



**Establishment and Operation of a Regional System of
Fisheries *Refugia* in the South China Sea and Gulf of Thailand**

REPORT

**FIELD VISIT TO PREAH SIHANOUK, KEP,
AND KOH KONG FISHERIES REFUGIA SITES**

**PREAH SIHANOUK, KEP AND KOH KONG, CAMBODIA
05-15 JUNE 2017**

Prepared by
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1. Introduction

- 1) The PROJECT of Establishment and Operation of a Regional System of Fisheries Refugia in the South China Sea and Gulf of Thailand funded by UNEP/GEF supporting the national marine fisheries refugia project for 4 years from 2017 to 2021. The project has proposed 3 sites of fisheries refugia in Kep, Preah Sihanouk and Koh Kong provinces and targeted species base on life cycle identification for national and regional level. In particular, the project has targeted mackerel specie in Koh Kong, swimming crab and Anchovy in Kep, but Preah Sihanouk province does not target specie yet.
- 2) The FiA teamwork of the fisheries refugia has organized field trips to visit 3 sites in Kep, Preah Sihanouk and Koh Kong provinces. The first field trip is from 05-10 June 2017 to visit sites in Preah Sihanouk and Kep provinces, and the second field trip is from 12-15 June 2017.

2. Objectives

- 3) The purpose of the field trip is to select site and identify specie for fisheries refugia development in Preah Sihanouk, Kep, and Koh Kong provinces in which the specific objectives are as follow:
 - a) To select site and identify specie in Koh Rong of Preah Sihanouk province,
 - b) To select and identify sites for swimming crab and anchovy refugia in kep province,
 - c) To select and identify sites for mackerel refugia in Koh Kong province.

3. Persons Involved

- 4) There are 7 officers from Fisheries Administration involving in the field trip namely:
 - Dr. Kao Sochivi, Deputy Director of Fisheries Administration in charge of National Focal Point
 - Mr. Ouk Vibol, Director of Department of Fisheries Conservation in charge of National Scientific Focal Point
 - Mr. Leng Sy Vann, Deputy Director of Department of Fisheries Conservation in charge of Field Project Coordinator
 - MS. Chin Leakhena, Deputy Director of Department of Administration and Legislation in charge of Project Accountant
 - Mr. Kim Sokha, Chief of Conservation Division of Director of Department of Fisheries Conservation
 - Mr. Chann Sopheap, Chief of Endangered Aquatic Species Division of Department of Fisheries Conservation
 - Mr. Horm Radong, Officer of Marine Fisheries Research and Development Institute

4. Visit in Preah Sihanouk province from 05 to 07 June 2017

4.1 Meeting with Fisheries Administration Cantonment in Preah Sihanouk province

- 5) The FiA's teamwork met with Kampong Som Fisheries Administration Cantonment on 05th June 2017 and introduced the team members and presented the purposes of field visit. The team emphasized that this visit is the initial step to collect information and data for fisheries *refugia* development, site selection, species identification and fish biology relate to life cycle. Further, the main purpose of fisheries *refugia* is to increase fish stock and ensure sustainable marine fisheries resources for county and region.
- 6) The meeting was informed that Great Baracuda species have occurred in Koh Rong Island, but it does not sure whether this species is abundant in this area or not. During the meeting, chief

of Kampong Som Fisheries Administration Cantonment was requested to identify target species including life cycle and site selection for the fisheries *refugia* will be conducted in Preah Sihanouk province.

- 7) The chief of Kampong Som Fisheries Administration Cantonment proposed two options; 1) selection of sea horse and vinegar crab in Koh Rong, and 2) selection of blood cockle as the target species in Prey Noub community fishery. He added that there will be difficult to choose fish species in the Koh Rong because around and within the island he cannot identify fish life cycle and habitat.



4.2 Meeting with head of Kampong Smach Sangkat Fisheries Administration

- 8) The teamwork from FiA met with Kampong Smach Sangkat Fisheries Administration officer in Sihanouk on 06th June 2017 and the discussion was held at the office of Kampong Smach Sangkat Fisheries Administration. The Meeting was focused on site selection, and spawning and feeding grounds for blood cockle (*see appendix I*).
- 9) The meeting was informed that several places are found as the spawning habitat for blood cockle such as Kampong Smach canal, Tek Thlar, Koh Kchorng, and To Teng canal. According the observation of the local people in these areas, blood cockle spawns three times per year 1) from April to June, 2) from July to October, and 3) from November to January) based on the fluctuations of salinity and its life cycle. Generally, blood cockle spawns on debris and snail shell on the shallow water of 0.5cm to 3 meters depth. In this connection, the meeting suggested that *refugia* project should take place in To Teng canal, located in Koh Kchorng village, Ou Chrov commune in Prey Noub district.



4.3 Meeting with Chief of Prey Noub Fisheries Administration Division

- 10) The teamwork from FiA met with Prey Noub Fisheries Administration Division officer in Preah Sihanouk on 06th June 2017 and the discussion was made at the office of Prey Noub Fisheries Administration Division. The chief of Prey Noub FiA Division, Mr. Em Phea informed the meeting that there is abundance of marine resources in Prey Noub district, especially blood cockle. It can provide sufficient incomes to the local people who are depending on the blood cockle fishing about 30% of total population. At present, fishers can catch an average of 2kg/days by hand and 15 to 20kg/day by engine boat. Blood cockle stock declined since 2000 due to the increase of fishers and habitat degradation. He added that currently there are 20 intermediaries to buy blood cockle and sell them to Phnom Penh, where the 3 of them considered as large scales which their capacity to buy blood cockle up to 50kg/day while small scale intermediaries can receive 10kg/day.



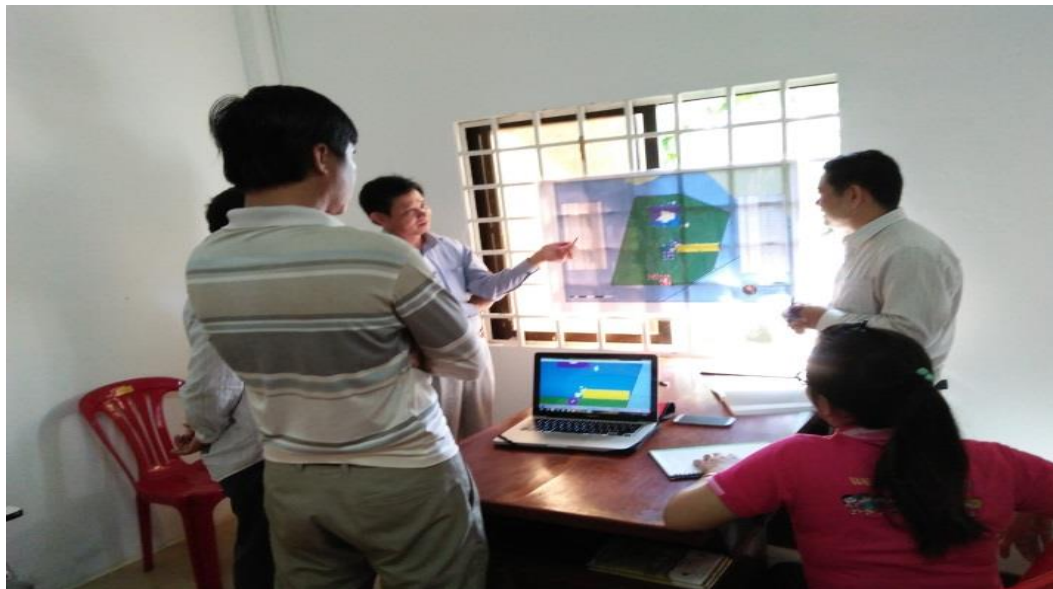
4.4 Conclusion

- 11) Based on the observation, discussion with head of Fisheries Administration Cantonment, and local people it is concluded that two sites are suitable for fisheries *refugia* project such as Koh Rong and Prey Noub district. However Prey Noub district is a more suitable site compared to Koh Rong because Prey Noub site was verified as the spawning ground for blood cockle, especially providing the improvement of local people's livelihood.

5 Visit in Kep Province from 08 to 10 June 2017

5.1 Meeting with chief of Kep Fisheries Administration Cantonment

- 12) The teamwork from FiA met with Kep Fisheries Administration Cantonment on 08th June 2017 and the *refugia* team discussed with the director of Kep Fisheries Administration Cantonment on site selection for swimming crab and anchovy *refugia* (see appendix II). It was indicated that in Kep there are some sites for these species *refugia* such as Koh Po, Koh Kbal, Koh Ton Say (Island). He supported the initial idea to establish *refugia* for the important species through the right mechanism in order to ensure sustainable marine fisheries resource management and also to increase fish stock. Koh Po is the suitable place for setting up *refugia* site that has 6.3km in length.
- 13) A part from this, anchovy is the highly migratory species with a small body size and it is not the main species for local fishers in Kep province because fishing gear to catch this species is costly. It was assumed that there is not abundant population for anchovy in this area. For swimming crab, it considered as the target and economic species. Fishers are able to catch a great number of crabs in Koh Po. It was observed that there is also the spawning ground for blue swimming crab there. Additionally, there are 4 crab banks in Kep at the moment.



5.2 Meeting with Fishers in Ankol village

- 14) The team discussed with group of fishers in Ankol village, Pong Tek commune, Damnak Chong Ore district 09th June 2017. Fishing ground for blue swimming crab are Koh Ton Say, Koh Kbal, and Koh Po (Island). The volume of catch per day varies from 5 to 10kg, using 300 to 400 crab traps based on where the fishing ground is. For example, Fishers can catch more crabs about 10kg/days at further distance (around 10km from the coast) while around the coast can collect only 3-5kg/days. On the other hands, the crab size varies depending on water depth. It means

that fishers can catch bigger size crab (i.e. 5-6 head/kg) in deep water and smaller size crab (i.e. 10-20 head/kg) in shallow water. Crab spawns during windy season in November.



5.3 Meeting with Chief of Maritime Police in Koh Po

15) The team met and discussed with Chief of Maritime Police in Koh Po Island on 09th June 2017, which explained the objectives of the field trip at Koh Po that the main purpose is to concentrate on site selection and specie identification for *refugia* development (see appendix II). The *refugia* aim to ensure and increase fish stock and prohibit large scale fishing, but small scale is allowed. Particularly, spawning season of target specie will not be permitted to catch in certain period which will be set as the regulations. After understanding the purpose of *refugia* team, the chief of Maritime Police raised his support to the initiated idea and the meeting requested relevant agencies to join protection and crack down illegal fishing together if it is possible. It was added that the *refugia* area should be from 3km to 6km in length and the area that located in the far distance from the coast.



5.4 Meeting with Fishers at Koh Po

- 16) The teamwork from FiA met and discussed fishers at Koh Po on 10th June 2017. There are 90 households of fishers living in Koh Po Island by 2017. The main species for their subsistence is crab. Fishers can catch crab from 20 to 30kg/day with 2,500 crab traps that need to spend 40kg feed or equivalence to 1,700 Khmer Riels. The crab production now declines due to the increase of fishing gears and fishers. For instance, fishers can catch 30kg crabs with 300 crab traps during the year 1987 to 2000 if comparison in 2000 to 2010 with 1000 crabs traps and in 2010 to 2017 with 2500 crab traps.
- 17) Regarding crab spawn habitat, fishers clarified that spawning season is from November to March in Koh Po where the suitable place for the refugia of crab is. In addition, fishers proposed not to catch crab from November to March due to the spawning period of crab and they requested to have a size of 6km in length and 5km in width. For anchovy fish, fishers have never fished them because fishing gear for this species is expensive. Anyway, anchovy still exists around Koh Po based on their observation and experiences.



5.5 Site Visit in Koh Po

- 18) The team visited at Koh Po on 10 June 2017 and it is distance around 9km from Kep town and it takes about 45minutes by boat. It is potential place for *refugia* of swimming crab and anchovy. In this area, there is also complexity of marine biodiversity such as sea grass, fish, crustaceans, etc



5.6 Conclusion

- 19) Based on observation, discussion with fisheries administration cantonment chief, and fishing community, it could be concluded that Koh Po is the good place for establishing *refugia* of swimming crab and fish anchovy since spawning ground is in place. The proposed size of both species is 6,300ha however that size will be discussed deeply during local stakeholder's consultation.

6 Visit in Koh Kong Province from 12 to 15 June 2017

6.1 Meeting with chief of Koh Kong Fisheries Administration Cantonment

- 20) The teamwork consulted with the chief of Koh Kong Fisheries Administration Cantonment on 13 June 2017 on mackerel *refugia* development in Koh Kong in order to join the project with Trat province of Thailand (see appendix III). The director agreed with the proposal and pointed two sites for *refugia* in Peam Krasob and Chroy Pros in which are sites for spawning and feeding, but the most suitable site is Peam Krasob because fish migrates from Thailand to Koh Kong through channel Peam Kro Sob during November for spawning, and nursing. The detail information will be illustrated during the discussion between *refugia* team and fisheries community at the actual sites.



6.2 Meeting with representative of Chroy Pros Community Fisheries

- 21) The team met and discussed vice chief of Chroy Pros community fisheries on 13 June 2017, in which Chroy Pros is in Chroy Pros village, Chroy Pros commune, Koh Kong district. The Chroy Pros village is a village that is rich of mixed marine fisheries resources such as swimming crab, silver and red snappers and groupers, as well as mackerel. Mackerel spawns in water depth from 5-7meters, from October to December. It was added that mackerel production declines sharply from 2015 onward. The catch production is 50kg/day with gillnet of 500-1000meter length, 150 to 200kg/day from 2000-2005, and 200kg to 300kg/day before 2000. Therefore, the Meeting supports to develop mackerel *refugia* in order to increase fish stock in Chroy Pros village that contribute to improve fish catch future and enhance local livelihood. The Meeting proposed to have a size of 200-300ha for mackerel *refugia* in Chroy Pros area.



6.3 Meeting with Commune Council Members, Police Post, and Community Fisheries at Peam Kro Sob

- 22) The team consulted with committee of Peam Kro Sob community fisheries and Peam Kro Sob commune council on 14 June 2017 and described the objectives of field trip to select site for mackerel *refugia* in order to increase fish stock and fish catch. Regarding this issue, the community and commune council supported *refugia* development plan. Representative of community fisheries expressed their concerns regarding the demand of mackerel fish is getting high and the supply becomes low, hence *refugia* is highly needed (see appendix IV) .
- 23) Mackerel spawns from November to March in shallow water close to sand with debris, so it is prohibited from fishing from October to March according to the community request. In Koh Kong province, mackerel has two species, Indian Mackerel and Short Mackerel, including the short mackerel is abundant specie.
- 24) The size of *refugia* for mackerel should be bigger. However, the size in this area could be selected for 500ha due to the limited space. The Meeting suggested discussing with Koh Kapi community fisheries for expanding more sites to be bigger, if it is possible.



6.4 Site Visit in Peam Kro Sob and Chroy Pros

25) The team visited the site of Peam Kro Sob and Chroy Pros community fisheries on 14th June 2017 in Mondol Sema district which is an attractive place and plenty of marine fisheries resources, especially mangroves that is habitat for marine resource feeding and spawning. Moreover, it is also spawning habitat of mackerel during monsoon season migrating from Thailand.



6.5 Conclusion

26) According to observation, discussion with chief of fisheries administration cantonment, and community fisheries, it was concluded that there are two sites for mackerel *refugia* development such as Chroy Pros and Peam Kro Sob. However, Peam Kro Sob is the best site for the mackerel *refugia* because it is spawning and nursing ground for mackerel. Moreover, mackerel in Koh Kong province has two species, Indian Mackerel and Short Mackerel.