SEAFDEC Project on Sustainable Utilization of
Fisheries Resources and Resources Enhancement in Southeast Asia

PROVISIONAL PROSPECTUS
Regional Training Course on Fish Larvae
Phase II: Determining Spawning-nursing Ground and Season Using Larvae Survey Results

28 November to 3 December 2022,
SEAFDEC Training Department, Samut Prakan, Thailand

I. INTRODUCTION

Coastal waters of the Southeast Asian region are blessed with high productivity of fishery resources because of rich ecosystems such as dense mangrove forests and seagrass beds sustained by the rich affluence of nutrients from land, as well as extensive coral reefs with clean tropical sea environment. In the region, fishery production increased from 42.1 million MT in 2014 to 46.5 million MT in 2018 with an annual average rate of increase of 1.1 million MT or 2.5 %, while the region's total contribution to the world's total fishery production in 2018 was approximately 21.9 %.

The total fishery production is increasing, but scientific evidence showed that many aquatic species in the Southeast Asian countries have exceeded their point of sustainability for several years. Fishery resources and habitats in the region degraded due to many factors *e.g.* overfishing, illegal fishing, use of destructive fishing practices, massive clearance of mangrove forests for aquaculture, etc. If the trends continue, the fisheries could possibly collapse soon.

To sustain the fishery production of Southeast Asia, fisheries managers have been working to enhance resources such as regulating fishing efforts, establishing catching areas, restoring degraded nurseries and spawning habitats, implementing juvenile releasing programs, etc. But work on these matters in the region still needs more improvement its effectiveness.

To support the SEAFDEC Member Countries on resources enhancement, the SEAFDEC Training Department (SEAFDEC/TD) implemented the project entitled "Sustainable Utilization of Fisheries Resources and Resources Enhancement in Southeast Asia." In 2020, SEAFDEC/TD initiated resource enhancement activity by organizing the teleconference on Regional Consultation Workshop on Developing a Plan of Activity for Resources Enhancement in the Southeast Asian Region on 15 September 2020. It was found that organizing the three training courses on (1) Determining Spawning-nursing Ground and Season Using Larvae Survey Results, (2) Design, Structure and Function of Artificial Reefs and (3) Evaluating the Effectiveness of Resources Enhancement for the Sustainable Development of Fisheries) was an important SEAFDEC mechanism to support sustainability of fishery resources in the Southeast Asian Region.

To follow the suggestion from the Member Countries, SEAFDEC/TD under the Japanese Trust Fund (JTF) Project planned to organize the Regional Training Course on Determining Spawning-nursing Ground and Season Using Larvae Survey Results. The 6 days Training Course is intended for scientists and fisheries biologists to improve skills to utilize data from fish larvae survey by integrating other skills, e.g. GIS, R statistics software, aging analysis, to determine spawning-nursing ground and season.

II. OBJECTIVES

- Improve the skills of scientists and fisheries biologists on the utilization of data from fish larvae survey to determine fishing ground and season

- Strengthen the network of fish larvae researchers in Southeast Asia

III. EXPECTED OUTCOMES

- Improve capacity research on determining spawning ground and season

- The network of fish larvae researchers in Southeast Asia.

IV. EVALUATION

At the end of the Training Course, trainees will be evaluated through written examination to assess the level of knowledge and understanding they have gained.

V. DATE AND VENUE

The Training Course is scheduled from 28 November to 3 December 2022 at SEAFDEC/TD, Samut Prakan, Thailand. Accommodation and meal (breakfast and lunch) for participants will be arranged at the TD Dormitory.

VI. ORGANIZER AND FUNDING

The Training Course is convened by the Research and Development Division (RDD) of the SEAFDEC Training Department with funding support from the Japanese Government through the Japanese Trust Fund.

VII. EXPECTED TRAINEES

The same scientists and fisheries biologists from the SEAFDEC Member Countries who participated in the Regional Training Course on Fish Larvae (Phase I: Larval Identification and Early Life History of Marine Fishes) organized by SEAFDEC/TD during 16–27 November 2022) will be invited.

VIII. RESOURCE PERSONS AND SUPPORTERS

Resource Persons	Position/Institution
1) Dr. Yoshinobu KONISHI	Former staff of the Seikai National Fisheries Research Institute, Japan
2) Dr. Wirote LAONGMANEE	Lecturer, Burapha University, Chanthaburi Campus
3) Ms. Penchan LAONGMANEE	Lecturer, Burapha University, Chanthaburi Campus
4) Dr. Tuantong JUTAGATE	Lecturer, Ubon Ratchathani University
5) Dr. Sontaya KOOLKALYA	Lecturer, Rambhai Barni Rajabhat University
6) Dr. Anukul BURANAPRATEEPRAT	Lecturer, Burapha University, Chonburi Campus
Technical and Administrative Support	**Position/Institution**
1) Mr. Sukchai ARNUPAPBOON	Fisheries Oceanographer, Head of Research and Development Division (RDD)
2) Ms. Siriporn PANGSORN	Fishing Ground Information scientist, RDD
3) Ms. Nathacha CHANGPHETPHOL	Fishery Oceanographer, RDD
4) Ms. Nathacha SORNVAREE	Administrative Officer, RDD

IX. LANGUAGE

The English language will be used throughout the training Course. Therefore, proficiency in English of trainees is required.

X. CERTIFICATE OF COMPLETION

SEAFDEC Training Department will award all trainees a Certificate of Completion at the end of the Training Course.

XI. AGENDA AND SYLLABUS

Date/Time	Activity/topic	Responsibility
28 November 22 (Monday)		
0830–0845	Registration	SEAFDEC Staff
0845–0900	Opening ceremony & group photo	SEAFDEC Staff
0900–1000	Principle of GIS and Vector data model	Dr. Wirote LAONGMANEE & Ms. Penchan LAONGMANEE
1000–1020	Coffee break	SEAFDEC Staff
1020–1200	*Continued* Principle of GIS and Vector data model	Dr. Wirote LAONGMANEE & Ms. Penchan LAONGMANEE
1200-1330	Lunch break	SEAFDEC Staff

Date/Time	Activity/topic	Responsibility
1330–1500	Work with QGIS opensource software GIS and Map creation	Dr. Wirote LAONGMANEE & Ms. Penchan LAONGMANEE
1500–1520	Coffee break	SEAFDEC Staff
1520–1630	*Continued* Work with QGIS opensource software GIS and Map creation	Dr. Wirote LAONGMANEE & Ms. Penchan LAONGMANEE
1730–1900	Welcome dinner	SEAFDEC Staff
29 November 22 (Tuesday)		
0900–1000	Raster data model in GIS	Dr. Wirote LAONGMANEE & Ms. Penchan LAONGMANEE
1000–1020	Coffee break	
1020–1200	*Continued* Raster data model in GIS	Dr. Wirote LAONGMANEE & Ms. Penchan LAONGMANEE
1200-1330	Lunch break	SEAFDEC Staff
1330–1500	Work with raster data and simple modelling	Dr. Wirote LAONGMANEE & Ms. Penchan LAONGMANEE
1500–1520	Coffee break	
1520–1630	*Continued* Work with raster data and simple modelling	Dr. Wirote LAONGMANEE & Ms. Penchan LAONGMANEE
30 November 22 (Wednesday)		
0900–1000	The principle of prediction model	Dr. Tuantong JUTAGATE
1000–1020	Coffee break	
1020–1200	*Continued* The principle of prediction model	Dr. Tuantong JUTAGATE
1200-1330	Lunch break	SEAFDEC Staff
1330–1500	Work with R statistic free software	Dr. Tuantong JUTAGATE
1500–1520	Coffee break	
1520–1630	*Continued* Work with R statistic free software	Dr. Tuantong JUTAGATE
1 December 22 (Thursday)		
0900–1000	Introduction to Maxent plugin	Dr. Wirote LAONGMANEE & Ms. Penchan LAONGMANEE
1000–1020	Coffee break	
1020–1200	*Continued* Introduction to Maxent plugin	Dr. Wirote LAONGMANEE & Ms. Penchan LAONGMANEE
1200-1330	Lunch break	SEAFDEC Staff
1330–1500	Work with dummy data that prepared by SEAFDEC/TD	Dr. Wirote LAONGMANEE & Ms. Penchan LAONGMANEE
1500–1520	Coffee break	
1520–1630	*Continued* Work with dummy data that prepared by SEAFDEC/TD	Dr. Wirote LAONGMANEE & Ms. Penchan LAONGMANEE
2 December 22 (Friday)		
0900–1000	Introduction of ageing analysis using otolith	Dr. Tuantong JUTAGATE
1000–1020	Coffee break	
1020–1200	*Continued* Introduction of ageing analysis using otolith	Dr. Tuantong JUTAGATE
1200-1330	Lunch break	SEAFDEC Staff
1330–1500	Cutting otolith of larvae sample (using grouper larvae sample from aquaculture,)	Dr. Sontaya KOOLKALYA
1500–1520	Coffee break	

Date/Time	Activity/topic	Responsibility
1520–1630	*Continued* Cutting otolith of larvae sample (using grouper larvae sample from aquaculture,)	Dr. Sontaya KOOLKALYA
3 December 22 (Saturday)		
0900–1000	Counting ring age using Image-J program	Dr. Sontaya KOOLKALYA
1000–1020	Coffee break	
1020–1200	*Continued* Counting ring age using Image-J program	Dr. Sontaya KOOLKALYA
1200-1330	Lunch break	SEAFDEC Staff
1330–1500	Back calculation to spawning ground using age data and current data	Dr. Anukul BURANAPRATEEPRAT
1500–1520	Coffee break	
1520–1630	*Continued* Back calculation to spawning ground using age data and current data	Dr. Anukul BURANAPRATEEPRAT
1630-1700	Training course evaluation	SEAFDEC Staff