



## **Report of the First Meeting of the Scientific Working Group on Neritic Tuna Stock Assessment in the Southeast Asian Waters**

Grand BlueWave Hotel, Shah Alam, Selangor, Malaysia  
18 to 20 November 2014

### **I. Introduction**

1. The 1<sup>st</sup> Meeting of the Scientific Working Group (SWG) on Neritic Tuna Stock Assessment in the Southeast Asian Waters was convened at Grand BlueWave Hotel, Shah Alam, Selangor, Malaysia from 18 to 20 November 2014. The Meeting was attended by the nominated experts/scientists and researchers from seven (7) Member Countries namely: Cambodia, Indonesia, Malaysia, Myanmar, Philippines, Thailand and Vietnam. Representatives and officers from SEAFDEC/Marine Fishery Resources Development and Management Department (MFRDMD), SEAFDEC/Training Department (TD), SEAFDEC/Secretariat and members of the Regional Fisheries Policy Network (RFPN) for Indonesia, Malaysia and Philippines. The list of participants appears as **Annex 1**.

### **II. Opening of the Meeting**

2. On behalf of the Department of Fisheries Malaysia as host country, the Chief of SEAFDEC/MFRDMD, *Ms. Mahyam Binti Mohd Isa* welcomed the participants to the Meeting and highlighted that the importance of this Meeting as the first gathering for the Scientific Working Group Members, whom had been officially nominated by Member Countries with expected that they could contribute knowledge and ideas in the sustainable management of neritic tuna in Southeast Asian waters. She added that, in the past few years, statistics showed a slightly decline in terms of the production volume of neritic tuna, as well as some mis-identification of the longtail tuna lead main problems in trading internationally. Thus, it is SEAFDEC and ASEAN Member State's role to address these concerns to ensure that neritic tunas are sustainable utilization for food security of the future generations.

3. She recalled that the task of developing a Regional Cooperation focusing on neritic tuna fisheries was given to SEAFDEC during the 45<sup>th</sup> Meeting of the SEAFDEC Council in April 2013 in the Philippines. In response to such instruction, the Regional Plan of Action or RPOA for sustainable neritic tuna fisheries and management was developed during the Experts Group Meeting in Krabi Province, Thailand that was convened on June 2014. One of the important activities agreed during that Meeting was the establishment of Scientific Working Group on Neritic Tuna Stock Assessment. Her Opening Remarks appears as **Annex 2**.

### **III. Selection of Chairperson, Background and Arrangements, and Introduction of Scientific Working Group Members**

4. The SWG Member for Philippines, *Mr. Noel C. Barut* nominated *Ms. Mahyam Bt. Mohd Isa*, the Chief of SEAFDEC/MFRDMD as the chairperson of the Meeting and the nomination was seconded by *Dr. Htun Thein*, SWG Member for Myanmar. The Meeting continued with the introduction of SWG Members from the Member Countries.

5. *Ms. Hemalatha Raja Sekaran*, RFPN Member for Malaysia presented the background and introduction of the Meeting as appear in the Prospectus (**Annex 3**). Later, she introduced the Agenda of the Meeting which adopted as appear in **Annex 4**.

#### **IV. Introduction of the RPOA-Neritic Tuna and Work Plan for 2014-2015**

6. *Dr. Somboon Siriraksophon*, Policy Program Coordinator, SEAFDEC/Secretariat presented the background of the development of RPOA-Neritic Tuna (**Annex 5**) as well as the agreed work plan of 2014-2015 (**Annex 6**). He provided information on previous information on the status of tuna (neritic and oceanic) assessment in the Southeast Asian waters which funded by the Japanese Trust Fund (JTF) focused on four (4) countries like Indonesia, Philippines, Thailand, and Vietnam from year 2008 to 2012.

7. He added that for this Meeting would focus the neritic tuna where Sweden Government expressed the support on the sustainable utilization of neritic tuna in the region. He recalled the Meeting that during the 45<sup>th</sup> SEAFDEC Council Meeting in 2012, the issue was presented in order to understand the importance of neritic tuna in the region based on the study on tuna conducted by SEAFDEC, the Council directed SEAFDEC to develop the regional cooperation plan of action for neritic tuna. In response to this issue, SEAFDEC conducted series of meeting for neritic tuna to review the status and trend of neritic tuna in the region and after the meeting in Songkhla started to conceptualized and developed a Regional Plan of Action (RPOA) for neritic tuna. The recent meeting was conducted in Krabi Province in June 2014 where experts from Member Countries were invited and come up with the final draft of the RPOA- Neritic Tuna.

8. In addition, he presented and discussed the prioritized issues where lot of issues to consider at the regional level that need to address and to consider in drafting the RPOA. Regarding this, the RPOA was developed and was able to come up with six (6) important objectives to address the issues and problems facing by the region where he pointed out the establishment of the Scientific Working Group (SWG) for the conservation of neritic tuna in the region is also important.

9. Moreover, he reported the progress of immediate work plan for regional cooperation to promote sustainable utilization of neritic tuna resources in the Southeast Asian waters and reported that one of the activity is the conduct of on-going stakeholder consultation, which the first meeting was conducted in Philippines and was attended by boat owners, fishery university, and the national and local government officers, however, another few more consultations would be considered to be conducted in 2015 in Indonesia, Malaysia and Thailand if time allows.

10. The second and third activity of the work plan was the establishment of SWG, the work plan on the stock assessment, and the plan of actions on human resource development, he insisted to the Meeting to double work on this matter. He then emphasized to the Meeting that the SWG was going to improve the strategic plan and curriculum on data collection system in the region and the strategic plan for awareness building to let the industry understand how important the neritic tuna industry. He also encouraged the Meeting to finalize the Term of Reference (ToR) of the SEAFDEC established Scientific Working Group (SWG) for Neritic Tuna and also the SWG will provide guidelines for the human resource development program for neritic tuna in the region.

11. And finally, he informed and requested the cooperation of the Meeting that next year will finalize several documents for the important activities for the stock assessment with regards to the different Standard Operating Procedures (SOP) for data collection where SEAFDEC-Sweden will provide financial support to the meetings related to neritic tuna program.

12. After the presentation made by *Dr. Somboon*, the SWG Member for Thailand asked for the clarification on the difference the nature of the ASEAN Tuna Working Group and SEAFDEC RPOA-Neritic tuna activities. In response, it was informed that the ASEAN Tuna Working Group was set-up under the ASEAN framework with the cooperation with economist group focused on trade issue and tried to come-up a thematic area in order to sustain the tuna trade industry while SEAFDEC focus in the technical matters. Both groups made clarified understanding that there was no duplication of functions and purpose, where every meeting in ASEAN was no scientist and fishery experts attending except SEAFDEC. SEAFDEC support the intra-regional trade industry within the ASEAN region and

that's where SEAFDEC stands in the ASEAN Tuna Working Group. With regards to RFMO and SEAFDEC, SEAFDEC will not duplicate the work but rather complement and provide solution to the problem especially on incomplete data gathered for any fisheries management.

13. The SWG Member for Philippines added that the ASEAN Tuna Working Group mainly focus on the promotion, marketing and trading of tuna products not on scientific information and the status of tuna fishery. He also added that SEAFDEC could serve science core provider for ASEAN for clear understanding with other ASEAN members, a scientific-based result and advices use as a basis for fishery management to the fishery managers and policy makers to finally make decision.

14. With regard to the six (6) objectives of the RPOA, *Dr. Worawit Wanchana* pointed out that the meeting should prioritized the issues so we can determined what we need to provide precise actions and the established SWG will work on this matter.

15. The SWG Member for Malaysia, commented that some of the objectives of the RPOA need some refinement, to harmonize the work between ASEAN Tuna Working group (ATWG) and SEAFDEC, include the **trust in trade** on "promote sustainable utilization of neritic tuna resources". He identified and proposed as the main priority of the RPOA is the stock assessment and status of the fishery product.

## **V. Reviews the Updating Status and Trends of Neritic Tuna Fisheries in the Southeast Asian Region**

16. The SWG Member for Cambodia, *Mr. Samreth Sambo*, presented the status of tuna stocks in Cambodia (**Annex 7**). He presented general information on coastal fisheries in Cambodia which covers from the artisanal, middle and large scale fisheries, and showed its annual production which Indian mackerel is the major fish catch and fishing methods used were mostly drift gillnet, fishery management for specific species. According to his presentation, bullet tuna (*Auxis rochei*) and bonito (*Sarda orientalis*) was the only neritic tuna present and caught by the fishermen in waters of Cambodia. The Meeting observed that the status and trend could not be determined at present due to insufficient information on the production trend of neritic tunas where catch and effort data could not be standardized and also recognized the difficulty of data collection for neritic tunas, and then the Meeting suggested considering to improve their capacity in establishing a national status and trend of neritic tunas, to enhance their capability in identifying the species for stock assessment.

17. The SWG Member for Indonesia, *Mr. Thomas Hidayat*, presented the status of neritic tuna stocks in Indonesia (**Annex 8**). He informed that Pemangkat is one of the biggest landing sites of neritic tuna operating in Natuna Sea and South China Sea area, using drift gill net as the main fishing gear catching neritic tuna. In addition, he informed the catch composition is widely dominated by kawakawa (*Euthynnus affinis*), longtail tuna (*Thunnus tonggol*), and Spanish mackerel (*Scomberomorus commersoni*).

18. The SWG Member for Malaysia, *Mr. Samsudin bin Basir* presented the Country Report of Malaysia. He provided the overview of neritic tuna fisheries in Malaysia and described the Exclusive Economic Zone (EEZ) of Malaysia. The Meeting noted that the common neritic tuna species found in Malaysia are *Thunnus tonggol* (longtail tuna), *Euthynnus affinis* (kawakawa) and *Auxis thazard* (frigate tuna). He also provided the data on total annual landing of neritic tunas from 2008 to 2013 and further shared the detailed information on annual landing by species and area, in particular the Straits of Malacca and South China Sea. The Meeting also took note of the monthly landing of longtail tuna, kawakawa and frigate tuna in the West Coast of Peninsular Malaysia. He informed the Meeting that the import and export data available in the national statistics is not recorded by species, and it combines all tuna species and its parts. His presentation appears as **Annex 9**.

19. The Meeting also noted that there was misidentification of neritic tuna species, especially between longtail and kawakawa species, and agreed that there is a need for capacity building pertaining to the neritic tuna species identification in order to avoid misreporting.

20. The Meeting noticed that from the presentation, the data on neritic tunas in Malaysia is focused on the West Coast of Peninsular Malaysia (Andaman Sea and Straits of Malacca), and suggested that the data collection should be improved to include the data of East Coast Peninsular Malaysia (South China Sea and Sulu-Sulawesi), in order to obtain the overall status of neritic tuna resources in Malaysia.

21. *Dr. Htun Thein*, the SWG Member for Myanmar explained the status of neritic tuna fisheries in Myanmar. He informed the Meeting that the data on neritic tunas is insufficient, and that the present data available in Myanmar, including data on species identification is not reliable. The Meeting noted that the four (4) common neritic tuna species found in Myeik Archipelago are *Auxis thazard* (frigate tuna), *Auxis rochei* (bullet tuna), *Euthynnus affinis* (kawakawa) and *Scomberomorus commersoni* (Narrow-barred Spanish Mackerel), and the distribution depends on geographical location. According to the fishers, the main gears used to catch neritic tunas are drift gill net and purse seine. However, composition and population of neritic tunas in Myanmar waters is still unknown, as Myanmar does not carry out official data collection for neritic tunas. He added that the establishment of the Scientific Working Group is a good opportunity for Myanmar to initiate the stock assessment study of neritic tuna species in the country.

22. The Meeting learned that Myanmar had formed a Working Group under the BOBLME project to carry out the stock assessment study for Hilsa Shad. Nevertheless, the capacity for data collection and compilation for neritic tuna species is still lacking, and knowing that neritic tuna species identification and data collection method is required to conduct the stock assessment. The country report shows as **Annex 10**.

23. The SWG Member for Philippines, *Mr. Noel C. Barut*, presented the current status of Philippine neritic tuna fishery (**Annex 11**). He provided the Meeting the general information of national marine fisheries, tuna fishery industry, and its distribution, as well as, providing the seven (7) common tunas (oceanic and neritic) commercially utilized within the coastal and EEZ waters like the big-eye tuna, yellowfin tuna, skipjack, frigate tuna, bullet tuna, kawakawa/eastern little tuna, and longtail tuna.

24. *Mr. Barut* informed the Meeting that the fisheries sector management is mainly based on the three (3) main legal framework, likewise, the different special institutional arrangements for the conservation and management of fishery resources. He also informed that there were on-going initiatives made by the NFRDI, BFAR and related agencies to collect data like National Stock Assessment Program (NSAP), logsheet system, observer program, VMS, catch certification, and cannery receipts which are properly implemented.

25. He explained that the BFAR and NFRDI were collaborated each other to collect fisheries data mainly for any fisheries management purposes, however, the Bureau of Agricultural Statistics (BAS) agency mandates to collect and compile data for national budget and planning purposes. He added also that there were responsible partners in collecting information's like Philippine Fisheries Development Authority (PFDA) which they provided data and information of unloaded volume of catch, in terms of species, fishing ground, and value in main fishports, while National Statistics Office (NSO) provides official statistics on exports and imports of fishery products.

26. Moreover, he presented the future national fisheries management plans on NPOA-IUUF, FAD management policy, and the strategic action program for the sustainable fisheries management of the Sulu-Celebes (Sulawesi) Sea Large Marine Ecosystem (SCS-LME). He then presented as example as best fisheries management practice in Davao Gulf where the area is known as the spawning ground

for oceanic and neritic tuna, and they established a closed season for the conservation of small pelagic species. He provided also the list of existing national fishery laws and regulations related to tuna for ready reference. In addition, he also informed the Meeting the different fishing methods used for catching tuna such as purse seine, ringnet, multiple hook and line, handline with the used of Fish Aggregating Device (FADs) as an accessory for aggregating small pelagic fish, and other gears like gillnet, modified Danish seine, liftnet, trap net, troll line, scoop net, and trammel net.

27. Finally, the national status and trends of neritic tuna was presented from 2005 to 2013 where eastern little tuna and frigate tuna was the top two major tuna production in municipal and commercial fishing industry. He explained also the distribution of eastern little tuna and frigate tuna which commonly found in the Southern part of the Philippines where purse seine and ringnet are the main contributors of voluminous production of tuna. He concluded that national issues and constraints on management of neritic tuna fisheries where the collection of fisheries data is not properly reported as expected by BFAR since the transfer of mandate to Bureau of Agricultural Statistics (BAS).

28. The SWG Member for Thailand, *Ms Praulai Nootmorn*, presented the status of neritic tuna fishery in Thailand (**Annex 12**). She provided general information regarding the national contribution of fish production in the Gulf of Thailand (GoT) and Andaman Sea from 2000 to 2011 and concluded that with the available data and information for neritic tuna is not overfished, according to her. She explained clearly the different sub-division of fishing areas fishing season and the different types of fishing methods used in the utilization of neritic tuna in the Gulf of Thailand and Andaman Sea. She further explained the different types of gears used like Thai purse seine, light luring purse seine, FAD purse seine and Tuna-Purse seine. In addition, she discussed on the status and production of neritic tuna resources which observed that in the year 2008 there is an abrupt decline of production which trigger on more discussion in the Meeting.

29. Moreover, in terms of imports and export of tuna, she told that despite the production of neritic tuna in the country is minimal still on top exporter of canned tuna because of high numbers of tuna canneries and it needs volume of tuna supply from other countries.

30. However, she provided information on existing national fishery laws related to neritic tuna fishery from the notifications from the Ministry of Agriculture and Cooperative and the fishery laws and regulations enforcement.

31. In addition, she also informed the Meeting that the Department of Fisheries (DoF), Thailand provided information's gathered on the national statistics data that supports the management of tuna fishery, including data for on all types of tuna purse seines.

32. The SWG Member for Vietnam, *Mr. Nguyen Viet Nghia*, presented the Neritic Tuna Fisheries in Vietnam. He provided general information regarding Vietnam marine capture fisheries, area and zoning in Vietnam waters as well as their management arrangements. The Meeting noted that there are five (5) common neritic tuna species found in Vietnam waters namely *Auxis rochei* (bullet tuna), *Euthynnus affinis* (eastern little tuna/kawakawa), *Thunnus tonggol* (longtail tuna), *Auxis thazard* (frigate tuna), and *Sarda orientalis* (striped bonito) and the main fishing gear used to catch neritic tunas are purse seine and gill net. Furthermore, he also shared information with the Meeting such as the data on fishing efforts, fishing ground, annual landing, and trend of Catch per Unit Effort (CPUE) for both purse seine and gill net, respectively. Other information on neritic tuna resources and biomass by species, biological data, and import and export data was also presented during the Meeting. In addition, he highlighted the issues and constraints in neritic tuna fisheries as well as provided suggestions on way forward and future works. His presentation appears as **Annex 13**.

33. The Meeting noted that Vietnam has comprehensive data, especially the data on fishing efforts. On the other hand, the Meeting was clarified that Vietnam had conducted stock assessment study for three (3) oceanic tuna species and the data are available starting from 2009 until present. In addition,

Vietnam also implements log book system to facilitate the fisheries data collection whereby it is part of the Fisheries regulation in the country.

34. For the Regional neritic tuna trend and status, Dr. Somboon presented the overall status of neritic tuna (**Annex 14**) for better understanding on the conservation and management of neritic tuna in the ASEAN waters.

## **VI. Special Issues on Status and Trends of Longtail Tuna**

35. *Dr. Somboon Siriraksophon* delivered a presentation on production trend of longtail tuna (*Thunnus tonggol*) in the Southeast Asian Waters based on the National Statistics from 2004-2010 (**Annex 15**). He expressed appreciation to Malaysia, Indonesia and Philippines for a detailed presentation for the local fishery management. He reiterated that it is very important that SWG should work together on stock assessment in the sub-region Andaman Sea, South China Sea, Gulf of Thailand, and Sulu-Sulawesi Sea area to compile data with other countries.

36. Based on his observation, he explained that the data of status and trends of longtail tuna showed fluctuating of fish production. He added that the present production status of overall neritic tuna in Southeast Asian waters is still good however it is necessary to check the issues and consult the industry especially on cannery and processing plants in Thailand if they can still export and import neritic tuna products.

37. With regards to the issues of exporting tuna canned (longtail tuna) to Sweden and Scandinavian. He requested that it is timely that the SWG to work together for sustainable use of neritic tuna resource in the region.

38. Another concern on the genetic study of eastern little tuna/kawakawa and longtail tuna to determine the origin of stock using the DNA analysis. The Meeting noted that to conduct the genetic study would take time at six (6) months for conducting the sampling at all sites and for the analysis one (1) year. The Philippine representative took note that the genetic study conducted on eastern little tuna/kawakawa in the South China Sea belongs only to one single stock is already published and conducted genetic study also for other species like frigate tuna, round scad and sardinella and they belong to one stock where the samples collected in Malaysia, Indonesia and Philippines. With the different views and experiences shared by the experts on genetic study, Ms. Wahida said that microsatellite DNA it needs to design 7 primers and about 1 year to develop and more expensive while mitochondrial DNA is simple and she recommended using the mitochondrial DNA analysis for the study.

39. The SWG member for Vietnam raised a suggestion related to stock identification by using the otolith method for stock assessment through measuring the size of the organ at different sizes and shape, and also to identify the age and origin of fish sample. The member for Indonesia shared his experienced on otolith, he mentioned that it takes a long method when they had study on using otolith organ analysis, due to lack of human resource and capacity to do the analysis they must sent the samples to Australia for proper analysis.

## **VII. Development of the Strategic Work Plan 1: Improving Data Collection, Developing Key Indicators and Stock Assessment**

40. Dr. Somboon emphasized to the Meeting that there is a need to develop the SOP for data collection and scientific analysis, and the inclusion of the genetic study where MFRDMD will consult the Meeting and elaborate more on this data to be collected.

41. The Meeting decided the important data and information for the data collection, developing indicators and stock assessment needed for this program. In terms of catch data: area, species, gear group, month (season), fishing ground, genetics and gonad. In terms of measurement: length (total

length, standard length, body length, fork length and body depth), weight, Truss network (morphometric). This morphometric will measure the length from tip of the mouth to 1<sup>st</sup> dorsal fin and 2<sup>nd</sup> dorsal fin of the fish sample.

42. The Meeting identified the study areas were the four (4) sub-regional areas and the countries involved for data collection, catch and effort as such the Andaman Sea, Gulf of Thailand, South China Sea and Sulu Sulawesi Sea. Please see the Table 1 for the specific countries involvement in the sub-regional areas of implementation.

Table 1. Sub-regional areas and countries involve.

<b>Sub-Regional Area</b>	<b>Countries Involve</b>
➤ Andaman Sea	1. Indonesia 2. Malaysia 3. Myanmar, and 4. Thailand
➤ South China Sea + Gulf of Thailand	1. Brunei Darussalam 2. Cambodia 3. Indonesia 4. Malaysia 5. Philippines 6. Thailand, and 7. Vietnam,
➤ Sulu Sulawesi Sea	1. Indonesia 2. Malaysia, and 3. Philippines

43. The different sampling location/sites for the stock assessment, GSI and stomach content of every member countries were finally decided by the SWG Members of every country in the South China Sea and Andaman Sea. Please see Table 2 and Map (**Annex 16**) for the sampling sites of every member country.

Table 2. The sampling sites for stock assessment, GSI and stomach content by country

<b>Country</b>	<b>Sampling Site/s</b>
<b>Andaman Sea Sub-Region</b>	
➤ Indonesia	1. Banda Aceh 2. Belawan
➤ Malaysia	3. Kuala Perlis
➤ Myanmar	4. Myeik
➤ Thailand	5. Ranong 6. Phuket
<b>South China Sea and Gulf of Thailand Sub-Region</b>	
➤ Brunei	1. Brunei Darussalam
➤ Cambodia	2. Siano Veil – GN 3. Koh Kung – GN 4. Kampot – GN
➤ Indonesia	5. Pemangkat
➤ Malaysia	6. Tok Bali 7. Kuantan 8. Kota Kinabalu 9. Kuching
➤ Philippines	10. Masinloc (Zambales) – PS 11. Sta. Cruz (Zambales) – PS 12. Puerto Princesa (Palawan) – PS and RN

	13. Antique - GN, PS and RN 14. General Santos City – PS and RN
➤ Thailand	15. Trat 16. Songkla 17. Patani
➤ Vietnam	18. Nghe An – GN and PS 19. Danang – GN and PS 20. Vung Tau - GN 21. Tien Giang - PS 22. Kien Giang (GoT) – PS

44. The suggested and agreed data information to be studied and collected for stock assessment will cover the seven (7) species composition of neritic tuna and seerfish caught by all types of fishing gears such as; eastern little tuna/kawakawa (*Euthynnus affinis*), frigate tuna (*Auxis thazard*), longtail tuna (*Thunnus tonggol*), bullet tuna (*Auxis rochei*), bonito (*Sarda orientalis*), Indo-pacific king mackerel and narrow barred Spanish mackerel. However, the Meeting agreed to focus and assess the two (2) neritic tuna species for the Gonado Somatic Index (GSI), stomach content and genetic study which is very prominent to every country was the eastern little tuna/kawakawa and longtail tuna.

45. The activities were finally identified for 2015-2016 and the important data's to be collected in the sampling sites were shown in Table 3.

Table 3. Type of Data to be collected for stock assessment

ACTIVITIES (2015-2016)	STATUS/REMARKS
1. Historical data for 5 to 10 years	- PH, TH, ID MY (available) - CAM, VN, MM (need assistance)
2. Catch and effort data sampling by site and gear for Andaman Sea (6 sites) and SCS (22 sites)	- PH, TH, ID MY (on-going) - CAM, VN, MM (need assistance)
3. Length measurement and weight for all neritic tuna species and mackerel (7 species) ➤ All type of fishing gears ➤ Not less than 100 samples/species/month	- PH, TH, ID (on-going) - CAM, MY, VN, MM (need assistance)
4. Gonad and Stomach content for two species (long tail and kawakawa) ➤ More than 25 cm in length ➤ All type of fishing gears ➤ 100 samples/month/species/all sizes	- All countries need assistance
5. Genetic study (long tail and kawakawa) use dorsal fin ➤ 35 samples per site at the (same period, one time)	- All countries needs assistance except Myanmar where MFRDMD will assist - Standardized the method of sampling - 15 sampling sites for all landing sites

46. For more in-depth understanding, further clarification and information with respect to genetic analysis, the chairperson of the Meeting requested *Ms. Wahidah M. A.* of MFRDMD to provide the basic information for DNA analysis using the Mitochondrial DNA and Microsatellite DNA. She also informed that several genetic study reports made on *Thunnus tonggol* and *Euthynnus affinis* conducted by different researchers in ASEAN waters where most of the studies conducted for DNA by using Mitochondrial DNA considering that microsatellite DNA is more expensive compared to the latter one. The type of DNA type to used will be decided when the experts from TH, PH, IN, MY and VN will finally agree and may depend on the cost of expenses may consider.

47. *Ms. Wahida* and the Meeting decided to have fifteen (15) sampling sites for the genetic sampling sites, where four (4) landing sites in Andaman Sea and eleven (11) landing sites South



China Sea + Gulf of Thailand. The fifteen (15) sampling sites identified in Andaman Sea and the South China Sea is shown in Table 4 and **Annex 17** for map location.

Table 4. The sampling sites for Genetic study

Country	Sampling Site/s
<b>Andaman Sea:</b>	
➤ Indonesia	1. Belawan
➤ Malaysia	2. Kuala Perlis
➤ Myanmar	3. Myeik
➤ Thailand	4. Ranong
<b>South China Sea:</b>	
➤ Indonesia	5. Pemanagkat
➤ Malaysia	6. Kuantan 7. Sabah
➤ Philippines	8. Tawi-tawi 9. Puerto Princesa 10. San Fernando
➤ Thailand	11. Trat 12. Patani
➤ Vietnam	13. Nghe An 14. Danang 15. Vung Tao

48. *Dr. Worawit Wanchana*, representative from SEAFDEC/TD, provided information on the Joint Tuna Research in Sulu-Sulawesi Sea (**Annex 18**) such as information and data to be collected (Tuna fishery profile in SSS, Catch and landing, Length frequency, Weight frequency Growth pattern, Gonad, Stomach contents, and Genetics). He additionally discussed the different activities conducted under the project such as Review catch and efforts, Data collection, Tuna stock assessment, Determination of tuna spawning grounds, and Assessment of the use of FADs for tuna fisheries conducted in Indonesia, Malaysia and Philippines different landing sites.

49. *Dr. Somboon* reiterated the importance of SWG for the neritic tuna which is a regional concept and will linked to the national program and framework, as he reiterated the Meeting understand that this is long term program and should work together, understand their roles as SWG members for their country. He also emphasized that everyone should have a sense of ownership to this program where SEAFDEC could only facilitate, provide support and assist to the less capable countries in the collection of important data in order to be able to know stocks trend of neritic tuna in the region and to attain the program goal.

50. The representative from Thailand shared a good reference for stock assessment for neritic tuna for future reference see attached **Annex 19**.

51. The SWG member for Vietnam brought up an issue with regards to data sharing, which should have a clear procedure to share the data or else it's impossible for them to share the data to the regional stock assessment because of their strict policy regarding this matter and clarify what type of data and its intention especially if the budget used was finance by their Government. *Dr. Somboon* suggested the Meeting to add an item on policy of data sharing on stock assessment in reference to TOR for SWG member (**Annex 20**) and the details expounded at the TOR for capacity building, and to resolved farther that sharing data is available during the study period for neritic tuna regional stock assessment including biological data.

## VIII. Development of the Strategic Work Plan 2: Awareness Building and Capacity Building

52. The SWG member for Vietnam proposed the capacity building in data collection based on catch and effort data, stock assessment, biological data, species identification, data handling/processing and data sharing among other Member countries.
53. The SWG member for Philippines suggested that the data collection based on gear, but depend on the countries whether they need to come up a catch result catch by species and gear.
54. The SWG member for Malaysia proposed the capacity building is more focused on how to improve data collection.
55. The chairperson acknowledged the capacity of the Member Countries for stock assessment except Myanmar, Cambodia and to include Vietnam requested to assists them in on-the-job training for the two countries identified need improvement on data base collection. Malaysian experts were suggested to provide basic data training in excel format and analyse and process data on pivot table.
56. The SWG member for Philippines raised point of clarification regarding catch and effort data and asking if we have a common methodology or submit the raised collected effort and catch data collected for the month.
57. The SWG member for Indonesia shared his recently attended training on CPUE and suggested that we can have this training for simple method for stock assessment method to determine the status of our neritic tuna while waiting for the genetic study.
58. *Dr. Somboon* concluded in the office and needed to consult this to funding donor (Sweden Project) how important this activity to the region. The activities will be expected to start next year (2015) starting most probably April 2015.
59. The Meeting identified the three (3) main topics to be address for the stock assessment of neritic tuna species in region. The list of strategic work plan in order to improve awareness building and capacity building appears as **Annex 20**.

#### **IX. Term of Reference (TOR) for SWG on Stock Assessment for Long Term Management**

60. *Dr. Somboon Siriraksophon* presented the working paper Terms of Reference for the Scientific Working Group (SWG) for Stock Assessment on Neritic Tunas in the Southeast Asian Region, consist of the role of SWG-Neritic Tuna, scope of work, terms of reference (TOR), composition of the SWG, and the nature of SWG activities and financial arrangements. He added the draft TOR will be finalized by during the Meeting and submitted to the SEAFDEC Council for consideration.
61. The meeting was clarified that the recommendations made by the SWG will be tabled at the higher level meeting for considerations. It was agreed that the scope of SWG's work shall cover the five (5) neritic tuna species and two (2) seerfish species that was identified under Agenda 6.
62. The Meeting was clarified that review and assessment of the status of neritic tuna industry and fisheries management measures is not part of the SWG's work as it requires the trade information, and therefore agreed to remove from the scope of work.
63. Philippines SWG member explained that the Ad-hoc Technical Working Group is not needed under the SWG, because the SWG itself is a working group. Therefore, the Meeting agreed to remove the provision on the Ad-hoc Technical Working Group.
64. After in-depth discussion, the Meeting decided that the SWG shall be chaired by the Chief of MFRDMD and co-chaired by a representative of the member country on an annual basis, following the alphabetical order. In principle, the SWG Meeting shall be convened at least once a year, however more than one (1) meeting could take place, depending on its necessity.

65. The Meeting also agreed that a stock assessment expert from MFRDMD shall be appointed as the interim Chief Scientist under the SWG. The work period of the Chief Scientist depends upon the tenure of the study period as decided by the SWG. In this connection, the Meeting recommended that a stock assessment expert should be recruited under SEAFDEC to assist the undertaking of the stock assessment project.

66. The Meeting noted that the SWG-neritic tuna was formed not only for the particular stock assessment project but to ensure sustainable utilization of neritic tuna resources within the region. In this regard, there is no specific tenure for the SWG.

67. The SWG member for Malaysia, *Mr. Mohd Noor bin Nordin* suggested that the SWG members shall convey the outcome of the Meeting to their higher management in order to obtain commitment and support from their respective department and avoid communication breakdown.

68. The Meeting took note of the importance of reporting mechanism for conveying the recommendations made by the SWG to the higher level committees. In this regard, the Meeting agreed that a systematic flowchart describing the reporting mechanism of the SWG shall be developed and annexed to the TOR.

69. After thorough discussion, some modifications were made to the draft TOR. The revised TOR is shown as **Annex 20**.

## **X. Immediate Action Plans and Way Forwards**

70. The Meeting discussed the way forward and listed important actions including timelines and responsibilities that need to be accomplished to ensure smooth implementation of the project. The Timetable of activities for SWG appears as **Annex 21**.

71. In order to plan the budget for overall project, the Member Countries shall provide information on the budget requirement to carry out the data collection activities at their designated stations. In this regard, the Meeting agreed that the Secretariat of the SWG would prepare a template for budget requirements and co-finance, and that the template will be distributed to the Member Countries for feedback. The Member Countries shall submit the budget requirements, including the cost of hiring enumerators for the data collection to the Secretariat of the SWG by mid of January 2015. The proposal for obtaining fund for the project will be prepared by the Secretariat of the SWG, according to the results based approach as required by the donor (Sweden Government).

72. In addition, it was also agreed during the Meeting that the Member Countries shall provide the list of all tuna landing sites, including the landing sites identified for the project, in order to analyse the cost incurred for the routine data collection activities, which would assist in the budget estimation and co-financing arrangements for the neritic tuna stock assessment.

73. The Meeting was advised to assign provincial staff for the data collection activity instead of assigning staff from the Head Office, as to reduce the travelling cost and ensure effective utilization of the budget.

74. The Meeting decided that the data collection activity for the neritic tuna stock assessment will begin in June 2015 until end of May 2017, considering the monsoon and spawning season patterns.

75. The Meeting was suggested the Letter of Agreement (LOA) between SEAFDEC and collaborating agency e.g. Department of Fisheries of each Member Country of concern would be a kind of mean to facilitate the financial arrangements for the project.

76. All necessary documents will be finalized and submitted to all Member Countries of concern. The SWG members were advised to convey the outcome of the Meeting to the top management of their respective countries to obtain cooperation and commitments for the success of the project.

## **XI. Closing the Meeting**

77. *Ms. Mahyam Binti Mohd Isa*, Chief, MFRDMD thanked everyone for giving valuable insights and their active participation and cooperation for the successful deliberation that contributed to the success, especially in attaining the objectives of the Meeting. Finally, she wishes every participant a safe journey to their respective home countries, and declared the Scientific Working Group Meeting is closed.

XXXXXXXXXXXXXXXXXX

## Strategic Work Plan

**1. Data Collection:**

- Catch and effort data
  - Cambodia, Myanmar and Vietnam needs on the job training on data collection
  - submit 1 month raise data as proposed by *Mr. Barut*
- Biological data
- Species identification
- Classification of fishing gear (by-catch, juvenile)
- Data handling/processing (excel format/spread sheet in pivot table)
- Others

**2. Stock assessment:**

- Length base stock assessment
- Surplus production
  - Time series data (10 yrs) Determine and estimate MSY
  - Trend analysis
- Data poor stock assessment (by invited experts)
- Age structure production model
- Kobe plot (more)
- Biological analysis
  - Measurement analysis
  - Length measurement (population structure)
  - Gonad analysis (GSI)
  - Stomach content

**3. Genetic Study:** (subjects will be identify later)

- Need special training to all country

**Additional Issues/Problem**

1. Fish handling practice training
2. Reduction of manpower onboard purse seiner
3. Bycatch and tuna-juvenile from fishing gears

Timetable of activities for SWG

	ACTIVITIES	DEADLINE	RESPONSIBLE PERSON
1	Finalization of Term of Reference (ToR)	End of Nov.	Secretariat
2	Submission of ToRs to the 17 <sup>th</sup> FCG and 47 <sup>th</sup> Council Meeting	Dec. 3, 2014 and April 2015	Dr. Somboon Siriraksophon
3	Budget proposal for data collection of MC for consideration submitted to Secretariat (template of budget and co-finance)	Mid of January, 2015	Secretariat template of budget and <b>co-finance</b>
4	Genetic Analysis	End of February, 2015	Dr. Wahidah SEAFDEC-MFRDMD
5	SOP for data collection	30 January 2015	Secretariat
6	Onsite Capacity building on data collection	March, 2015	SEAFDEC-MFRDMD
7	2 <sup>nd</sup> SWG for finalization of the 2 years work plan in Da Nang, Vietnam	Last week of April, 2015	Secretariat and Hosted by Vietnam
8	Data collection program	June, 2015 to May, 2017	Member Countries
9	3 <sup>rd</sup> SWG meeting for half year progress	January, 2016	Secretariat
10	4 <sup>th</sup> SWG stock assessment meeting	October, 2017	Secretariat