

**Annex VI**

**Report of NOWPAP Working Group 3 (Harmful Algal Blooms)  
for the 2004-2005 biennium**

## **Report of the NOWPAP Working Group 3 (HABs) for the 2004-2005 biennium**

### **1. Overview of Working Group 3 (WG3) activities**

In accordance to the approved work plan by the 2<sup>nd</sup> CEARAC FPM, NOWPAP WG3 conducted the following activities in 2004 and 2005.

- (1) Compilation of reports on HABs for the NOWPAP Region
- (2) Establishment and improvement of the HAB Reference Database
- (3) Establishment of *Cochlodinium* Corresponding Group (CCG)

For Activity (1), WG3/CEARAC compiled National Report on HABs of each member countries and Integrated Report of the NOWPAP Region. These reports will help us understand the situation of HABs in the NOWPAP Region. For Activity (2), HAB Reference Database was established to enable easier and efficient access to HABs related information in the NOWPAP Region. For Activity (3), WG3 established CCG to collect information on *Cochlodinium*, which is one of the most concerned HAB species of this region. As outputs of the CCG activities, *Cochlodinium* homepage and pamphlet was made. An overview of these activities will be described in the following chapters.

## 2. Compilation of Reports on HABs for the NOWPAP Region

### 2.1. Integrated Report on HABs for the NOWPAP Region

The objectives of the Integrated Report on HABs for the NOWPAP Region are to provide and share information on the status of HABs in the NOWPAP Region, and to address issues to be tackled through CEARAC activities. To this end, common HAB issues in the NOWPAP Regions are identified.

The Integrated Report was prepared based on the National Reports of the NOWPAP members, and provides us with a broad perspective of HAB issues in the whole NOWPAP Region. The cover of the Integrated Report is shown in Figure 1 and the table of contents in Table 2.

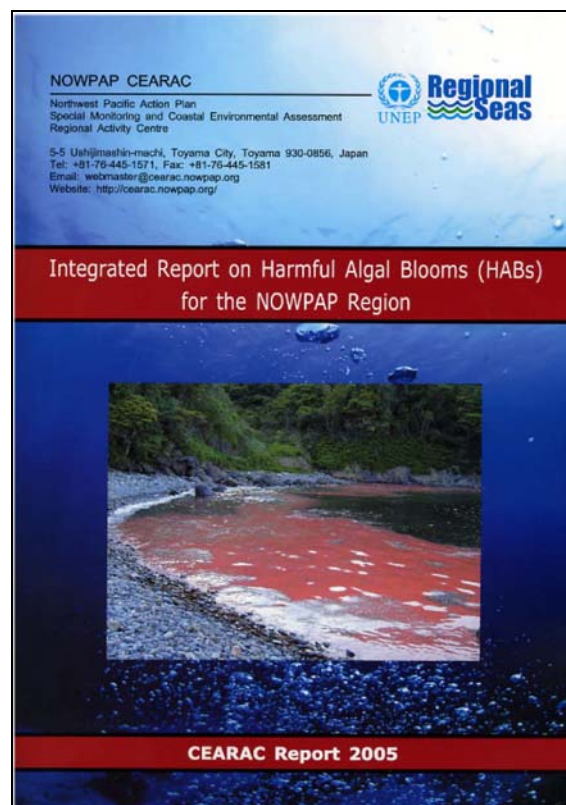


Figure 1. Cover of the Integrated Report

**Table 2. Contents of the Integrated Report**

<p><b>1. Introduction</b> Objectives of the Integrated Report are described.</p> <p><b>1.1 Definitions</b> HAB related words are defined.</p> <p><b>1.2 Natural environment of the NOWPAP Region</b> Natural environment of the NOWPAP Region are described (sea areas, rivers, oceanographic currents etc.).</p> <p><b>1.3 Social environment of the NOWPAP Region</b> Social environment of the NOWPAP countries are described (demography, aquaculture, etc).</p> <p><b>2. HAB occurrence</b> Based on Chapter 1 of the National Reports, the overall status of HAB in the NOWPAP Region is described. In addition, common HAB issues of the region are identified and stated.</p> <p><b>2.1 Current HAB occurrences in the NOWPAP Region</b> 1) Red tides 2) Toxin-producing plankton and shellfish poisoning</p> <p><b>2.2 Common issues on HABs in the NOWPAP Region</b> 1) Severe fishery damage caused by <i>Cochlodinium polykrikoides</i> 2) Threats of DSP and PSP</p> <p><b>3. Information of HAB monitoring</b> Based on Chapter 2 of the National Reports, the overall monitoring status in the NOWPAP Region is described. In addition, common monitoring issues of the region are identified and stated.</p> <p><b>3.1 Monitoring activities in the NOWPAP Region</b> 1) Monitoring red tides 2) Monitoring toxin-producing plankton 3) Monitoring shellfish poisoning</p> <p><b>3.2 Common issues on monitoring activities in the NOWPAP Region</b></p> <p><b>4. Studies to cope with HABs</b> Based on Chapter 3 and 4 of the National Reports, important studies, on-going research, and new findings about HAB are summarized.</p> <p><b>5. Training activities to cope with HABs</b> Based on Chapter 5 of the National Reports, the overall status of training activities in the NOWPAP Region is described. In addition, common issues in the region are identified and stated.</p> <p><b>5.1 Training activities in the NOWPAP Region</b></p> <p><b>5.2 Common issues on training activities in the NOWPAP Region</b></p> <p><b>6. Suggested activities for HABs in the NOWPAP Region</b> Based on Chapter 6 and 7 of the National Reports, HAB related national activities of each country are described. Future activities for HABs in the NOWPAP Region are suggested.</p> <p><b>6.1 National activities to cope with HABs</b></p> <p><b>6.2 Suggested future activities for HABs in the NOWPAP Region</b></p>
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### 3. Establishment and improvement of HAB Reference Database

HAB Reference Database was established in April 2005 and is now available at the following URL in the CEARAC website (<http://www.cearac-project.org/wg3/hab-ref-db/>).

CEARAC expects the Database to be used mostly by researchers and government officers, which will enable efficient access to HABs related information in the NOWPAP Region.

#### 3.1. Main improvements to the Database

Topics of many of the submitted papers in the Database were related to toxin-producing planktons. Toxin-producing planktons are known to cause PSP (paralytic shellfish poisoning) or DSP (diarrhetic shellfish poisoning) even at low cell densities, and these events are equally an important issue in the NOWPAP Region as red tides. Consequently, it had become more appropriate to differentiate toxin-producing planktons and red-tide planktons within the Database.

In accordance to the above circumstances, some alterations to the Database were made in 2005. The main alterations to the Database are summarized below.

(1) The objectives of the Database were added into the title bar of the front page (Figure 2,①).

(2) Alteration to the Database search option

The “Type of HAB” option was added into the Database search option, to enable database search through either red tide or toxin-producing plankton (Figure 2,②).

(3) Addition of link to the other CEARAC website

Link to the *Cochlodinium* homepage and CEARAC website was added into the bottom left corner of the front page (Figure 2,③).

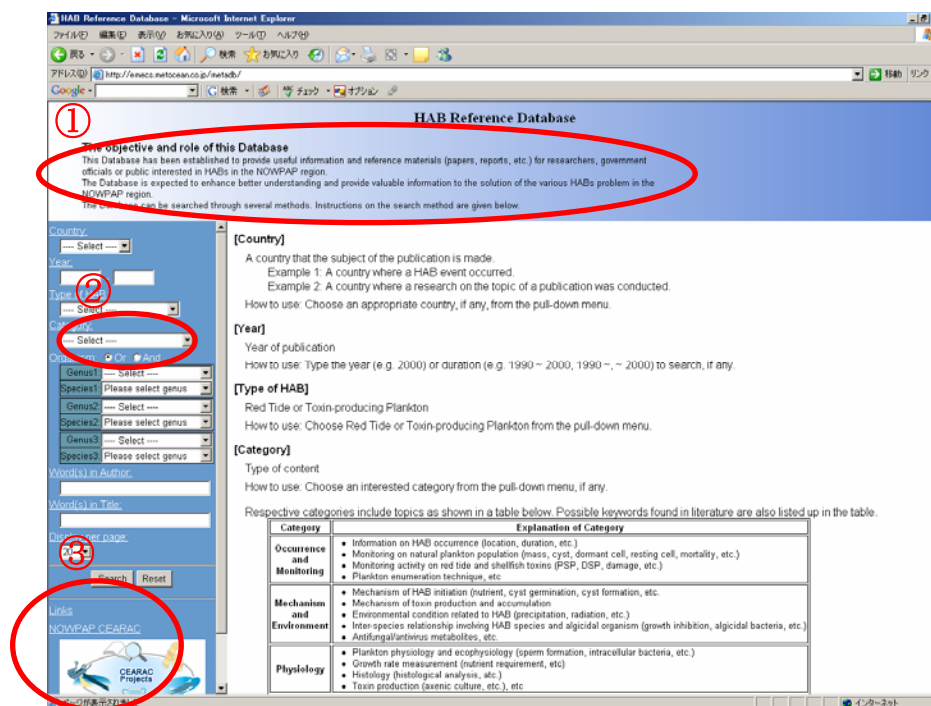


Figure 2. Front page of the HAB Reference Database  
(<http://www.cearac-project.org/wg3/hab-ref-db/>)

#### 4. Activities of Cochlo<sup>d</sup>inium Corresponding Group (CCG)

##### 4.1. Objectives of the CCG activities

*Cochlo<sup>d</sup>inium* is one of the most concerned species in the NOWPAP region. Extensive damages to coastal fisheries have been reported from Korea and Japan by this species. However, our understanding of *Cochlo<sup>d</sup>inium* is still insufficient to make appropriate policies and decisions. Therefore, WG3 agreed to establish Cochlo<sup>d</sup>inium Corresponding Group (CCG), so as to provide information on *Cochlo<sup>d</sup>inium*, and to help policy makers of coastal fisheries.

In accordance with the suggestions of CCG, the CEARAC secretariat has established a homepage and published pamphlet about *Cochlo<sup>d</sup>inium*.

##### 4.2. Cochlo<sup>d</sup>inium homepage

The *Cochlo<sup>d</sup>inium* homepage briefly introduces the environmental problems related with *Cochlo<sup>d</sup>inium*. The homepage also includes pictures of *Cochlo<sup>d</sup>inium*, explanation of the species, information of its damage to fisheries, and so on. Pictures and information for the website was provided by the members of CCG. The homepage can be found in the CEARAC website (<http://www.cearac-project.org/wg3/cochlo-entrance/>). The front page of the homepage is shown in Figure 3.



**Figure 3. Front page of the *Cochlo-dinium* Homepage**  
[\(http://www.cearac-project.org/wg3/cochlo-entrance/\)](http://www.cearac-project.org/wg3/cochlo-entrance/)

#### 4.3. *Cochlo-dinium* pamphlet

Based on the *Cochlo-dinium* homepage, the *Cochlo-dinium* pamphlet was published at the end of 2005. The pamphlet was made to advertise the NOWPAP CEARAC activities and *Cochlo-dinium* homepage, and to provide basic information on *Cochlo-dinium* for interested students, NGOs and public. The image of the pamphlet is shown in Figure 4.



**Figure 4. *Cochlo-dinium* Pamphlet**

## 5. Other related activities

### 5.1. First International Workshop on HAB in the Northwest Pacific Region

Thanks to the cooperation of WG3 experts, the 1<sup>st</sup> International Workshop on HAB in the Northwest Pacific Region was held from June 30 to July 1, 2005 in Toyama, Japan. Almost 30 HAB experts from the NOWPAP Members participated in the workshop and discussed about the present situation, monitoring systems, causative species and mitigation measures of HAB in the NOWPAP Region and its related areas. CEARAC and WG3 gathered a wide variety of information on HABs and will utilize the collected information for the future work of WG3.

