2010; Jamon, 2011; Saw Aung Ye Htut Lwin and Tun Than. 2012; Wangkhahart, 2011). The availability in the western Andaman Sea is less well known.

The migration pattern of *R. brachysoma* as reported by BOBPC (1987) showed that Indo-Pacific mackerel were divided into 3 stocks; the first stock available east of Sumatra Island of Indonesia through to the south-west of Penang, Malaysia; the second stock is migrating between the Myanmar-Thailand boundary waters down to Phuket; and the third stock is migrating between Phang-nga Bay through to areas the north of Penang.

The Andaman Sea Fisheries Research and Development Center (AFRDEC) have studied the distribution of trans-boundary stocks of *Rastrelliger brachysoma* (this was reported at the Sub-regional Workshop of the Southern Andaman Sea (Wangkahart, 2011).The report indicated that *Rastrelliger brachysoma* in the eastern Andaman Sea were divided into 3 stocks:

- The first stock was distributed around the boundary between the south of Myanmar and Ranong province of Thailand. The spawning ground is in the Mergui Archipelago. Two spawning periods in a year are during the North-East monsoon (November, December-March) and South-West monsoon (July).

- The second stock was distributed between Krabi and Trang province. Spawning ground was found in south of the Lanta Yai and around Rok Island and the period of spawning was found to be during December - June (peak: March) and July–September (peak: August).
- The third stock is between the areas of Trang and Satun provinces and the Malaysian waters. Spawning ground was found in Langkawi Island – Penang Island, Malaysia and the spawning period was in November- March (peak: December) and April-September (peak: May).

However, BOBPC (1987) found that the path of the second and third stocks could not be clearly identified. Consequently, they are regarded as the same population distributed between the areas of Trang and Satun provinces and the Malaysia water. The study by AFRDEC (Wangkahart, 2011) concluded that the second and third stocks have two patterns of migration the second stock is therefore called sub-population.

The necessity to integrate habitat and fisheries management of the Andaman Sea sub-region

The conservation and regulation of fishing effort for trans-boundary fish species, such as *Rastrelliger* spp. is important in the Andaman Sea sub-region. The SEAFDEC-Sida Project has initiated the process of promoting the cooperation on sub-region management efforts to regulate fishing efforts through the First Meeting of the Andaman Sea sub-region in 2009, as well as during the sub-regional events and on-site events organized by SEAFDEC-Sida Project and BOBLME project 2009 to 2012.

During the on-site events/capacity building events information was provided and awareness was raised on the importance of coastal habitats and the need to integrate the fisheries and habitat management. The information was provided during the events to provincial/local authorities and coastal communities in the four eastern Andaman Sea countries, with specific focus on the need to give special attention to migratory (trans-boundary) stocks, such as *Rastrelliger* spp. and other related species.

Information on existing and defined “management” areas/zones for habitat and environmental conservation in this sub-region, such as those referred to in Annex 1, was presented and discussed during the First Andaman Sea Meeting and on-site events. The information showed that there is in the region many areas (MPAs, Heritage Sites, Wildlife sanctuaries) that are already established and under management. These areas are also of importance to the various stages in the life-cycle of migratory fish and it was recommended that existing managed areas should be considered in building frameworks to integrate habitat and fisheries management. The MPAs, etc would also form an important basis to approaches to establish (trans-boundary) “larger fisheries resources conservation areas” (*refugia*) while embracing the importance of ecosystem approaches to fisheries among Andaman Sea countries.

Note should be taken that the establishment of the larger conservation areas should gradually be developed through consultative processes involving coastal villagers, the traditional users of the resources, researchers, local and central authorities, management bodies for existing MPAs, etc. and other stakeholders, taking into consideration (as indicated by Gulf of Thailand and Andaman Sea Countries) the following factors:

- a) *To build upon an aggregation of smaller management areas (established for local fisheries, fisheries resources protection, habitat management and/or other purposes);*
- b) *To recognise the existing zoning schemes (like trawling free zones);*
- c) *To take note of the seasonality in fishing, fish migration/spawning, etc.*

To continue the process to develop sub-regional arrangements in the Andaman Sea Sub-region it was stated, during the events referred to above, the cooperation among countries with an aim to develop sub-regional arrangements would be further strengthened if facilitating a dialogue with groups of fewer countries with more easily distinguished common problems and priorities (on habitats, fisheries, fishing capacity, etc). Following this recommendations, the area was further sub-divided into the Southern Andaman Sea (Indonesia, Malaysia and Thailand) and the Northern Andaman Sea (Myanmar and Thailand).

The SEAFDEC-Sida Project and the BOBLME Project followed up, after the on-site events, with consultations for each of these two sub-regions. During the Sub-regional Consultative Workshops for each of these two sub-regions countries discussed and reviewed problems and suggested solutions on matters of importance to fisheries

and habitat management for the Northern and Southern part, respectively. The possibility of improved regulations (closed seasons, etc) of fishing activities on trans-boundary fish species such as *Rastrelliger spp.* of each sub-sub-regions were also discussed as was the matter of illegal fishing. It was generally agreed that agreements on such regulations could be of great importance to this sub-region.

However, a key constraint in designing regulations and conservation measures is a shortage of biological data and information regarding fish habitat and critical life-cycle linkages between Myanmar and Thailand; and Indonesia, Malaysia and Thailand; and the Andaman Sea sub-region as a whole (to get a complete picture). Better scientific information is required such as biological data, migratory routes and status of *Rastrelliger spp.* stocks and related species that could be documented in support of the development of management measures and regulations for fishing activities for both sub-sub-regions and for the Andaman Sea sub-region as such.

It is timely that institutions, organizations and other bodies (NGOs, etc) related to fisheries and habitat management of the two Andaman Sea sub-regions give further emphasize on the need to strengthen institutional and local capacity to be able to promote dialogue on management options to improve the integration of fisheries and habitat management. Note should be taken and cooperation promoted with other initiatives and projects that are, or plan to, implement to study and research on *Rastrelliger spp.* and related species, such as components of national master plans, SEAFDEC/MFRDMD on tagging program, the BOBLME project, etc. The cooperation among these and other relevant agencies and projects would also provide information needed to establish rules and regulations for the use and conservation of *Rastrelliger spp.* and related species in the Andaman Sea sub-region.

Recommendations from the SEAFDEC-Sida/BOBLME Consultative Workshops for Southern and Northern Andaman, respectively, as well as aspects common to the Andaman Sea countries:

Sub-regional Consultative Workshop of the Southern Andaman Sea, 11-13 October 2011 (reference to the Report of the Workshop) – some aspects are common to the Andaman Sea Countries.

- a. The Meeting supported the concept of establishing larger fisheries resources conservation areas (*refugia*) and development of a joint management plan that should not only focus only on particular managed areas or habitats (e.g. MPAs or mangrove forest), but also address land based activities that may create impact to the ecosystems such as pollution, sand mining, etc. and how to monitor the ecosystem health in a proper way (including perspectives of diversified household incomes to reduce pressure on resources). Follow up with each of the countries on the priorities to establish time-lines and commitment.
- b. Establish an integrated mackerel management plan of *Rastrelliger spp.* (specifically Indo-Pacific mackerel (pla too) and Indian mackerel (pla lang), and related species) at sub-regional level (e.g. involving Thailand, Malaysia and Indonesia) and collect information to indicate how the utilization of fish stocks should be managed to benefit sustainability. The current scientific data and information on mackerel that is already available should be mobilized, and updated, to serve as a basis for the establishment of the management plan. Follow up with each of the countries on the priorities to establish an action plan (with time lines) to develop joint approaches to regulate fishing activities such as limit number of vessels, closed seasons, protected areas, larger fisheries resources conservation areas, etc.
- c. Suitable areas should be agreed upon for the promotions of conservation/rehabilitation and management of important and protective habitats, including areas suggested for mangrove rehabilitation. In the process improve the capacity of communities and local organizations to more responsibly use and manage resources and habitats, including perspectives of diversified household incomes to reduce pressure on resources. Follow up with each of the countries.
- d. Awareness building should be undertaken on how to maintain the stock assessment activities on a long-term basis under government responsibility (without being dependent on any donor). Activities on monitoring of stock status should be planned by the three countries together in order that activities of individual countries could be collated and provide better picture on broader perspective.

- e. Data collection should be improved, including DNA studies, to obtain better understanding on the connectivity among mackerel populations (*Rastrelliger spp.*) and related species throughout their life cycle, including spawning areas, spawning seasons, important feeding areas and movement of fish in trans-boundary areas. Information should include identified fishing grounds and location of existing MPAs and other managed areas (closed seas). The data should provide input to the development of the “integrated mackerel management plan”.

Sub-regional Consultative Workshop of the Northern Andaman Sea, 13-14 March 2012 (reference to the Report of the Workshop) - some aspects are common to the Andaman Sea Countries.

- a. For Myanmar, the workshop suggested to conduct an assessment of habitats such as coral reefs, sea grasses, and mangroves. Furthermore, a socio-economic assessment was also suggested to follow up on the livelihood patterns among selected coastal communities and to investigate the pattern and involvement (male and female) in the utilization of marine and coastal resources. There is an expected need for capacity building.
- b. For Thailand, the workshop suggested to follow up on the work and projects on **mangrove** conservation and rehabilitation being implemented by relevant Thai Departments, IUCN and others in order not to lose momentum of results achieved. Furthermore, the workshop suggested to study on the extent and impacts from coral bleaching (especially for Laem-son National Park). An important part of studies to be made would be review the connectivity of **coral reefs** habitat between Thailand and Myanmar, and comparing the livelihood patterns of people and the extent and impacts of coral bleaching in nearby areas in Myanmar and Thailand.
- c. In follow up on work being done on *Rastrelliger spp.*, and related species, the workshop suggested to study and take note on following aspects (training and capacity building to be included as relevant or practical)
- The importance of species identification especially at juvenile stage
 - To study the migratory range and morphology of different for suggestions were made to include morphology and genetic (DNA) studies on *Rastrelliger spp.* species
 - Three of these dominant mackerel species *R. kanagurta*, *R. brachysoma*, and *R. faughni* are normally difficult to distinguish and there is a need to identify units of stock identification – follow up, or link with fish sampling schemes for fishing ports in Myanmar and Thailand
 - Study or survey on the fishing areas and movements of the fishing fleet – with the anticipation that they would follow the migration of the of the fish schools
 - The tagging program (SEAFDEC/MFRDMD) and stock assessment (BOBLME Project) should be continued, including efforts to increase efficiency
 - Spawning ground and spawning season which related on fish larvae should be studied with indications to links and importance of specific habitats
 - Study on oceanography should be developed in order to anticipate impacts of changes in patterns of currents and seasonal change (climate variability)
 - As practical it would be important to follow up on earlier studies on fish larvae (including distribution)
 - Monitoring on the changes of ecosystem which affected to mackerel and related species should be conducted
- d. **Joint Working Groups:** it was strongly recommended to establish joint, Myanmar and Thailand, working groups on aspects related to priority areas such as Corals (BOBLME Project), Mangroves (SEAFDEC-Sida Project and IUCN) and *Rastrelliger spp.* and related species (SEAFDEC-Sida Project and BOBLME Project) to build up capacity and promote common understanding).

To take further steps and move into active cooperation, this Meeting is invited to:

- Follow up on the criteria for defining suitable (larger) fisheries resources conservation areas based on aggregates of existing and effective smaller “managed” areas (i.e. MPA’s, *refugia* and other management areas) encompassing critical habitats and provide advises to move forward and involve countries, departments and others to define and establish larger fisheries resources conservation areas – as need facilitate bi- and tri-lateral agreements. Follow up with each of the countries.

- Follow up on the information on the abundance, migration/seasonal distribution of important fisheries resources such as *Rastrelliger* spp. in Andaman sea area with an aim to facilitate trans-boundary arrangements for conservation and restrictions on fishing activities (closed seasons, etc). Follow up with each of the countries.
- Joint Working Groups: indicate lead agencies/persons for the working groups on aspects related to priority areas such as Corals (BOBLME Project), Mangroves (SEAFDEC-Sida Project and IUCN) and *Rastrelliger* spp. and related species (SEAFDEC-Sida Project and BOBLME Project) to build up capacity and promote common understanding). Both Northern and Southern Andaman Sea – and others parts (check with BOBLME). Follow up with each of the countries.
- Advise on steps to take by Countries, SEAFDEC, BOBLME and others to follow up on national and local commitments to actual move into a stage of establishment and implementation (this could involve a need for SEAFDEC to visit each of the Andaman Countries to confirm national commitments and inputs to national and local action plans).
- Provide recommendations on additional research or areas of importance of relevance to the Andaman Sea countries – followed up with each of the countries as practical.

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As indicated in the main text, one of the basic strategies behind the establishment of “larger fisheries resources conservation areas” is to build up and coordinate with other already established “managed areas”. Areas such as trawling free zones, MPAs, heritage sites, etc for the specific conservation of habitats and species as defined in laws and regulations for the establishment of these areas. For easy reference Annex 1 provide a summary of some of these areas in Indonesia, Malaysia, Myanmar and Thailand, respectively

INDONESIA

Responsible Agencies

1. Ministry of Forestry

Responsible in biodiversity conservation on land and in aquatic areas; to manage wildlife sanctuaries; to control the over harvesting of the natural resources.

2. Ministry of Marine Affairs and Fisheries

Ministry is responsible for the aquatic wildlife (inland and marine fish species) conservation; for the control of harvesting/over-harvesting of the aquatic species; to establish limits for sustainable fishing resources; to conserve and to enhance the stocks of aquatic species.

3. Ministry of the Environment

No information provided yet

Managed areas established that restricts fishing and other activities

- **Zones reserved for traditional/artisanal fisheries (trawling free zones)**

Reserved zones are at least 12 miles from the Indonesian shorelines.

- **Marine Protected Areas (MPA)**

Marine protected area is a specific area where the main functions are to protect life support systems, to preserve diversity of plant and animal species as well as to conserve living natural resources and their ecosystems for their sustainable utilization. There are two types of MPA in Indonesia. The first is managed by the government of the Republic Indonesia and the second is managed by local traditional fisheries management.

MPA managed by government of the Republic of Indonesia

| No. | National Park | Location | Declaration Area (Ha.) |
|------------|--|---------------------|-------------------------------|
| 1. | Seribu Island – Kepulauan Seribu | Jakarta | 108,000.00 |
| 2. | Karimun Jawa Islands – Kepulauan Karimun Jawa | Central Java | 110,117.30 |
| 3. | Bunaken Marine Park – T.N. Laut Bunaken | North Sulawesi | 86,065.00 |
| 4. | Taka Bone Rate Marine Park – T.N. Laut Taka Bone | South Sulawesi | 530,765.00 |
| 5. | Rate | South East Sulawesi | 1,390,000.00 |
| 6. | Wakatobi Islands – Kepulauan Wakatobi | Papua | 1,453,500.00 |
| | Cendrawasih Bay – Teluk Cendrawasih | | |
| 7. | Sawu Sea | East Nusa Tenggara | 3,521,130.01 |

MPAs in Indonesia are generally zones that are made up of:

1. Core Zone: Fully restricted area; far from the settlement; minimum accessibility; to protect natural living organisms; to protect ecological-physical process; human activities are not allowed.
2. Protection Zone; A Protected area to support the core zone; human activities very limited, only for research and training on fish population-habitat-development.
3. Tourism Zone; A Protected area to support the core zone; human activities is allowed only for recreation and tourism.
4. Local Use Zone: Human activities are allowed only for local inhabitant; traditional fishing for daily food purpose (non commercial fishing).
5. Common Use Zone: Offshore/deeper sea area development; Human Activities are allowed not only for local inhabitants, but also for commercial companies.

Any infringements in MPA will, according to the law, be punished because the MPA are protected by the law.

- **Heritage Sites and/or Man and Biosphere areas**

I. Strict Marine Nature Resource Conservation Area

| No. | Conservation Area | Declaration Area (Ha) | Stated by legal | | Lokasi Location |
|-----|-------------------|-----------------------|------------------|------------|-----------------|
| | | | No | Date | |
| 2 | Sangiang Island | 700,35 | 112/Kpts-II/1985 | 23-05-1985 | Serang |
| 3 | Leuweung Sancang | 1.150,00 | 92/Kpts-II/90 | 03-06-1990 | Garut |
| 4 | Karimata Island | 77.000,00 | 381/Kpts-II/1985 | 27-12-1985 | Ketapang |
| 5 | Aru Tenggara | 114.000,00 | 72/Kpts-II/1991 | 02-04-1991 | Maluku Tenggara |
| 6 | Riung | 2.000,00 | 589/Kpts-II/1996 | 16-09-1996 | Ngada (NTT) |
| 7 | Anak Krakatau | 13.735,10 | 85/Kpts-II/1990 | 07-11-1990 | Lampung Selatan |
| 8 | Martelu Purba | 195,00 | 471/Kpts-II/93 | 09-02-1993 | Sumatera Utara |

II. Marine Wild Life Sanctuary

| No. | Conservation Area | Declaration Area (Ha) | Stated by legal | | Lokasi Location |
|-----|--------------------|-----------------------|--------------------|------------|-----------------|
| | | | No | Date | |
| 1 | Semama Island | 220,00 | 604/Kpts/Um/8/1982 | 19-08-1982 | Berau |
| 2 | Raja Ampat Islands | 60.000,00 | KEP.64/MEN/2009 | - | West Papua |
| 3 | Sabuda Tataruga | 5.000,00 | 82/Kpts-II/1993 | 16-02-1993 | Fakfak |

III. Marine Recreational Park (Heritage sites, man and biosphere)

| No. | Conservation Area | Declaration Area (Ha) | Stated by legal | | Lokasi Location |
|-----|--|-----------------------|---------------------|------------|----------------------|
| | | | No | Date | |
| 1 | Weh island | 3.900,00 | 928/Kpts/Um/12/1982 | 24-12-1982 | Aceh Utara |
| 2 | Banyak Islands | 227.500,00 | 596/Kpts-II/1996 | 16-09-1996 | Singkil |
| 3 | Sangkalaki Island | 280,00 | 604/Kpts/Um/8/1982 | 19-08-1982 | Berau |
| 4 | Pombo Island | 998,00 | 392/Kpts-VI/1996 | 30-07-1996 | Maluku Tengah |
| 5 | Banda Sea | 2.500,00 | KEP.69/MEN/2009 | - | Maluku Tengah |
| 6 | Kassa Island | 1.100,00 | 633/Kpts/Um/10/1978 | 15-10-1978 | Maluku Tengah |
| 7 | Moyo Island | 6.000,00 | 308/Kpts-II/1986 | 04-09-1986 | Sumba |
| 8 | Gili Anyer Island, Gili Meno Island, and Gili Trawangan Island | 2.954,00 | 85/Kpts-II/1993 | 16-02-1993 | West Nusa Tenggara |
| 9 | Maumere Bay | 59.450,00 | 126/Kpts-II/1987 | 21-04-1987 | Sikka |
| 10 | Komodo Island | 39.000,00 | 1980 | 1980 | Lesser Sunda Islands |

| | | | | | |
|----|--------------------|-------------|-------------------|------------|------------------|
| 11 | Tujuh Belas Island | 9.900,00 | 589//Kpts-II/1996 | 16-09-1996 | Ngada |
| 12 | Kupang Island | 50.000,00 | 18/Kpts-II/1993 | 28-01-1993 | Kupang |
| 13 | Kapoposang Island | 50.000,00 | 588/Kpts-VI/1996 | 12-09-1996 | Pangkep |
| 14 | Padaido Islands | 183.000,00 | KEP.68/MEN/2009 | - | Papua |
| 15 | Lasolo Island | 81.800,00 | 451/Kpts-II/1999 | 17-06-1999 | Kendari |
| 16 | Anambas Islands | 1,262,686.2 | KEP.35/MEN/2011 | - | Riau Archipelago |
| 17 | Pieh Sea | 39,300 | KEP.70/MEN/2009 | - | West Sumatera |

IV. Coastal Park

| No. | Conservation Area | Declaration Area (Ha) | Stated by legal | | Lokasi Location |
|-----|-------------------|-----------------------|---|------|-------------------------|
| | | | No | Date | |
| 1 | Ujungnegoro Roban | 4,015.2 | Ministerial Regulation of Marine Affairs and Fisheries KEP.29/MEN/2012 | - | Pekalongan Central Java |

V. Marine Natural Preservation

| No. | Conservation Area | Declaration Area (Ha) | Stated by legal | | Lokasi Location |
|-----|--------------------------|-----------------------|-----------------|------|-----------------|
| | | | No | Date | |
| 1 | Southeastern Aru Islands | 2,500 | KEP.63/MEN/2009 | - | Maluku |
| 2 | Western Waigeo Islands | 271,630 | KEP.65/MEN/2009 | - | West Papua |

Indonesia has many heritage sites and man and biosphere areas such as: The Komodo and Rinca Islands, Krakatau Island and etc. The Komodo and Rinca islands are the largest of about 80 islands that lie in between the islands of Sumbawa to the west and Flores in the east. Together with an extensive area of the surrounding ocean they form the Komodo National Park. Established in 1980, the park was declared a Man and Biosphere Reserve and a World Heritage Site in 1986. The park is most famous for its enormous lizards, the Komodo dragon (*Varanus komodensis*), the biggest reptile inhabiting the world today, but unfortunately endangered. Moreover, the Park includes one of the richest marine environments including coral reefs, mangroves, seagrass beds, seamounts, and semi-enclosed bays. These habitats harbor more than 1,000 species of fish, some 260 species of reef-building coral, and 70 species of sponges. Dugong, sharks, manta rays, at least 14 species of whales, dolphins, and sea turtles also make Komodo National Park their home.

- **Safety zones around shipping lanes and structures in the sea (oil rigs, etc)**

Safety zones around **shipping lanes** in Indonesian waters are usually established around the straits, for example in Malaka Strait which is, since many years, one of the busiest international shipping lanes. Safety zones also occur in certain areas such as Bali Strait, Madura Strait, Sunda Strait, Karimata Straits, Lombok Strait, and so on. Safety zones are also established around the **oil rigs** such as oil rig around Cirebon, Cilacap, Seribu Islands, Batam and so on.

- **Community fisheries (other than that of traditional management areas)**

Ancient local wisdoms in some areas in Indonesia are proven successfully to give protection for the environment, habitat, living organisms and bio-eco-physical process. Coastal and traditional fisheries management based on people's participation could at least solve the problem of enforcing regulations at local level. The cultural factor in traditional regulations facilitates social control. Thus community participation could make management more effective. These ancient local wisdoms are protected by the traditional law (hukum adat) in society by giving moral sanctions and material sanctions. The ancient local wisdom are also protected by local government laws and national legal provisions. The ancient local wisdoms in Indonesia are divided into Marine and Inland local wisdom (see below).

MARINE LOCAL WISDOM

1. Panglima Laut (Banda Aceh)

Panglima Laut is a traditional leader of the coastal fishermen community that mediate between the government and the fishermen to make fisheries development and other programs succeed. Fishing rules are in force in the seawater areas of every district; based on the custom law for fishermen in that district; controlling the boat, fishing gear, fish size and opening season for some areas; protecting the environment and supporting the government programs.

Organization: Advisory Committee, Sea Commander (chosen from district sea commander), District Sea Commander, Vice-Sea Commander, Secretary and Treasury.

2. Sasi (Maluku/Molucca)

An ancient community management in Central Maluku whereby a marine area owned by a particular coastal village with traditional use rights is closed from harvest periodically. Sasi is lead by a senior in the society, and he is chosen in a meeting which is held by the representatives from some villages around the area.

3. Awig-awig in Lombok and Bali

Awig-awig, is basically an unwritten law which is the product of the unity of the law of indigenous peoples. Awig-awig is to protect the environment and the natural resource. It is also to regulate and to control how to cultivate, to maintain and to harvest the product. In coastal area, harvesting on fisheries resources such as fishes, scallops, seaweed are very limited and open only at certain season.

INLAND FISHERIES LOCAL WISDOM

4. The Lubuk Larangan System in North Sumatra

Fishing is not allowed, if a Lubuk Larangan has not been approved by the leader of the village for the open season; Lubuk Larangan must remain closed for at least six months, so that the fish resource has a chance to rebuild; Any violations of the regulations cited above attracts a jail sentence of six months or a fine.

Organization: it has Chairman, Vice Chairman, Secretary, Treasurer and Controller.

5. Ikan Diniatkan and Ikan Larangan: Areas of Traditional Fish Cultivation in the Districts of Pasaman and Padang Pariaman, West Sumatra Province.

Fish cultivation in the Ikan Diniatkan and Ikan Larangan areas is carried out under certain rules such as harvesting time, prohibitions and sanctions; An area is established for Ikan Diniatkan and Ikan Larangan, usually 200 m to 1500 m away upstream and downstream of the rivers from the bench mark; public facility usually used as benchmark is a bridge; Fishing at the Ikan Diniatkan and Ikan Larangan area is conducted once or twice a year; Fishing is usually done using fishing gear that do not endanger fisheries resources sustainability and the environment.

Organization: Patron, Founder, Secretary and Treasury.

6. An Auction of Lebak Lebung and River: A Traditional Open Water Auction in the Districts of Ogan Komering Ilir and Musi Banyuasin, South Sumatra Province.

7. Maawu Dabau Bakuok (MDB): A Traditional System of Management for Fisheries in Bakouk Lake, Kampar Community, Riau Province.

MALAYSIA

Responsible Agencies

1. Ministry of Agricultural and Agro-based Industry

- Department of Fisheries (DOF) is responsible for fisheries resources management, aquaculture development and fishermean in large scale and traditional operations.

- Fish Development Authority Malaysia (FDAM) is responsible for fishing port management and fish marketing.

2. Ministry of Natural Resources and Environmental Malaysia

- Department of Marine Park Malaysia is responsible the management and monitoring of 40 MPA's in Malaysia.

- Department of Environment (DOE) is responsible for the implementation of the national environmental policy and enforcement.

Managed areas established that restricts fishing and other activities

- **Zones reserved for traditional/artisanal fisheries (trawling free zones)**

Zone A (0-5 nm) is reserved for traditional fisheries, for Traditional Fishermen & Traditional Anchovy Purse Seiner (Owner Operator).

- **Marine Protected Areas (MPA)**

The responsible agency managing the MPA's in Malaysia is Department of Marine Park Malaysia. Marine Park is a sea zoned area for a distance of two nautical miles from the lowest sea level, except in Kapas Island in Terengganu, Kuraman Island, Rusukan Besar Island and Rusukan Kecil Island in Labuan. These areas are zoned for a distance of 1 nautical mile from the lowest sea level. Marine Park is established to protect and conserve various habitat and aquatic marine life.

Up to date, the waters around Malaysia's 40 islands are gazetted as Marine Parks. The Marine Park islands are as follows:

| No. | Marine Park | Location | Declaration Area (km ²) |
|-----|------------------|------------|-------------------------------------|
| 1. | Pulau Payar | Kedah | 187.73 |
| 2. | Pulau Redang | Terengganu | 530.29 |
| 3. | Pulau Perhentian | Terengganu | |
| 4. | Pulau Kapas | Terengganu | |
| 5. | Pulau Tenggol | Terengganu | |
| 6. | Pulau Tioman | Pahang | 676.61 |
| 7. | Pulau Tinggi | Johor | 765.65 |

Main Establishments of Marine Parks, Malaysia are explained in the Fisheries Act 1985. The Marine Parks:

- Afford special protection to aquatic flora and fauna, and protect, preserve and manage the natural breeding grounds and habitat of aquatic life with particular regard to species that are rare or endangered.
- Allow for the natural regeneration of aquatic life where such life has been depleted.
- Promote scientific study and research.
- Preserve and enhance the pristine state and productivity of such areas.
- Regulate recreational and other activities to avoid irreversible damage to its environment.

- **Traditional seasonal closures of fishing activities during critical periods**

Fishermen are not allowed to fish on every Friday in one week, Hari Raya Celebration, in times of death of anyone from the fishermen's village, etc.

- **Biosphere Reserve Information in Malaysia**

Not Available

- **Wildlife Sanctuaries & Parks**

1. [Islands off Mersing National Park](#)

2. [Pulau Kukup National Park](#)
3. [Pulau Tiga Park](#)
4. [Tun Sakaran Marine Park](#)
5. [Tunku Abdul Rahman Marine Park](#)
6. [Turtle Islands Park](#)

- **Safety zones around shipping lanes and structures in the sea (oil rigs, etc)**

The littoral states of the Straits have undertaken various initiatives aimed at curbing the menace of piracy and securing the waterway from the threats of terror. They include:

- The formation of the Malaysian Maritime Enforcement Agency, a Coast Guard-type organization providing sea-going maritime constabulary services to assure the safety of vessels transiting Malaysian waters.
- The implementation of MALSINDO, a coordinated patrol scheme involving the navies of Singapore, Malaysia and Indonesia. The trilateral initiative, launched in July 2004, is a joint special task force by the littoral states to safeguard the Straits and provide effective policing along the waterway.
- The 'Eyes in the Sky' (EIS) initiative, a maritime air operation for surveillance over the Straits of Malacca and Singapore. This initiative, involving the three littoral states and Thailand, seeks to detect and deter acts of piracy and transnational criminal activities in the Straits – **(to follow up: if acts of illegal fishing are considered, or are likely to be considered a transnational crime)**.
- The proposal to set up an Information Sharing Center in Singapore by December 2006 is set out in the Cooperation Agreement on Combating Piracy and armed robbery against Ships in Asia.
- The proposed Long Range Identification and Tracking (LRITS) of ships initiative by Maritime Security Committee of IMO. LRITS will allow ships to identify each other's registration and the type of cargo being carried.
- The increase in the capacity and scope of several security systems already in place involving sea surveillance, vessel traffic and ship reporting.
- The increase in initiatives at the bilateral level, such as Indonesia and Singapore's effort to launch a surveillance radar system in a bid to boost waterways security in the Singapore Straits linking the Straits of Malacca to the South China Sea.
- The increased patrols by Malaysian Marine Police in the Straits which have resulted in several arrests of pirates and armed gang robberies. In 2005, several attacks were foiled by the Malaysian Marine Police, in one case leading to the prosecution of the perpetrators. In addition, several regional initiatives have sought to boost security. These include agreement on information exchange and establishment of communication procedures, treaty of mutual assistance in criminal matters and regional forum framework on measures against terrorism, counter-terrorism and transnational crime. A South East Asian Regional Center for Counter-Terrorism has been set up, while agreements have been reached between ASEAN members and dialogue partners such as the US and EU with reference to cooperation against terrorism in the field of security.

- **Community fisheries (other than that of traditional management areas)**

KEN (Kumpulan Ekonomi Nelayan) or Fishermen Economy Group are responsible to manage and protect their area especially from encroachment by trawlers and those using prohibited gears.

The first attempt to establish a structured CBFM in Malaysia is in Kuala Teriang, Langkawi, Kedah. These initiatives have been co-funded by Department of Fisheries Malaysia/Japanese Trust Fund (SEAFDEC). Indications provided on known local/traditional management systems.

KEN (Fishermen Economy Group) Kuala Teriang and KEN Kuala Chenang have the ownership of FADs and ARs which are responsible to maintain and protect them.

- **Other general restrictions on gears, methods, etc**

In Malaysia, some of the technical measures currently imposed include area and time restrictions, and gear restrictions such as specifying the minimum mesh sizes of fishing nets. For example: closed fishing seasons and areas, and total fishing prohibition within specific stretches of marine waters (e.g. waters of the Marine Park). The minimum cod-end mesh sizes of prawn and fish trawl nets have been set at ¾-inch and 1½-inch when stretched (Department of Fisheries Malaysia, 1999). The use of turtle excluder devices (TEDs) on prawn trawl nets is increasingly becoming mandatory.

Input controls include restrictions on the number of fishing units through limiting the number of licenses or permits issued, and restrictions on the body and engine sizes of fishing vessels. The maximum engine power (in horsepower) fitted for trawlers should not exceed 4.40 times their GRT, and for purse seiners, engine powers (in horsepower) are only allowed up to 3.47 times their GRT. Vessels employing traditional gears should have engine powers not exceeding 3.40 times their GRT. The amount of time that these units can spend fishing is, however, still not limited.

Limited access is becoming more important as a means to avoid unwarranted conflicts between fishers operating the different fishing gears. In Malaysia, the zone system employed is able to provide ample fishing grounds for the respective gears to fish, and surveillance activities are constantly conducted to ensure that the use of gears do not infringe the terms and conditions stipulated for their operation.

MYANMAR

Responsible Agencies

There are three main agencies concerned with biodiversity conservation and management in Myanmar. These are as follows;

1. Ministry of Forestry (MOF)

MOF is responsible for habitat maintenance and restoration, protection of endangered and rare species of 100th fauna and flora, establishment of new parks, and naturally protected areas, and buffer zone management.

2. The National Commission for Environmental Affairs (NCEA)

The National Commission for Environmental Affairs (NCEA) is the focal point for all environmental affairs, including management. It is mandated to advise the Cabinet on formulating policy, issue guidelines for implementing policy, guide and advise regulatory agencies on legal matters, and formulate policies and strategies that take into account environmental and developmental priorities.

3. Department of Fisheries (DOF)

DOF is responsible for management and conservation of all aquatic organisms, including aquatic plants, seedlings & seeds.

Managed areas established that restricts fishing and other activities

- **Zones reserved for traditional/artisanal fisheries (trawling free zones)**

Trawl fishing is not allowed to operate within 5nm in the northern part and 10 nm in the southern part from shore line and other off-shore vessels are not allowed to operate within 5nm in the northern part and 10 nm in the southern part from the shore line.

- **Marine Protected Areas (MPA)**

Lampi Island Marine National Park (112.5 km²) was established in 1996 to preserve the island's vast flora and fauna and coral reefs. Department of Fisheries also declared the area around Done island and Lampi Island within Mergui Archipelago as Shark Fishing prohibited area.

- **Seasonal closures during critical periods**

Some fishing grounds are closed to fishing from June to August for spawning. Some species are not allowed for grow-out period.

- Pomfret(<100 gram)/stow net (April- May)
- Female Mud Crab with eggs (April -May)
- Lobster, Giant mantis shrimp (June-Aug)
- Sea water shrimp (June-Aug)
- Grouper (July-Sept)
- Cuchia eel (Under 3cm in circumferences)

- **Wildlife sanctuaries/defined habitat reserves**

There are two declared wildlife sanctuaries for turtle protection:

- Thamihla Kyun or Diamond Island (88 ha), marine habitat as such is not protected.
- Moscos Islands (4,924 ha), marine habitat as such is not protected.
 - Defined habitat reserves:
- Wunbaik mangrove forest reserve (22,919 ha)

- **Safety zones around shipping lanes and structures in the sea (oil rigs, etc)**

To prevent Yangon harbor from silting up and forming of sediment and shipping lanes traffic by fishing, Department of Fisheries set up the prohibited areas for net-used fishing within Yangon river, Hlaing river and Bago river. There are also safety zones around oil rigs.

- **Other general restrictions on gears, methods, etc**

- Exclusion of a Fishing Method
 - Dynamites/Explosives

- Chemicals/Drugs
- Electricity
- Pump
- Restricted Gears (e.g. mesh size)
 - Trawler
 - Fish >2.5 inches
 - Shrimp >2 inches
 - Gill net - <4.0 inches
 - Stow net - <2.5 inches
 - Purse seine - < 4.0 inches

THAILAND

Responsible Agencies

1. Ministry of Agricultural and cooperatives (MOAC)

Department of Fisheries (DOF) is responsible to fisheries resource and fisherman both in large scale and small scale.

Royal Forestry Department is in general responsible for park management

2. Ministry of Natural Resources and Environment (MNRE)

Department of Marine and Coastal Resources (DMCR) was given the mandate to develop appropriate regulations in order to achieve updated and effective managerial action with the objective of looking after the nation's marine and coastal fragile and vulnerable resources including resources preservation, conservation aimed at sustainable use and rehabilitation.

Pollution Control Department (PCD) is the main agency implementing the national policy on pollution control.

Managed areas established that restricts fishing and other activities

- **Zones reserved for traditional /artisanal fisheries (Trawling free zones)**

The zone reserved for smaller scale fisheries extends up to 3 km from the shore. The small-scale fishery refers to the fishery that operates fishing without boat, with non-powered boat, out-boards powered boat and inboard powered boat of less than 5 GT. The fishing gear used by the small-scale fishery are small-scale bamboo stake trap, traps, gillnets, set bag net, small push net, lift net, hooks and lines and other stationary gears. The small-scale fishers operate their gears in estuaries, bays and inshore waters.

- **Marine protected areas (MPA)**

The establishment of national parks and fish sanctuaries falls under the National Park Act of 1961 and the Fisheries Law of 1947. There are five categories of protected areas: national parks, national marine parks, wildlife sanctuaries. Twenty National Marine Parks have been declared. Two other MPAs have been designated as non-hunting areas but also encompass coral and mangrove habitats. Of the 20 National Marine Parks, 14 parks include coral reef areas, most of which are located in the Andaman Sea and only six are located in the Gulf of Thailand. Approximately 60% of the coral reef area is included within a protected area. There is no available information on the Fisheries Sanctuaries.

The Marine Nation Marine Park in the Andaman Sea is as follows:

| No. | National Park | Location | Declaration Area (km ²) | Latest Declared Date |
|-----|-------------------------------------|--------------------|-------------------------------------|----------------------|
| 1. | Tarutao | Satun | 1,490.0 | 19 April 1974 |
| 2. | Ao Phang-nga | Phang-nga | 400.0 | 29 April 1981 |
| 3. | Mu Ko Surin | Phang-nga | 141.3 | 6 July 2007 |
| 4. | Sirinath | Phuket | 90.0 | 13 July 1981 |
| 5. | Hat Chao Mai | Trang | 230.9 | 13 September 1989 |
| 6. | Mo Ko Similan | Phang-nga | 140.0 | 25 September 1998 |
| 7. | Laem Son | Ranong & Phang-nga | 315.0 | 19 August 1983 |
| 8. | Hat Noppharat Thara – Mu Ko Phi Phi | Krabi | 387.9 | 13 October 1998 |
| 9. | Mo Ko Phetra | Satun & Trang | 494.4 | 31 December 1984 |
| 10. | Khao Lampi-Hat Thai Mueang | Phang-nga | 686.0 | 14 May 2010 |
| 11. | Mo Ko Lanta | Krabi | 134.0 | 15 August 1990 |
| 12. | Khao Lak-Lam Ru | Phang-nga | 125 | 30 August 1991 |
| 13. | Lam Nam Kra Buri | Ranong | 160 | 21 April 1999 |
| 14. | Mu Ko Ranong | Ranong | 356.7 | 23 December 2009 |

Source: Royal Forestry Department (2012)

There are large marine and estuarine areas in the Andaman Sea is as follow:

- 1) Ao Phang-nga National Park
- 2) Sirinat National Park

- **Heritage sites**

Among the 14 national parks, three are recognized internationally as globally significant: Mu Ko Similan and Mu Ko Surin form a World Heritage Site and Khao Sam Roi Yot is a RAMSAR site. Tarutao, though rejected as a World Heritage Site, is now an ASEAN Heritage Site and warrants regional priority.

- **Man and Biosphere areas**

The Ranong Biosphere Reserve (RBR) is on the Andaman Sea Coast of Southern Thailand. Several hundred people directly utilize the natural resources of the Ranong Biosphere Reserve. The mangrove forest ecosystem provides local people with a wide range of species and materials, ranging from mangrove wood products used for fuel wood (firewood and charcoal), fishing gear and housing, to fish, molluscs, crustaceans and other aquatic species which are eaten or sold for income. Many species of mollusc shellfish (mainly oysters, mussels, cockles and clams) are gathered by hand, especially by women and children, while men are engaged mainly in fishing and crab collecting.

- **Seasonal closures during critical periods**

All kind of mechanized trawlers, purse seiner, and encircling nets with have mesh sized smaller than 4.7 cm. are prohibited to operate during spawning period of some aquatic species from 15 April-15 June every year except anchovy purse seine.

- **Wildlife Sanctuaries**

There is no available information on the wildlife/fisheries Sanctuaries.

- **Safety zones around shipping lanes and structures in the sea**

No data available for now.

- **Community fisheries (apart from traditional management areas)**

- Bay of Bengal Programme (BOBP) Project Focused on Phang Nga Bay area, the BOBP project assisted in organizing fishing communities (not to mix up with the recent BOBLME Project).
- FAO Project on Securing Food and Livelihood of Fishers through Gear Replacement in Phangnga Bay, Krabi Province. The project was a gear replacement scheme to exchange destructive push nets with environmentally friendly gillnets.
- The CHARM Project, designed by the MOAC, applies the concept of decentralization and co-management to manage natural resources in the selected coastal sites. The project, approved by the Cabinet on October 9, 2001 has received a grant from the European Union for its implementation.

- **Indications provides on known local/Traditional management system**

- Different kind of fishermen groups such as Mangrove conservation group, Small-scale fishery Association, Saving fishing port and etc. are formed in various local areas.

- **Other General restrictions**

There are prohibitions in the use of destructive fishing gear and destructive fishing practices, i.e., trawls, push nets, short neck clam dredge, dynamite fishing and chemical poisoning.

- **Additional data: Tran boundary species**

It is reported that at least 10 economically important species, including *Rastrelliger brachysoma*, *R. kanagurta*, *Scomberomorus commerson*, *Auxis thazard*, *Euthynnus affinis*, *Katsuwonus pelamis*, *Thunnus albacores* and *Loligo spp.*, which are commonly exploited by several countries bordering the Andaman Sea. These species frequent inshore and coastal waters of more than one country or straddle the exclusive economic zones thereof.

The migration pattern of *R. brachysoma* is reported by BOBP (1987). The Indo-Pacific mackerel stock was divided into 3 stocks, i.e. the first stock was distributed in the eastern of Sumatra Island of Indonesia through the south-west of Penang, Malaysia. The second stock distributed between the Myanmar-Thailand boundary waters, and the third distributed in Phangnga Bay through the north of Penang.

Annex 8

Fisheries Resources Assessment Management by the Bay of Bengal Large Marine Ecosystem Project

Dr. Rudolf Hermes

10 Major Areas of Work in Environment and Fisheries



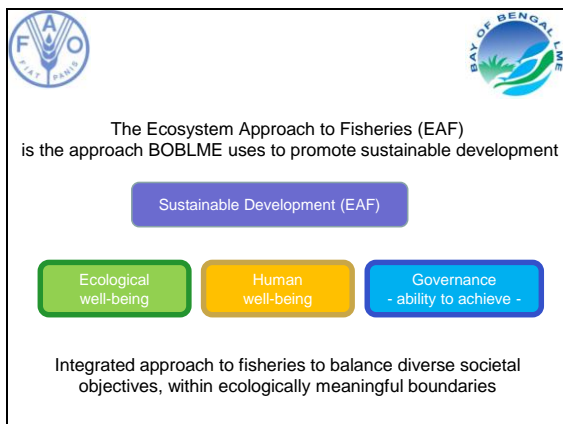
- Transboundary Diagnostic Analysis and Regional Strategic Action Plan
- Integrated Coastal Management
- Policy Harmonization
- Fisheries Resources Assessment and Management
- Transboundary Critical Habitat Management
- Ocean Dynamics, Productivity and Climate Change
- Marine Protected Areas / Fish Refugia
- Ecosystem Health Indicators
- Land-Based Sources of Pollution
- Communications

10 Major Areas of Work in Environment and Fisheries



- Transboundary Diagnostic Analysis and Regional Strategic Action Plan
- Integrated Coastal Management
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- Land-Based Sources of Pollution
- Communications

The Ecosystem Approach to Fisheries (EAF) is the approach BOBLME uses to promote sustainable development



Sustainable Development (EAF)

- Ecological well-being
- Human well-being
- Governance - ability to achieve -

Integrated approach to fisheries to balance diverse societal objectives, within ecologically meaningful boundaries

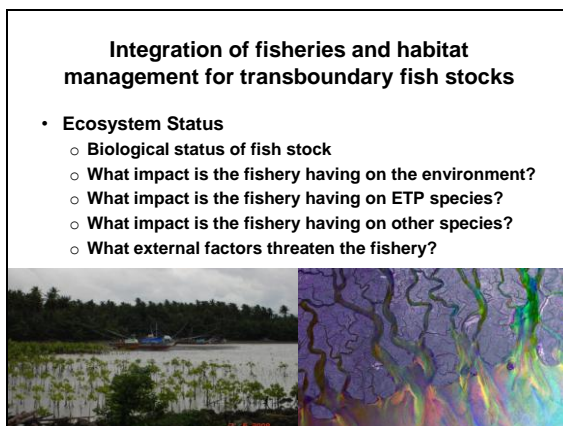
Fisheries Resources Assessment and Management (hilsa shad, Indian mackerel, sharks)

- Stock status reviews and assessments
- Review of fisheries statistics
- Research programmes (incl. stock structure; molecular genetics)
- Stock assessment capacity development
- Regional Fisheries Management Advisory Committee
- EAF Training Course development
- Performance indicators for fisheries management



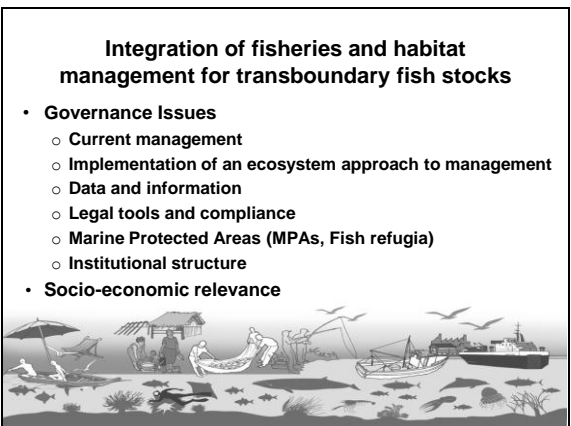
Integration of fisheries and habitat management for transboundary fish stocks

- Ecosystem Status
 - Biological status of fish stock
 - What impact is the fishery having on the environment?
 - What impact is the fishery having on ETP species?
 - What impact is the fishery having on other species?
 - What external factors threaten the fishery?




Integration of fisheries and habitat management for transboundary fish stocks

- Governance Issues
 - Current management
 - Implementation of an ecosystem approach to management
 - Data and information
 - Legal tools and compliance
 - Marine Protected Areas (MPAs, Fish refugia)
 - Institutional structure
- Socio-economic relevance




Marine Protected Areas and fisheries

- MPAs are one among many tools in an EAF and should be combined with other fisheries management measures
- Fisheries objectives should be included in MPA planning, design and management, if we want to expect fisheries benefits
- There is a need to dialogue and collaboration between responsible agencies
- Resource user and community consultation and participation in MPA design and management need to be improved
- Lack of (scientific) information should not unreasonably delay the designation of MPAs




Findings (1)

- Wide variety of MPAs in the region – very few with explicit fisheries objectives although sometimes implicitly referred to under a biodiversity objective.
- There is a legal basis for establishing MPAs in all countries but this rarely covers fisheries management.
- While there appears to be a common understanding of the need for different line agencies to coordinate and collaborate on MPA planning and implementation, there is still insufficient cross-sectoral communication.




Findings (2)

- While there is recognition of the importance of community involvement and engagement in MPA planning and management – still many MPAs do not sufficiently include local communities in management.
- Information is important but complete data may not be necessary. Better use of data from different sources could be made – combining scientific data, local wisdom and traditional knowledge – as well as of multi-disciplinary (social/economic and ecological/biological) analysis.
- Fisheries information is generally not included in MPA planning and hence MPAs may not yield fisheries management benefits.



Marine Protected Areas and fisheries (India)

- Wild Life Protection Act (1972)
- 31 areas submitted to Convention on Biological Diversity (CBD)
- 5 Marine National Parks
- Mahatma Gandhi Sanctuary – A&N – 281.5 km² (1983)
- 14 MCPAs – A&N – 0.26-260 km² (1987 – 1996)
- Wildlife Institute of India; Ministry of Environment and Forests




Annex 9

Tagging Program for Economically Important Pelagic Species in the South China Sea and the Andaman Sea, 2008-2012

Abu Talib Ahmad
Special Department Coordinator


SEAFDEC/ Marine Fishery Resources Development and Management Department (MFRDMD),
Fisheries Garden, Chendering, 21080 Kuala Terengganu, Malaysia




MFRDMD

Japanese Trust Fund II (JTFII):
Tagging Program for Economically
Important Pelagic Species in the South
China Sea and Andaman Sea, 2008 - 2012


Target Species




Indian Mackerel
(*Rastrelliger kanagurta*)



Short mackerel
(*Rastrelliger brachysoma*)

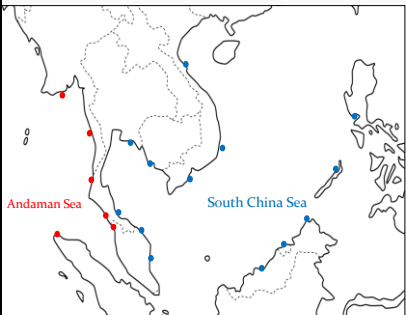


Japanese Scad
(*Decapterus maruadsi*)



Short fin Scads
(*Decapterus macrosoma*)

Tagging Sites



➤ The South China Sea: 13 tagging sites (Pre-monsoon: July – Sep)

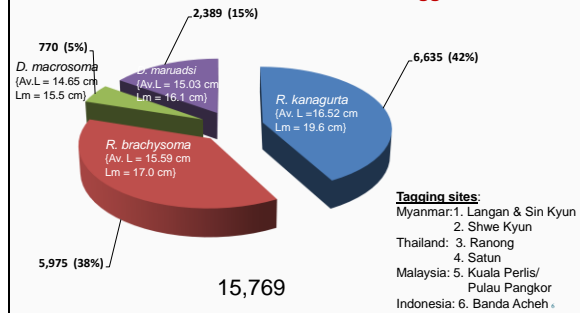
➤ The Andaman Sea: 6 tagging sites (Post-monsoon: Apr – Jun)

TOPICS

- Regional Synthesis on Tagging
- Preliminary Finding from Genetic Survey for Population Structure
- Fisheries Assessment – Indian Mackerel Fisheries

Regional Synthesis on Tagging in the Andaman Sea

Regional Synthesis on Tagging in the Andaman Sea – Number of tagged fishes

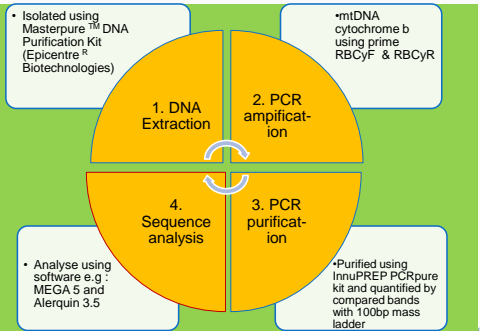


Recaptured Tagged Fish in the Andaman Sea

| Species | No. Released | No. Recaptured | Recovery Rate (%) | Longest at Liberty (day) | Av. Distant Travel (km/day) |
|----------------------|---------------|----------------|-------------------|--------------------------|-----------------------------|
| <i>R. kanagurta</i> | 6,635 | 8 | 0.12 | 67 | 11.64 |
| <i>R. brachysoma</i> | 5,975 | 33 | 0.55 | 139 | 12.27 |
| <i>D. macrosoma</i> | 770 | 61 | 7.92 | 59 | 6.91 |
| <i>D. maruadi</i> | 2,389 | 59 | 2.47 | 113 | 4.55 |
| Total | 15,769 | 161 | 1.02 | 139 | |

Preliminary Finding from Genetic Survey for Population Structure

Method: mtDNA Cytochrome b



Population Structure of Indian mackerel between South China Sea and Andaman Sea

Population Pairwise difference F_{ST} between five populations of *Rastrelliger kanagurta* for South China Sea and Andaman Sea:

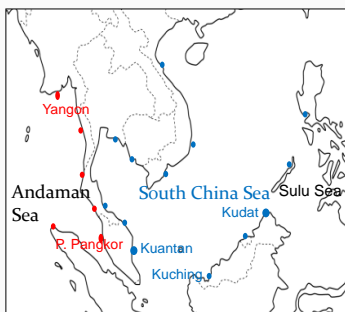
| | Kuantan | Kuching | Kudat | Pangkor | Yangon |
|---------|-----------------|----------|----------------|---------|--------|
| Kuantan | 0.000 | | | | |
| Kuching | -0.01482 | 0.000 | | | |
| Kudat | 0.00368 | -0.00730 | 0.000 | | |
| Pangkor | 0.02367 | 0.01176 | 0.06880 | 0.000 | |
| Yangon | 0.95056 | 0.93547 | 0.95330 | 0.93442 | 0.000 |

-> F_{ST} value range: 0 -1; the lowest number implies complete panmixis (freely interbreeding).

Population Structure of Indian mackerel between South China Sea and Andaman Sea

> Samples from P. Pangkor (Straits of Malacca) shared the same haplotype with samples from South China Sea.

> Haplotypes from Yangon (Andaman Sea) were clearly separated from samples from South China Sea.



Fisheries Assessment – Indian Mackerel Fisheries

**Assessment of the Indian Mackerel
(*Rastrelliger kanagurta*) in the Andaman Sea of
Malaysia, Indonesia, Thailand and Myanmar**

1. Assessments of Indian mackerel (*Rastrelliger kanagurta*) fisheries in the Andaman Sea of Malaysia, Indonesia, Thailand and Myanmar - using PSA and Risk-based Framework.
2. Highlight impacts to the Indian Mackerel fisheries by the three different fishing gears.

Note: Main Reference for 1) & 2) is 'BOBLME (2011) Assessment of the Indian mackerel (*Rastrelliger kanagurta*) and the Hilsa shad (*Tenualosa ilisha*) fisheries in the BOBLME countries. BOBLME-2011-Ecology-09

3. The Specific Goals for Fisheries Management of Indian mackerel in the Andaman Sea of Malaysia, Indonesia, Thailand and Myanmar.

16

MCS Networks and the establishment in the Andaman Sea (the MCS network revisited) and aspects on “community-based”/local MCS

Adi Wibowo
Regional Fisheries Policy Network (RFPN) for Indonesia

Southeast Asian Fisheries Development Center (SEAFDEC)/Secretariat, P.O. Box 1046, Kasetsart Post Office, Ladyao, Chatuchak, Bangkok, 10900

Introduction

1. Increased population pressure and rapid development of fisheries in the region has resulted in increased landings, increased local consumption and exports in a relatively short period of time. This development, however, has also brought about over-exploitation and destructive use of coastal resources and habitats, which very often is followed by conflict among the resources users. The pressure and range of conflicts are increasingly critical through conflicts among sectors and strong economic interest groups on resources and coastal space. Environmental degradation is increasing. Illegal (trans-boundary) fishing and use of destructive practices has for decades been a serious problem affecting countries in the sub-region. Illegal and destructive fishing and other fisheries related activities continue to be a major problem in all regions, inter alia, that jeopardizing responsible and sustainable fisheries and frustrating attempts to protect the marine environment.

2. Many of the underlying conditions that enable and promote illegal fishing and trade in fisheries products that are unrecorded and illegal are fuelled by lack of transparency and financial incentives that allow illegal activities to go undetected. The situation is further aggravated by factors such as inadequate national fishing capacity controls, a lack of resources dedicated to combating illegal fishing. The problem is recognized in the region and globally and has led to the development of concerted efforts and the development of agreements to combat “IUU fishing”, Underdeveloped regional cooperation and corruption, resulting in poor fisheries governance and unacceptable outcomes such as serious damage to biological, human, social and environmental frameworks are fuelling the illegal processes. These conditions must be addressed if governance is to be enhanced, outcomes improved and inroads made to “prevent, deter and eliminate”, illegal and destructive (IUU fishing).

3. To cope with such problems, governments of many countries strengthened their fisheries department by instituting fisheries management units. Cooperation among fisheries and other relevant authorities has been encouraged within the framework of national requirements and legislation. Subsequently, Monitoring, Control and Surveillance (MCS) is an important component of fisheries and environmental management which has been promoted in the region in order to reduce illegal and destructive fishing and achieve sustainable fisheries. The absence of MCS operations renders a fisheries management scheme incomplete and ineffective. Sub-regional cooperation is being developed to increase efficiency.

4. In 1981, FAO organized the Technical Consultation of international experts in MCS for fishery management in Rome. The experts agreed on following definitions:

- **Monitoring**, involves the collection, measurement and analysis of fishing activity data on catch, species composition, effort, discards, area operations, etc., which to assist fishery managers to arrive at management decisions.

If this information is unavailable, inaccurate or incomplete, managers will be handicapped in developing and implementing management measures.

- **Control**, involves the specifications of the terms and conditions under which resources can be harvested, normally contained in national fisheries legislation, and provides a basis on which management arrangements are enforced.

Control could include other arrangements that might be nationally, sub regionally or regionally agreed.

- **Surveillance**, involves checking and supervision of fishing activity to ensure national legislation and terms of access and management measures are observed. This activity is crucial to ensure that the resources are not overexploited, poaching is minimized and management arrangements are implemented.

5. Through the SEAFDEC-Sida Project, the idea to establish **MCS network** among the Andaman Sea countries was raised at the 2009 1st Meeting for Andaman Sea Sub-region. The Meeting recommended that initial activity to initiate sub-regional cooperation should focus on information sharing, **identify key activities** related on M, C and S and indicate responsible national institutions on such activities. Importantly, note should be taken that the activities should be within the legal framework of Member countries involved. Likewise, possible **development of local MCS** involving local populace and their knowledge maybe considered. The Meeting also recognized the need to have a sub-regional vessel record and inventory. With regards to port monitoring, it was a general consensus that the capacity building on MCS at national, provincial and local level will ultimately need to include the capacity on port monitoring and port inspections. Efforts to improve management of fishing capacity were recognized as important tools to address over-capacity and to reduce illegal and destructive fishing in the Andaman Sub-region as well as to respond to the broader context of combating IUU fishing.

MCS Network

6. It is necessary that the Andaman Countries seriously consider, in cooperative manner, effective ways to improve the management of fisheries by controlling the active fishing capacity. Several management measures and tools that could be used would be supported by the development and establishment of MCS network(s).

7. The rationale for the establishment of a MCS network are to assist countries (governments, private sector/industry and fishermen) around the Andaman Sea, or in specified sub-areas, to cooperate in monitoring and control of fishing and habitat conservation, thereby also preparing themselves for increasing demand and legal measures and regulations such as catch documentation, product traceability, social and environmental requirements, measures to combat IUU fisheries, etc and other requirements to achieve and maintain sustainable fisheries.

8. The way forward to improve fisheries management, to agree on measures to reduce illegal and destructive fishing including efforts to combat IUU fishing is to strengthen the regional cooperation between relevant regional authorities with responsibility for management interventions, especially in reducing the illegal, destructive and unreported fishing¹ and to improve management of fishing capacity.

Overview of MCS Programs Existing in Countries around the Andaman Sea

¹ Indra Jaya, Faculty of Fisheries and Marine Sciences IPB: Promoting Ecosystem Base Approach and Improving Fisheries Management to Combat IUU Fishing

9. **Thailand.** The main MCS functions are shared between the Department of Fisheries (DOF) and the Department of Marine and Coastal Resources (DMCR), where DOF maintain and operates its floating asset (patrol boat) for surveillance. Both Agencies conduct catch, fishing activities, fish stock and ecosystem monitoring. However, for large fishing vessel, registration is undertaken by the Marine Department under the Thai Vessel Act, B.E.2481. Registration and licensing of small fishing vessels and gears are the responsibility of the Provincial Fisheries Office and reported to DOF annually (monitoring). Conversely, registration of fishers in small scale fisheries is carried out by the Provincial Office. Likewise, inspection of working conditions of fishery workers onboard fishing vessel, and in harbors and processing plants (including waste management) are also carried out by DOF and other responsible Departments in compliance with the provisions of international conventions and agreements like International Maritime Organization (IMO) and International Labor Organization (ILO). The Harbor Department also surveys each vessel annually. As a precautionary approach of management, the DOF has ordered the suspension of issuance on new licenses for trawler and is considering the establishment of fishing zones, control on fishing gears and the introduction of catch quotas (control).

10. **Indonesia.** The key players involved in MCS activities are Ministry of Marine Affairs and Fisheries (MMAF) through the Directorate General of Marine and Fisheries Resources Surveillance, the Navy, and Marine Police, and the Air Force. These agencies work not only for protection and management of the country's waters but also protecting the livelihood of over 5 million fisher folks as the direct users of the resources. Surveillance activities include establishment of the Technical Implementation Unit for Fisheries Surveillance (FS-TIU) in areas where rampant fisheries violations has been identified. The FS-TIUs were initially established in strategic locations where the Fisheries Surveillance Officers (FSOs) and Fisheries Investigators are stationed. Control is implemented in the form of imposition of mesh size control, use TEDs, banning trawls, and complying with relevant binding fisheries regulations. In accordance with its Ministerial Decree of MAF (N. 29/2003), Indonesia has implemented the Fishing Vessel Monitoring System (VMS) in the country (monitoring) for larger vessels, which aims at provide real time information on vessel name, location, activity as well as other relevant and useful fisheries information. The information is compiled in a database by MoMAF to support the country's surveillance activities. In additional, the technical cooperation with Australia in MCS resulted in the drastic decrease of illegal fishing activities especially in Arafura Sea. Likewise, community based monitoring also plays an integral role in fisheries protection, serving as important and economically significant role in providing information on illegal fishing activities (surveillance) prevalent in their respective localities; until 2011 there are 1.463 communities that spread in provinces and districts. At sea surveillance capability has been strengthened through the deployment of surveillance and controlling boat/crafts and NOMAD light aircrafts for air reconnaissance.

11. **Malaysia.** The country's MCS activities are joint responsibility of the Department of Fisheries (DOF) Malaysia, Fisheries Development Authority of Malaysia (FDAM), and the Department of Environment (DOE). Monitoring covers biological and socio-economic aspect of fisheries which includes catch, fishing activities, port monitoring, trade, fish stock, and environment health monitoring (through the fisheries management information system). The resources management branch on the other hand translates data into plans, policies and regulations. Control is supported by effective legislation that includes zoning, catch quotas, fishing unit control, and mandatory reporting. Registration and licensing of vessels, gear and people are under the DOF, while the identification and listing of important habitat is both under the function of DOF and the Department of Marine Parks (DOMP). Surveillance activities are collaborative effort involving various stakeholders (i.e. DOF, DOMP, Marine Police, Navy, and Malaysian Maritime Enforcement Agency), whose tasks include joint seaborne operations, air and sea patrols, and fishing vessel inspection. VMS is in place and operational, which has been supported with 100 patrol vessel and 3 Boston whalers for offshore patrolling.

12. **Myanmar.** As with the other countries in the region, Myanmar is yet to develop its MCS system to start with the development and integration of legal framework to support the M, C, and S functions. Presently, the Department of Fisheries of Myanmar through its Director-General is responsible for controlling and authorizing fishing vessel to conduct fishing activities, and establishing checkpoint for fishing vessels. On the other hand, fishery inspectors had been designated and authorized to accompany, stop, inspect, board, arrest, and prosecute fishery violators. Infrastructure, increased number of staff and other supports to strengthen the activities have been considered and deemed necessary.

Community-based/local MCS

13. The first key of the several MCS tools to be applied locally is an appropriate participatory **management** plan with stakeholder input and also support of the industry and fishers. It will become necessary to raise collaboration with the local communities who “own” the resource and the artisanal and industrial fishers who may exploit it. Users (including other stakeholders) should have some responsibility for the use of “their” resources including requirements for the conservation of the ecosystem which foster these resources. Users should conduct actions for keeping sustainability of resources and ecosystem health.

14. Public awareness of **fishing rights** and activities by fishermen are important to MCS². In many countries, there has been an intensified attempt to involve fishermen in the process of the right-based management building upon MCS concepts. The process should involve the fishermen themselves in decision making process. Quite often the community management aspect can be facilitated at the start by a simple recognition of the advantages of such management in the early stages through a by-law or law which can be applied at the local level. Above all is the need for management systems to be fair to all concerned, not only through the overall objectives established, but also through the application and enforcement of the whole management process.

15. Co-management is an approach for the management in which the government shares a certain part of its authority, responsibilities and functions in managing the fisheries with resources users as partner. Considering **the limited capacity** of the central government to appropriately manage the fisheries at various specific localities for the entire country, it is more effective if certain management functions and responsibilities are delegated to the local government at appropriate level through a process of local involvement. The local government should work in partnership with resource user institutions at the community level to share these management functions and responsibilities and to mobilize local knowledge³. Several countries in Southeast Asian are now recognizing the important potential role that co-management systems can play in contemporary fisheries and habitat management. Each country is taking a different approach to introduce and apply the systems, this can be seen in a variety of policies and programs.

16. To develop and enhance co-management the potential role of fisheries management institution(government) could include⁴:

- Collecting information (on aspects such as fishing effort, social and economic characteristic of each fishery/community);
- Analyzing information to identify trends and determine the appropriate modifications to management measures;

² Satoshi Ishikawa, Tokai University/RIHN, Japan: SEAFDEC - MCS Workshop, 2012

³ ASEAN-SEAFDEC, 2006, Regional Guidelines for Responsible Fisheries in Southeast Asia

⁴ FAO 2001. FIGIS Topics and Issues Fact Sheet: National governance of fisheries. Marine Resources Service. FAO

- Ensuring participation of stakeholders in the management process including the selection of appropriate management measures, and facilitating this process;
- Providing training and capacity building to local management structure/organizations to be able to take on increased responsibilities and authority for management;
- Ensuring local management plans are coherent with wider sector and national policy objectives;
- Monitoring, control and surveillance to encourage compliance with the regulations (some of this role may be taken on by local groups in coastal or inland fisheries, but the government will play a key for offshore industrial fisheries in the EEZ).

Review the Recommendation of the Sub Regional Consultative Workshops for Northern and Southern Andaman Sea

17. Effort to address the issues of MCS networks by the SEAFDEC-Sida Project has been made since 2009. The importance was emphasized on the strengthening of the sub-regional and/or bilateral dialogue on joint management to agree on improvement of fisheries management to control/manage fishing capacity and to build MCS networks. It was also suggested that capacity building should be provided on MCS at national, provincial and local level.

18. Information on the implementation of local MCS by countries were provided during the On-site Workshops organized in 2010-2011 by national responsible officers. Considering that the effectiveness of implementation of MCS would depend on the fisheries management policy of each country, the MCS network for the Andaman Sea could be developed by initially focusing on the sharing of information among relevant officers and departments.

19. To broaden the area and the perspectives provided during the on-site events to include dialogue and the promotion of joint management approaches among neighbouring countries, two Sub-regional Consultative Workshops were conducted in cooperation between Andaman countries, SEAFDEC and BOBLME namely: Southern Andaman Sea and Northern Andaman Sea where the sub-regional Workshops brought together officers from different relevant agencies to share and exchange the information with an aim to strengthen dialogue on possible sub-regional cooperative management arrangements.

20. The Southern Andaman Sea Consultative Workshop (Indonesia, Malaysia and Thailand) was organized in 2011 in Phuket. Regarding MCS implementation, the Meeting urged countries to monitor the movement of vessel at trans-boundary area including monitoring of the catch landings in foreign fishing ports, transshipment of catch at sea, and also how to share information between countries to avoid double records or misreported catches. The Workshop also took note of some recommendations as follows:

- To provide a framework for the development of cooperation on monitoring, control and surveillance and build up of MCS network including designation of key areas for cooperation/agreements (information sharing, monitoring of illegal fishing activities, port monitoring, vessel record, including vessel registration, and fishing license).
- To follow up with each of the countries on the priorities **and commitments** to establish an action plan with time lines to develop joint approaches to build up of MCS network and strengthen national and sub regional cooperation in the process.
- To develop joint approaches on system for supervision, monitoring and controlling of encroachment of large vessel (including foreign vessel) into coastal waters (potential conflict among fishermen should be assessed), illegal and destructive fishing through establishment of

action plan with timelines and national commitments to participate also with national resources (personnel, etc).

21. During the Northern Andaman Sea Meeting (Myanmar and Thailand) in 2012 in Bangkok, the Workshop did not specifically address issues on MCS but rather emphasized the need to develop detailed action plans, indications of national commitments and the establishment of trans-boundary MCS working groups for catch documentation and certificate schemes (simple procedure), port monitoring and trans-boundary landings.

22. Hence, to take further steps, this Meeting are invited to:

- Identify initial commitments needed to develop cooperation and to define elements to be addressed in the establishment of MCS Network(s) for the Andaman Sea Sub Region (e.g. information sharing) and the study of applications of community-based MCS suitable to the region.
- To indicate steps to take to design/develop and implement a cost-effective MCS System that allow for the integration of institutional responsibilities of relevant (key) institution/agencies and the needs of the Northern Andaman Sea Countries.
- To provide recommendations to ensure active involvement on the part of fishermen in the conduct of Community-based MCS and in resources conservation (link to habitat management).
- To strengthen coordination and collaboration among neighboring countries in the Andaman Sea Sub Region to facilitate information sharing including identified steps to take to design and implement an (integrated) system for information and data management relevant to the development of MCS Networks in the Andaman Sub-region.
- Advise on steps to take by SEAFDEC, BOBLME and others to follow up on **national and local commitments** to actual move into a stage of establishment and implementation (this could involve a need for SEAFDEC to visit each of the Andaman Countries to confirm national commitments and inputs to national and local action plans).

Fishing Vessel Registration and Licensing Procedures in Andaman Sea Countries (Malaysia, Indonesia, Thailand, Myanmar)

Keni Anak Ngiwol
Regional Fisheries Policy Network for Malaysia

*Southeast Asian Development Center/Secretariat, P.O Box 1046, Suraswadi Building,
Bangkok, Thailand*

INTRODUCTION

There has been an increasing concern over difficulties to manage fisheries and problems to control the number of fishing vessels leading to over-fishing and illegal fishing within the waters of the Southeast Asia and the Andaman Sea. Unmanaged fisheries tend to result(s) in harvesting overcapacities, declining Catch per Unit Effort (CPUE), changes in catch composition, proliferation of illegal and destructive fishing and growing intensity for “race for fish” resulting to high economic losses. ASEAN heads of state (ASEAN Economic Community Blueprint) and the higher levels of the fisheries managers of ASEAN, SEAFDEC Council and the Regional Plan of Action to Promote Responsible Fishing Practices (RPOA-IUU) have strongly expressed strong concerns on the need to reduce illegal and destructive fishing, including efforts to combat IUU Fishing in the Region (RPOA-IUU).

There has, over the past few years, been a clear regional trend in that national leaders and top level fisheries managers have gradually increased expressions on the imperative to address the level of active fishing capacity and strengthened their commitments to improve the management of fishing capacity and intensify their efforts to reduce illegal and destructive fishing and to combat IUU fishing. In April 2012, at the 44th Council Meeting the SEAFDEC Council recommended that fishing vessels registration and certification scheme should be conducted in the Member Countries as this is the key to improve fisheries management and to reduce illegal practices and to overcome IUU related fishing problems. It was also suggested that SEAFDEC should cooperate with RPOA-IUU Secretariat (based in Indonesia) to support the establishment of MCS network in the region especially to monitor registration of fishing vessels, the availability of fishing licenses on active fishing vessels, as well as on the collection and compilation of reliable catch data.

In improving the management of fisheries particularly fishing capacity and ensuring that fishing effort do not exceed the availability of resources, the establishment of good and systematic schemes for the registration of fishing vessels, and the processes to issue license to fish are the basic requirements which reliable catch data and report on actual fishing effort could be derived. Information on vessels is also critical in developing effective Monitoring, Control and Surveillance (MCS) networks, which are instrumental for the cooperation on management of fishing capacity, reduction of illegal and destructive fishing and in support of efforts to combat “illegal, unreported and unregulated” (IUU) fishing in the region.

In Andaman Sea sub-region, through the SEAFDEC-Sida Project, key issues of regional concern such as fishing capacity, illegal and destructive fishing, vessels registration and licensing have been addressed for the improve of fisheries management and sub-regional cooperation among these Andaman Sea countries, considering that the recent and accurate data on vessel registration/licensing especially number of fishing vessels in each member countries is a key for an efficient management of fisheries in the sub-region and for the Region as a whole picture.

LEGAL AND INSTITUTIONAL RESPONSIBILITIES ON FISHING VESSEL REGISTRATION AND LICENSING SYSTEM IN MALAYSIA, INDONESIA, THAILAND AND MYANMAR

The fishing vessel registration, licensing system and institutional responsibilities differ among the Andaman Sea countries. Malaysia is the only country where DOF is the sole authority involved in the registration of fishing vessels and in the process of issuing licenses to fish while the other countries, two or more institutions/agencies are involved in the licensing system, one for the maritime and the other in fisheries. Both agencies differ based on their mandate(s); the fisheries agency is there to promote controlled and sustainable fisheries management and maritime agency focuses on safety at sea standards.

The national provision/law/decreed that prescribes the requirements for fishing vessel registration and licensing of each Andaman Sea countries, details as below listed.

Malaysia

The system applied in Malaysia the whole sequence of fishing vessel registration and the issuance of the fishing license is under responsible of the Department of Fisheries. The **Fisheries Act 1985** is the current legislation, and implemented to manage, develop, conserve and control marine fishing and marine fisheries resources in Malaysian waters. In this act, the Director-General of DOF is appointed for the supervision of fisheries matters including the licensing or cancelation of licenses of fishing vessels, granting permits or refusal of foreign fishing vessels to fish in Malaysian waters, etc. The DOF also has the mandate to undertake the procedures for registration of the fishing vessels, including inspection of safety, seaworthiness and other standards that, in applicable parts, would relate to standards provided through International Maritime Organization (IMO) Conventions. In the process, the DOF need to ensure that parts relevant to fishing vessels of the law governing Registration of Boats in Malaysia which is the Merchant Shipping Ordinance 1952 under Section 474 to 485, and Boat Rules 1953 (No. 70 of 1952) are followed.

The duration in acquiring the registration and the license of the fishing vessel may take seven (7) days after the first survey has been made and given that all documentary requirements were provided by the applicant. In addition, both laws also underscore the validity of the fishing vessel license for up to twelve months only.

Indonesia

There are two (2) institutions involved in the fishing vessel registration and licensing in Indonesia. The fishing vessel registration is under responsibility of Ministry of Transportation meanwhile the issuance of license to fish is under the authorization of Ministry of Marine Affairs and Fisheries (MMAF). The authorities under MMAF issuing the fishing license are the district/municipal government, provincial government and central government to persons or companies that operate fishing vessels between 5 to 10, 11 to 30 and over 30 GT respectively.

The legislations used and implemented in current fishing vessel registration are as listed below:

- Fisheries Law No. 31/2004 and No. 45/2009. Article No. 36 and No. 37
- Regulation of Ministry of Marine Affairs and Fisheries No. 27/2009, about Registration and Marking of Fishing Vessel.
- Decree of Director General of Capture Fisheries No. 36/2010, about Specification and Arrangement System of Fishing Vessel Marking.

The legislations used and implemented regarding license to fish are as follows:

- Law of The Republic of Indonesia No. 31/2004 as amended by No. 45/2011 regarding Fisheries.
- Regulation of Marine Affairs and Fisheries No. PER.05/MEN/2008 as amended by No. PER.12/MEN/2009 regarding Capture Fishery Business which will be replaced by No. PER.14/MEN/2011 regarding Capture Fishery Business.
- Government Regulation No. 19 Year 2006 regarding amendment to Government Regulation No. 62 Year 2002 of Tariff for Non Tax State Revenue Applicable to the Ministry of Marine Affairs and Fisheries (State Gazette of the Republic of Indonesia Number 45 year 2006, Supplementary State Gazette of the Republic of Indonesia Number 4623).
- Regulation of Marine Affairs and Fisheries No. PER.01/MEN/2009 regarding the Fisheries Management Area of The Republic of Indonesia.

Thailand

There are two (2) authorities involved in the fishing vessels registration and licensing in Thailand. All type of vessel including fishing vessels are registered by the Marine Department while the issuance of fishing license is under the responsibility of the Department of Fisheries. The issuance of fishing license is subjected to two (2) major aspects: type of fishing gear (licensed/non-licensed fishing appliances) and fishing area (Thai water/ International water). According to the Marine Department, reported that 33,915 units of fishing vessels were registered and recorded (at the Expert Group Meeting on Fishing License and Boats Registration in Southeast Asia, held in Bangkok, May 2012)

The legal framework related to fishing vessel registration and licensing in Thailand are as follows:

- Thai Vessels Act B.E.2481 (A.D.1938) (vessel register)
- Navigation in Thai Water Act, B.E. 2456 (A.D.1913) (use vessel license, certificate for vessel inspection)
- Thai Fisheries Act 1947 amended in 1953 and 1985

Myanmar

Vessels registration system in Myanmar is categorized into two types: national fishing vessels registration (inshore and offshore fishing vessels) and foreign fishing vessels registration. There are three (3) institutions involved in the fishing vessel registration and licensing procedure, namely Department of Marine Administration (DMA), General Administration Department and Department of Fisheries. The DMA is authorized to inspect and process all vessels meant for offshore fishing (outside of the coastal/inshore reserved areas), according to the procedure and rule of the IMO for registration. The General Administration Department is authorized to inspect and process all inshore fishing vessels for registration. The fishing license would only be issued by the Department of Fisheries after the fishing vessels has been registered and recorded. There were 28,357 units of inshore fishing vessels were recorded in 2011 meanwhile for the offshore fishing vessels there were 2,473 units were recorded.

The **Myanmar Marine Fisheries Law 1990** is the current legislation for the management of inshore and off shore fisheries, joint venture fisheries, and for the collecting of marine products, the conservation and protection of marine resources, and for collecting the actual data of the fishery in Myanmar waters.

PROCESS FOR REGISTRATION OF FISHING VESSEL AND ISSUANCE OF LICENSE TO FISH IN MALAYSIA, INDONESIA, THAILAND AND MYANMAR

The flow chart on fishing vessel registration and licensing of Malaysia, Indonesia, Thailand and Myanmar will enable member countries to identify the processes and legal requirements in the application of fishing vessel registration, construction, inspection the issuance of licenses to fish and institutional responsibilities involved. This could serve as a reference for information sharing for the regional cooperation on vessel records among Andaman Sea countries.

Malaysia

The fishing vessel registration and fishing licensing are processes in a continued flow based on one application. For the registration of new fishing vessels, relevant application forms have to be submitted to the State Fisheries Department together with a proposal on the intended operation of the vessel, General Agreement (GA)(with DOF to built/buy new vessel), financial capacity of the applicant and experiences in fisheries and the fishing industry. The flow chart of the new fishing vessel registration and licensing is shown in **Figure 1**.

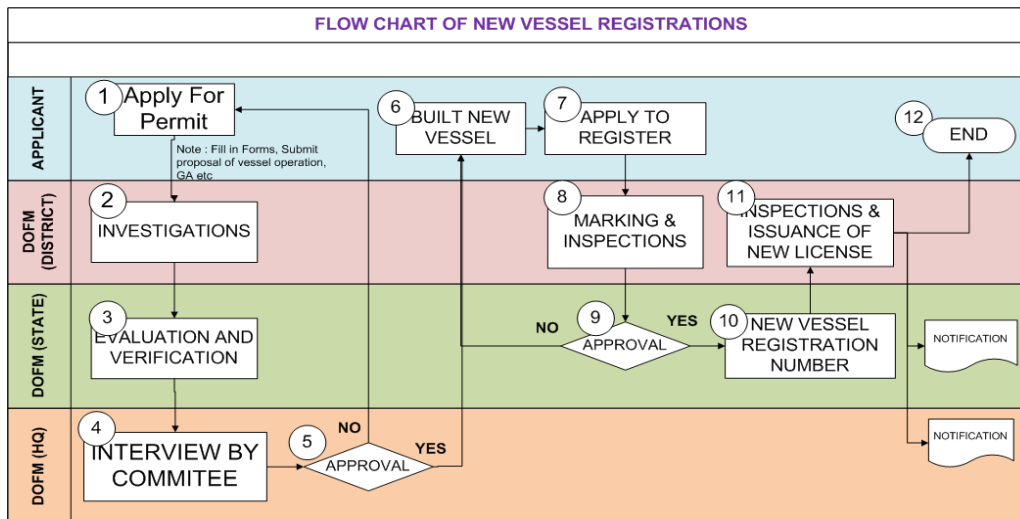


Figure 1: Flow Chart of Malaysia New Fishing Vessel Registration and Licensing

Indonesia

The fishing vessel must be registered with the Ministry of Transportation, only then the fishing license can be issued by the Ministry of Marine Affairs and Fisheries. The registration of fishing vessels shall be equipped with the following documents: proof of ownership, identity of owner, certificate of measurement, etc. (Especially of other document of vessels issued by Directorate of Marine Transportation, Ministry of Transportation). The detail of the fishing vessel registration and licensing flow is shown in **Figure 2**.

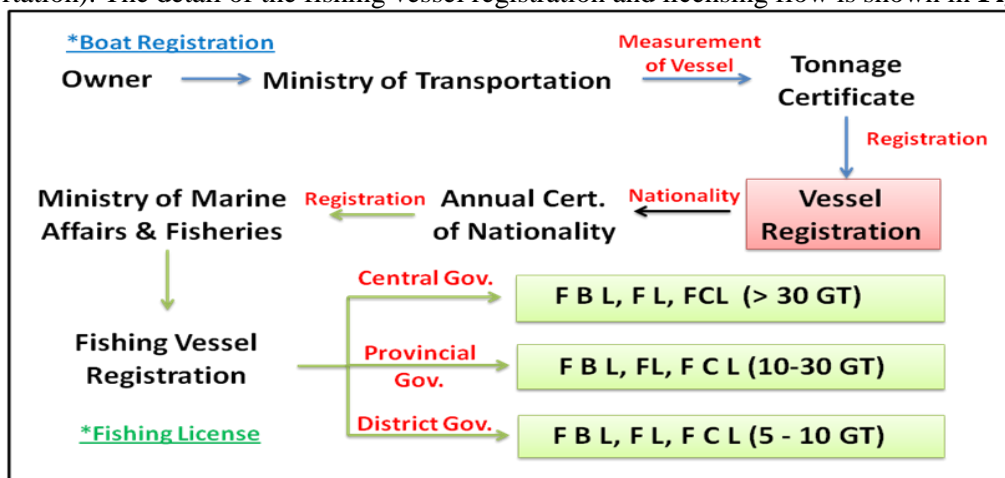


Figure 2: Flow Chart of Indonesia Fishing Vessel Registration and Licensing

Source: Country Report by Elia Suwardi, Directorate of Fishing Business Services, Directorate General of Capture Fisheries presented at the Expert Group Meeting on Fishing License and Boats Registration in Southeast Asia, held in Bangkok, May 2012

Thailand

The vessels must be registered with the Marine Department for the Certificate of Vessel Registration and license (permit to operate the vessel). After that, the fishing license will be issued by the Department of Fisheries at any Fisheries District Office for vessel operated in Thai waters and by Fisheries Licensing and Management Measures Section for vessels operated in oversea waters. The flow of vessel registration and licensing procedure for Thailand is show in **Figure 3-5**.

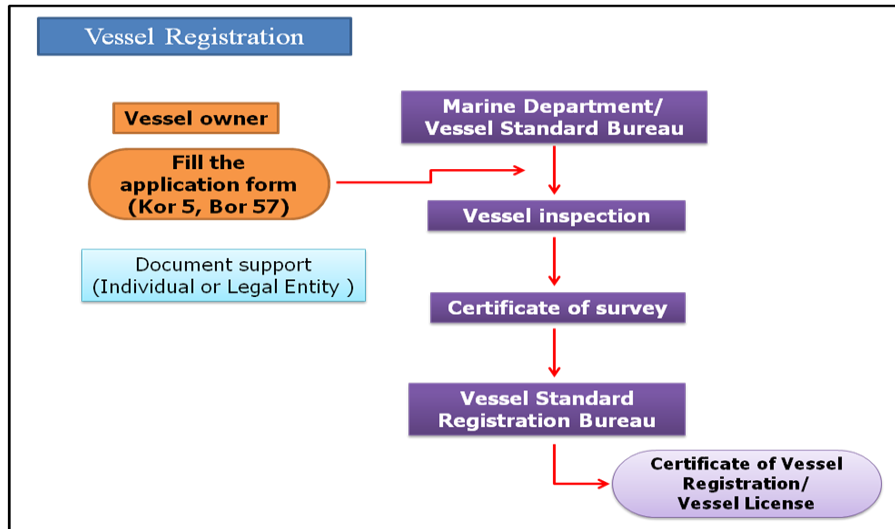


Figure 3: Flow Chart of Thailand Vessel Registration

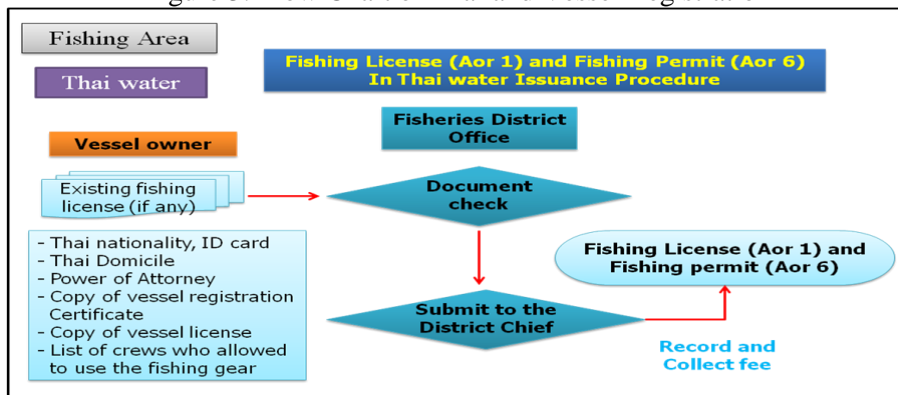


Figure 4: Flow Chart of Thailand Fishing Licensing (Thai Water)

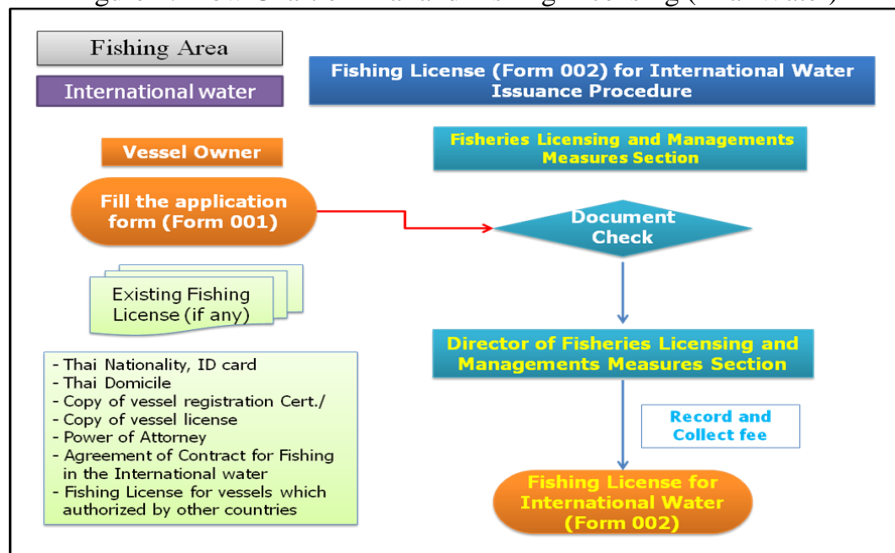


Figure 5: Flow Chart of Thailand Fishing License (International Water)

Source: Country Report by Dr. Suchart Inghamjitr, Fisheries Management Bureau, Department of Fisheries, Thailand, presented at the Expert Group Meeting on Fishing License and Boats Registration in Southeast Asia, held in Bangkok, May 2012

Myanmar

The registration of vessels and fishing licensing in Myanmar is separated into inshore and offshore fishing vessel. For inshore fishing vessel, the registration and inspection is responsible by the General Administration Department while the offshore fishing vessel is under responsibility of the Department of Marine Administration. The flow of vessel registration and licensing for Myanmar is show in **Figure 6-7**.

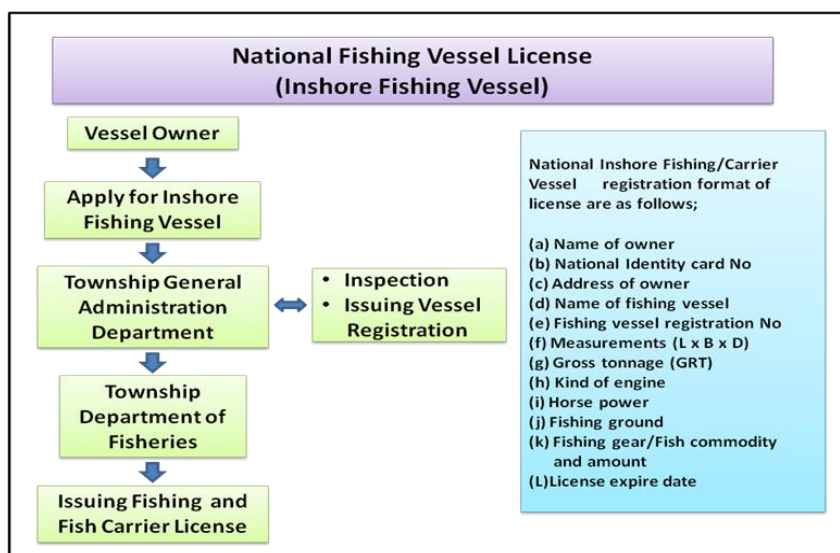


Figure 6: Flow Chart of Myanmar Fishing Vessel Registration and Licensing (Inshore Fishing Vessel)

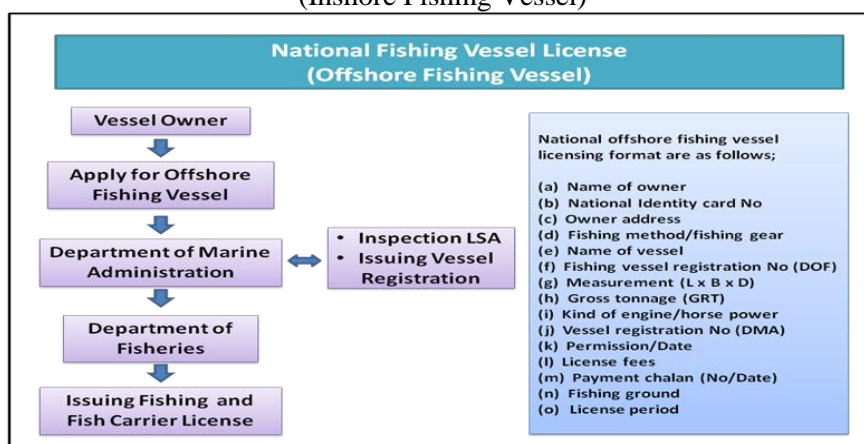


Figure 7: Flow Chart of Myanmar Fishing Vessel Registration and Licensing (Offshore Fishing Vessel)

Source: Country Report by Mr. Thein Than, Department of Fisheries, Myanmar, presented at the Expert Group Meeting on Fishing License and Boats Registration in Southeast Asia, held in Bangkok, May 2012

SEAFDEC INITIATIVES ON THE REGISTRATION OF FISHING VESSELS AND LICENSING SYSTEM AND RECOMMENDATIONS FOR ACTION

SEAFDEC with support from the SEAFDEC-Sida Project have, under the ASEAN-SEAFDEC Strategic Partnership (ASSP), since the well-received and successful “Expert Meeting on Management of Fishing Capacity in Southeast Asia” held in 2006 (27 – 29 July 2006, Sihanoukville, Cambodia) regularly been addressing the need to manage fishing capacity. A basic fact emerging from this event is that **“fisheries cannot be managed without management of fishing capacity and active fishing efforts** (including reduction of illegal and destructive fishing)”. In subsequent events (2006 up to the present) the importance of efficient and systematic systems to register (all) fishing vessels and to issue licenses to fish (could

include licenses on vessels, people and/or gear) have been stressed. As indicated in earlier section, the present status and coverage of records of registered vessels and issued licenses to fish vary in coverage and structure among countries in Southeast Asia, as well as around the Andaman Sea. The events held since 2006 have also highlighted the importance of regional and sub-regional cooperation in management of fishing capacity.

During the past couple of years, SEAFDEC have been promoting regional and sub-regional cooperation in the efforts to control fishing effort and reduce illegal and destructive fishing in the Gulf of Thailand, Andaman sea and sub-regions of the Andaman Sea. In October 2009, SEAFDEC (through the SEAFDEC-Sida Project) in cooperation with the BOBLME organized the First Meeting of the Andaman Sea Countries in Phuket, Thailand. The approach of the Meeting was to build upon the experiences from the implemented process of promoting sub-regional management arrangements. One of the important concerns, frequently, highlighted is that the number of vessels, small and large, needs to be recorded to be able to monitor and restrict fishing activities when and where needed.

To advance the process and to promote increased information on fishing vessels draft survey forms on a “Vessel Record and Inventory” for the region was introduced to the October 2009 Meeting. There was no clear directions provided on steps forward, however, there was a common understanding that it would be important to develop a vessel record and inventory for the sub-region as a basis for information to be shared on vessels and vessel movements. Regional (ASEAN and Southeast Asian) efforts to manage fishing capacity must be combined with sub-regional efforts and maybe even bi- and tri-lateral efforts and agreements on the type of vessel information that is needed to monitor and control fishing activities, including monitoring of encroachment in coastal water by domestic and foreign vessels.

The process, and the forms, was in 2009, 2010 and 2011 introduced to the series of On-site Trainings/Workshops conducted in selected local sites. The workshops provided information on the national fishing vessel registration and licensing system to the local fishers in respective countries by national concerned officers. Information provided from the local areas indicated that local practices exist in terms of registration and local norms for fishing practices. Such practices include bi- and tri-lateral arrangements that do not necessarily conform with national norms and regulations (such as double registration, etc). A challenge ahead is to provide advises and a focus on sub-regional efforts to agree on restrictions and regulations on allowable active fishing efforts that could build upon the national regulations while at the same time incorporates management benefits of local and trans-boundary practices (including local registration of smaller vessels) with regards to vessel registration and licensing.

The conclusion for the SEAFDEC-Sida Project is that there is no immediate need to follow up on the “forms” at national level but rather focus on the information needed to monitor and control fishing vessels (movements and fishing activities) in sub-regional and local areas of priority for the Andaman Sea Countries. This local approach is also relevant for the SEAFDEC-Sida Project as the Japanese Trust Fund and FAO Global Record has an ambition to work on national, regional and global aggregated vessel records. SEAFDEC-Sida is advised to follow the progress of these initiatives and provide inputs on local initiatives as relevant.

Another set of recommendations for SEAFDEC and SEAFDEC-Sida Project providing a basis for the continued process in sub-regional and trans-boundary areas of Andaman Sea was stated during the ASEAN-SEAFDEC “Expert Consultation on Managing Fishing Capacity to Combat IUU in Southeast Asia” held in Bangkok in September 2010:

“Considering the differences in the countries’ structures, attempts should be made to “build upon the existing information based on the formats available in each country”. Furthermore, the Consultation states that “the process to define suitable criteria to promote cooperation among countries in the region to combat IUU should build upon dialogues in the sub-regional areas (defined by SEAFDEC and/or RPOA), taking into consideration the unique characteristics of fisheries in the region.”

The recommendations from the September 2010 Consultation is of specific significance in that it provided background and inputs to the drafting of the 2012 Resolution and Plan of Action.

Subsequently, the two sub-regional workshops for Northern Andaman Sea (Thailand and Myanmar) and Southern Andaman Sea (Thailand-Malaysia-Indonesia), discussed and reviewed problems and suggested solutions on matters of key concern for the effectiveness of fisheries management in the Andaman Sea sub-region. As recommended by countries and organizations during the workshops, Andaman Countries and SEAFDEC-Sida should facilitate the build-up of an understanding of trans-boundary practices and local arrangements and in the process focus on the actual needs required on records and information for local and sub-regional arrangements to effectively monitor and control movements and fishing by fishing vessels.

This focus, to address local and trans-boundary needs and practices is in various ways, by providing an understanding of local needs and practices, supporting the development of registration and records at national and regional level based on more structured and harmonized registration/records as being promoted by the FAO Global Record and SEAFDEC/TD (through the Japanese Trust Fund-JTF program). Dialogue should be maintained with the FAO Global Record and JTF/TD.

Recommendations from the two sub-regional workshops for Northern Andaman Sea (Thailand and Myanmar) and Southern Andaman Sea (Thailand-Malaysia-Indonesia), and earlier events, as indicated above, include actions, such as:

- Promote data exchange on vessel registration and licenses to fish, including numbers and movement of vessels, transshipment of catches at sea and cross-border landings. Institutional collaboration between agency at national, trans-boundary and sub-regional level should be strengthened. In addition, formal mechanism for agreements (MOU, or other) on key issues among the three countries in the Southern Andaman and the two countries in the Northern Andaman should be developed, e.g. Indonesian vessel fish in Indonesia waters but landing the catch in Thailand, should report the data back to Indonesia, or the movement of vessels to land fish caught in Myanmar in Thailand. Get back to each of the countries and with relevant agencies secure the commitment, support and participation.
- Explore existing local (trans-boundary) practices and informal arrangements with a view to meet challenge ahead to provide advises and a focus on sub-regional efforts to agree on restrictions and regulations on allowable active fishing efforts that could build upon the national regulations while at the same time incorporates management benefits of local and trans-boundary practices (including local registration of smaller vessels, double registration, trans-boundary landings, etc) with regards to vessel registration and licensing. Get back to each of the countries and with relevant agencies secure the commitment, support and participation.
- Cooperate with and provide support to Andaman Sea Countries and partners (FAO, JTF/TD), and implement activities, as suitable for the improvement of databases or records on vessel registration and licensing systems as a tool to manage and control fishing capacity as well as to reduce illegal and destructive fishing (and to combat IUU fishing). There is a need to address the fabrication (copying) of licenses or double registration of fishing vessels. Furthermore, develop “correction factors” (length, horsepower, weight, etc) to facilitate the comparison and assessment of numbers of vessels and “active” fishing capacity without having to rely on information in standardized forms (that might miss the essence of the local/national fishing capacity). Get back to each of the countries and with relevant agencies secure the commitment, support and participation.
- Systems for the supervision, monitoring and the control of encroachment of larger vessels into coastal waters should be developed. Potential conflicts among fishermen should be assessed. Practical means to identify encroaching vessels should be developed and agreed upon including routines to report to nearby port authority, local government and, if applicable, to neighboring country. There is a consensus on the need to reduce the encroachment of larger vessels (also foreign) into coastal waters, including the development of plans to manage fishing capacity, and to combat illegal and destructive fishing, improve vessel registration/records, and to strengthen flag state responsibilities. The recommendation and related requirements are directly linked to the need to initiate and establish MCS network and to implement coordinated MCS action, etc (the establishment of MCS networks in the Andaman Sea is discussed in a separate document); Get

back to each of the countries and with relevant agencies secure the commitment, support and participation, including the commitment to develop joint MCS approaches to monitoring and control of encroachment, illegal and destructive fishing.

- The importance of data/information exchange on fisheries activities (e.g. fishing vessels) to promote dialogue and trans-boundary agreements in the sub-region and in the region has frequently been stressed. The reality is that of each country have different format items or terminology of vessel sizes and types, as well as ways of collecting information that could vary between parts of a country and it is not practical, in the short term, to expect changes in vessel categories or data collection system in a given country. An easier way is to use a formula/standard or make a “correction” factor for countries to compare active fishing capacity in a defined area. There is a suggestion that JTF/TD might work on correction factors.
- However, for local, trans-boundary and sub-regional monitoring/management purposes it may not be (is not) a need for that precise/detailed information to be compiled and shared. Instead there need to be an agreement on content of “minimum information” and how to define and report on clusters of “fishing” vessels (including nationality, fishing are, etc) as a basis for monitoring and control in trans-boundary locations – with information that can be shared with neighboring countries to facilitate a local MCS network (in Southern and Northern Andaman Sea). Some Member Countries had already conducted research on this, and the available information could be used as a basis for further development of standards for reporting of available vessels and their movements. Get back to each of the countries and with relevant agencies secure the commitment, support and participation.
- Advise on steps to take by SEAFDEC, BOBLME and others to follow up on **national and local commitments** to actual move into a stage of establishment and implementation (this could involve a need for SEAFDEC to visit each of the Andaman Countries to confirm national commitments and inputs to national and local action plans).

Systems for fishing vessel registration and the issuance of fishing licenses are well developed in most Andaman Sea Countries in some countries/areas financial resources are not fully in place for total coverage of available (small and large) fishing vessels and the number of unregistered vessels are often unknown. To improve the percentage of registered vessels agencies responsible for registration and the issuing of licenses to fish should take their responsibility in line with their mandate and the national legal framework. It is important that the cooperation of fishers and stakeholders and among agencies concerned should be strengthened in order to get update and reliable data and information of commercial and small-scale fishing vessel for the purpose of safety standard and also for the management of resources and restricting utilization. It is important that the responsible agencies should practice the law and strictly enforce rules and regulations to combat illegal fishing vessels and reduce illegal and destructive in territorial waters and to combat illegal fishing by national vessels in neighboring waters.

In term of trans-boundary management, the network or cooperation between/among countries on vessel registration should be strengthened. In particular for the vessels that are landing fish or selling fish across boundaries and to other countries. Special attention should be given to vessels that are or transferring/changing flags. It is important that people involved in fishing should get the proper approval documents from the responsible authorizing agencies. Good practices among Andaman countries in registration of fishing vessels and the issuing of licenses to fish is a good basis for regional cooperation that are based on the legal provisions of each of the involved countries.

SUMMARY

Efforts to improve regulation and management of fishing capacity and the control of active fishing effort, as well as to reduce the illegal and destructive fishing have been remained priority issues in the Andaman Sea sub-region. Institutional and development features look different in different local and/or trans-boundary scenarios. There are distinct, and unique, features in the Southern Andaman Sea that are common to Indonesia, Malaysia and Thailand. Moving north the scenario is specific to Myanmar and Thailand and to manage use of resources and habitats common understanding is required with agreements involving the two countries. In the western Andaman, but more or less outside of the scope of the SEAFDEC-Sida

project - but well within the project framework of the BOBLME, there are specific need for cooperation and agreements between Myanmar, Bangladesh, India and Indonesia (on Hilsa, trans-boundary fishing, etc).

All concerned agencies in two or more countries should work together in cooperative manner. A well established and operational fishing registration and licensing system can be one of the main mechanisms/tools needed to “fill in the hole” that are hampering the management of fisheries activities. Considering that that legal provision in the countries are different and all Andaman Countries, except Malaysia, has the mandates to handle fishing vessel registration and the process to issue licenses to fish divided between different agencies. Close linkage and cooperation among the agencies concerned should be strengthened within countries as well as in the sub-region. Thus, based on increased cooperation the effort of information sharing on vessels registration and licensing among countries in the region should move a step further.

With a focus on the Andaman Sea sub-region, the legal frameworks and institutions involved in the systems for registration of fishing vessels and to issue licenses to fish in four eastern Andaman Sea countries have been clearly identified in the this document. Furthermore, the stepwise sequence of providing fishing vessels registrations and to issue fishing licenses has been well defined. Through consultation and collaboration with member countries, the strengths and weaknesses of vessels registration and licensing system in individual countries could be strengthened and thereby diminish the weaknesses to find solutions for effective management of fisheries through the management and reduction of fishing capacity that would be an imperative to reducing the illegal and destructive fishing activities in the Andaman Sea sub-region and in the ASEAN region as a whole.

Based on the recommendations from the two sub-regional workshops for Northern Andaman Sea (Thailand and Myanmar) and Southern Andaman Sea (Thailand-Malaysia-Indonesia), and earlier events such as the September 2010 Expert Consultation, the Meeting is invited to:

- Explore possible ways to develop corporate mechanisms for trans-boundary issues and the cooperation on fishing vessel registration and licensing system.
- Explore existing local (trans-boundary) practices and informal arrangements with a view to meet challenge ahead to provide advises and a focus on sub-regional efforts to agree on restrictions and regulations on allowable active fishing efforts while incorporating management benefits of local and trans-boundary practices.
- Cooperate with and provide support to Andaman Sea Countries and partners (FAO, JTF/TD), and implement activities, as suitable for the improvement of databases or records on vessel registration and licensing systems.
- Systems for the supervision, monitoring and the control of encroachment of larger vessels into coastal waters should be developed. Potential conflicts among fishermen should be assessed.
- For local, trans-boundary and sub-regional monitoring/management purposes it may not be (is not) a need for precise/detailed information to be compiled and shared. Instead there need to be an agreement on content of “minimum information” and how to define and report on clusters of “fishing” vessels (including nationality, fishing are, etc) as a basis for monitoring and control in trans-boundary locations
- Advise on steps to take by SEAFDEC, BOBLME and others to follow up on **national and local commitments** to actual move into a stage of establishment and implementation (this could involve a need for SEAFDEC to visit each of the Andaman Countries to confirm national commitments and inputs to national and local action plans).

Port monitoring and monitoring of landing by neighboring vessels-cooperation among Andaman Sea Countries

Kyaw Kyaw
Regional Fisheries Policy Network for Myanmar

*Southeast Asian Development Center/Secretariat, P.O Box 1046, Suraswadi Building,
Bangkok, Thailand*

INTRODUCTION

The increasing number of fishing vessels and increased efficiency in fishing operations together with limited capacity and success in control, registration and records of the actual number of vessels and reliable data on the amount of fish being caught have resulted in a growing problem of over-exploitation of the fish stocks and excessive fishing capacity in the ASEAN region. Illegal and destructive fishing, by large and smaller vessels, remains a major concern throughout Southeast Asia waters includes the Andaman Sea. Meanwhile, continued increase in global trade of fisheries products that to a large extent have been supplied through illegal and unregulated fishing – fishing that cuts across boundaries and with big quantities of catches that has its origin in Southeast Asia – have led to the development of global instruments, such as the legally binding FAO “Agreement on Port State Measures to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing”- PSM Agreement, which was adopted by the FAO Conference at its 36th Session in November 2009.

An important part with the PSM Agreement and the process leading up to the Agreement is the increased attention and **importance being given to fishing ports and landing sites** in the process of monitoring and control of fisheries and the legal status of fish being landed. The PSM could be seen as a response to the failure of flag states to control fishing effort by vessels carrying their flags. At the fishing ports, monitoring and controls of the legal status of catch, vessels and crew are to be made thus increasing the expected functions of the fishing port and highlights the key role being given to “port monitoring” in efforts to control illegal fishing. Organizations/agencies in (fishing) port operations need to be involved in the process and implies that in some countries new partners need to be involved in the process to manage fisheries.

The PSM Agreement highlights the **role of the port State** in the adoption of effective measures – through effective port monitoring and stringent inspections as needed from time to time to control the legality of catches being landed – to promote the sustainable use and the long-term conservation of living marine resources and to combat IUU fishing. At the same time, it is recognised that measures to combat illegal, unreported and unregulated fishing should build on the **primary responsibility of flag States**.

Attempts have been seriously made by ASEAN countries, to find the ways to improve fisheries management with the objective of reducing IUU and destructive fishing activities. In 2010, ASEAN-SEAFDEC (with support from the SEAFDEC-Sida Project) organized the “Expert Consultation on Managing Fishing Capacity to Combat IUU fishing in Southeast Asia”. The Consultation identified key elements for sustainable fisheries management and the control of fishing effort in the region. Specific recommendations made by the Consultation included the promotion of vessel records and inventory of vessels as inputs to information sharing; fishing vessel registration and licensing built on national institutional and legal responsibilities; catch documentation schemes to register catches; **port monitoring that include landing by vessels from neighboring countries**; development of MCS networks based on the existing initiatives in the sub-regions of Southeast Asia (with links to the Regional Plan of Action (RPOA) to Promote Responsible Fishing Practices including combating IUU Fishing in the Region as well as with the efforts of the SEAFDEC, ASEAN and FAO).

To establish and enhance port monitoring mechanisms in sub-regions and region, it is necessary to establish **good cooperation among all relevant sectors and institutions, as well as among neighboring countries.**

While noting that the monitoring of catches landed by vessels in neighboring ports may require special consideration in the process of validation of the legal status of landed catches, this could be followed up in relation to the development of cross-boundary relations in sub-areas around the Andaman Sea, such as between Myanmar and Thailand and among Indonesia, Malaysia and Thailand.

Importance of Port Monitoring to Fisheries Management

“Port monitoring” and the role of ports have already long time had key functions as “check points” for the monitoring and control of goods, people, immigration, security, health, as well as fisheries products. The importance of ports and landing sites for control and inspections of fish catches, vessels and crew has been further manifested by the globally binding PSM document. Subsequently, port monitoring is one of important “tool” for fisheries, fishing activities and fish trade in Southeast Asia and the Andaman region particularly as this central “control point” in the process of Monitoring, Controlling and Surveillance (MCS). In order to effectively implement port monitoring activities, data on fishing activities which includes vessels, catch, current fish stocks, trade flows and markets, among others, should be collected to be able to address and monitor the landings of national and non-national vessels or landings across boundaries.

Efforts to improve fisheries management, manage fishing capacity and reduce illegal and destructive fishing practices have been increasingly recognized in the region. In response to this, the countries of the Andaman Sea sub-region could take the advantage and build up capacity on **port monitoring** to meet the requirements to implement the FAO PSM Agreement and other relevant international instruments, regulations and agreements including responses to the EC regulation for combating IUU fishing. During several meetings convened by FAO, SEAFDEC, the RPOA-IUU as well as during sub-regional SEAFDEC-Sida Project/BOBLME Project meetings of the Gulf of Thailand and the Andaman Sea, the concerned countries have suggested that priority should be given to improve port monitoring to be able to record all fish landed at ports and landing sites - including efforts to indicate information on fish landed by neighboring countries’ vessels. This would further enhance and clarify the central importance of ports and landing sites.

Ideally, the development of port monitoring systems should include all ports and landing sites, covering the whole range of landing facilities at district and provincial levels. The aggregated information could be presented at the national level to provide a picture of all landing activities and the flow of fisheries products through harbors in each of the countries in the Andaman Sea sub-region and for the whole ASEAN region. Such effort should be done not only with the view to meet the global demands but also preparing the countries for the increasing global demands and requirements such as those on quality, health, traceability, catch documentation, fish landing documents, fishing vessel registration documents, documents for license to fish, lists of crew members and indications of fishing areas and other aspects.

One important aspect of port monitoring is the control of the documents attached to the landed fish catch that form part of the required information to be checked during port inspections, The “catch documents” and the reported catch is controlled and if considered reflecting allowable catches the documents are validated and certified by relevant body at the landing place to ensure that the catch has been fished in a legal manner. The port inspection is an important and critical step in the system of chain of custody.

To improve standards in the region, SEAFDEC Council Meeting (2010) suggested that Member Countries should look not only towards exporting fisheries products outside the region but also **to improve standards and traceability of exports and imports within and among the countries of the region.**

Purposes of Port Monitoring

Good facilities for port monitoring, port inspection and handling of fisheries products in ports and landing sites is not only important to “combat IUU fishing” but fishing ports and procedures at fishing ports are central function in the process of recording landings and distribution of landed fish including the legally required control of the quality of fishery products passing through the ports. In this regard, control of the social, environmental and administrative standards of the ports are necessary since it is through the catch and landing documents, together with product quality assessments, provided at the ports and landing sites that the relevant authorities could appropriately assess the country earnings in terms of taxes and other revenues. Up until present, port monitoring in the ASEAN region has basically or primarily been done to monitor the management of ports and landing sites (by departments or units established for that purpose) without putting much focus on systematic monitoring and validation of catch documents and documents linked to the operation of the fishing vessels (e.g. registration, licenses, crew, and other relevant documents) as stipulated in the PSM Agreement.

There is a general understanding of the need among countries in the region and around the Andaman Sea to increase capacity of fishing ports and landing sites to be able to efficiently assume a central node in monitoring and control of fisheries products passing through the ports, by improving statistics and records that can be reported to fisheries agencies and other institutions – thereby providing an important “tool” in improving fisheries management and to combat IUU fishing. To assume this role, there is a need for strengthened capacity, training and resources to facilitate and enforcement.

To spearhead the enhancement of the performance and to provide good examples for capacity building there is a need to identify and select fishing ports and landing sites both public and private in each country that could provide basis for continued fishing port development by exemplifying the specific roles that ports/landing facilities should perform, i.e. monitoring documents on the type of fishery, the vessels, and among others, the information and data available on catch landed in the respective ports or landing sites that should be collected and reported to national and foreign agencies as needed for analysis, follow up of trends and documentation of known illegal fishing activities.

The methods for the data collection and distribution could be enhanced to allow for the sharing of relevant information through MCS networks or through other channels. There is a broad range of information and documents that would follow the catches landed and information that trace the products upon leaving the ports for processing or direct consumption that should be compiled and distributed as requested. Coordinated efforts are needed to establish ways of developing effective port monitoring of landing from fishing and carrier vessels, and enhancing the cooperation between neighboring countries in the region in improving the effectiveness of the port monitoring/measurement systems not only to combat IUU fishing but also to support the trading of fish and fishery products within region as well as to other regions.

Challenges to efficient Port Monitoring

Being the central control point between “land and sea-based” activities, the landing from “offshore” activities such as fishing, shipping, imports, etc the port is the obvious place for control, records and inspection of legal status, quality, quantities of goods and catches before further distributed on land and/or (re-)exported. The central position of the ports and landing sites in national economies is matched by a whole range of challenges in that (for centuries) traders, fishermen and others have tried to get “undeclared” goods and catches into the country – be it to avoid taxes, to get illegal goods into the country as well as illegally caught fish catches. To battle illegal operations there are, especially in larger ports, a whole range of authorities stationed to monitor the flow of fish, goods and people – authorities such as those responsible to control fish landings, customs, immigration, health, etc.

In terms of fisheries: landings of domestic vessels as well as landings by foreign vessels need a catch validation certificate on the legal status especially if the products are intended for export/trade or import (the “foreign” landings). In the medium-term there is a tendency to expect that all catches should be possible to verify for legal status, quality, etc. A challenge ahead is how to be selective as you cannot possibly inspect all catches and the whole process need to be depend on some amount of trust to allow

inspectors to focus on “suspicious” vessels. In the PSM and the EC regulations there are no indications that all vessels should be inspected rather they expect a target of not more than 5% of vessels to be inspected.

This document will not elaborate on the more general challenges but highlight two examples of more local nature. One challenge in the process of port monitoring, inspection and certification is to validate the legal status of catches from traditional small-scale fisheries. Verifying the origin of landings, especially for smaller-scale fishing boats in border fishing ports is a very difficult task to undertake in view of the limited amount of records of their catch. If the fishing activities by communities are well known, and within the national laws, it has been mentioned (by EC officials) that the catches could be verified by authorities at the landing site. Similarly neighboring countries could agree on the legal status and verifying procedures of catches being landed across boundaries (PSM Agreement: Article 3 Para 1 a).

Another challenge is to be able to validate the legal status of catches from areas where fishing vessels have two flags and double registration that would allow them to operate in waters of two countries. Recording of such catch becomes an issue because the catch might have been landed in ports which are most convenient for the best price of the day. An important question to be raised is to what extent it is possible to “formalize” local practices even though they are not conforming to the national laws or the “perceptions” at the capital.

Institutional cooperation is a major challenge, but necessary, and institutional structures could actually obstruct attempts to implement good port monitoring since in many instances, a number of agencies are involved in the fish landing and further distribution and more often than not, cooperation for sharing of information among such agencies is very limited contributing to the hindrance for adequate and efficient port management.

Andaman Sea Port Monitoring, capacity building and the need to cooperate among institutions and across boundaries

While highlighting the important role of the Port State to implement measures to improve fisheries management and to monitor actual landings of fisheries products. Increased attention is given to the need to adopt effective measures - through effective port monitoring and stringent inspections as needed from time to time to control the legality of catches being landed. It is necessary to strengthen the cooperation among all relevant sectors and institutions (Fisheries, Harbor Department, Custom Department), as well as among neighboring countries of the Andaman Sea.

It is important to recognize that through port monitoring local and foreign vessels are monitored to be able to validate the legal status of catches being landed and support the increasing requirements of documentation for catch traceability, quality control and other documentations. To facilitate the process, the support could be provided to the countries to build upon existing well-managed ports to be used as a model for the national development of port monitoring and to establish protocols for fishing port management relevant to the laws and regulations of each country.

Furthermore, landings by vessels in neighboring ports, and by neighboring vessels in national ports require special consideration in the process of validation of the legal status of landed catches, especially with regards to artisanal fisheries as indicated in the PSM Agreement. An agreement between neighboring countries on the legal validity of fish being landed across boundaries could be important to clarify local practices. Efforts should be explored to establish agreements on common practices and the legal status for border areas in the Andaman Sea, such as between Myanmar and Thailand and in the southern part between Indonesia, Malaysia and Thailand. Therefore, close cooperation should be enhanced among the countries around sub-regional seas where countries share common interest in sustaining the benefits derived from productive fisheries, clarify the legal status of catches and landing - and to eventually effectively reduce illegal and destructive fishing in the region.

As mentioned in the introduction: to establish and enhance port monitoring mechanisms, it is necessary to establish **good cooperation among all relevant sectors and institutions, as well as among neighboring**

countries. To live up to regional and international requirements port inspectors and port operators need to be trained. Training could build upon the “guidelines for training of port inspectors” as appears in Annex of the 2009 PSM Agreement. For Fisheries Agencies, an important step ahead is to build up working relations for institutions and entities responsible for the management of fishing ports and landing sites.

In support of strengthening institutional capacity, there is a need to develop a mechanism or set of standards for port inspection and port monitoring, that could have elements specific to the Andaman sub-regions that would clarify the measures that are expected from the ports and how that relates to the fishing and the reports to be provided to national authorities and sub-regional partners.

The Andaman Sea: sub-regional collaboration to facilitate efficient port monitoring

In the Andaman region, the management of fisheries, including control of fishing capacity, has to be integrated with the management of the regions important, unique and productive habitats to effectively and sustainably improve fisheries management. To come closer to a state of sustainability of utilization and conservation of resources in the region, it is necessary to establish closer cooperation among the Andaman Sea countries. In the Andaman sub-region, countries share common interest in sustaining the benefits derived from their unique aquatic ecosystem, from the diverse coastal features, and from productive fisheries and use of aquatic resources. Countries in the region and sub-regions should in a more systematic way develop systems to share information – the role and functions of ports and landing places should be recognized being on the “threshold” between the aquatic and terrestrial environments and related patterns of resources utilization and production. It is important that the knowledge and capacity of officers and personnel in agencies responsible for management of fishing capacity (registration, licensing etc), port monitoring/inspection and other relevant institutions are developed to meet higher expectations including ability to cooperate with other institutions and across boundaries. In the process it is important that, when taking the lead, the fisheries agencies should reach out, involve and cooperate with authorities responsible for port management and fishing ports to facilitate the efficient use of the facilities and location of ports and landing places to the benefit of improved fisheries management and social development in the Andaman Sea region.

The SEAFDEC-Sida project/BOBLME Project organized the Sub-regional Consultative Workshops of the Northern and Southern Andaman Sea, respectively. The representatives from Indonesia, Malaysia, Thailand and Myanmar discussed on the issues at these Workshops. Some recommendation related to monitoring of catches as follow:

1. The movement of vessel at trans-boundary area should be monitored including monitoring of the catch landing in foreign fishing ports, transshipment catch at sea, and also how to share information between countries to avoid double records or misreporting
2. To provide a framework for the development of cooperation on Monitoring, Control and Surveillance and the build up of MCS network including designation of key areas for cooperation/agreements (information sharing, monitoring of (illegal) fishing activities, port monitoring, vessel records, including vessel registration and fishing licenses). Establish an MCS team among the three countries in the Southern Andaman and the two countries in the Northern Andaman (refer to the MCS “matrix” for relevant institutions). Follow up with each of the countries on the priorities to establish an action plan (with time lines) to develop joint approaches to the build up of MCS network and strengthen national and sub-regional cooperation in the process. ***Additional comment on the central importance of ports – recognize the central importance of ports and landing sites and involve responsible partners in the process of network development.***
3. Promote data exchange on vessel registration and licenses to fish, including numbers and movement of vessels, transshipment of catches at sea and cross-border landings. Institutional collaboration between agency at national and sub-regional level should be strengthened. In addition, formal mechanism for agreements (MOU, or other) on key issues among the three countries should be developed, e.g. Indonesian vessel fish in Indonesia waters but landing the catch in Thailand, it should report the data back to Indonesia – and similarly between Myanmar and Thailand. ***Additional comment on the central importance of ports – recognize the central importance of ports and landing sites where it can be***

expected that major flows of information will be channelled - and involve responsible partners in the process of network development.

4. There is strong need to build up capacity and quality of the functions and management of fishing ports and landing sites based on international requirements. Furthermore, build capacity for improved port monitoring including measures to verify catch documentations and to improve monitoring of catches landed in sub-regional landing sites, including catches from neighbouring countries. SEAFDEC should follow with each of the countries on the perspective of areas of central importance to promote agreement and understanding on local practices in landings across boundaries. ***Additional comment: take note of the Guidelines for training of port inspectors attached to the PSM Agreement and involve responsible port operating partners in the process of capacity building.***
5. Systems for the supervision, monitoring and the control of encroachment of larger vessels into coastal waters should be developed. Potential conflicts among fishermen should be assessed. Practical means to identify encroaching vessels should be developed and agreed upon including routines to report to near port authority, local government and, if applicable, to neighboring country. There is a consensus on the need to reduce the encroachment of larger vessels (also foreign) into coastal waters, including the development of plans to manage fishing capacity, combat illegal and destructive fishing, improve vessel registration/records, strengthen flag state responsibilities, initiate MCS activities, etc; Follow up with each of the countries on the priorities to establish an action plan (with time lines) to develop joint approaches to monitoring and control encroachment, illegal and destructive fishing. ***Additional comment on the central importance of ports – recognize the central importance of ports and landing sites.***

Conclusion

Southeast Asian and Andaman countries, being major producers of fish and fishery products are continuously making efforts to improve various aspects relevant to the management of fishing capacity. The goal of fisheries management, increasingly being integrated with habitat management, is to maximize the economic opportunities and benefits from the State's waters while maintaining sustainable harvesting limits and healthy and productive habitats. The importance to improve institutional cooperation within, and among, countries are recognized. Monitoring which includes the collection, measurement and analysis of fishing activity, and assessments of the status of reproductive habitats, including but not limited to catch, species composition, fishing effort, etc. Reliable and accurate information would help fisheries and environmental managers to enable them to make well-founded and effective decision regarding utilization and management of available resources based on collected data through the institutional networks and cooperation in the Andaman region. Finally, in the process of collecting, reporting and sharing of information it is important the role and functions of ports and landing sites are being recognized – being on the threshold between aquatic and terrestrial environment and related developments.

The Meeting is invited to provide suggestions to:

- Request that countries in the region and sub-regions should in a more systematic way develop systems to share information – the role and functions of ports and landing places should be recognized being on the “threshold” between the aquatic and terrestrial environments and related patterns of resources utilization and production.
- Develop capacity of officers and personnel in agencies responsible for management of fishing capacity (registration, licensing etc), **port monitoring/inspection** and other relevant institutions to meet higher expectations including ability to cooperate with other institutions and across boundaries.
- Fisheries agencies should reach out, involve and cooperate with authorities responsible for port management and fishing ports to facilitate the efficient use of the facilities and location of ports and landing places (implies that in some countries new partners need to be involved in the process to manage fisheries).
- Establish working group(s) on development of monitoring functions and routines in ports and landing sites, including capacity building – ensure that partners/institutions with responsibility for port management and port inspections are involved.

- Establish agreements on common/local practices (large and smaller scale) for border areas in the Andaman Sea, such as between Myanmar and Thailand and in the southern part between Indonesia, Malaysia and Thailand. **To what extent is it possible to “formalize” local practices even though they are not conforming to the national laws, or with the “perceptions” at the capital of the country?**
- For Fisheries Agencies an important step ahead is to build up working relations for institutions and entities responsible for the management of fishing ports and landing sites.
- Explore the application of the (PSM) mechanism to validate small-scale fishing boats landing the catch at border fishing ports – establish necessary institutional cooperation.
- Advise on steps to take by SEAFDEC, BOBLME and others to follow up on **national and local commitments** to actual move into a stage of improved port monitoring (this could involve a need for SEAFDEC to visit each of the Andaman Countries to confirm national commitments and inputs to national and local action plans).

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Annex 13

Recommendation

The Meeting was participated by representatives from relevant agencies of countries bordering the Andaman Sea, namely Indonesia, Malaysia, Myanmar and Thailand; and representatives from organizations/institutions, namely SEAFDEC (Secretariat, TD and MFRDMD), BOBLME Project, the Swedish Agency for Marine and Water Management and Prince of Songkla University of Thailand. The Meeting was also attended by members of the Regional Fisheries Policy Network (RFPN) for Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, Philippines, Thailand and Vietnam.

The Meeting discussed and came up with recommendations on activities that should be considered and/or undertaken by relevant stakeholders in the future as follows:

I. Strengthening bilateral and multilateral cooperation and sub-regional arrangements

| Recommendations | Actions to be taken by |
|--|--|
| <p>1. Develop cooperative agreements within and among countries with relevant agencies (e.g. agencies responsible for fisheries, enforcement, and environment, including NGO's/independent organizations) on dialogues for information sharing, capacity building and in the process build upon existing cooperative arrangements (including customs, navy, police, etc) in border provinces</p> <p><i>Update lists and inventory of existing arrangements including informal national, bi-lateral and regional agreements, (including customs, navy, police, etc).</i></p> <p><i>Establish cooperative arrangements between countries to resolve conflicts (where possible) on trans-boundary issues, e.g. transfer/landing of fishery products across borders, etc.</i></p> | <p>Relevant national/regional agencies</p> <p>SEAFDEC and BOBLME</p> |
| <p>2. Enhance cooperation by strengthening institutional responsibility within countries and among neighboring countries to include trans-boundary dialogue with an aim to come up with (sub-) sub-regional agreements and bi- and multi-lateral arrangements</p> <p><i>Incorporate or, to the extent possible, build upon informal local (provincial) bi- and trilateral practices and arrangements, even though they are not fully recognized by the national centers</i></p> | <p>Relevant national/regional agencies</p> <p>SEAFDEC, BOBLME and others</p> |
| <p>3. Enhance coordination between SEAFDEC and SEAFDEC-Sida Project with other projects and other organizations, e.g. BOBLME, SEAFDEC/Japanese Trust Fund, CORIN-Asia (Wetlands Alliance), IUCN to ensure that activities in the Andaman sub-region are undertaken in coherent manner and reduce duplication of effort</p> | <p>Relevant regional organizations /agencies</p> |

| Recommendations | Actions to be taken by |
|---|------------------------|
| <p>4. Encourage involvement of high-ranking officials of the Member</p> | <p>Relevant</p> |

| | |
|--|--|
| Countries in future regional/sub-regional consultations to ensure political will/support to the implementation of fisheries management for sustainability of <i>Working with and among countries to define “high level” meetings (in principle a “two tier” process: policy and working levels</i> | national/regional agencies BOBLME and SEAFDEC |
| 5. Enhance analysis and “packaging” of results from research, studies and recommendations from technical consultations/meetings to provide and communicate simplified information packages that are more understandable for policy makers and general public <i>“Communication” is of key importance</i> | Relevant national/regional agencies |
| 6. Involve other countries, e.g. India (Andaman and Nicobar Islands), etc, in future activities as relevant and appropriate through bi-lateral or multi-lateral dialogue and other arrangements | BOBLME |

II. Enhancing communities’ resilience and capacity to adapt to change

| Recommendations | Actions to be taken by |
|---|---|
| 7. Establish mechanism to enhancing resilience of local communities and to facilitate income diversification and to reduce dependence on fishery resources by capacity building for local people on non-fishery alternative livelihoods, e.g. tourism, diving trips, handicraft, etc. | Relevant national agencies and (local) NGOs |
| 8. Further studies on local fishing communities, including documentation of the traditional livelihood, indigenous knowledge, indigenous fishing practices, etc, with an aim to strengthen their involvement in planning and management of habitats, fisheries and other developments (tourism, etc.) <i>Record and document experiences and information on local indigenous groups of people (Sea gypsies, Moken, etc.) together with socio-economic analysis on the changes in community caused by development, etc.</i> | Relevant national and regional agencies |

III. Integration of fisheries and habitat management and the importance of trans-boundary stocks and habitats

| Recommendations | Actions to be taken by |
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| 9. Implementation of coordinated fisheries management measures for trans-boundary stocks, e.g. closed areas and closed seasons and designation of “larger fisheries resources conservation areas” based on available reliable (scientific and anecdotal) information, while applying a precautionary approach, in order to limit catching of juveniles, to rebuild depleted stocks and to conserve critical habitats. <i>Establish larger fisheries resources conservation areas, building upon and incorporate existing “managed” areas (MPAs, Ramsar sites, Heritage sites, etc.), including trans-boundary agreements on management, rules and regulations among neighboring countries, e.g. for restrictions on fishing activities, closed seasons and conservation of critical habitats</i> | DOFs and Relevant national/regional organizations |

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| <p><i>Agreements between countries on the establishment of task force(s) and working groups to define reliable (scientific and anecdotal) information and to indicate appropriate management measures and to develop coordinated research, capacity-building and information sharing</i></p> | |
| <p>10. Increase knowledge on trans-boundary stocks (particularly Mackerels) through biological studies, studies on life history and life cycle, genetic analysis, studies on linkages between oceanographic data and fish productivity data, etc. The information obtained will support a better understanding on the status and structure of stocks, spawning-and nursery grounds, routes of migration, etc.,</p> <p><i>Follow-up on recommendations from previous consultations on <i>Rastrelliger spp.</i> and Tongol (Long Tail) Tuna</i></p> <p><i>Develop appropriate management measures (e.g. rules and regulations, closed seasons, closed areas etc.) in consultation with stakeholders by building on available and obtained.</i></p> | <p>Respective countries and relevant organizations (BOBLME, MFRDMD, SEAFDEC/TD)</p> |
| <p>11. Undertake studies and joint actions on important habitats, including actions for rehabilitation and conservation of mangrove areas, sandy beaches/mud flats, sea-grass beds, coral reefs, etc.</p> <p><i>Establish task forces, working groups and trans-boundary agreements in sub-sub regions or in the sub-region as applicable</i></p> | <p>Relevant national/regional organizations (BOBLME, SEAFDEC and IUCN)</p> |
| <p>12. Develop informative records and publications (with cooperation from partners) on MPAs, heritage sites and other “managed” areas, including references to the importance to fisheries, to be published and shared among countries and interested parties (to be updated regularly)</p> | <p>Relevant national and regional organizations (MFF, IUCN, WWF, etc)</p> |

IV. Promotion of more effective management of fishing capacity and to reduce illegal and destructive fishing (combat IUU fishing) in the Andaman Sea

Develop capacity of officers and personnel in agencies responsible for management of fishing capacity (registration, licensing etc), port monitoring/inspection and other relevant institutions to meet higher expectations including ability to cooperate with other institutions and across boundaries. There is a general need to support required cooperation among relevant national and regional organizations (BOBLME, RPOA and SEAFDEC).

| Recommendations | Actions to be taken by |
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| <p>4.1 Establish and promote collaboration in MCS networks</p> | |
| <p>13. Establish and strengthen MCS Networks at provincial and local level, involving relevant agencies/stakeholders (within defined trans-boundary areas) to facilitate sharing of experiences among countries as well as among local communities in design, establish and undertake cooperation within MCS networks to support enforcement measures and implementation of management actions</p> <p><i>Develop trans-boundary and sub-regional agreements on rules and regulations between neighboring countries for the cooperation and responsibilities of partners involved in MCS network</i></p> | <p>Relevant national and regional organizations</p> |

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| <i>Introduction of Vessel Monitoring Systems (VMS) where applicable</i> | |
| <p>14. Establish and facilitating trans-boundary dialogues among countries, at national and at local level, in monitoring, control and sharing of information on the movement/encroachment of fishing vessels, as well as in resolving of conflicts.</p> <p><i>Potential conflicts among fishermen should be assessed.</i></p> <p><i>Enhance cooperation among agencies concerned and local organizations/communities to deal with illegal and destructive fishing within countries and across boundaries</i></p> | <p>DOFs and relevant national organizations. SEAFDEC and relevant regional organizations</p> |
| 4.2 Vessel registration and fishing licensing | |
| <p>15. Establish national and regional cooperation between agencies responsible for fishing vessel registration and for the process to issue licenses to fish (vessel, gear and/or people).</p> <p><i>Cooperate to develop and implement appropriate measures to limit fishing capacity in responding to the status of fishery resources</i></p> <p><i>Explore and develop mechanisms for trans-boundary cooperation and information sharing on registered fishing vessel, numbers and type (if available) of unregistered fishing vessels and on issued licenses to fish (vessels, gear and/or people)</i></p> | <p>Relevant national/regional agencies</p> |
| <p>16. Facilitate the comparing of data/information on registered fishing vessels among countries in the Andaman Region and specifically in the northern and southern sub-regions by identifying minimum data requirements needed to monitor movements of fishing vessels within countries and across boundaries, taking into consideration already existing vessel registration systems and practices.</p> <p><i>Set up one working group for each sub-region to develop a better understanding on active fishing capacity in the sub-regions and to facilitate sharing/exchange of data/information to provide better basis for the monitoring of vessels movements and reporting among neighboring countries (as needed study ways of converting data to become comparable among countries)</i></p> | <p>Relevant national/regional agencies</p> |
| <p>20 Review existing or the existence of local (trans-boundary) practices and informal arrangements on registration of fishing vessels and on processes to issue licenses to fish (such as double registration, double licenses, etc).</p> <p><i>Explore, or assess, steps needed to align and build upon (if possible) such trans-boundary practices for sub-regional efforts to agree on restrictions and regulations on allowable active fishing efforts (vessel type, gears and people)</i></p> | <p>Relevant national/regional agencies</p> |
| <p>2.3 Port Monitoring</p> <p><i>There is a growing need to provide awareness and understanding on the important roles and functions of ports and landing places while recognizing the large amount of institutions involved management and activities related to ports and landing sites. This should also be recognized in terms of being the point of “entry” (and control) of goods being transported by seas and</i></p> | |

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| <p><i>for the landing of resources harvested at sea and in this sense being on the “threshold” between the sea and the land.</i></p> | |
| <p>21. Building up of working relations for institutions and entities responsible for the management of fishing ports and landing sites</p> <p><i>Establish working group(s) on development of monitoring functions and routines in ports and landing sites, including capacity building – ensure that partners/institutions with responsibility for port management and port inspections are involved</i></p> <p><i>Support cooperation and strengthen the role of concerned authorities, e.g. of custom office, immigration office, fishing port authorities, etc. in port monitoring, inspections on-board vessels and to collect relevant data and information</i></p> | <p>Relevant national/regional organizations (with support from BOBLME and SEAFDEC)</p> |
| <p>22. Strengthen the capacity of personnel groups in fishing ports to improve port management and to be able handle more detailed collection of data and information, such as detailed taxonomic identification, specifications on different types of gears/vessels, etc. and specific aspects related to quality, health and environmental standard.</p> <p><i>Improve basic management of fishing ports and landing sites, e.g. enhancing the quality of catch, safety and hygiene of the port, etc. (not only focusing on measures in order to comply with requirements of global instruments)</i></p> <p><i>Develop and improve catch monitoring systems in existing ports and landing sites, including quantity (catch values) and quality (species or species group) of the catch, vessels records (lists of vessels, entry and exit from the ports. Improve inputs from ports into statistics and catches and landings</i></p> | <p>Relevant national/regional organizations (with support from BOBLME and SEAFDEC)</p> |
| <p>23. Explore the application and relevance of the PSM Agreement and agreement to validate the legal status of catches from small-scale fishing vessels landing the catch at border fishing ports –</p> <p><i>Establish necessary bi- and trilateral institutional cooperation to negotiate and establish agreements on the status of artisanal catches</i></p> | <p>Relevant national/regional organizations (SEAFDEC)</p> |