

## **Report on updating HAB database and HAB reference database**

### **1. Background**

In 2019, CEARAC developed the CEARAC Medium Term Strategy for Marine Biodiversity Conservation (hereafter, CEARAC BIO MTS). The basic policies of CEARAC BIO MTS are:

- A) CEARAC focuses on activities related to coastal environmental assessment and development of assessment tools for special monitoring programs, as shown in the Memorandum of Understandings (MoU) with the United Nations Environment Programme (UNEP);
- B) CEARAC contributes to the development of the NOWPAP Regional Action Plan on Marine and Coastal Biodiversity Conservation (RAP BIO), and implements our tasks shown in the RAP BIO to conserve marine biodiversity in the NOWPAP region after the RAP BIO is approved; and
- C) Through our monitoring and assessment programs of marine biodiversity, CEARAC contributes to NOWPAP Ecological Quality Objectives (EcoQOs) and their achievements.

In the CEARAC BIO MTS, three highly prioritized topics for future CEARAC activities are shown: 1) conservation of biological habitats including tidal flats, salt marshes and seagrass/seaweed beds in the NOWPAP region; 2) plankton species related to aquaculture and fisheries; and 3) environmental DNA.

Marine plankton includes various kinds of plankton such as phytoplankton and zooplankton. It is difficult to cover all marine plankton species in CEARAC activities. Therefore, in the 2020-2021 biennium, CEARAC focuses on causative species of red tides and harmful algal blooms (HABs) using the past CEARAC activities and outputs, and continues discussion on the future target species for marine biodiversity conservation in the NOWPAP region.

### **2. Objective**

Objective of this activity is to update the contents of HAB Database and HAB Reference Database which were developed in the past CEARAC activities. Especially, information on distribution change due to global warming and on new outbreak such as green tides and golden tides are collected for marine biodiversity conservation in the NOWPAP region.

### **3. Tasks**

#### **3.1 Collecting and updating information on the latest occurrence of HABs and scientific papers in the NOWPAP region**

When CEARAC developed HAB Integrated Website in 2010, CEARAC set rules for updating the databases in this website. Based on these rules, the CEARAC Secretariat

collected information.

[HAB Occurrence Database]

Target year: 2009-2019

Sources: HAEDAT (four member states)

Red tide in the Seto Inland Sea and Red Tide in Kyushu region (Japan)

Collected information: Annex 1

[HAB Reference Database]

Target year: 2009-2020

Sources: Nippon Suisan Gakkaishi (in Japanese with English abstract), Fisheries Science, Bulletin of the Plankton Society of Japan (in Japanese with English abstract), Plankton and Benthos Research, the Japanese Journal of Phycology (in Japanese with English abstract), Phycological Research, Journal of Japan Society on Water Environment (in Japanese with English abstract), Journal of Water and Environmental Technology, ALGAE (The Korean Society of Phycology), Journal of PHYCOLOGY, Phycologia, HARMFUL ALGAE, Marine Ecological Progress Series and Marine Pollution Bulletin

Collected information: Annex 2

CEARAC Secretariat will ask FPs to nominate experts who review the collected information and add more information, if any. Based on the nomination, the CEARAC Secretariat will contract MoU with them.

### **3.2 Discussion on a new activity and/or new target species**

In the past years, *Cochlodinium* is one of serious causative species in the NOWPAP region. However, in recent years, fishery damage by *Cochlodinium* in Japan and Korea has a decreasing trend. On the other hand, new species, *Karenia mikimotoi* and *Chattonella antiqua* etc. cause huge fishery damage in the member states, and green tide occurs regularly in the Yellow Sea. Based on the scientific reports and need of the member states, new potential target species will be selected.

### **4. Expected outputs**

It is expected to enhance the contents of the CEARAC websites and HAB activities of CEARAC as well.

CEARAC has kept communication with PICES's HAB group (S-HAB) in the past decade. Through this activity, CEARAC would like to strengthen cooperation with PICES.

**5. Budget**

Tasks	Budget (USD)
- Reviewing information collected by CEARAC Secretariat	6,000
- Collecting additional information on current HAB occurrences and related scientific papers	(1,500×4 experts)
- Uploading the collected information into the databases (including updating the databases)	3,000
<b>Total</b>	<b>9,000</b>

**6. Schedule**

Year	Tasks	Main body
2020	Q3 Approval of the implementation plan by email communication	FPs, CEARAC Secretariat
2021	Q1-Q2 Collecting information on HAB occurrences and scientific papers	CEARAC Secretariat
	August 18 <sup>th</sup> CEARAC FPM Nomination of experts Selection of new potential target species	FPs and CEARAC Secretariat
	Q3 Reviewing collected information Collecting additional information to be added to the databases	Experts of member states
	Q4 Updating databases	CEARAC Secretariat