



**Provisional prospectus**  
**Regional Training Course on the Liable Research Methods to Collect and**  
**Analyze the Marine Debris and Microplastics**  
**24 to 31 January 2025**

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

## **Introduction**

Water pollution from marine debris and microplastics has become a critical global issue over recent decades, often highlighted in international forums. Studies have shown that plastic materials are the most prevalent type of marine debris, accounting for 60-80%, predominantly originating from Asian countries. The persistence and resistance to degradation of marine debris and microplastics are particularly concerning.

Meso and mega-plastic cause harm to marine mammals, fish and invertebrates. They may entangle or ingest plastic debris, leading to severe consequences such as declining movement ability, gastrointestinal blockages, starvation, internal injuries, or death. While, microplastics are similar to natural food sources resulting in accidental ingestion of marine organisms, especially zooplankton. It often contains harmful chemicals, such as phthalates and bisphenol A (BPA), which can leach into animals, disrupting hormonal systems, causing reproductive and developmental issues, and potentially affecting human health through the food web.

Monitoring the situation of marine debris and microplastics is an integral part of developing ocean health management and regulation at the local, national and regional levels to combat marine plastic pollution. Even though fishery researchers have initiated carrying out marine debris and microplastics surveys in a decade, but the survey sampling and analysis technique is still limited which could be observed by Southeast Asian Member Countries requesting SEAFDEC to build capacities of fishery researchers to monitor and analyze marine debris and microplastics contamination during 46<sup>th</sup> PCM meeting in Bali, Indonesia.

Hence, SEAFDEC/TD with support from The Japan-ASEAN Integration Fund (JAIF) planned to convey the Regional Training Course on Training on the Liable Research Methods to Collect and Analyze the Marine Debris and Microplastics. This training is intended mainly for researchers as step-by-step training. The major envisaged output is to enhance human resources capacity on sampling and analysis of marine debris and microplastics both lecture and practical and also strengthen cooperation among SEAFDEC Member countries' researchers on marine debris and microplastics in Southeast Asia region.

## Objectives

1. Human resources capacity building on marine debris and microplastics sampling and analysis; and
2. Strengthen cooperation of marine debris and microplastic scientists/researchers in Southeast Asia.

## Expected Output

1. Knowledge improvement on marine debris and microplastics sampling collection and analysis; and
2. The network of marine debris and microplastic scientists/researchers in Southeast Asia.

## Expected participants

One scientist/officer from SEAFDEC Member Countries including Brunei Darussalam, Cambodia, Indonesia, Lao-PDR, Malaysia, Myanmar, Philippines, Singapore, Thailand, and Viet Nam will be invited to participate in the training course.

## Resource persons

|                                    |                                                                                                                       |
|------------------------------------|-----------------------------------------------------------------------------------------------------------------------|
| Prof. Dr. Suchana Chavanich:       | Lecturer from Marine Science Department, Chulalongkorn University                                                     |
| Asst. Prof. Penchan Laongmanee     | Lecturer from Faculty of Marine Technology Burapha University, Chanthaburi Campus                                     |
| Asst. Prof. Dr. Jitraporn Phaksopa | Lecturer from Department of Marine Science, Kasetsart University                                                      |
| Prof. Dr. Atsuhiko Isobe:          | Lecturer from Research Institute for Applied Mechanics Center for Oceanic and Atmospheric Research, Kyushu University |
| Prof. Dr. Keiichi Uchida:          | Lecturer from Department of Marine Resources and Energy, Tokyo University of Marine Science and Technology            |
| Prof. Dr. Toshihide Kitakado:      | Lecturer from Department of Marine Biosciences, Tokyo University of Marine Science and Technology                     |
| COPS-SATREPS                       | To be decided                                                                                                         |
| Mr. Pisut Tassawad                 | PhD student from Kumamoto University                                                                                  |
| Mr. Nakaret Yasook                 | Fishing gear technologist from Southeast Asian Fisheries Development Center                                           |

## Date and Venue

The training course will be held from 24 to 31 January 2025, at SEAFDEC/TD, Samutprakan, Thailand. Accommodation and meals (breakfast and lunch) for participants and resource persons will be arranged by SEAFDEC/TD.

## **Organizer and funding**

The Regional Training Course will be convened by the Research and Development Division (RDD) of the SEAFDEC/TD with funding support from the Japan-ASEAN Integration Fund (JAIF)

## **Language**

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

## **Certificate of completion**

SEAFDEC/TD will award trainees a Certificate of Completion at the end of the training Course.

## **Course Coordinator**

Mr. Sukchai Arnupapboon      Fishing Ground and Oceanography Section Head

## **Administrative**

Ms. Nathacha Sornvaree      Administrative Officer

## **Schedule for Training Course**

**January 23**      : All participants arrive at SEAFDEC/TD

### **January 24**

|               |                                                                                                                       |
|---------------|-----------------------------------------------------------------------------------------------------------------------|
| 0830-0900 hrs | : Registration by SEAFDEC/TD                                                                                          |
| 0900-0915 hrs | : Opening and group photo                                                                                             |
| 0915-1030 hrs | : Introduction of marine debris and microplastics<br>(Dr. Suchana Chavanich)                                          |
| 1030-1100 hrs | : Coffee break                                                                                                        |
| 1100-1200 hrs | : The problems of analyzing and monitoring marine debris and<br>microplastics in the ocean<br>(Dr. Suchana Chavanich) |
| 1200-1300 hrs | : Lunch                                                                                                               |
| 1300-1400 hrs | : World marine debris situation<br>(Dr. Atsuhiko Isobe)                                                               |
| 1400-1430 hrs | : Coffee break                                                                                                        |
| 1430-1530 hrs | : Marine debris and microplastics studies in Japan<br>(Dr. Atsuhiko Isobe)                                            |
| 1530-1630 hrs | : Management of marine debris and microplastics<br>(Dr. Atsuhiko Isobe)                                               |
| 1730-1900 hrs | : Welcome dinner                                                                                                      |

### **January 25**

|               |                                                                              |
|---------------|------------------------------------------------------------------------------|
| 0830-0930 hrs | : Introduction of microplastics in sea water sampling and<br>analysis method |
|---------------|------------------------------------------------------------------------------|

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|---------------|------------------------------------------------------------------------------------------------|
|               | (COPS-SATREPS)                                                                                 |
| 0930-1030 hrs | : Introduction of microplastics in marine biota sampling and analysis method<br>(COPS-SATREPS) |
| 1030-1100 hrs | : Coffee break                                                                                 |
| 1100-1200 hrs | : Introduction of microplastics in seafloor sampling and analysis method<br>(COPS-SATREPS)     |
| 1200-1300 hrs | : Lunch                                                                                        |
| 1300-1430 hrs | : Impact of marine debris to marine life and human<br>(Mr. Pisut Tassawad)                     |
| 1430-1500 hrs | : Coffee break                                                                                 |
| 1500-1630 hrs | : Continue Impact of marine debris to marine life and human<br>(Mr. Pisut Tassawad)            |

### **January 26**

|                 |                                                                                                                                         |
|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| 0830-0930 hrs   | : Introduction of seafloor debris<br>(Ms. Penchan Laongmanee)                                                                           |
| 0930-1000 hrs   | : Seafloor survey methodology<br>(Mr. Nakaret Yasook)                                                                                   |
| 1000-1030 hrs   | : Coffee break                                                                                                                          |
| 1030-1200 hrs   | : Apply of gillnet fishing for marine debris survey<br>(Dr. Keiichi Uchida)                                                             |
| 1200-1300 hrs   | : Lunch                                                                                                                                 |
| 1300-1430 hrs   | : Overview of floating debris study in Japan<br>(Dr. Keiichi Uchida)                                                                    |
| 1430-1500 hrs   | : Coffee break                                                                                                                          |
| 1500-1630 hrs   | : Floating Marine Debris Survey by THUMSAT<br>(Dr. Keiichi Uchida)                                                                      |
| 16:30-17:30 hrs | : Development of Monitoring Floating Marine Debris system by using Visual Observation and Remote Sensing Data<br>(Dr. Masahiko Honzawa) |

### **January 27**

|               |                                                                                                                                  |
|---------------|----------------------------------------------------------------------------------------------------------------------------------|
| 0830-1000 hrs | : Theory of the line transect method for estimation of abundance<br>(Dr. Toshihide Kitakado)                                     |
| 1000-1030 hrs | : Coffee break                                                                                                                   |
| 1030-1115 hrs | : Hands-on exercise (I) using R<br>(Dr. Toshihide Kitakado)                                                                      |
| 1115-1200 hrs | : Further details of the analysis - model selection, evaluation of uncertainty and spatial modelling<br>(Dr. Toshihide Kitakado) |
| 1200-1300 hrs | : Lunch                                                                                                                          |
| 1300-1430 hrs | : Hands-on exercise (II) using R<br>(Dr. Toshihide Kitakado)                                                                     |
| 1430-1500 hrs | : Coffee break                                                                                                                   |
| 1500-1630 hrs | : Continue hands-on exercise using R                                                                                             |

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|--------------------|----------------------------------------------------------------------------------------------------------------------------------------|
| 1630-1730 hrs      | : Participants' report of analysis<br>(Participants and Dr. Toshihide Kitakado)                                                        |
| <b>January 28</b>  |                                                                                                                                        |
| 0830-1130 hrs      | : M.V. SEAFDEC2 shipboard training marine debris visual<br>observation<br>(Dr. Keiichi Uchida)                                         |
| 1300-1600 hrs      | : M.V. SEAFDEC2 shipboard training bottom trawl survey<br>(Mr. Nakaret Yasook)                                                         |
| <b>January 29</b>  |                                                                                                                                        |
| 0830-1200 hrs      | : Brief on Laboratory work on microplastic analysis<br>(Dr. Jitraporn Phaksopa)                                                        |
| 1200-1300 hrs      | : Lunch                                                                                                                                |
| 1300-1730 hrs      | : Group practice in preparing samples and digestion process<br>(seawater, sediments, and marine organisms)<br>(Dr. Jitraporn Phaksopa) |
| <b>January 30</b>  |                                                                                                                                        |
| 0830-1200 hrs      | : Group practice on sorting and identification of microplastics<br>using FT-IR<br>(Dr. Jitraporn Phaksopa)                             |
| 1200-1300 hrs      | : Lunch                                                                                                                                |
| 1300-1600 hrs      | : Group practice (continued)<br>(Dr. Jitraporn Phaksopa)                                                                               |
| 1600-1730 hrs      | : Group discussion                                                                                                                     |
| <b>January 31</b>  |                                                                                                                                        |
| 0830-0930 hrs      | : Training evaluation                                                                                                                  |
| 0930-1000 hrs      | : Closing                                                                                                                              |
| <b>February 01</b> | : Leave SEAFDEC for home countries                                                                                                     |