

**REPORT OF THE SECOND TECHNICAL EXPERTS MEETING ON INFORMATION  
COMPILATION OF TRANSBOUNDARY SPECIES AS SCIENTIFIC BASIS FOR  
NATIONAL MEASURES FOR SOUTHERN ANDAMAN SEA**

**Chonburi Province, Thailand**

**10-11 July 2018**



**THE SECRETARIAT**

**SOUTHEAST ASIAN FISHERIES DEVELOPMENT CENTER**

**Supported by the Government of Sweden**

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## **PREPARATION AND DISTRIBUTION OF THIS DOCUMENT**

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**I. INTRODUCTION**

1. The Second Technical Experts Meeting on Information Compilation of Transboundary Species as Scientific Basis for National Measures for Southern Andaman Sea was organized by the SEAFDEC-Sweden Project on 10-11 July 2018 at Mercure Hotel, Pattaya City in Chonburi Province, Thailand. The Meeting was attended by Technical Focal Points (TFPs) of Indonesia and Thailand, SEAFDEC Secretariat, Training Department (TD), Marine Fishery Resources Development and Management Department (MFRDMD), Regional Fisheries Policy Network (RFPN) Members and Technical Resource Persons from Thailand. The Malaysian TFP could not attend the Meeting. The list of participants appears as **Annex 1**.

2. The Meeting was called together, as follow-up to the first Technical Experts Meeting on Management of Transboundary Species of Southern Andaman Sea, held on 4-5 April 2018 in Bangkok, attended by Indonesia, Malaysia and Thailand TFPs, where they agreed to produce a draft map from the existing data collected and compiled from different countries. The draft maps shared, discussed, revised and updated developed by SEAFDEC/TD. The Meeting would assess/identify the possible future needs for coordination and collaboration of fisheries measures based on the produced maps that could be beneficial to secure a sustainable stock status of these transboundary species in the Southern Andaman Sea.

**II. OPENING OF THE MEETING**

3. *Dr. Jacob Hagberg*, International Fishery Policy Expert, as the Meeting facilitator welcomed the participants and thanked to everyone for attending the Meeting. He emphasized on the need of review and revise of the maps for further refinement. The Meeting invited resource person as an experts in the field of fisheries for giving some recommendations on the proposed maps. The presence of the Chief of MFRDMD and his feedback to revise/update data and maps of Malaysia played a crucial role in the absence of technical participants from the country.

4. As no further comment, except the change in the title of the Meeting, the Agenda presented had been adopted.

**III. BACKGROUND AND OBJECTIVES OF THE MEETING**

5. *Dr. Bamroongsak Chatanathawej*, Andaman Sea and Mekong River basin Sub-region Coordinator, briefly explained the background, objectives and agenda of the Meeting. The background, provision prospectus and agenda appears in **Annex 2**.

**IV. DISCUSSION AND REVISION OF DRAFT MAPS ON THE TARGET  
TRANSBOUNDARY SPECIES FOR SOUTHERN ANDAMAN SEA**

➤ **Anchovies**

6. *Mr. Rakkiet Punsri*, SEAFDEC/TD presented layers and zonation of maps comprising information of anchovies in Thailand. It includes three zones *i.e.* Phang nga to Krabi Province, Krabi to Trang Province and Trang to Satun Province. The spawning ground for *Encrasicholina punctifer* is in the first zone, while *E. heteroloba* and *E. devisi* can be found in the second zone around Tarutao, Talibong and Adang-Rawi island. Fishing gears for anchovies were anchovy falling net with luring

light (vessel length between 14-18 m) and anchovy purse seine. Detailed map appears in **Annex 3**, **Annex 4** and **Annex 5**.

7. The coastal area in 3-5 NM from shoreline of Southern Andaman Sea is regulated by law. In this area, the anchovy fishing gear with light luring is prohibited. The closing season of spawning and nursery grounds in Southern zone is between 1 April and 30 June. All fishing gears are prohibited at the coastal areas of Phuket, Phang nga, Krabi and Trang Province. The presented data and information of anchovy was suggested to update as noted by Thailand participants. The Department of Fisheries, Thailand, have specific registered data for the fishing gears and vessels that can be added to the map. The meeting requested TD to separate data by fishing ground or by species; however, TD informed that they had a problem to separate by species although they got enough data. Detailed fishing ground appears in **Annex 6** and **Annex 7**.

8. The data from Malaysia shows that the dominant species are *E. punctifer*, *E. heteroloba* and *Stolephorus commersonii*. The larvae can be found in the fishing ground off southern Langkawi Island (see **Annex 3**). The management regulation on the fishing zones have been established by a licensing scheme where zones are designated for specific fishing gear, class of vessels and ownership. *Mr. Raja Bidin Raja Hassan*, SEAFDEC/MFRDMD Chief, agreed on the presented data of regulations and spawning ground. He noted that other major fishing ground of anchovy is around Pangkor Island (see **Annex 6**). Malaysia had separated data on fishing zone by gear for anchovy operating in zone A which is caught by anchovy purse seine. The Meeting requested Malaysia to separate for mesh size of anchovy purse seine.

9. For Indonesia, the anchovy fishing ground is near Sumatra Island and fishing season is all year round. The major fishing gears are fish net and the bag of stow net which caught anchovy comprising only 4%. Countries agreed on the developed maps; however the Meeting suggested the countries for more data must be added and send to TD within one month. The Meeting also requested Indonesia for the baseline and shoreline information to be added on the map in terms of regulation and zoning. Detailed map appears in **Annex 3** and **Annex 6**.

➤ **Mackerel (Short or Indo-Pacific and Indian mackerel)**

10. *Mr. Sukchai Arnupapboon*, SEAFDEC/TD presented the draft maps for Indonesia-mackerels which consisted of spawning area, fishing ground and migratory path, Marine Protected Area (MPA), with additional information on fishing gear, spawning season and fishing season. The maps showed that there is only one area for short mackerel spawning ground in the coastal area off east coast of Sumatra Island between Tanjungbalai and Belawan Cities and three spawning grounds of Indian mackerels: north of Sumatra in front of Lumpulo City, north of Sumatra near Malaysia border and east of Sumatra between Tanjungbalai and Belawan Cities, the same area of short mackerel. Spawning season is in late of East season between July and August. Detailed map appears in **Annex 8**.

11. There are two major fishing gears used namely gill net with 2.5 inch mesh and purse seine with 1 inch mesh. Gillnet fishing ground is at the east of Tanjungbalai city coast and the purse seine fishing ground is in front of Lampulo City, Langsa City and Belawan City. Fishing season is all year round and no closing season regulation. There was only one group of short mackerel migratory route map on which TD prepared based on data/information provided by the BOBP project studied in SEAFDEC (1998) publication. The young fish appears around south of Andaman Sea in January and migrate northward to become mature fish in February and in April one sub-group migrates to Indian Ocean and the other migrate downward south of Sumatra to be matured fish near Tanjungbalai City around June. Detailed map appears in **Annex 10** and **Annex 12**.

12. The Indonesia representative informed the Meeting that fishing and spawning grounds distribution were remarkably located inside Indonesian water not exceeding the border as indicated by the TD graph. TD noted that border line was automatically drawn based on international reference in



the GIS application (QGIS) software. The Meeting agreed not to put the border line in the final draft to avoid dispute.

13. The TD presented the draft maps for Malaysia, highlighting spawning areas, fishing grounds and migration routes. Though there was insufficient available data for Malaysia, it was noted that more *Rastrelliger brachysoma* composition can be found in coastal area than offshore. The spawning season is between September and February (see **Annex 8**). Fishing ground of mackerel is along the west coast of Malaysia Peninsular from the shoreline up to 30 nm and Indian mackerel fishing ground is more far from the shoreline to 30-70 nm with the sea depth of 40-80 meter (see **Annex 10**). The fishing season of mackerel in Malaysia is all year round. Malaysia have no migration route study for mackerel, however, TD prepared maps of migratory route for short mackerel based on BOBP project studied. It was found a loop of the migratory route of young fish at the south of Thailand moving cross border to Malaysia and back to south of Thailand. Detailed map appears in **Annex 12** and **Annex 13**.

14. The spawning and nursery ground of short mackerel and Indian Mackerel for Thailand are found at the north of RachaYai Island, the south of Phi Phi Island, LantaYai Island, Rok Island and Talibong Island, the West of Bulon Le Island and Tarutao Island, around Adang-Rawi archipelagoes and the area between Rok Island and Adang-Rawi archipelagos. Short mackerel will spawn all year round with peaks period in November-May and July-September but in general, the highest spawning occur during February-May (see **Annex 9**). For Indian mackerel, it spawns all year round with peaks in December-March and August-September but in general, the highest spawning season occurs in January and September (see also **Annex 9**). Fishing ground for short mackerel is at sea area between 10 to 40 m depth from Phang-Nga Bay to Satun province. There are two periods of fishing season for short mackerel in February–April/May and in September-November. For Indian mackerel, the fishing ground cover the sea area between 10 to 80 m depth from Ranong to Satun Province and fishing season is in March-April and October. Detailed map appears in **Annex 11**.

There are two sub-populations in Thai water. The first sub-population spends their life only in Thai water from Phang-nga bay to Trang Province. The young fishes migrate from LantaYai Island to Phang-nga Bay for their mature stage and migrate along the west coast of Trang and Krabi Province to Phang-nga Bay. As a loop, the full matured fishes migrate southward to their biggest spawning ground around Yao Yai Island, Phi-phi Island, LantaYai Island and also Rok Island. For the second sub-population, they are significantly shared stock between Thailand and Malaysia. Full matured fish at the Langkawi Island in Malaysia will migrate northward along the west coast of Langkawi Island to their spawning ground around the Bulon La Island to Adang-Rawi archipelago in Thailand. And additional loop of mackerel from Malaysia water migrate from southward to northward along east coast of Langkawi Island to join spawning ground. Young mackerels migrate southward and some will grow up to fully mature stage at Langkawi Island and some will move more southward to Malaysia water. Detailed map appears in **Annex 13**.

15. The Meeting agreed and noted that mackerels can be affirmed as transboundary species based on the scientific result of the study by Bay of Bengal Program (BOBP) in 2009.

➤ **Neritic Tunas (Frigate, Long-tail tuna and Kawakawa)**

16. Ms. Siriporn Arnupapboon, SEAFDEC/TD presented map of Indonesian Neritic tunas spawning ground which is around near Lampulo City. No data of fishing season has been recorded; however, Indonesian delegate noted that fishing season could be observed from CPUE data and catches of purse seine. In terms of scientific information, the genetic analysis to assess its transboundary stocks showed that the Neritic tuna species in this region appear to be the same stock. However, the Meeting suggested Indonesia would send additional data of fish size, species composition and other relevant data and information to TD within one month after the end of meeting. Detailed map of spawning ground appears in **Annex 14** and fishing ground in **Annex 16**.

17. The maps on the spawning ground and fishing ground of Malaysian Neritic tunas were presented by SEAFDEC/TD. The MFRDMD representative provided additional information of fishing ground in Kedah and Perlis. The map presented fishing ground in west of Lankawi Island which is needed to be updated (see **Annex 14** and **Annex 16**). There was an additional information that SEAFDEC formulated the Neritic Tuna Scientific Working Group (SWG) with collaboration of MFRDMD conducting DNA study for 2 years ago but the result wasn't adopted by the three countries for a more scientific assessment. Malaysia had a Genetic Study in Malacca Strait. Neritic Tunas were considered as commercial fishing in Malaysia. The Vessel Monitoring System (VMS) had been installed in commercial vessels, hence, a lot of information can be taken as additional data. TD has also lot of useful and good data.

18. TD also presented the maps of Neritic tunas fishing ground of Thailand by species, in the west and south of Phuket Island and also the west coast of Krabi (see **Annex 17**). The spawning season was separately indicated by species of frigate tuna, kawakawa and long tail tuna (see **Annex 15**). The country representatives agreed on the information presented, but for complete information the Meeting suggested to add more fisheries management measures.

19. The Meeting discussed on differentiation of using baseline for developing maps in each country. Thailand used highest water level for baseline basis but Indonesia uses lowest water level as baseline. The Meeting agreed that Malaysia and Indonesia would determine the use of different baseline because some part of Indonesian spawning and fishing ground maps were overlapped to the Malaysia border. The Meeting also advised the countries to improve the data precisely for validation of final maps prior to final printing and suggested countries must presently continue to work to see the data to be useful, after this workshop.

## **V. DISCUSSION ON THE AVAILABILITY OF ADDITIONAL DATA**

20. TD presented maps to remind again the anchovies spawning ground for Indonesia, Malaysia and Thailand would not separate by species which was differ to Thailand did. There was observation that the spawning ground found in these sub-regional countries are almost same spawning ground for anchovies, mackerel and Neritic tuna. Oceanographic information were relevant factors for further discussion of spawning ground. There was other way to trace spawning ground of anchovies was to follow fishing boats where they caught the fish and examine for spawning season.

21. On anchovies, Thailand had sufficient data and information in terms of spawning areas, fishing ground, and migration pattern while Indonesia and Malaysia provided limited information on these aspects. The spawning and fishing grounds are not separated by species in the maps of Malaysia and Indonesia. The fishing activities in Indonesia and Malaysia were at inshore areas with passive fishing gear like lift net, while in Thailand fishing is up to offshore areas, using purse seine specific for anchovy. The Meeting agreed to have more scientific data needed to assess the stock. There was a query from the Meeting that anchovies whether were transboundary species or not. The three countries agreed that anchovies would not be transboundary species as unavailability of data to prove.

22. On mackerels, Indonesia and Thailand agreed on the information contained in the maps, and agreed not to show the border line in the maps to avoid disputes. The spawning ground of Indian mackerel (*R. kanagurta*) and short mackerel (*R. brachysoma*) must be separated in maps especially for Indonesia sites, but not for Thailand. Thailand did many researches on short mackerel and observed that this species distributes near shore more than off shore and migratory route is short distance across border which is different from Indian mackerel distributing in deeper water and far across border as referring to BOBP study. However, the Meeting had concluded that both species of mackerels are transboundary species and we need more scientific data to confirm on which they are the same stock especially short mackerel traveling between Thailand and Malaysia border or Malaysia and Indonesia border for example DNA analysis. Thailand asked Malaysia supporting more information on spawning ground in which Malaysia currently create qualitative study of spawning ground and

measures by fisheries institute and even tagging study the output result was not scientifically validated.

23. The Meeting asked whether the maps inputted of spawning and fishing ground were corrected. There were comments from the Meeting on increasing more researches or surveys for scientific information for understanding the BOBP migratory route of short mackerel between Thailand and Malaysia border and the maps would include information of fish distribution and oceanographic information such as currents, plankton, chlorophyll which might relate to its distribution. For the mackerel stock trend decreasing in Thailand and also in Malaysia and Indonesia, this might cause by overfishing in even though we have restricted regulation and measures. The collaboration on research study among three countries are needed to help proving and sustaining the mackerel stocks to this sub-region.

24. On Neritic tunas, TD showed maps with location of spawning and fishing grounds, where Indonesia and Thailand agreed on the information. The spawning ground for three species of Neritic tunas in Indonesia waters were not identified, however, there was an indicator in Lampulo (Northern Aceh). Thailand experienced with Tonggol tuna data collection that whether it was difficult for getting data or information for all target Neritic tunas species which will need more time and resources. For this reason, Thailand proposed the Meeting consider to select one species. Malaysia agreed to keep those species because Malaysia fishermen used tuna purse seine which caught multispecies of tuna but Thailand used trolling line. Indonesia agreed with Thailand on the difficulty of data collection from fishermen. Discussion had been made without the conclusion.

25. The Meeting agreed that all Neritic tunas species are transboundary species but no information supporting their migration route and no evidence that they are the same stock. The Meeting was noted that more additional data for spawning ground and stock assessment could be collected from the Tuna Working Group from supporting of SEAFDEC-Sweden on genetic study of DNA using mitochondria technique but unsatisfied result must be added. Thailand recommended to use IOTC data where Indonesia, Malaysia and Thailand are members.

26. The Meeting agreed on Thailand proposal for the countries cooperation to improve data collection and if possible include the oceanographic parameters while collecting data. A joint cooperation between Malaysia and Thailand to improve data for one species and gather information on mackerels; cooperation for landing data on Neritic tunas; develop mechanism to reduce fishing effort; a cooperation study to collect fishing data on size distribution to assess migration routes and spawning areas, population structure (cross-countries) specific for Neritic tuna, long-tail and kawakawa; genetic study conducted by Malaysia could be extended to other areas after the results of analysis.

## **VI. IDENTIFY MEASURES TO SECURE A SUSTAINABLE STOCK STATUS OF ANCHOVIES, MACKERELS AND NERITIC TUNAS IN SOUTHERN ANDAMAN SEA**

27. The Meeting shared with countries had been discussing on measures, regulation or laws involved to secure sustainable stock status of target transboundary species for anchovies, mackerels and Neritic tunas in this sub-region. Main law for fisheries management of Indonesia water is Ministerial Decree 75/KEPMEM-KP/2016 which covers whole country fishery areas. The fisheries management area in northern Sumatra Island is FMA 571 where it is divided into 4 areas including 0-2, 2-4, 4-12 and 12 miles to further for prohibition on fishing vessel size, type of fishing gears and FADs. Detailed map appears in **Annex 18** and **Annex 19**.

28. For Malaysia, the major law is Fisheries Act 1985 or Act 371, which mainly manage fishing capacity by zoning. The management zones provide equitable allocation of fisheries resources to reduce conflict between traditional and commercial fishermen. The Conservation Zone has a distance of 0-1 bn from shoreline, where it is set up for aquaculture, cockle culture, and community base

fisheries activities; Zone A, 1-8 nm from shore is for small-scale fishers using traditional fishing gear operation; Zone B, 5 to 15 nm from shore, is for commercial fishing vessels using trawl net and purse seine with vessels less than 40 GRT; Zone C, 15 nm to EEZ, for commercial fishing vessels more than 40 to 70 GRT, Zone C3, beyond 30 nm is for deep-sea fishing vessels from 70 GRT to above operation. Detailed map appears in **Annex 20** and **Annex 21**.

29. Thailand's major fisheries law with several measures or regulations related to major law of Fisheries Decree, B.E. 2558 (2015). For specific measures related to Fisheries Decree 2015 in southern part of Thailand is DOF Regulation, issued on 23 March 2018, for protection of spawning season and area from 1 April – 30 June every year in Phuket, Phang-gna, Krabi and Trang Province and Ministerial Regulation, issued on 19 February 2016, to limit fishing capacity of fishing gears control in all coastal area 3-5 NM. Detailed map appears in **Annex 18** and **Annex 22**.

## **VII. NEXT STEP AND WAY FORWARD**

30. There was conclusion and ask for more detail to revise additional data prepared by secretariat of the Meeting which recommended countries to consider the final revision of preliminary maps sent by TD to provide additional information of shape-file including one maps of spawning grounds, migration route, fishing ground must be sent to TD within a week. SEAFDEC/TD will send the updated final map back to countries of GIS format using QGIS which is free software. Countries will have 4 weeks after the final maps is sent to the countries changes and adopted of the maps. Detailed conclusion and way forward and data to be revised or updated in Southern Andaman map appears in **Annex 23**.

## **VIII. CLOSING OF THE MEETING**

31. *Dr. Jacob Hagberg*, in his final statement, reminded the countries for the need of data to TD, and requested everyone to continue improving the data to produce a final map. He thanked everyone for the cooperation and likewise acknowledged the great work of TD, he then declared the Meeting closed.

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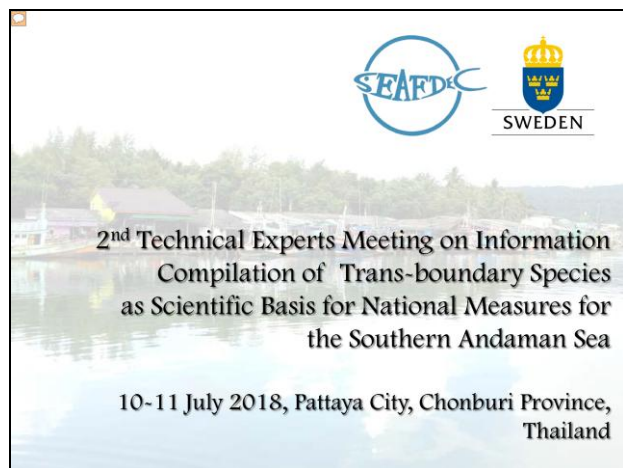
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## BACKGROUND AND OBJECTIVES OF THE MEETING

By Dr. Bamroongsak Chatananthawej



SEAFDEC SWEDEN 2<sup>nd</sup> Technical Experts Meeting on Information Compilation of Trans-boundary Species as Scientific Basis for National Measures for the Southern Andaman Sea 10-11 July 2018, Chonburi Province, Thailand

### Background:

- SEAFDEC-Sweden Project organized the **first meeting of the Technical Experts Meeting on Management of Trans-boundary Species for Southern Andaman Sea** on 4-5 April 2018 in Bangkok.
- Indonesia, Malaysia and Thailand here agreed to develop digital maps of biological features such as spawning and nursery areas as well as present fisheries regulations, fishing grounds and protected areas for Anchovies, Mackerels and Neritic Tunas.
- Countries were asked to send relevant and available data and information to SEAFDEC for maplayers development.
- SEAFDEC/Training Department (TD) have supported the countries by producing a first set of draft maps based on the data provided by the countries.
- The resulting maps can serve as inputs to future coordination of national and international fisheries.

SEAFDEC SWEDEN 2<sup>nd</sup> Technical Experts Meeting on Information Compilation of Trans-boundary Species as Scientific Basis for National Measures for the Southern Andaman Sea 10-11 July 2018, Chonburi Province, Thailand

### Objectives of the Meeting

- To discuss, update and revise the digital maps developed by SEAFDEC/TD
- To agree on the final format of the maps
- To identify possible national measures to secure a sustainable stock status of transboundary fish stocks in the Southern Andaman Sea

SEAFDEC SWEDEN 2<sup>nd</sup> Technical Experts Meeting on Information Compilation of Trans-boundary Species as Scientific Basis for National Measures for the Southern Andaman Sea 10-11 July 2018, Chonburi Province, Thailand

### Outline and Mission in **this** Meeting

- **Discussion and Revision of Draft Maps on the Target Transboundary Species for the Southern Andaman Sea.** *The meeting will discuss, update and revise the maps made by SEAFDEC/TD on Anchovies, Mackerels and Neritic Tunas.*
- **Discussion on the Availability of Additional Data.** *Draft a workplan to develop joint maps of these data in the Southern Andaman Sea.. Countries to discuss if there are any additional data for Anchovies, Mackerels and Neritic tunas that should be added to the maps before finalization of the maps.*
- **Identify Possible National Measures to Secure a Sustainable Stock Status of Anchovies, Mackerels and Neritic Tunas in the Southern Andaman Sea.** *Country by country and Plenary discussion on Anchovies, Mackerels and Neritic Tunas. Based on the draft maps the countries will discuss and identify possible national measures to secure a sustainable stock status of transboundary fish stocks.*

SEAFDEC SWEDEN 2<sup>nd</sup> Technical Experts Meeting on Information Compilation of Trans-boundary Species as Scientific Basis for National Measures for the Southern Andaman Sea 10-11 July 2018, Chonburi Province, Thailand

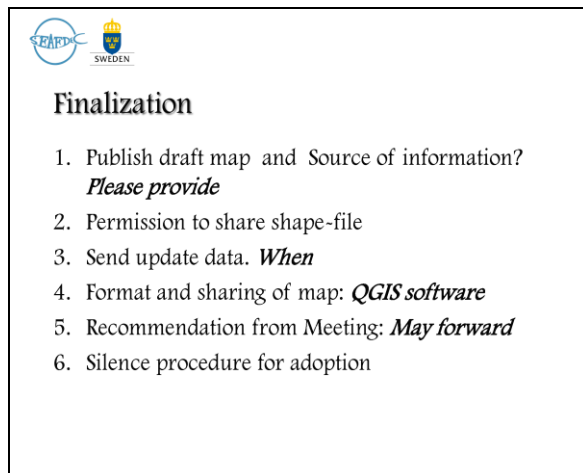
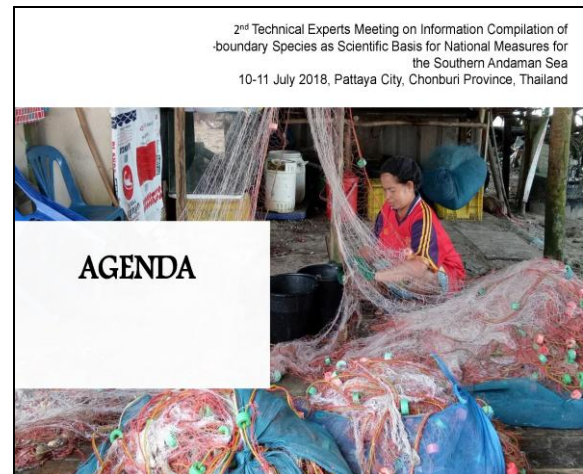
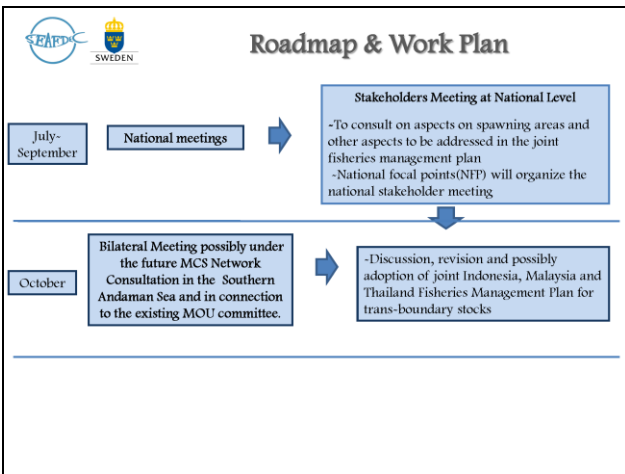
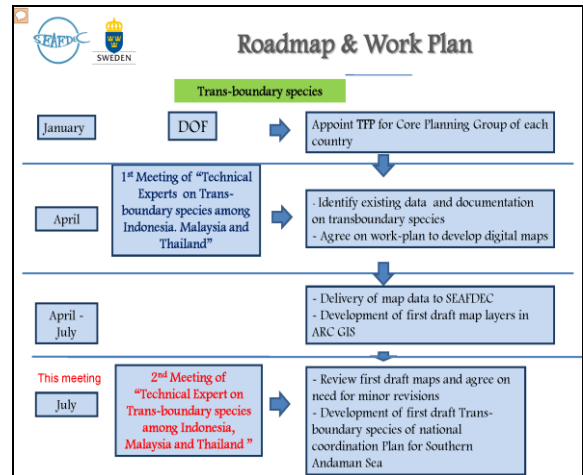
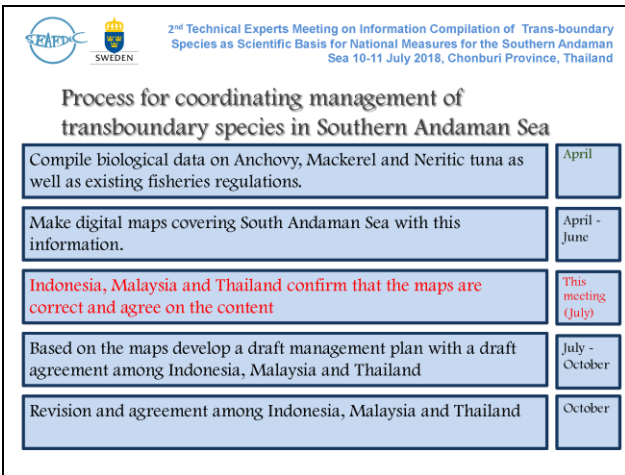
### Expected Outputs

- Updated and agreed maps of features related to Anchovies, Mackerels and Neritic tunas
- An initial set of national measures to secure sustainable stock status that can form the basis for the development of sub-regional agreements in the Southern Andaman Sea among Indonesia, Malaysia and Thailand.

SEAFDEC SWEDEN 2<sup>nd</sup> Technical Experts Meeting on Information Compilation of Trans-boundary Species as Scientific Basis for National Measures for the Southern Andaman Sea 10-11 July 2018, Chonburi Province, Thailand

### Expected Outcome

- Southern Andaman Sea Sub-region, Indonesia, Malaysia and Thailand, will have an agreed scientific knowledge of the present situation on which to base future collaboration on transboundary stocks in the sub-region. A set of national measures that can secure a sustainable fishery and stock status have been identified that can be used as a basis for future sub-regional agreements.

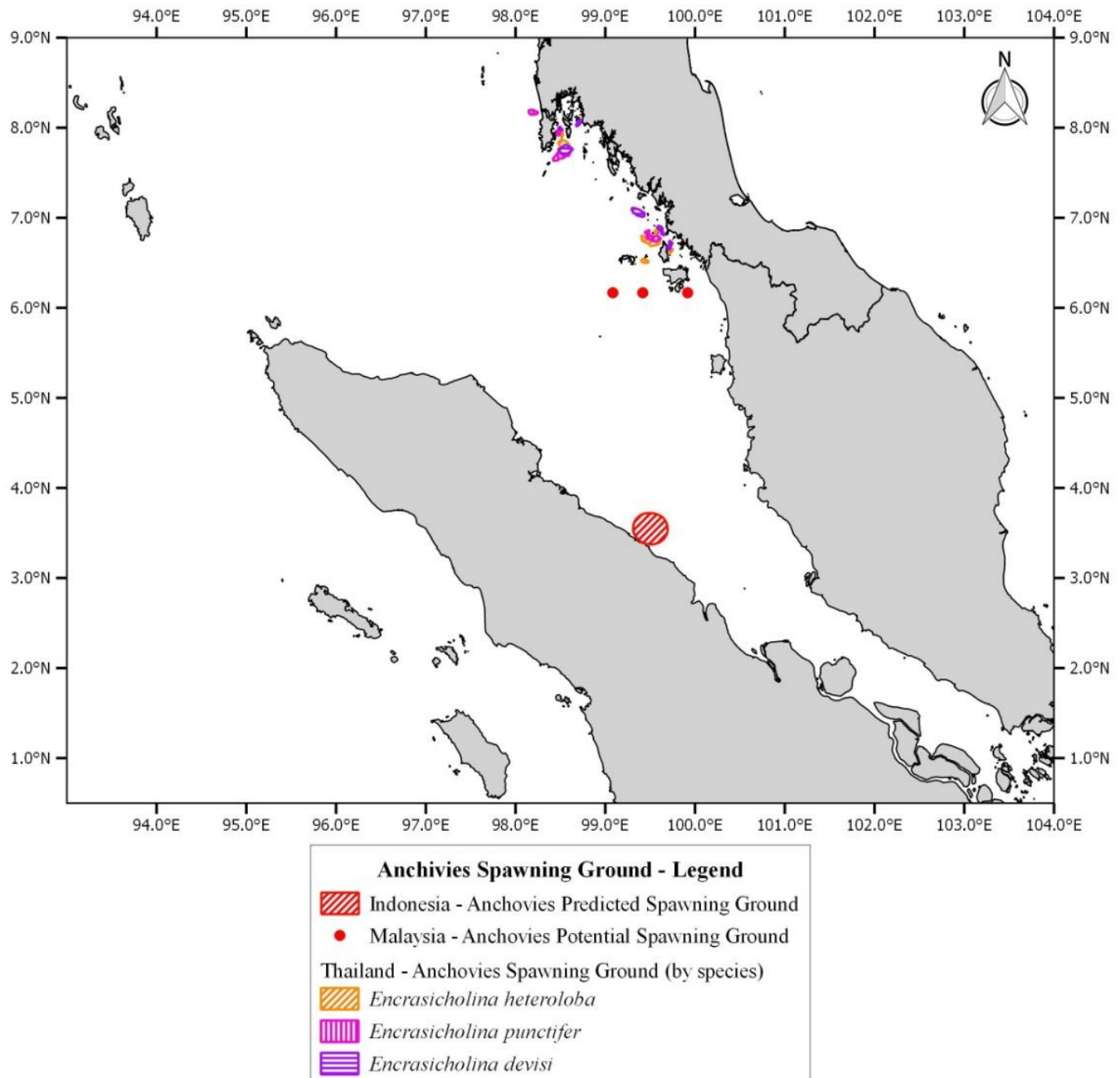


**DISCUSSION AND REVISION OF DRAFT MAPS ON THE TARGET TRANSBOUNDARY SPECIES FOR SOUTHERN ANDAMAN SEA**

**Southern Andaman Sea sub-region: Anchovies Spawning Grounds**

(Updated 21 January 2019)

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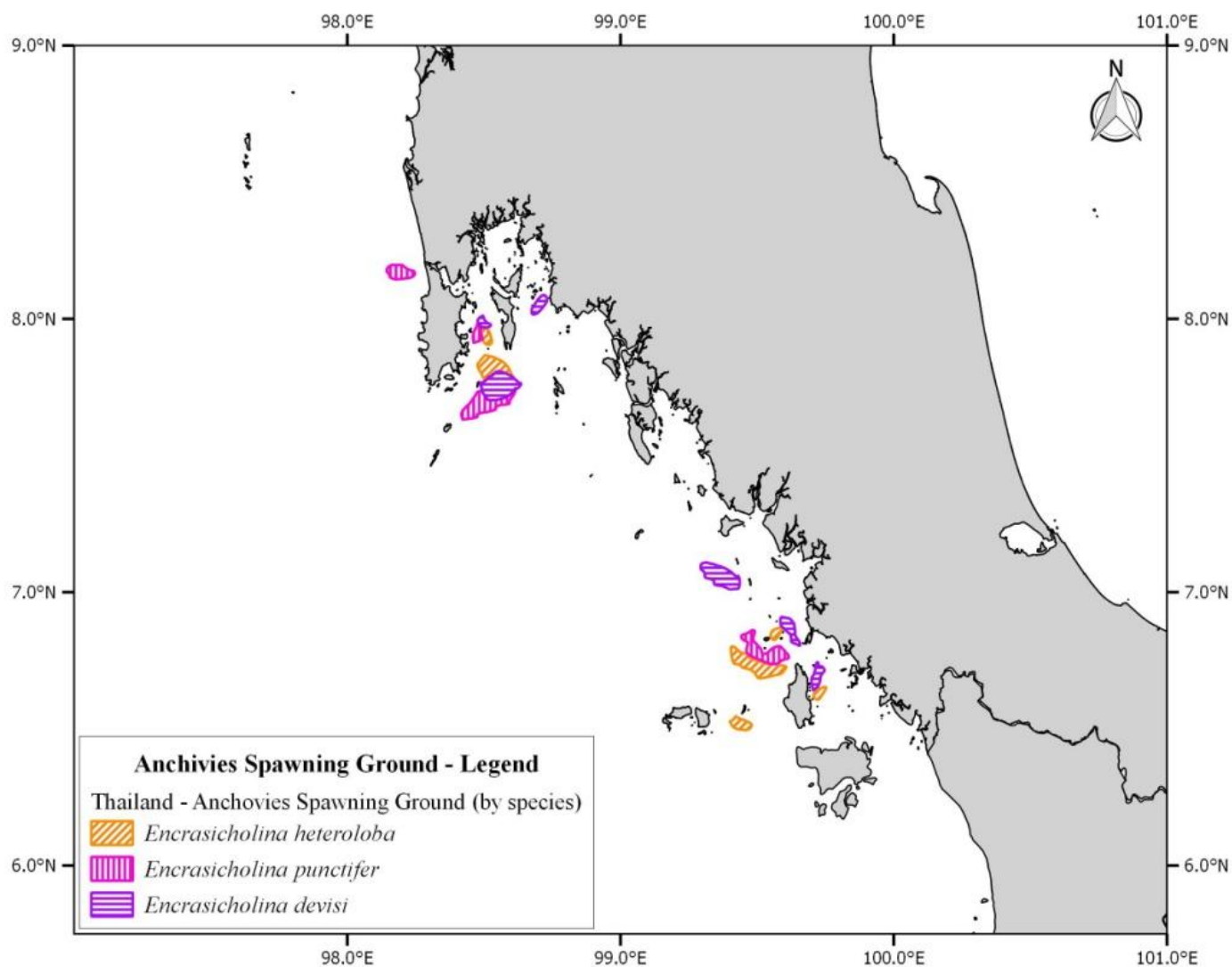




**DISCUSSION AND REVISION OF DRAFT MAPS ON THE TARGET TRANSBOUNDARY SPECIES FOR SOUTHERN ANDAMAN SEA**

**Southern Andaman Sea sub-region (TH): Anchovies Spawning Grounds**

(Updated 21 January 2019)



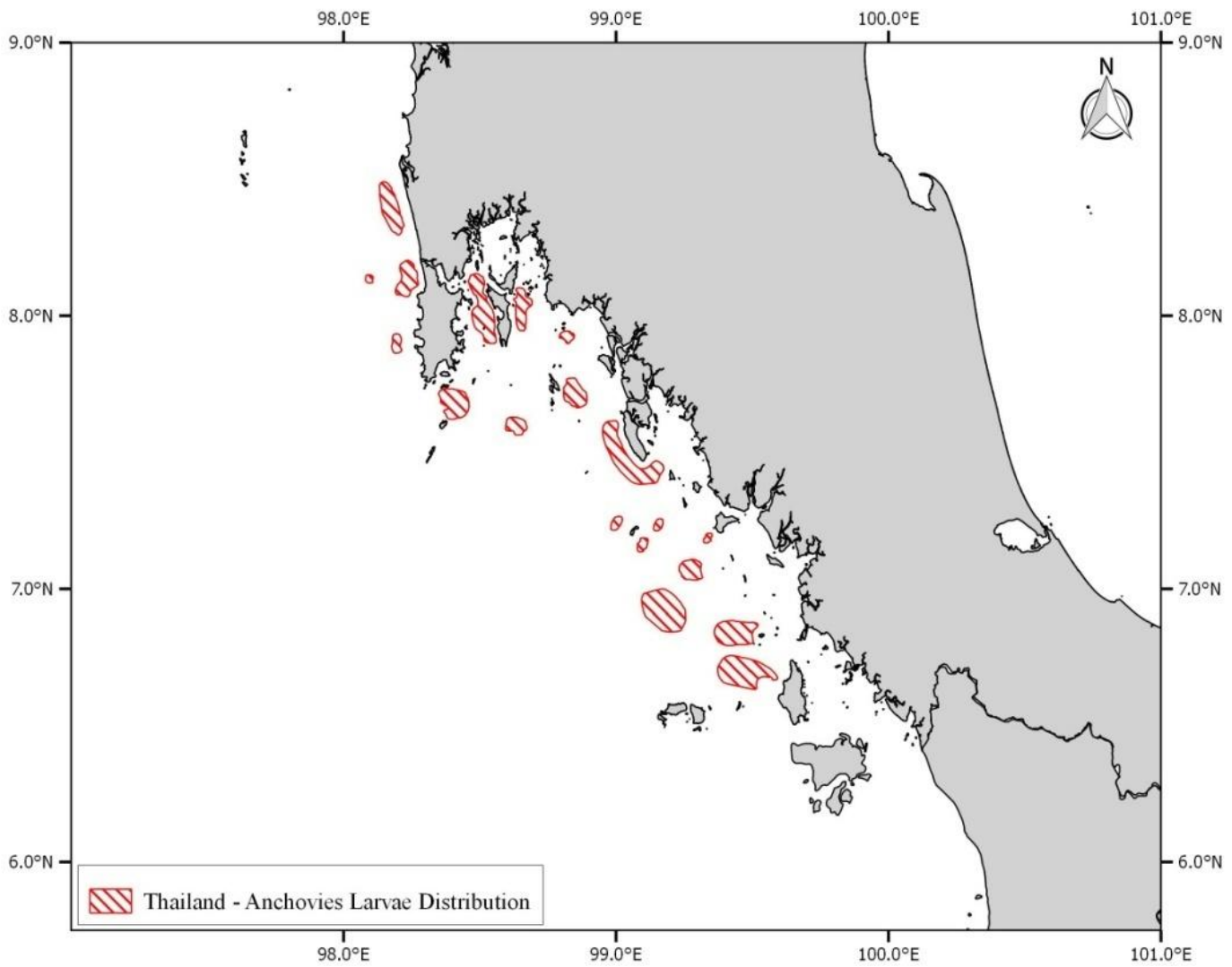




**DISCUSSION AND REVISION OF DRAFT MAPS ON THE TARGET TRANSBOUNDARY SPECIES FOR SOUTHERN ANDAMAN SEA**

**Southern Andaman Sea sub-region (TH): Anchovies Larvae Distribution**

(Updated 21 January 2019)





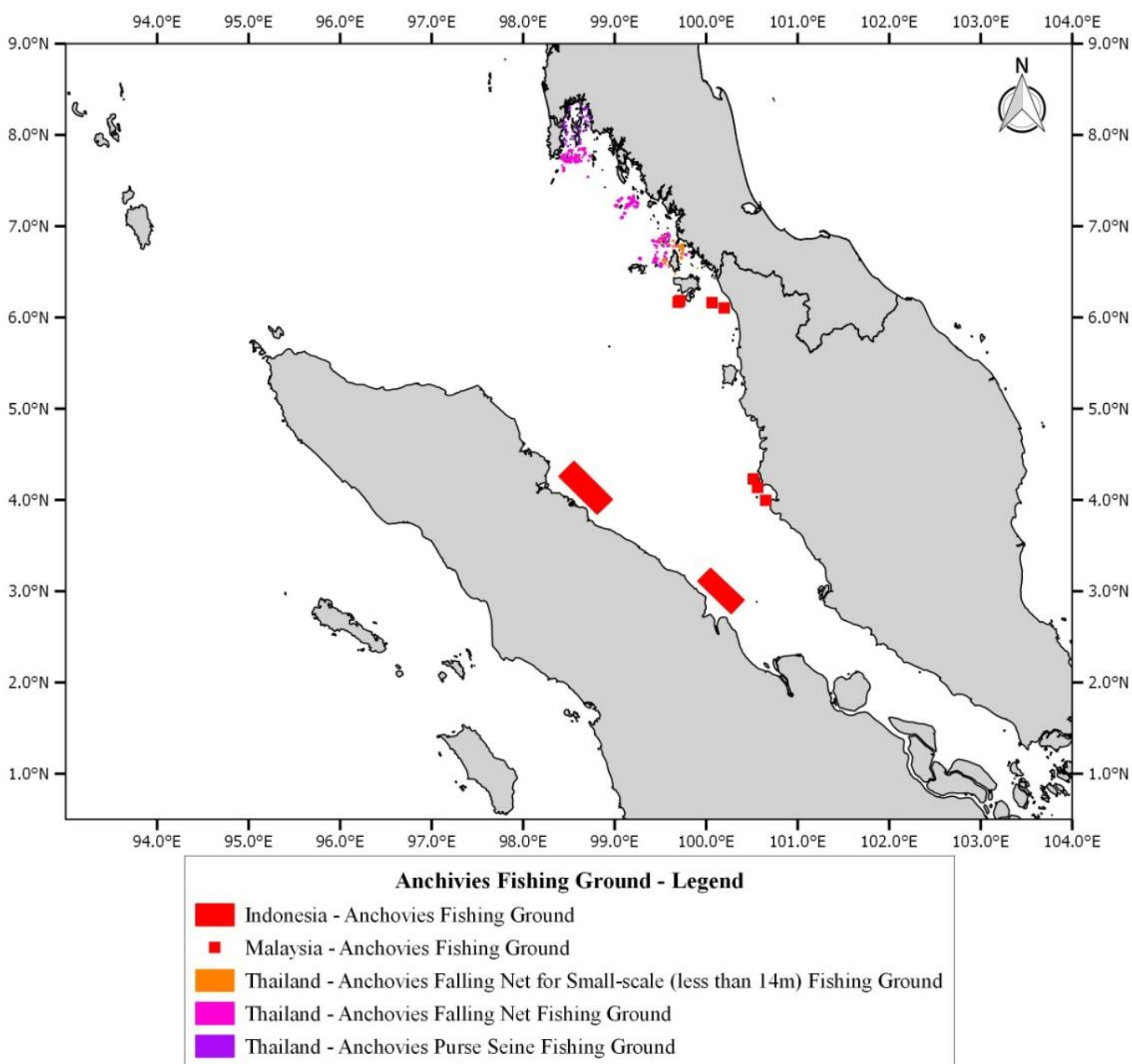




**DISCUSSION AND REVISION OF DRAFT MAPS ON THE TARGET TRANSBOUNDARY SPECIES FOR SOUTHERN ANDAMAN SEA**

**Southern Andaman Sea sub-region: Anchovies Fishing Grounds**

(Updated 21 January 2019)

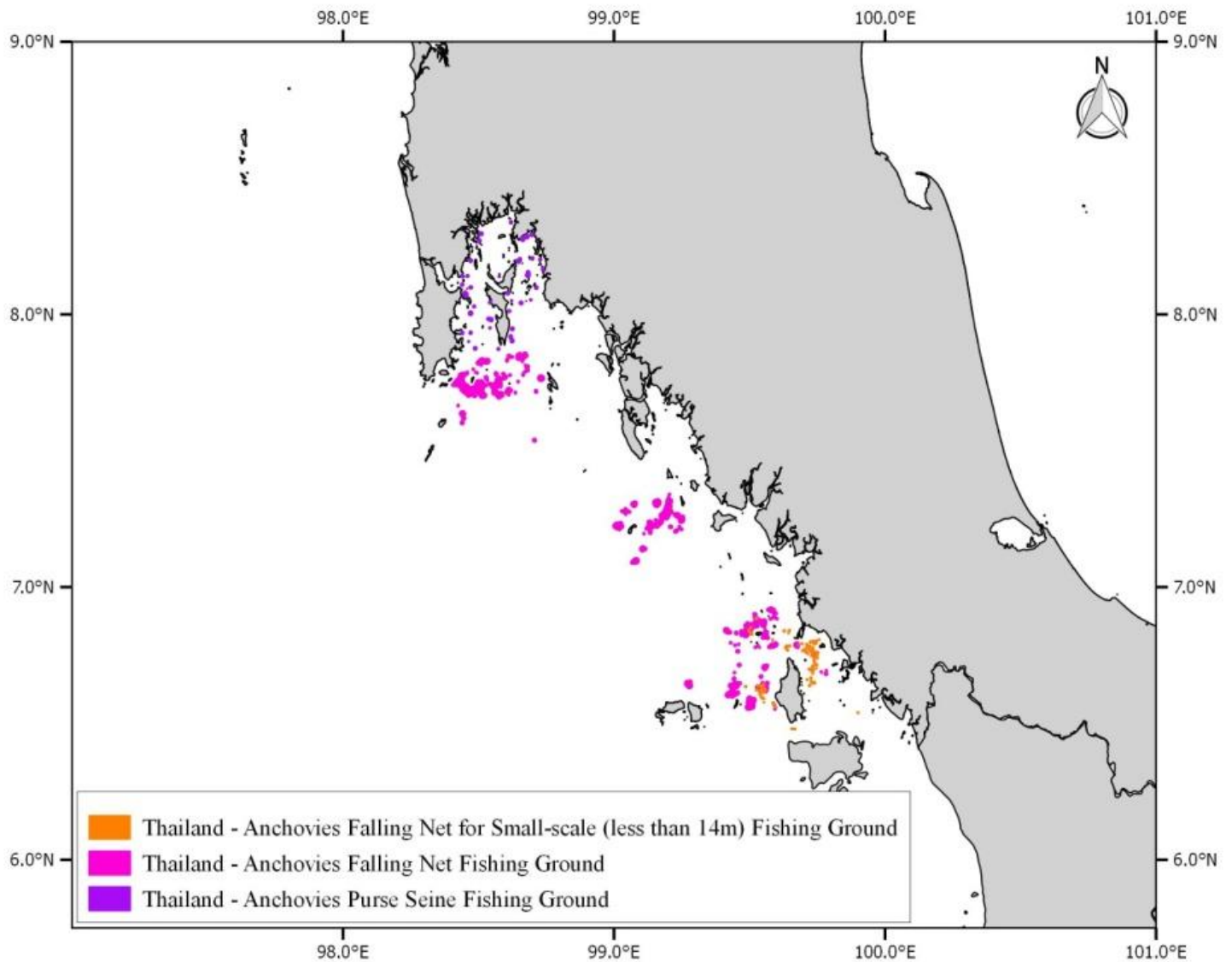




**DISCUSSION AND REVISION OF DRAFT MAPS ON THE TARGET TRANSBOUNDARY SPECIES FOR SOUTHERN ANDAMAN SEA**

**Southern Andaman Sea sub-region (TH): Anchovies Fishing Grounds**

(Updated 21 January 2019)

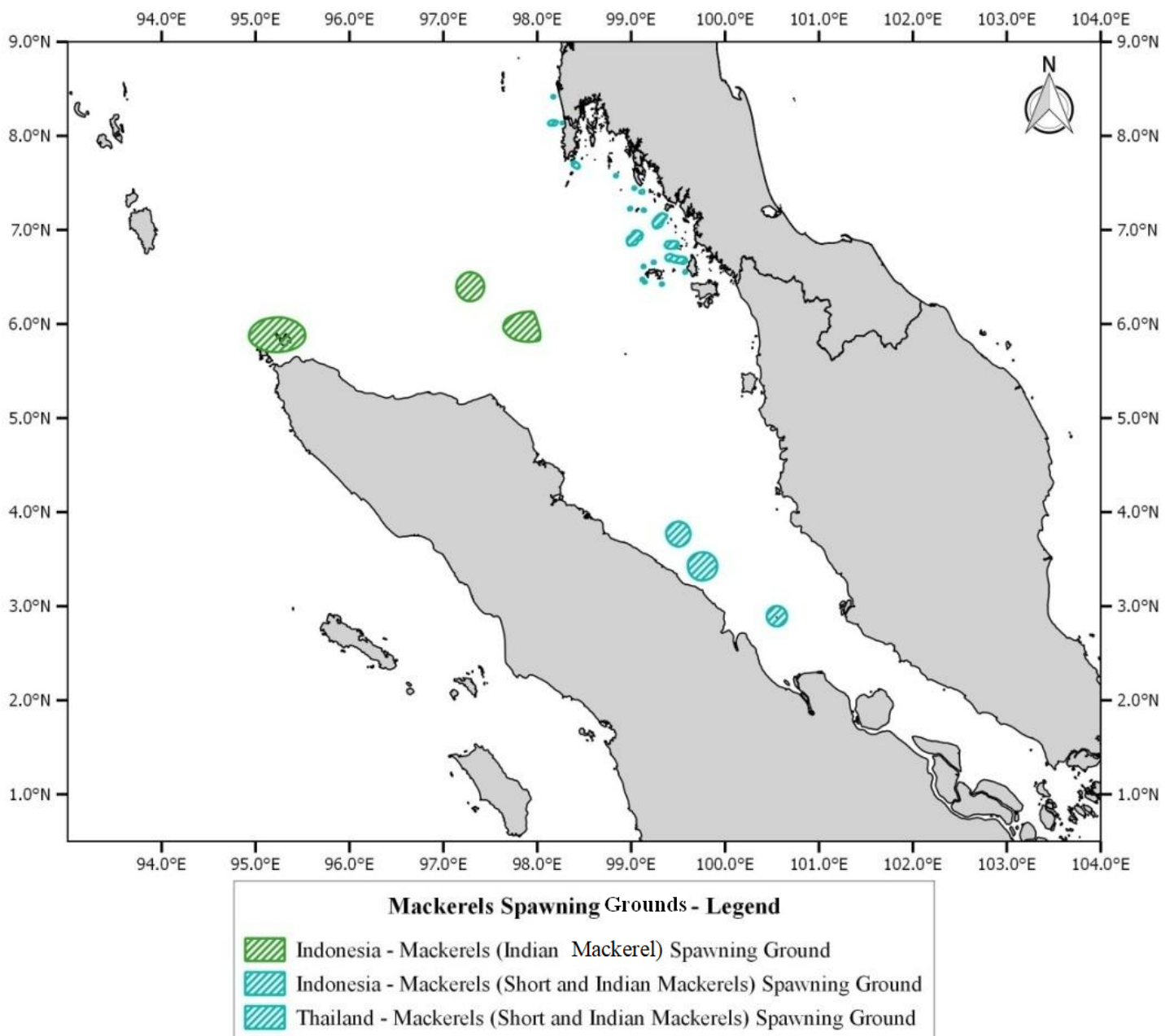




**DISCUSSION AND REVISION OF DRAFT MAPS ON THE TARGET TRANSBOUNDARY SPECIES FOR SOUTHERN ANDAMAN SEA**

**Southern Andaman Sea sub-region: Mackerels Spawning Grounds**

(Updated 21 January 2019)



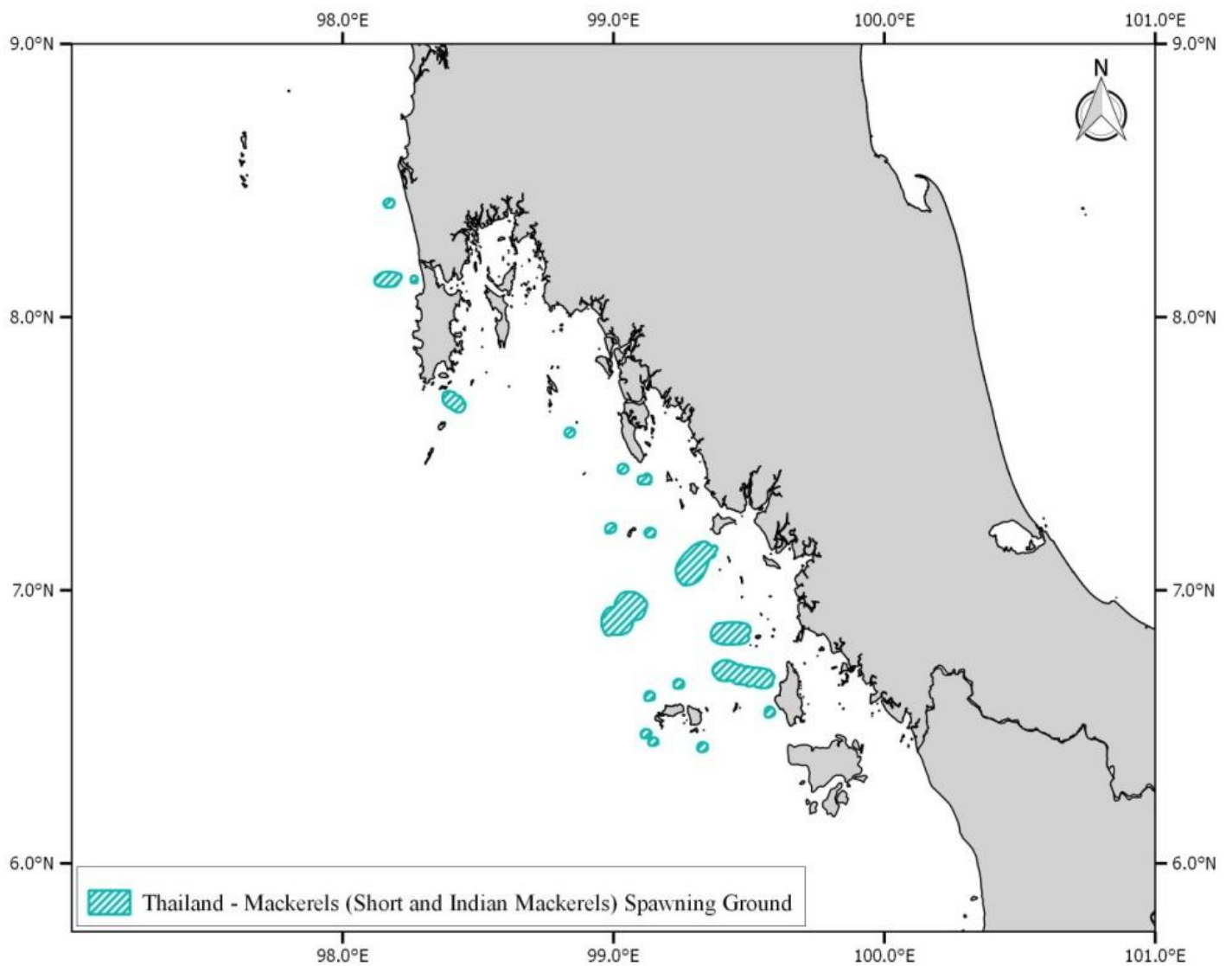




**DISCUSSION AND REVISION OF DRAFT MAPS ON THE TARGET TRANSBOUNDARY SPECIES FOR SOUTHERN ANDAMAN SEA**

**Southern Andaman Sea sub-region (TH): Mackerels Spawning Grounds**

(Updated 21 January 2019)

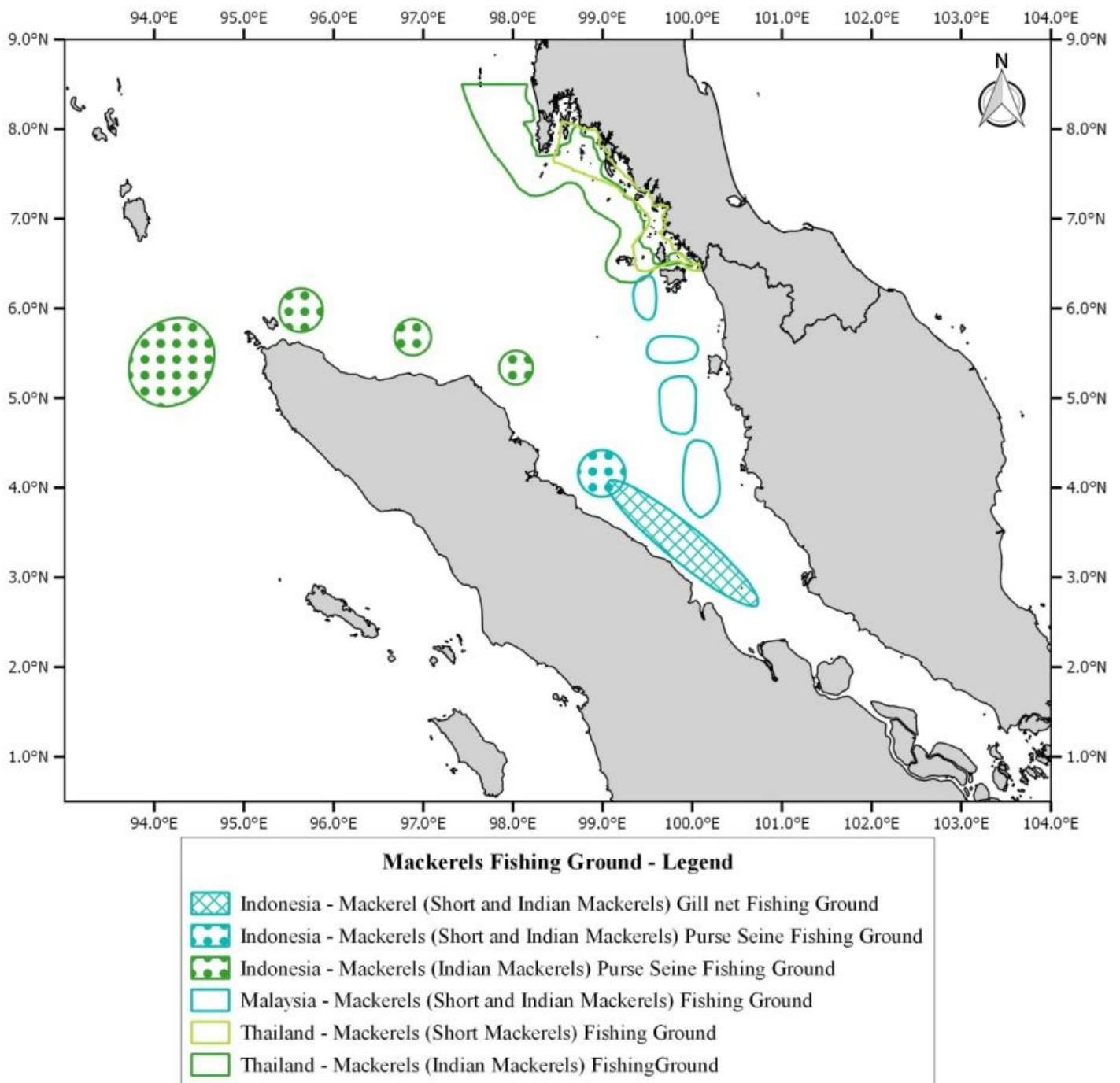




**DISCUSSION AND REVISION OF DRAFT MAPS ON THE TARGET TRANSBOUNDARY SPECIES FOR SOUTHERN ANDAMAN SEA**

**Southern Andaman Sea sub-region: Mackerels Fishing Grounds**

(Updated 21 January 2019)



Mackerel)

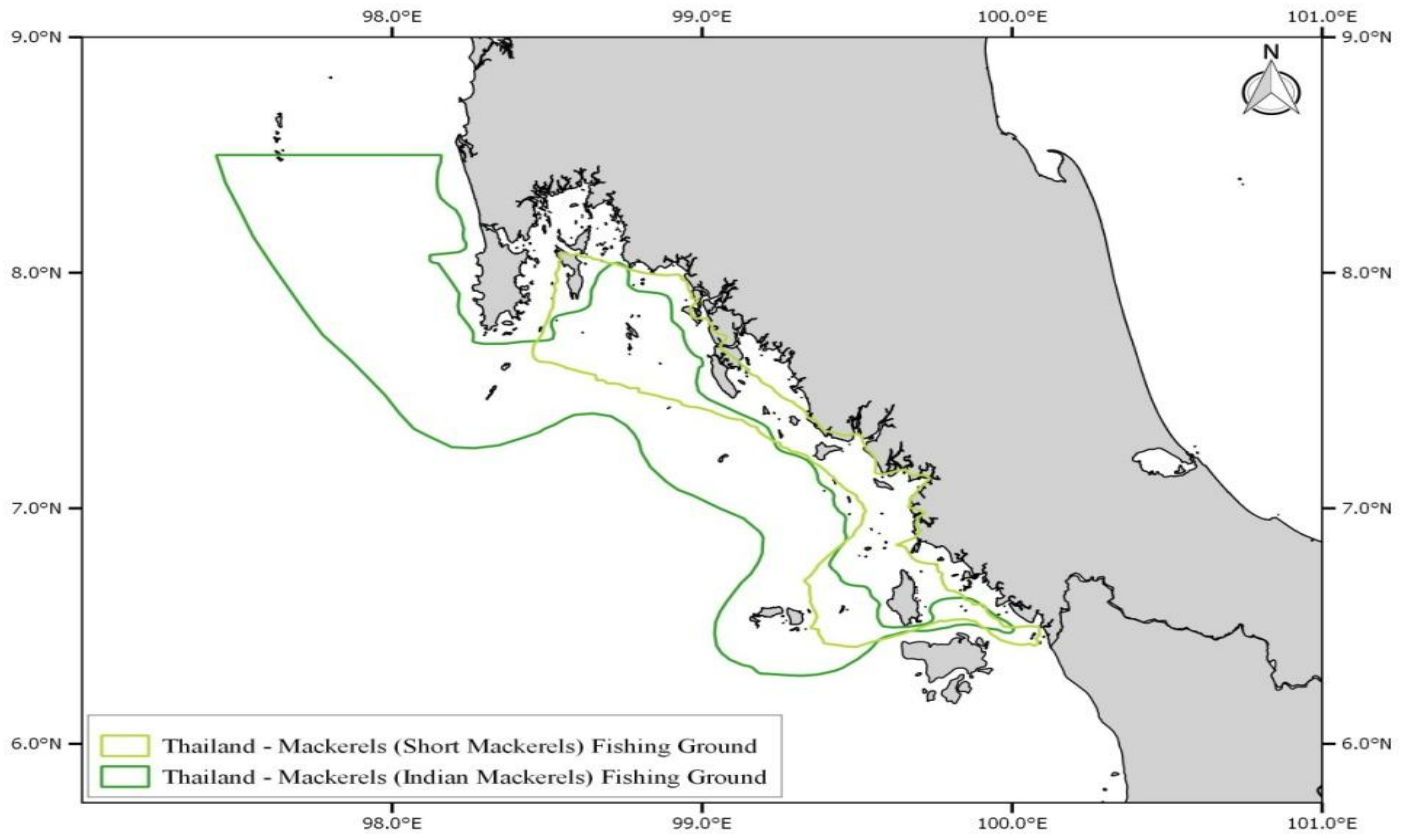
Mackerel)

Mackerel)

**DISCUSSION AND REVISION OF DRAFT MAPS ON THE TARGET TRANSBOUNDARY SPECIES FOR SOUTHERN ANDAMAN SEA**

**Southern Andaman Sea sub-region (TH): Mackerels Fishing Grounds**

(Updated 21 January 2019)

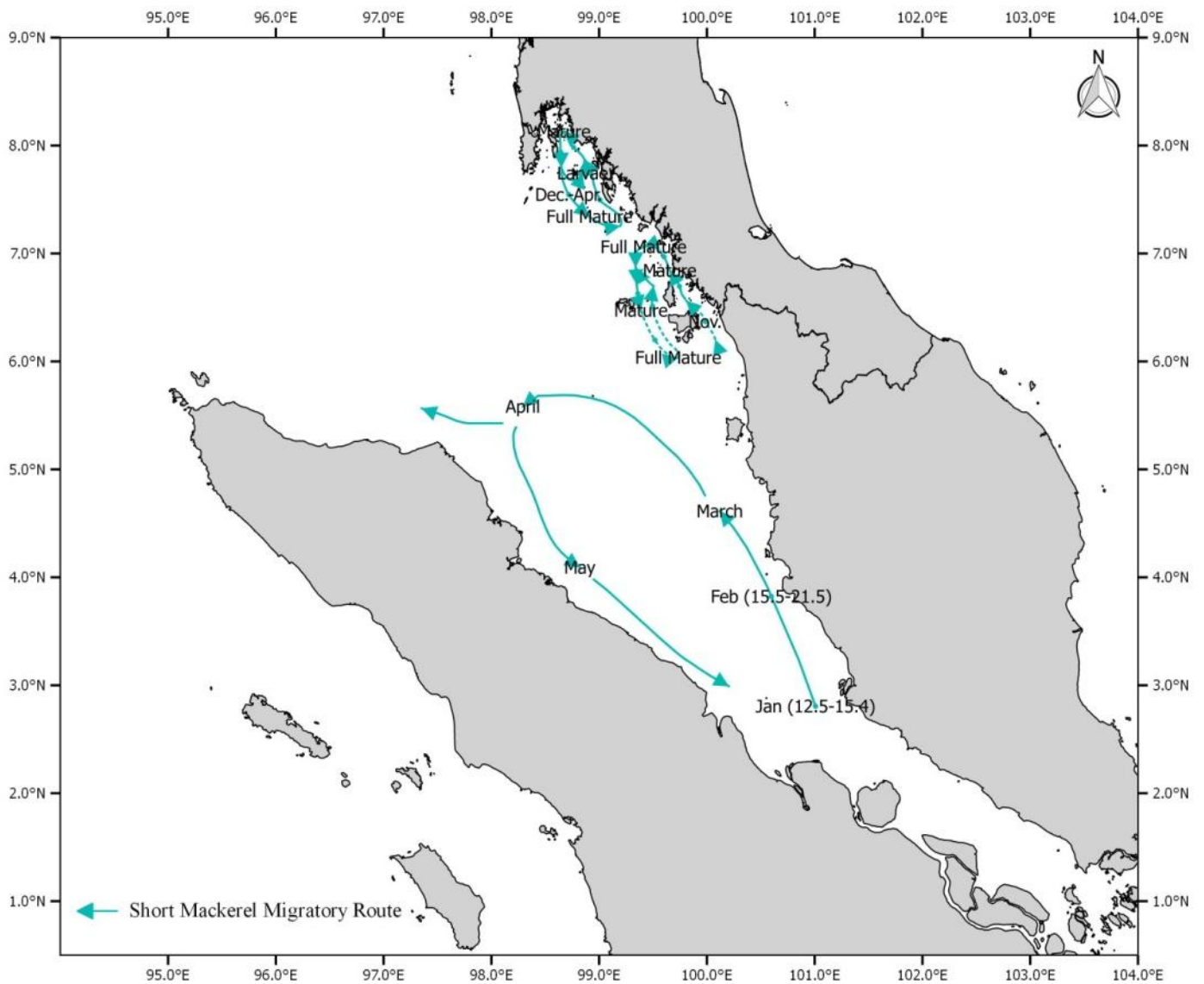




**DISCUSSION AND REVISION OF DRAFT MAPS ON THE TARGET TRANSBOUNDARY SPECIES FOR SOUTHERN ANDAMAN SEA**

**Southern Andaman Sea sub-region: Short Mackerel Migratory Route**

(Updated 21 January 2019)



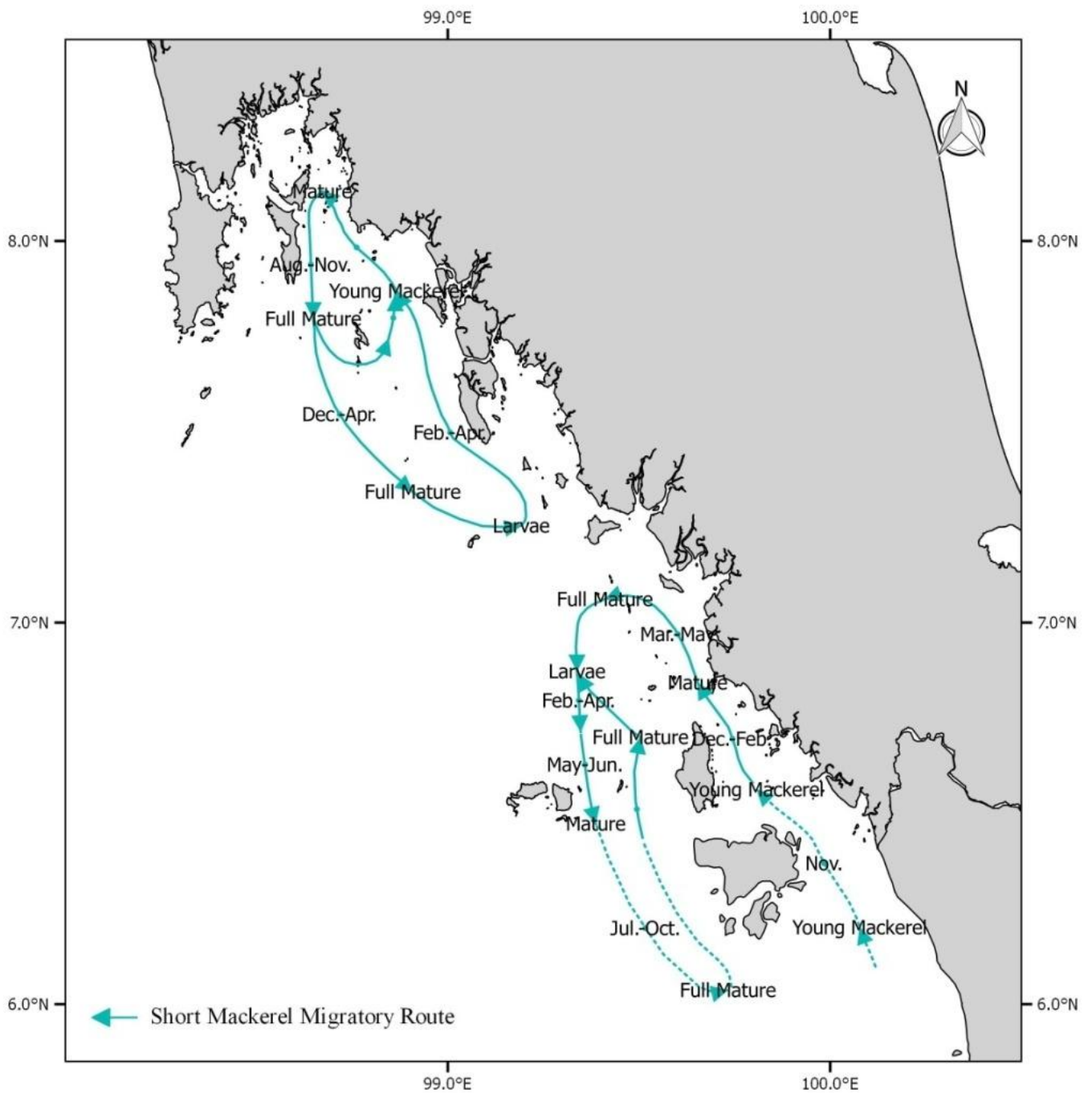




**DISCUSSION AND REVISION OF DRAFT MAPS ON THE TARGET TRANSBOUNDARY SPECIES FOR SOUTHERN ANDAMAN SEA**

**Southern Andaman Sea sub-region (MY-TH): Short Mackerel Migratory Route**

(Updated 21 January 2019)

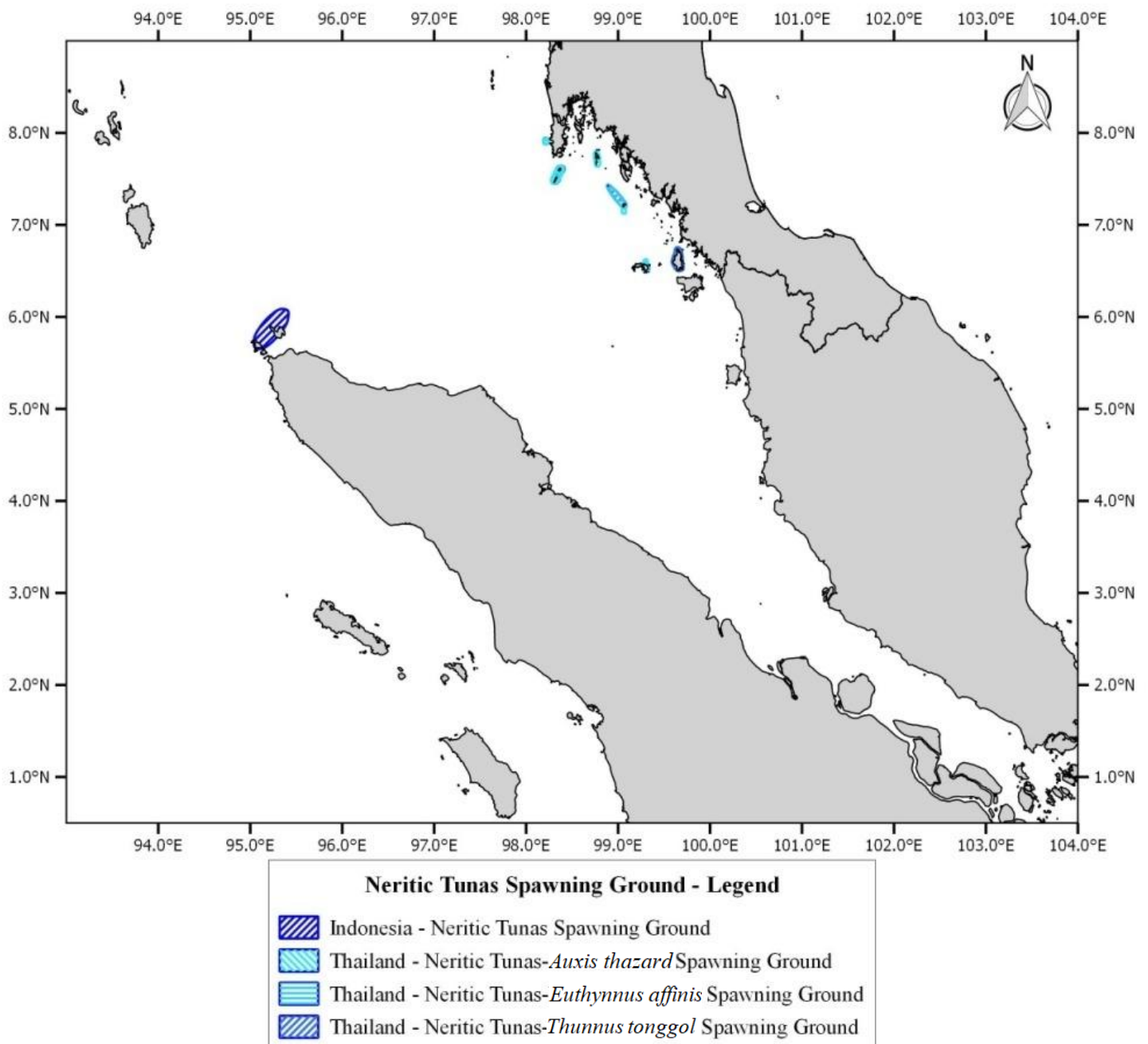




**DISCUSSION AND REVISION OF DRAFT MAPS ON THE TARGET TRANSBOUNDARY SPECIES FOR SOUTHERN ANDAMAN SEA**

**Southern Andaman Sea sub-region: Neritic Tunas Spawning Grounds**

(Updated 21 January 2019)

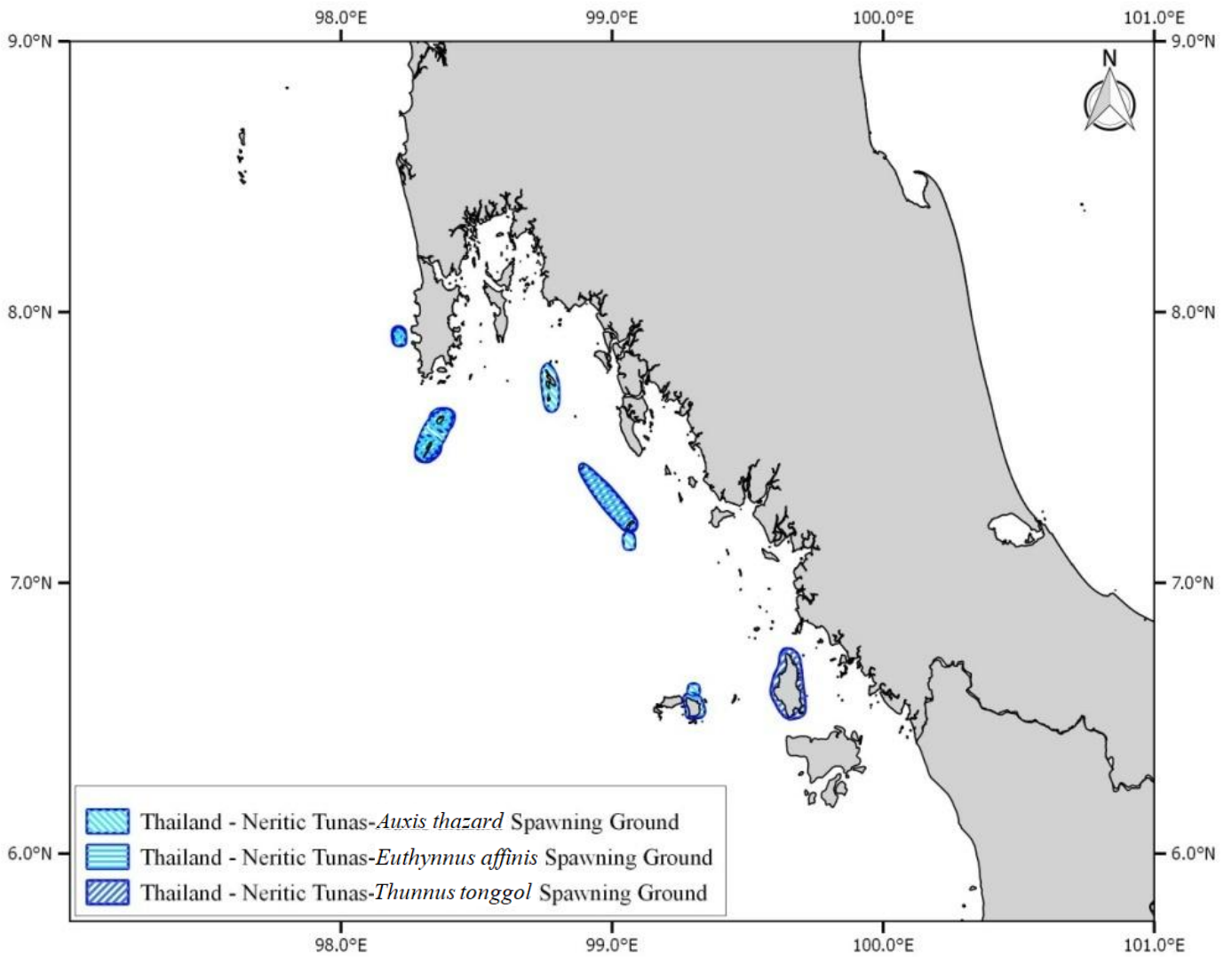




**DISCUSSION AND REVISION OF DRAFT MAPS ON THE TARGET TRANSBOUNDARY SPECIES FOR SOUTHERN ANDAMAN SEA**

**Southern Andaman Sea sub-region (TH): Neritic Tunas Spawning Grounds**

(Updated 21 January 2019)

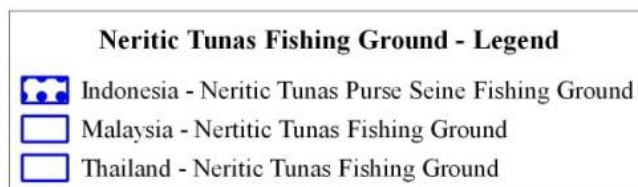
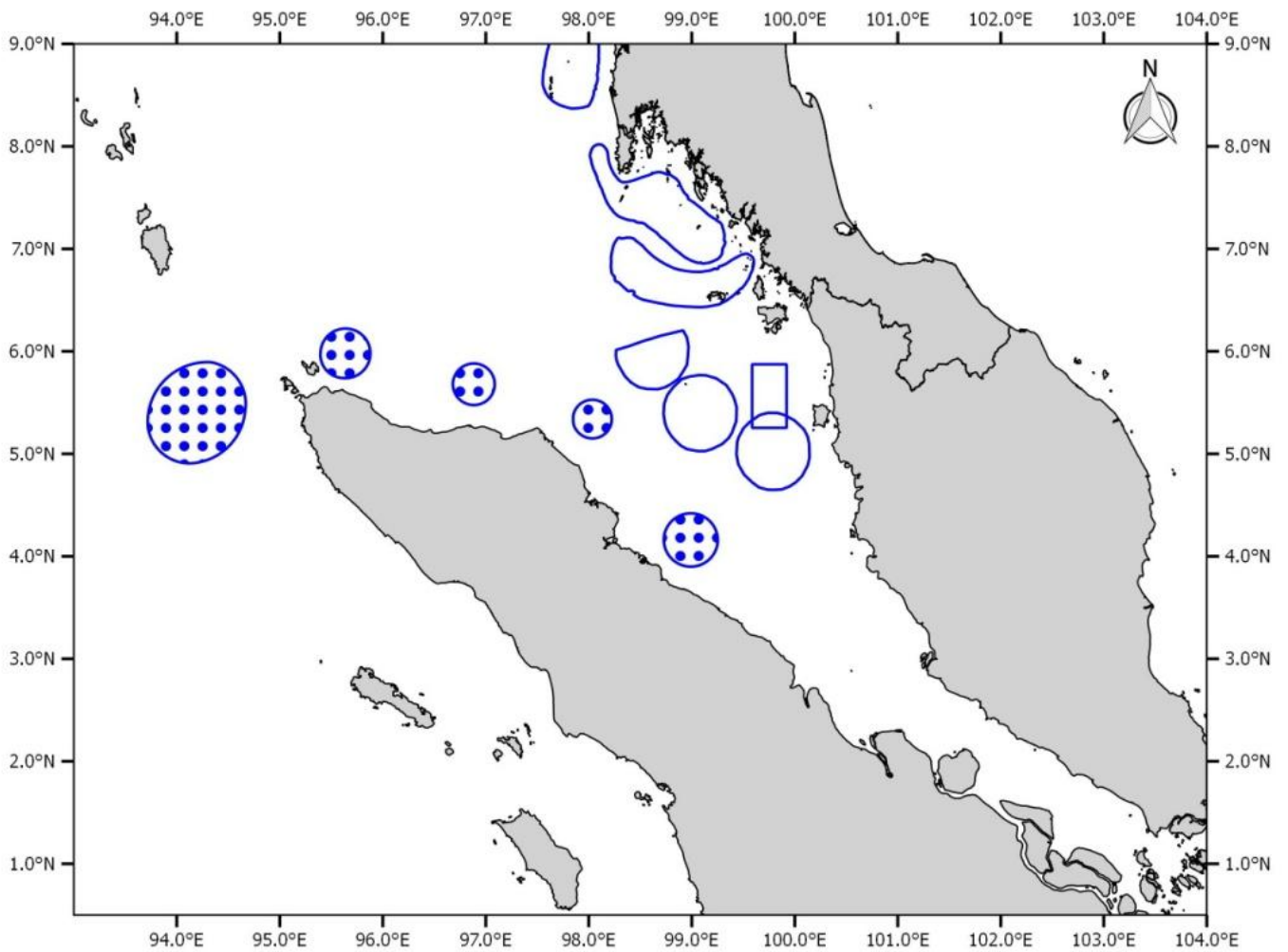




**DISCUSSION AND REVISION OF DRAFT MAPS ON THE TARGET TRANSBOUNDARY SPECIES FOR SOUTHERN ANDAMAN SEA**

**Southern Andaman Sea sub-region: Neritic Tunas Fishing Grounds**

(Updated 21 January 2019)



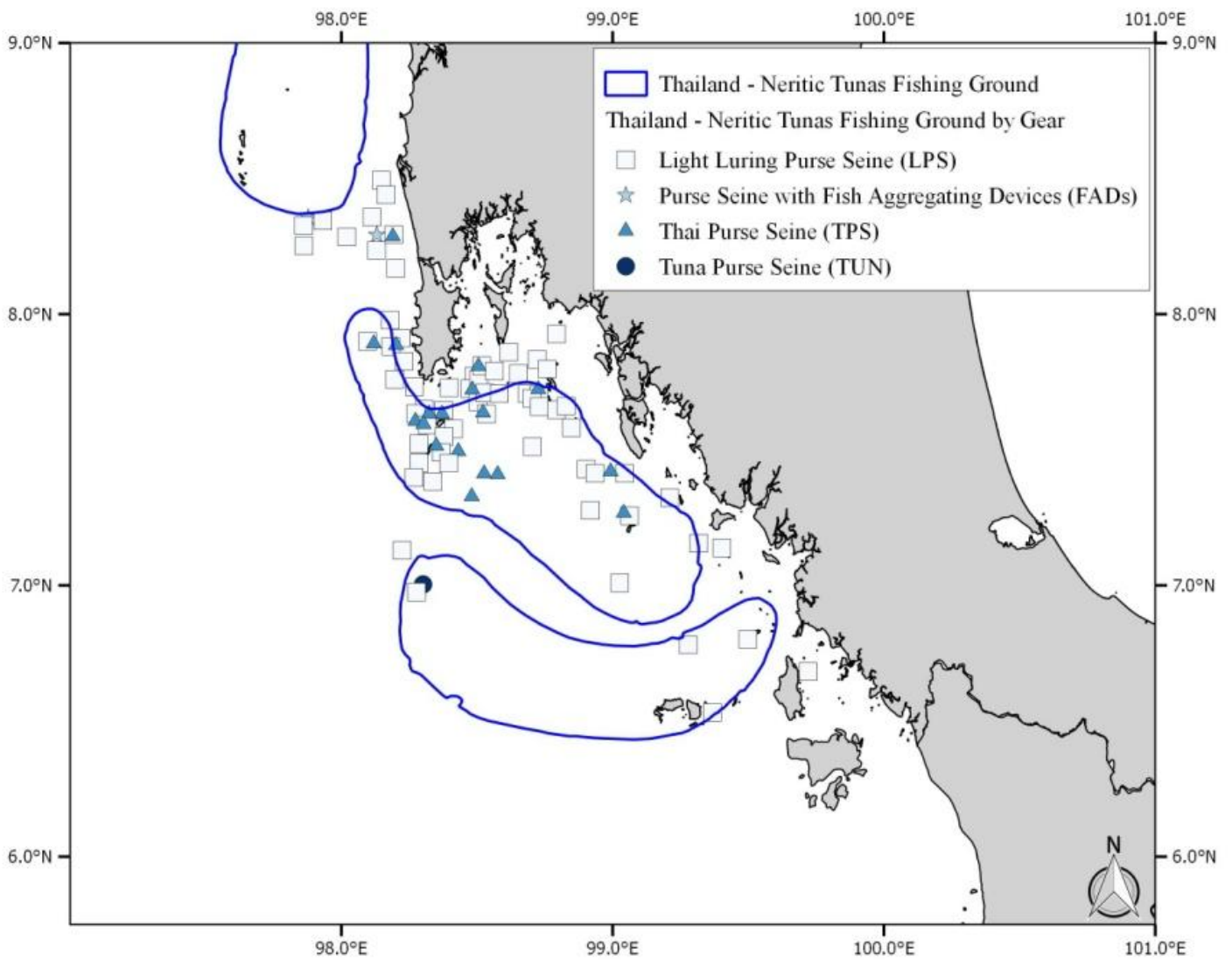




**DISCUSSION AND REVISION OF DRAFT MAPS ON THE TARGET TRANSBOUNDARY SPECIES FOR SOUTHERN ANDAMAN SEA**

**Southern Andaman Sea sub-region (TH): Neritic Tunas Fishing Grounds**

(Updated 21 January 2019)

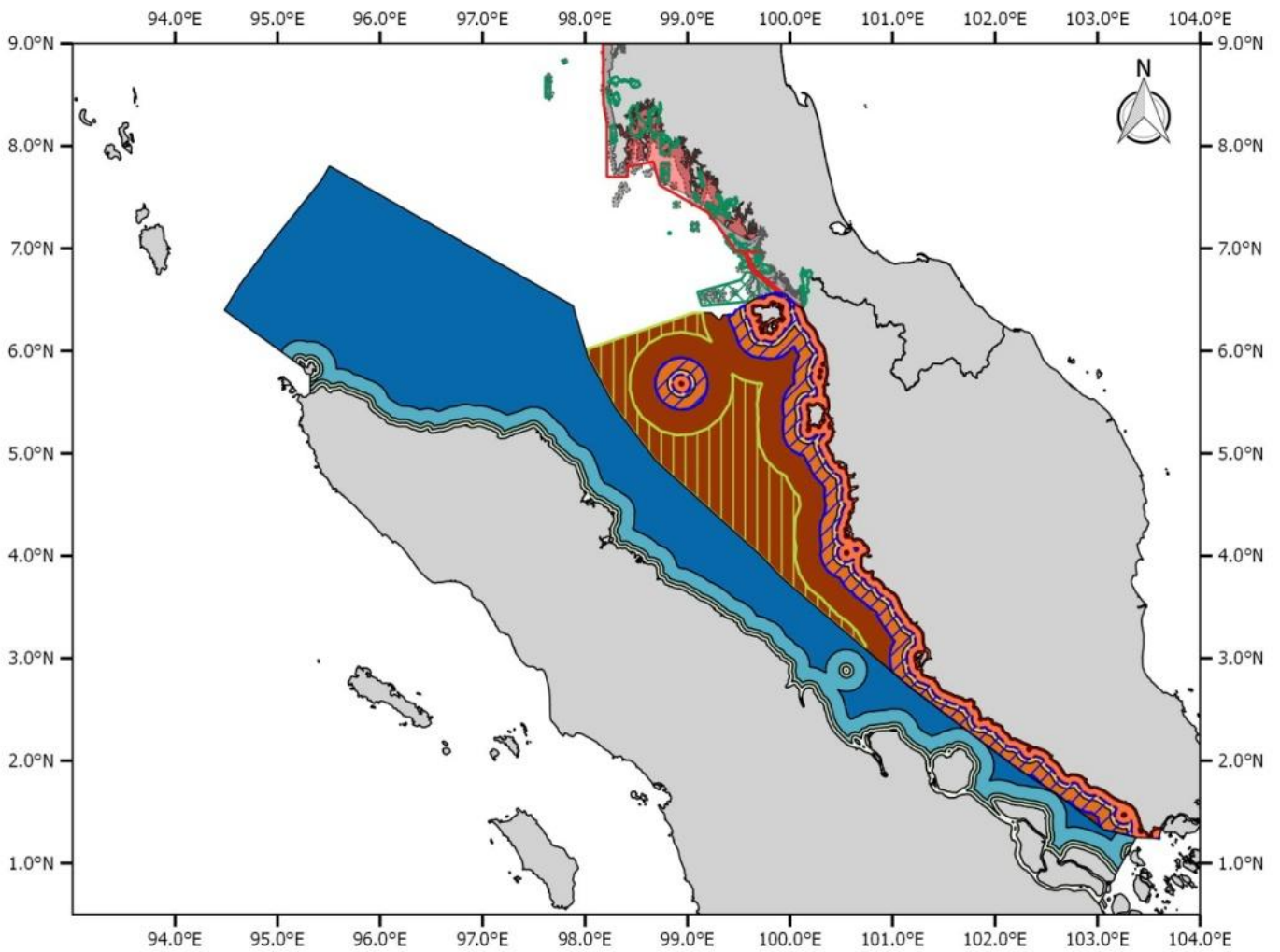




**DISCUSSION AND REVISION OF DRAFT MAPS ON THE TARGET TRANSBOUNDARY SPECIES FOR SOUTHERN ANDAMAN SEA**

**Southern Andaman Sea sub-region: National Measures**

**(Updated 21 January 2019)**

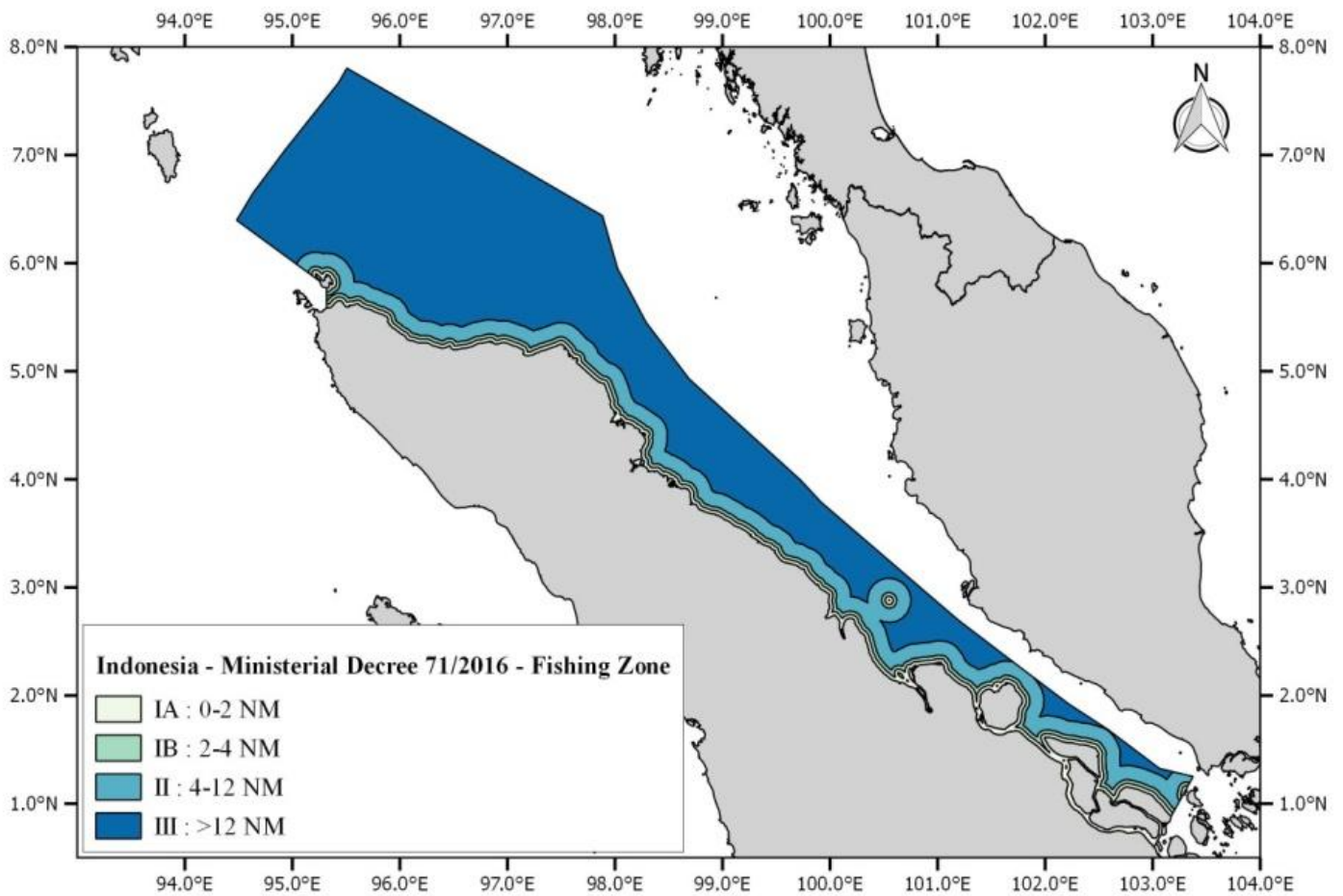




**DISCUSSION AND REVISION OF DRAFT MAPS ON THE TARGET TRANSBOUNDARY SPECIES FOR SOUTHERN ANDAMAN SEA**

**Southern Andaman Sea sub-region (ID): National Measures**

**(Updated 21 January 2019)**

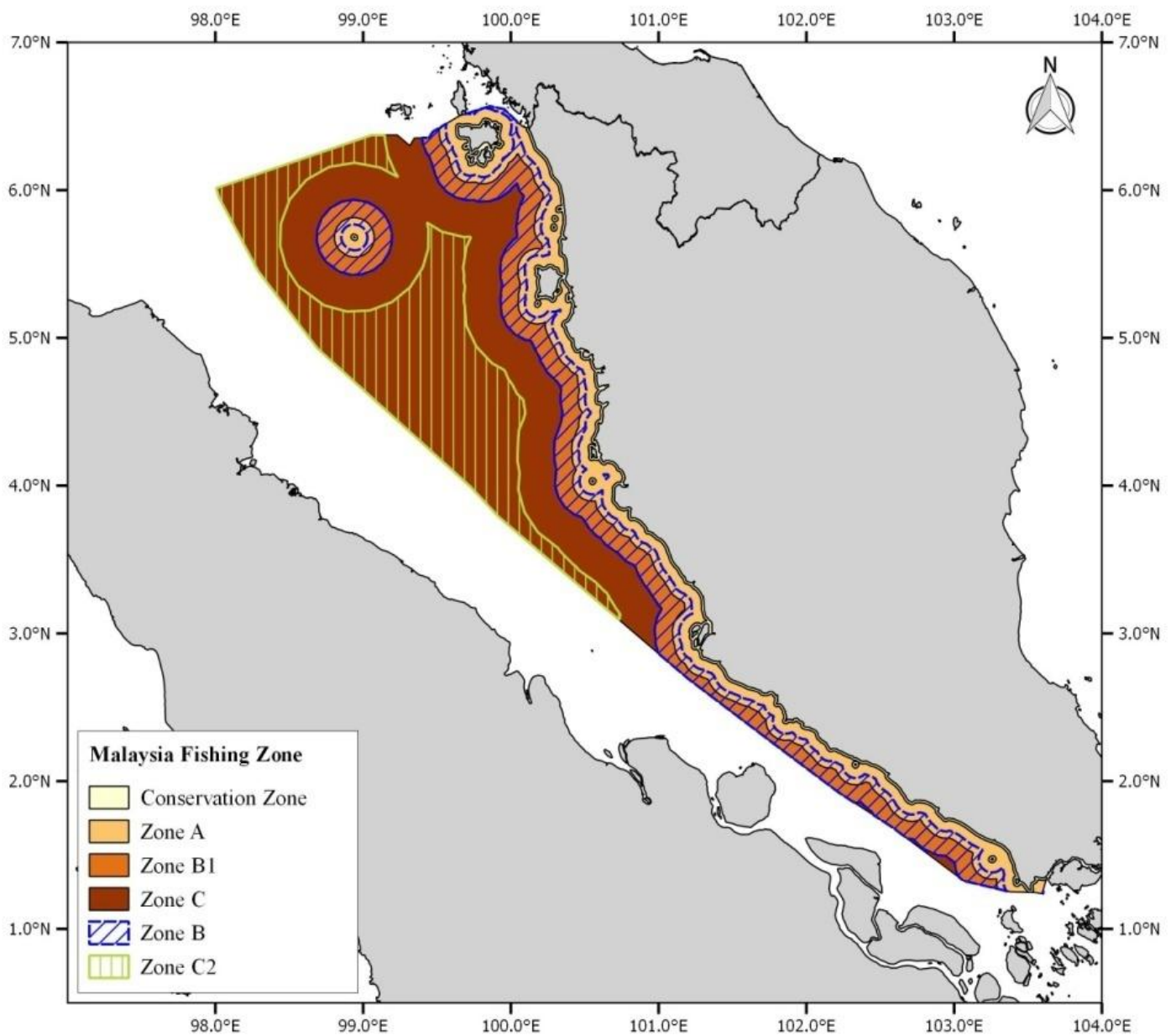




**DISCUSSION AND REVISION OF DRAFT MAPS ON THE TARGET  
TRANSBOUNDARY SPECIES FOR SOUTHERN ANDAMAN SEA**

**Southern Andaman Sea sub-region (MY): National Measures**

**(Updated 21 January 2019)**



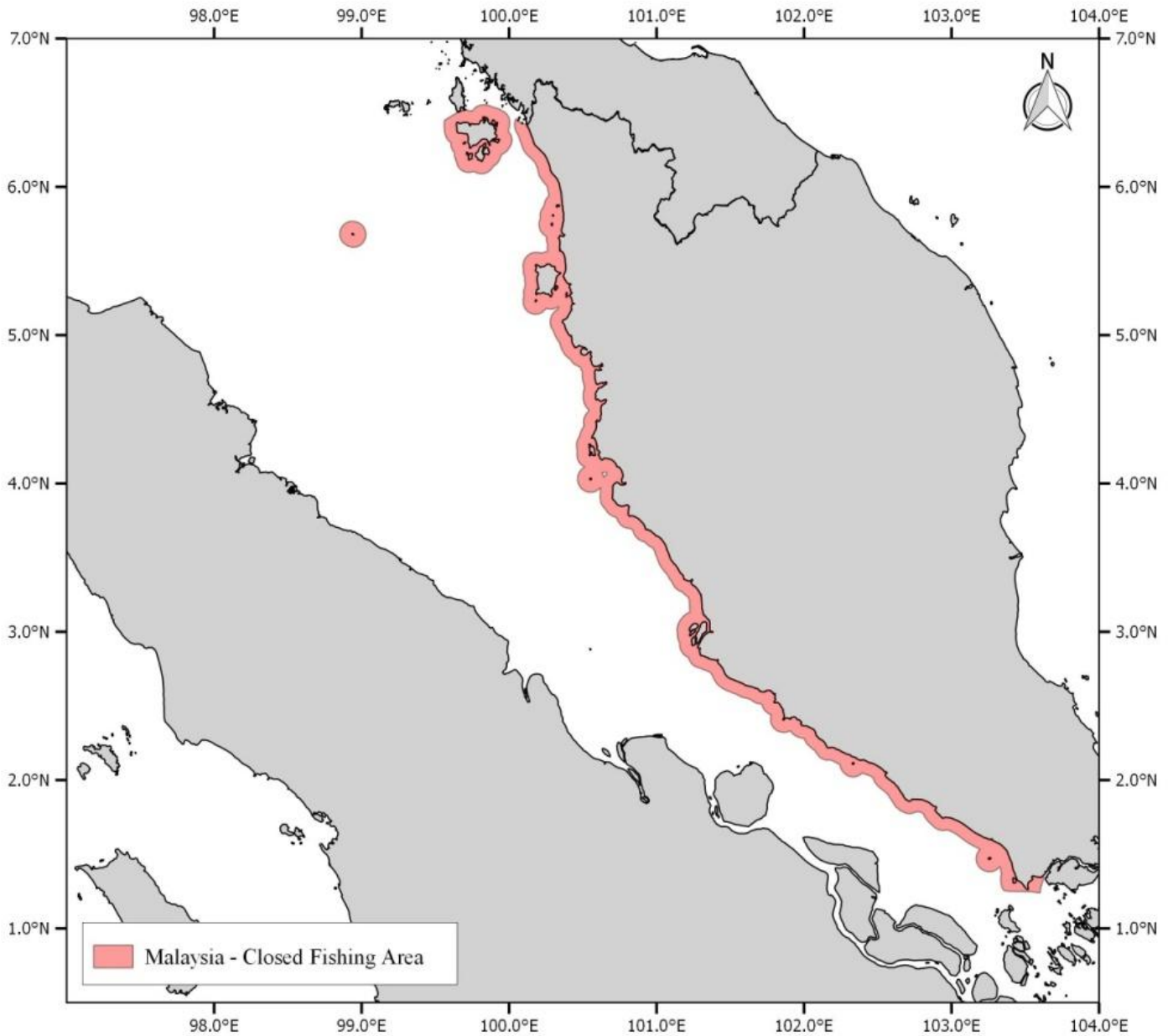




**DISCUSSION AND REVISION OF DRAFT MAPS ON THE TARGET  
TRANSBOUNDARY SPECIES FOR SOUTHERN ANDAMAN SEA**

**Southern Andaman Sea sub-region (MY): Closed Fishing Areas**

**(Updated 21 January 2019)**

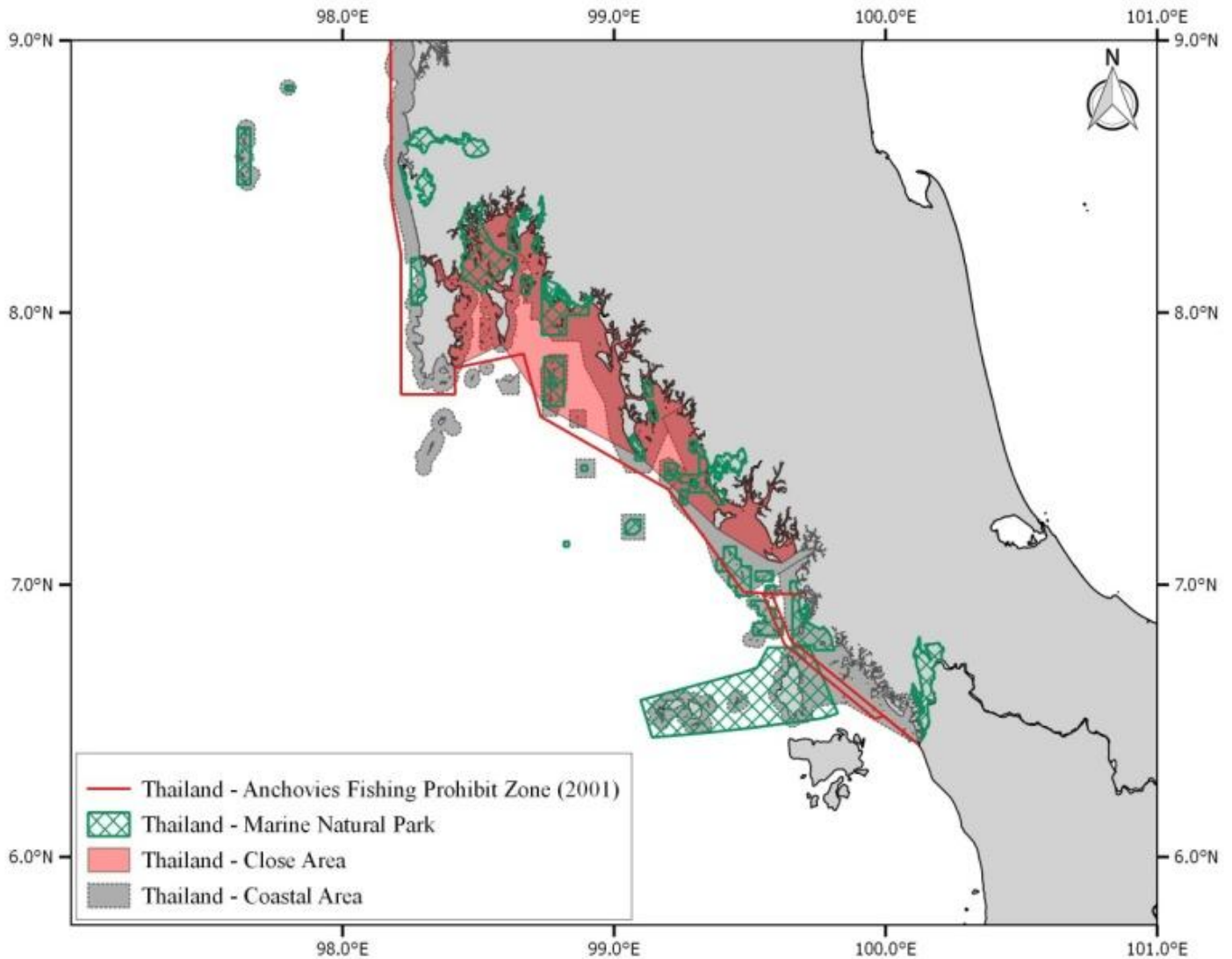




**DISCUSSION AND REVISION OF DRAFT MAPS ON THE TARGET  
TRANSBOUNDARY SPECIES FOR SOUTHERN ANDAMAN SEA**

**Southern Andaman Sea sub-region (TH): National Measures**

**(Updated 21 January 2019)**





## Conclusion and Ways Forward

### 2<sup>nd</sup> Technical Experts Meeting on Information Compilation of Transboundary Species as Scientific Basis for National Measures for Southern Andaman Sea

*10-11 July 2018, Chonburi province, Thailand*

The Meeting took note of the suggestion points from the participants on the proceeding of the Meeting:

1. Final revision of **Preliminary Maps** to be includes in the proceeding of the Meeting
2. Source of Information: The country will provide any additional information (if any) to TD and also provide information on the specific sources of Information
3. Shape file: includes one maps of spawning ground, migration route, fishing ground of both countries for each species. The Meeting agreed that the border line of each country will be excluded.
4. SEC will send the list of additional information as discussed during the Meeting to countries within week of 16-20 July 2018
5. TD will put all together maps.
6. Countries will send the update data back to TD, Deadline for provide additional data 11 August 2018
7. Final maps
  - a. The final maps will send to countries. Countries will have 4 weeks after the final map has been sent to request changes from the date the final map is sent to countries. If no comments have been received after 4 weeks the map is considered adopted and agreed by the countries.

The Way forward, concept paper of the data collection for Improvement of data and information drafted and will be considered.

#### **Data to be revised or updated in Southern Andaman map**

- **Malaysia:** Fishing ground for anchovy in Malaysia should be added – see para 10 (Malaysia) in report from last meeting.
- **Malaysia:** Baseline for Malaysia in Southern Andaman Sea to be sent to TD
- **Malaysia:** MFRDMD data from tagging in 2006 of Mackerel. Information should be sent to TD by Malaysia.
- **Malaysia:** Genetic study from Malacca strait of mackerel stock structure.
- **Malaysia:** Neritic tuna fishing ground in Malaysia to be updated with an area west of Langkawi island.
- **Indonesia:** Baseline for Indonesia in Southern Andaman Sea to be sent to TD
- **Indonesia:** Indonesian data on spawning ground and fishing ground to be restricted to Indonesian waters
- **Indonesia:** Fishing season and spawning ground for mackerel and Neritic tuna in Indonesia will be updated by Indonesia.

