

Proposal for organization of the first eDNA training course

1. Background

In the CEARAC Medium Term Strategy for Marine Biodiversity Conservation (hereafter, CEARAC BIO MTS) developed in 2019, environmental DNA (eDNA) is selected as a high priority topic which CEARAC should focus on in its future activities. CEARAC Secretariat expects eDNA is a new monitoring tool of CEARAC's future biodiversity projects. However, eDNA is a rapidly developed technology in recent years, so there are gaps among the member state for utilization of this technology. CEARAC Secretariat proposed to organize a training course on eDNA analysis in the 2020-2021 biennium for sharing the latest analysis techniques and capacity building in the NOWPAP region. This training course includes lectures and skill practices using front-line equipment.

However, pandemic of COVID-19 in the world limits the international travel among the member states. Due to the strict restriction on international travels in Japan, it has been difficult to organize a face-to-face training course with foreign participants. Therefore, the CEARAC Secretariat has proposed to cancel the training course in the 2020-2021 biennium and organize it in the 2022-2023 biennium. At the 18th CEARAC FPM to be held on 24-25 August, CEARAC FPs decide whether a training course will be organized or canceled a training course in the 2020-2021 biennium.

2. Objective

Objectives of this activity are to share the latest techniques on eDNA analysis among the young scientists of the NOWPAP member states. In addition, the training course aims to find potential joint surveys for CEARAC's marine biodiversity projects using eDNA.

3. Tasks

3.1 Organizing a training course on eDNA analysis

CEARAC Secretariat developed "Environmental DNA Sampling and Experiment Manual" in 2019. Using this manual, a training course will be organized. The first draft plan of the training course is as follows;

Venue: Kobe University, Japan (TBD)

Date: Spring, 2023 (5 days)

Expected participant: Young scientists (maximum 15 persons)

Schedule:

	AM	PM
Day 1	Lecture	Water sampling and filtration
Day 2	DNA extraction	1 st PCR test
Day 3	2 nd PCR test	Quality check
Day 4	Lecture	Data analysis
Day 5	Report	Closing

CEARAC Secretariat will discuss with the local organizer about the possibility of hand-on exercises for additional training based on the needs from the member states.

4. Expected outputs

Through organizing a training course, wider recognition of the state-of-the-art technique of eDNA analysis and sharing the standardized methodology among the NOWPAP member states are expected. However, it is difficult to disseminate this technology only by one training course; therefore, continuous organization of the training course is necessary. In addition, the CEARAC Secretariat plans to encourage trainees to disseminate/introduce their learned techniques among the NOWPAP member states.

When all of the NOWPAP member states use eDNA analysis methodology commonly and have the similar level of its studies, we can start enhanced activities such as a joint survey on marine biodiversity and/or non-indigenous species in the NOWPAP region. In the NOWPAP Medium-term Strategy (MTS) and Ecological Quality Objectives (EcoQOs), actions against prevention of non-indigenous species (NIS) are pointed out as one effective measure for conservation of marine and coastal environment. EDNA will contribute to the future activities of NOWPAP.

5. Budget

Tasks	Budget (USD)
Cost for organizing a training course	10,000
Travel support for selected trainees	12,000 (1,500x8 trainees)
Travel for lecturers	3,000 (1,000x3 lecturers)
Total	25,000

6. Schedule

Year		Tasks	Main Body
2021	Aug.	18 th CEARAC FPM Approval of the draft workplan	CEARAC FPs and CEARAC Secretariat
	Winter	24 th NOWPAP IGM Approval of Workplan	NOWPAP National FPs
2022	Spring	19 th CEARAC FPM Approval of the implementation plan	FPs, CEARAC Secretariat
	Summer	Establishment of the starting committee	Nominated experts, CEARAC Secretariat
		Starting logistic arrangement	CEARAC Secretariat, Local organizer
	Fall	Asking co-sponsor to other international organization	CEARAC Secretariat
		Open for application	CEARAC Secretariat
	Q4- 2021 Q1	Selection of trainees	Steering Committee
2023	Spring	Organizing a training course	Local organizer, CEARAC Secretariat