Training Course on
Fish Population Dynamics and Fisheries Management
Using R

Prepared by
Research and Development Division
Training Department
Southeast Asian Fisheries Development Center

Introduction

In the Southeast Asian region, the transboundary fishery resources which migrate between two or more neighboring coastal States are economically important species that support the livelihood of fishers and other stakeholders. However, during the last decade, the transboundary fishery resources including neritic tunas, short mackerel, anchovies, Indian mackerel, and blue swimming crab are declining. Therefore, cooperation and collaboration among the concerned countries are necessary for the management of transboundary fishery resources.

In this regard, one of the activities of the ongoing Japanese Trust Fund project "Sustainable Utilization of Fisheries Resources and Resources Enhancement in Southeast Asia" of the Training Department of the Southeast Asian Fisheries Development Center (SEAFDEC/TD) is enhancing scientific knowledge to support the countries in fisheries management including transboundary fishery resources in the Gulf of Thailand sub-region and Sulu-Sulawesi Seas sub-region. Under the Project, SEAFDEC/TD organized the Gulf of Thailand and the Sulu-Sulawesi Seas Sub-regional Consultation Workshop on Developing a Plan of Activity for Transboundary Fishery Resources in 2020 which was attended by National Focal Point and researchers. The Workshop came up with the plan to conduct a training course to enhance the capacity of human resources and researchers on fish population dynamics and fisheries management by using R.

In this connection, SEAFDEC/TD will organize the Training Course on Fish Population Dynamics and Fisheries Management by Using R which will be conducted in two sessions. The first session would be a lecture class through the online platform (Google Meet) from 19 to 23 July 2021. The second session would be a practical class at SEAFDEC/TD for five days in 2022 and the date would be decided later.

Objectives

- To enhance the capacity of human resources and researchers from the SEAFDEC Member Countries on fish population dynamics and fisheries management using R to of

- To share information on population dynamics of transboundary species in the region
- To strengthen the network of human resources and researchers on fish population dynamics and fisheries management in the Southeast Asian region

Expected Outcomes

- Improved knowledge of human resources and researchers from the SEAFDEC Member Countries on fish population dynamics and fisheries management using R
- Enhanced information on the population dynamics of transboundary species in the region
- Strengthened network of human resources and researchers on fish population dynamics and fisheries management in the Southeast Asian region

Evaluation

At the end of each session of the Training Course, the participants would be requested to fill up the evaluation form to assess the conduct of the Training Course. Moreover, the understanding of the participants of the concepts would be evaluated through the pre- and post-tests before and after the lectures during the first session, respectively.

Venue and Accommodation

The first session of the Training Course would be organized through the online platform from 19 to 23 July 2021. The second session would be organized at SEAFDEC/TD, Samut Prakan, Thailand for 5 days in 2022 and the participants would be accommodated at the dormitory of SEAFDEC/TD.

Target Participants

Three fisheries officers and researchers from each of the participating SEAFDEC Member Countries (*i.e*. Cambodia, Indonesia, Malaysia, Philippines, Thailand, and Viet Nam). SEAFDEC strives towards equal opportunities for the participation of female and male representatives from the Member Countries in all events organized by SEAFDEC

English language would be used throughout the Training Course, therefore, proficiency in English is required for the participants. Certificates would be awarded upon completion of the Training Course and successfully passing the written examinations.

Provisional Timetable

Training Session 1

Venue: Online platform (Google Meet)

Date: 19–23 July 2021

Date and time*	Activity/topic	Resource person	Remarks
19 July 2021			
09:00–11:00	• Online platform trial • Introduction of the Training Course • Pre-test examination	*Mr. Sukchai Arnupapboon*	• SEAFDEC/TD and all participants would test the online platform • Background, objectives, and arrangements would be introduced • Pre-test examination for the participants would be conducted
20 July 2021			
09:00–12:00	Science of counting fish and the concept of fisheries management	*Prof. Tuantong Jutagate*	Introduction to the importance of understanding on abundance, biomass, and biology (ABC) of targeted fish stock for fisheries management
12:00–13:30	Lunch break		
13:30–16:30	Science of counting fish and the concept of fisheries management (continuation)	*Prof. Tuantong Jutagate*	Case studies on implementing ABC of targeted fish stock for fisheries management
21 July 2021			
09:00–12:00	Fish population dynamics	*Prof. Tuantong Jutagate*	Growth and shrink of fish stock over time (birth, growth, death, and migration as control factors)
12:00–13:30	Lunch break		
13:30–16:30	Fish population dynamics (continuation)	*Prof. Tuantong Jutagate*	Growth and shrink of fish stock over time (impacts of fisheries)
22 July 2021			

Date and time*	Activity/topic	Resource person	Remarks
09:00–10:30	Fish stock assessment	*Prof. Tuantong Jutagate*	Single, mixed, and transboundary fish stocks
11:00–13:00	Lunch break		
13:00–14:30	Fish stock assessment (continuation)	*Prof. TuantongJutagate*	Single, mixed, and transboundary fish stocks
23 July 2021			
09:00–12:00	Presentation and discussion on the fish data of the respective countries	*Prof. Tuantong Jutagate*	• Data on targeted fish stocks will be presented by the participants from the respective countries • The way forward to assess the stock status, *i.e.* model selection will be discussed
11:00–13:00	Lunch break		
13:00–14:30	• Evaluation of the Training • Post-test examination	*Prof. Tuantong Jutagate*	• The evaluation form will be filled up by the participants to assess the conduct of the Training Course • The post-test will be given to the participants to assess understanding of the concepts

*Thailand local time (UTC+07:00)

Training Session 2

Venue: SEAFDEC/TD, Samut Prakan, Thailand

Date: To be decided

Date/ and time	Activity/topic	Resource person	Remarks
Day 1			

Date/ and time	Activity/topic	Resource person	Remarks
08:30–09:00	Registration		
09:00–12:00	Introduction to R	*Prof. Tuantong Jutagate*	Installation of and getting to know the R program
12:00–13:30	Lunch break		
13:30–16:30	Introduction to R (continuation)	*Prof. Tuantong Jutagate*	Data structure and data manipulation in R
Day 2			
09:00-12:00	Statistical analyses and R packages	*Prof. Tuantong Jutagate*	Using R statistical analyses
12:00-13:30	Lunch break		
13:30-16:30	Statistical analyses and R packages (continuation)	*Prof. Tuantong Jutagate*	Introducing R packages for fisheries
Day 3			
09:00–12:00	Estimating parameters in fish population dynamics by using R	*Prof. Tuantong Jutagate*	Using R packages for fisheries
12:00–13:30	Lunch		
13:30–16:30	Estimating parameters in fish population dynamics by using R (continuation)	*Prof. Tuantong Jutagate*	Using R packages for fisheries
Day 4			
09:00–12:00	Fish stock assessment by using R packages	*Prof. Tuantong Jutagate*	Using R packages for fisheries for fish stock assessment
12:00–13:30	Lunch break		
13:30–16:30	Fish stock assessment by using R packages (continuation)	*Prof. TuantongJutagate*	Using Rpackages for fisheries for fish stock assessment
Day 5/2022			
09:00–12:00	Analysis of country data	*Prof. Tuantong Jutagate*	Application of R for fish population dynamics and stock assessment for respective countries
12:00-13:30	Lunch break		

Date/ and time	Activity/topic	Resource person	Remarks
13:30-16:00	Analysis of country data (continuation)	*Prof. Tuantong Jutagate*	Application of R for fish population dynamics and stock assessment for respective countries
16:00-16:15	Evaluation and Closing		• The evaluation form will be filled up by the participants to assess the conduct of the Training Course

Contact persons

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