

Provisional Prospectus
The Project on R Programming Skill Development: From User to Coder for Fishery
Resource Data Analysis

Phase I-I, The Training Course on the Fundamental in R programming

SEAFDEC/TD

7-9 October 2026

Introduction

Fish stock assessment is a fundamental for reliable science-based fishery management. In the present day, various analysis methods are provided and utilized worldwide, where the conventional stock assessment tools, such as MS Excel, ELEFAN, and FiSAT II cannot handle the complication analysis steps and require flexible programming. In this connection, the R program has become the famous choice for fisheries researchers around the world. With the ability to generate various kinds of data manipulation and analysis, and being free to use, the R program has an advantage over other software. However, using the R program also requires a good understanding of the coding structure known as the R language. With the understanding in the coding structure, known as coding grammar, the user can pursue various kinds of analysis based on their objectives and data conditions.

Despite the usefulness of the program, the number of fisheries researchers with a deep understanding of R coding or ‘fluency’ in the R language is limited, especially among Thai Department of Fishery’s officers. To handle the stock assessment with the complexities of multi species and multi gear conditions, the improvement of the understanding of fishery statistics and the R programming has become more necessary. To cover up this opening, the project on R Programming Skill Development: From User to Coder for Fishery Resource Data Analysis is crucial to enhance the skills of the officers, which can have a huge effect on fishery management. The appropriate skill in R language and the knowledge with a good understanding of statistical models and fishery biology can brings a good science-based management strategies and reasonable reference points.

This initiative is important for several reasons: it will generate essential knowledge and skills related to R programming, improve and deepen understanding in fishery science. The course for the first-year aim to establish fundamental skills and knowledge in R programming through problem-solving, as well as to strengthen the understanding of fishery biology and statistics before progressing to more advanced R skills. By focusing on a comprehensive training approach at the initial stage, this project seeks to provide a solid foundation in R programming, covering the basics of R coding and simple commands, along with a basic understanding of fishery biology, fishery statistics, and related areas.

Objective

1. To enhance the capacity of SEAFDEC/TD and DOF staff in R programming related to fishery biology, fishery statistics, and mathematical models.

2. To strengthen the competencies of SEAFDEC/TD and DOF staff in fishery biology and its related aspects.
3. To strengthen the basic knowledge of fishery biology and fishery statistics.
4. To establish the connection between SEAFDEC/TD, DOF, and resource persons along with their institutions.

Output

1. Improved staff capacity, with SEAFDEC/TD and DOF personnel trained and equipped with skills in R programming related to statistics and models.
2. Improved the basic knowledge of fishery biology and fishery statistics.
3. The training materials synthesized from the activity as the future key or guidebook
4. The connection among researchers.

Venue and Date

Date: 7-9 October 2026

Venue: The Lecture Room, The 2nd floor of the Workshop Building, SEAFDEC/TD

Participants

A total of 25 persons participating in this activity is expected as follows;

1. Resource person (3): Dr. Chayajit Deekrajang, Department of Fisheries, Dr. Krerkkrai Songin, Kasetsart University, and Dr. Supapong Pattarapongpan, SEAFDEC/TD
2. Trainees (21): SEAFDEC/TD (5) and DOF, Thailand (16), composed of marine fisheries researchers (8) and inland fisheries researchers (8)
3. Administrative officer (1).

Provisional Agenda and Timetable

Date/ and time	Activity/topic	Resource person	Remarks
7 October 2026			
08:30–09:00	Registration	SEAFDEC/TD	
09:00–09:30	Opening Ceremony	SEAFDEC/TD	
09:30–11:30	The introduction to basic descriptive and inferential statistics - Data type and measurement - Middle value - Data distribution	<i>Dr. Chayajit D.</i>	- The significant test can aim only for the comparison as it is the most utilized by officers. - However, we can briefly introduce the rest to them as well as we will introduce to

Date/ and time	Activity/topic	Resource person	Remarks
	- Significant test (hypothesis test for comparison)		them in the higher-level course.
11:30–12:00	Installation of R, RStudio, and necessities packages	<i>Resource persons</i>	Just in case, for checking whether participants have done it correctly or not (I'll send them information note as a guidebook for the installation before WS).
12:00–13:30	Lunch break		
13:30–16:30	The introduction to the R language - Basic concept of R language - Coding structure - Concepts and methods of modeling	<i>Dr. Krerkkrai S.</i> <i>Dr. Supapong P.</i>	The brief exercise also possible to be provided at this step
8 October 2026			
09:00-12:00	Fishery bio-statistical and fish population dynamics analyses and R packages - Length-weight relationship - Sex-ratio - Growth parameter - Maturity - Mortality	<i>Dr. Supapong P. (LWR, Sex-ratio)</i> <i>Dr. Krerkkrai S. (Growth, Maturity, Mortality)</i>	The topic can have a brief touch on the uncertainty from the commercial data. This can be further discussed in details for the next level.
12:00-13:30	Lunch break		
13:30-15:00	Estimating parameters in fish population dynamics by using R packages - Growth parameter - Mortality - Gear selectivity	<i>Dr. Supapong P.</i>	Using R package TropFishR, the example of the age-based growth parameter estimation using manual function coding in R (Further discuss with other resource persons in detail)
15:00 – 16:30	Fishery ecological study using R program - Diversity Index - Evenness Index - W-value using ABC method	<i>Dr. Chayajit D.</i>	

Date/ and time	Activity/topic	Resource person	Remarks
9 October 2026			
09:00–12:00	Introduction to fish stock assessment and exercise by using R packages - YPR and SPR - Surplus production models	<i>Dr. Supapong P.</i> <i>Dr. Chayajit D.</i>	TropFishR with other relevant packages
12:00–13:30	Lunch		
13:30–15:00	Introduction to habitat modelling	<i>Dr. Krerkkrai S.</i> <i>Dr. Chayajit D.</i>	
15:00–16:30	Closing ceremony	SEAFDEC/TD	

Approach (Material and Method)

The project will implement a participatory approach to learning and strengthening skills and experience in the usage of the R program to all participants. The process begins with a capacity-building program aimed at strengthening the technical competencies of DOF staff in fishery biology and fishery statistic before providing the technical practices by analyzing the data using R program, where the coding structure and command will be provided in the same time. The data used in the training will be requested from the DOF which will help participants familiar with their data conditions. After training finishes, the monitoring activity for participants will be conducted to improve and review their knowledge and skills, as well as to update their integration of R program into their routine work. This second activity aimed to be conducted online every few months until the next activity, which aimed to be the training for trainer with the advance R programming. Moreover, these activities also expected to strengthening in the connection among researchers can be expected.

Monitoring & Evaluation

1. Activity reports, progress meetings.
2. List of the participants with pre- and post-test scores.
3. Draft plan for the second phase (phase II) activity.

Contact Person

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