

1. General Briefing

Background

The Special Monitoring and Coastal Environmental Assessment Regional Activity Centre (CEARAC) is one of the four Regional Activity Centres (RACs) to coordinate activities relevant to specific components of the Action Plan for the Protection, Management and Development of the Marine and Coastal Environment of the Northwest Pacific Action Plan (NOWPAP). CEARAC was founded in 1999 and is hosted by the Northwest Pacific Region Environmental Cooperation Center (NPEC), which was established in 1998 in Toyama, Japan, under the auspices of the Ministry of the Environment, Japan.

Following the Resolution of the 7th Intergovernmental Meeting (IGM) (March 2002, Vladivostok, Russia), which allows NOWPAP to evolve toward a RAC-based rather than an Activity-based structure, the CEARAC Focal Points Meeting (FPM) was established in order to promote smooth and effective implementation of special monitoring and assessment of the marine and coastal environment. The 1st CEARAC FPM (February 2003, Toyama, Japan) defined the priorities and initial steps of CEARAC activities. Following the decision of the 1st CEARAC FPM, CEARAC has been working on monitoring and assessing Harmful Algal Blooms (HAB) under Working Group 3 (WG3), and developing new monitoring tools using Remote Sensing (RS) under Working Group 4 (WG4). Since 2008, development of a new assessment method of eutrophication status in the NOWPAP region was included in CEARAC activities as a joint activity of WG3 and WG4. Also, taking into consideration increase of the global focus on with eutrophication, marine biodiversity, pollution by hazardous substances and maritime activities as ways of marine environment assessments and organization of CBD COP 10 (October, 2010, Nagoya-Aichi, Japan), CEARAC has been seeking appropriate works for conserving marine biodiversity which can be in line with CEARAC's responsibility as a specialist of monitoring and coastal environment assessment.

Activities of CEARAC in the workplan such as CEARAC Focal Points Meetings, WG3 and WG4 meetings, specific activities for WG3 and WG4, and other intersessional work are funded by the NOWPAP Trust Fund and supported by in-kind contribution by NPEC, originated from the Ministry of the Environment, Japan, Toyama Prefectural Government and Japan Fund for Global Environment, and operation of CEARAC is financially supported by Toyama Prefectural Government, including the personnel salaries and other miscellaneous costs.

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2. Report on the Implementation of planned Activities and Budget of CEARAC for the 2010-2011 Biennium

Following the agreed mandated tasks for CEARAC for the 2010-2011 biennium at the 13th NOWPAP IGM (20-21 October 2008, Jeju, Korea) and discussion at the 7th CEARAC FPM (14-15 September 2009, Toyama, Japan), CEARAC submitted a proposal of its workplan for the 2010-2011 biennium to the 14th IGM (8-10 December, 2009, Toyama, Japan) with the budget of US\$ 140,000.

Besides the specific activities to be implemented, CEARAC planned to maintain and update existing CEARAC websites: HAB Integrated Website, RS Portal Site, Homepage of RS Educational Materials and Website on Oil Spill Monitoring by RS on regular basis in order to provide up-to-date information in a timely manner.

Also, taking into consideration future CEARAC activities which might not be implemented under the current WG3 and WG4 framework, a new expert meeting (with experts of HAB, RS, eutrophication and biodiversity as participants) was planned to be held back-to-back with regular FPMs for more effective and efficient way of thorough discussion and information sharing within the limited budget. CEARAC continues to make efforts on close cooperation and communication within the NOWPAP member states and with other international organizations through the abovementioned meetings and every other opportunity for successful implementation of our activities, sharing/exchanging of information and avoidance of unnecessary duplication of activities.

During the 14th IGM, the budget for CEARAC for the 2010-2011 biennium was decided as US\$107,000 and revision of it was done accordingly. Then, the revised budget plan was circulated among the FPs and adopted.

2.1. Organization of Meetings

2.1.1. 8th CEARAC Focal Points Meeting with Expert Meeting (13-15 September 2010, Toyama, Japan)

The Eighth CEARAC Focal Points Meeting and the Expert Meeting on Assessment of Eutrophication Status and Marine Environment Focusing on Marine Biodiversity were held in 2010. 30 experts and authorities including the members of FPM, representatives of NOWPAP RCU and RACs and others, including experts on eutrophication and marine biodiversity, participated in the meetings.

During the FPM8, following the report of CEARAC activities for the 2008-2009 biennium, the workplan and budget for the 2010-2011 biennium were explained. Until the last biennium, CEARAC mainly conducted activities related to harmful algal blooms (HAB) and remote sensing (RS). However, in accordance with expansion of its scope of work, CEARAC implements activities focusing on marine biodiversity and eutrophication. Therefore, the new workplan includes activities on these issues as well as ones on HAB and RS: (1) development of the new marine environmental assessment method focusing on marine biodiversity, (2) implementation of the assessment of eutrophication status, (3) updating the Integrated Reports on HAB and Ocean Remote Sensing (published in 2005), and (4) organization of the 3rd training course on remote sensing data analysis. After review and discussion of each agenda item, all the presented workplan was adopted with some modifications.

In accordance with the expansion of the scope of CEARAC's working areas (eutrophication and marine biodiversity) from this biennium on, the Expert Meeting on Assessment of Eutrophication Status and Marine Environment Focusing on Marine Biodiversity back-to-back with FPM8 (14 September) were held.

In the Expert Meeting, in addition to reports of interim results of eutrophication assessment by selected experts of the NOWPAP member states and introduction of a pilot study in Toyama Bay for the development of the new marine environmental assessment method focusing on marine biodiversity, there was more thorough discussion on the 2 activities: eutrophication and marine biodiversity. There were some concerns on availability of necessary data and applicability of proposed assessment methods to the NOWPAP waterbody. After consideration of the feasibility of the activities from various angles, the meeting agreed on putting some modifications in the proposed assessment methodology focusing on marine biodiversity. For the eutrophication assessment, it is decided to continue the activity in each selected sea area.

2.2. Maintenance of CEARAC websites

2.2.1. HAB Integrated website

Updating of HAB Integrate Website has been conducted based on the rule for updating HAB Integrated Website. Newly updated contents are as follows;

- HAB Case Study Database
Based on the updated HAB Case Study Report from each member state, the database has been updated adding the latest information.
- HAB Reference Database
Published papers on harmful algal blooms in the NOWPAP region in 2006-2008 were added.
- *Cochlodinium* Homepage
Cochlodinium Homepages in Chinese, Korean and Russian languages are newly established under kind support from CEARAC FPs.

2.2.2. Ocean Remote Sensing Portal site

A new page (NOWPAP Satellite Sea Watch) is underway construction by combining the existing two pages: Portal Site on Ocean RS, and Education materials for utilization of RS. The new page plans to be open in the second half of 2011.

2.2.3. Website on oil spill monitoring by remote sensing

In response to huge oil spill incidents in Gulf of Mexio in April 2010 and Bohai Sea in June 2011, several satellite images were analyzed by Pacific Oceanological Institute and uploaded on CEARAC website on oil spill monitoring by remote sensing and sent to MERRAC immediately after those incidents occurred.

2.3. Specific Projects -CEARAC Projects-

CEARAC has made every effort to implement activities on WG3 (HABs) and WG4 (RS) since its inception. Recently more projects have been added to CEARAC activities: RAP MALI in collaboration with other RACs, and eutrophication and marine biodiversity based on NPEC activities.

2.3.1. Development of the new marine assessment method focusing on marine biodiversity

CEARAC conducted a pilot study in Toyama Bay in 2010 to develop a methodology for assessing coastal environment focusing on marine biodiversity with in-kind support of NPEC. The progress of the pilot study was explained at the Expert Meeting held

back-to-back with FPM8 (September 2010). The meeting discussed the feasibility of the assessment method in other NOWPAP sea areas and availability of relevant information/data. After various aspects of the proposed methodology were considered, it was decided to modify the proposed methodology to better suit the situation of the NOWPAP region.

At the expert meeting on eutrophication and marine biodiversity in the Northwest Pacific Region held on August 2011, the future CEARAC activity on biodiversity including marine environmental assessment was discussed. The meeting proposed following three activities as future CEARAC activity; (1) To develop the criteria on ecologically and biologically significant areas (based on CBD criteria) which will contribute to designing of MPA in each NOWPAP member state and to implement case study for applying criteria in the NOWPAP region, (2) To develop a framework of common indicators for assessment of marine environmental and ecosystem status in the NOWPAP region (Developing data inventory) and to implement case study for applying the framework, and (3) To assess the effectiveness of existing MPA in each NOWPAP member state.

2.3.2. Implementation of the assessment of eutrophication status by the NOWPAP member states

The interim report of the assessment was presented by the contracted experts of the NOWPAP member states at the Expert Meeting (September 2010) and also there was discussion on applicability of the assessment and availability of relevant information. After clearance of the procedures of the assessment and necessary information again, the activity was decided to be continued.

In the Expert Meeting on marine biodiversity and eutrophication in the NOWPAP region (4-5 August 2011), the final results of the assessment of eutrophication status implemented in the selected sea areas in the NOWPAP region were presented. Draft Integrated Report on eutrophication status in selected sea area in the NOWPAP region was also presented at the meeting. Some participants requested CEARAC to circulate the draft Integrated Report before finalization of the report. The finalized report will be published by the end of 2011.

2.3.3. Updating the Integrated Report on HABs for the NOWPAP Region

In order to update the Integrated Reports on HABs (2005), CEARAC firstly contracted with experts of each member state to update HAB case Study Report (2008) by adding latest information including data. In this updated reports, new target sea

areas were added and information in existing and newly added sea areas has been submitted. Based on information collected through HAB Case Study, CEARAC prepared the first draft of the report. This draft was circulated to CEARAC FPs and WG3 expert for review and the final version of the report will be published by the end of 2011.

2.3.4. Updating the Integrated Report on Ocean Remote Sensing for the NOWPAP Region

In order to update the Integrated Report on Ocean Remote Sensing, CEARAC has been collecting relevant information on remote sensing of marine environment in the Northwest Pacific region. The first draft of the report was circulated to WG4 experts in the NOWPAP member states for comments and the final version of the report will be published by the end of 2011.

2.3.5. Organization of the 3rd NOWPAP Training Course on Remote Sensing Data Analysis (NOWPAP/PICES/WESTPAC Joint Training Course on Remote Sensing Data Analysis)

The 3rd training course will be held in Far Eastern Federal University in Vladivostok, Russia on 8-12 October 2011 with PICES and IOC/WESTPAC as co-organizers. The course will be sponsored by NOWPAP, PICES, IOC/WESTPAC, Pacific Oceanological Institute and Far Eastern Federal University. There were 58 applications from 24 countries for the 3rd training course and the Organization Committee selected 6 trainees as funded. Besides, around 20 self-funded trainees plan to join the program. They are from the 4 NOWPAP states and India, Indonesia, and the Philippines. With close contact and cooperation of the V.I.II'chev Pacific Oceanological Institute of Far Eastern Branch of the Russian Academy of Sciences, CEARAC has been preparing the training course.

2.4. Cooperation, coordination with NOWPAP and other international activities in the 2010-2011 biennium

CEARAC has kept close contacts with NOWPAP RCU, other RACs, UNEP and relevant regional and international organizations in order to promote implementation and development of NOWPAP. Taking every opportunity, CEARAC has participated in meetings and/or workshops held by other organizations to exchange information and data and disseminate past and present CEARAC activities.

2.4.1. Events CEARAC participated in 2010-2011 (as of August, 2011)

1) 2010 NOWPAP International Coastal Cleanup Campaign and Workshop on Marine Litter (1-2 October 2010, Jeju, Korea)

2-1) Marine Biodiversity Forum in the Northwest Pacific Region (16 October 2010, Toyama, Japan)

NPEC, the host organization of CEARAC, organized the Marine Biodiversity Forum in the Northwest Pacific Region. The objectives of the forum were to share information on the activities related to marine biodiversity conservation and to exchange opinions on the importance of the activities for marine biodiversity conservation at global, regional and local scales. Some experts from UNEP and other Regional Sea Programme participated in the forum to give presentations. CEARAC also made a presentation on current situation of marine environment and marine biodiversity in Toyama Bay

2-2) CBD COP 10 Side-event (18-29 October, Nagoya-Aichi, Japan)

CEARAC participated in CBD COP10 as an exhibitor and introduced activities on the conservation of marine environment for the NOWPAP region and the experimental assessment of the marine environment in Toyama Bay using an indicator on marine biodiversity indicators.

3) PICES 2010 Annual Meeting (23-27 October 2010, Portland, U.S.A.)

CEARAC staff gave a presentation on HAB Integrated Website.

4) Second International Conference on Global Change and the Environment in Asia and Pacific (GCEAP): Inland Waters and Coastal Environment (28-29 October 2010, Hong Kong, China)

CEARAC staff gave a presentation titled "Preliminary assessment of coastal marine eutrophication by remote sensing."

5) The 15th NOWPAP IGM (16-18 November 2010, Moscow, Russia)

6) 2011 PICES FUTURE Workshop (26-28 April 2011, Hawaii, U.S.A.)

CEARAC staff gave a presentation entitled "New Marine Environmental Assessment Method for Toyama Bay."

7) The 9th DINRAC FPM (26-28 April 2011, Hangzhou, China)

8) The 14th MERRAC FPM and the 6th Competent National Authorities Meeting (7-10 June 2011, Daejeon, Korea)

9) Expert Meeting on Marine Biodiversity and Eutrophication in the Northwest Pacific Region (4-5 August 2011, Toyama, Japan)

NPEC organized the expert meeting on marine biodiversity and eutrophication with experts of these fields in the NOWPAP member states and other international, regional and national organizations such as Helsinki Commission (HELCOM), National Oceanic & Atmospheric Administration in the U.S.A (NOAA), and North Pacific Marine Science

Organization (PICES). There were presentations on activities by other international, regional and national organizations, existing activities on marine biodiversity in the NOWPAP member states and final results on the assessment of eutrophication status in the selected sea areas in the NOWPAP region, based on the Common Procedures. Through the 2-day meeting, there were opinions and suggestions given on CEARAC's workplan for the 2012-2013 biennium.

2.4.2. Events CEARAC plans to participate in FY2011 (from September 2011)

- 1) NOWPAP ICC (20-21 September, Lianyungang, China)
- 2) PICES 2011 Annual Meeting: Mechanisms of Marine Ecosystem Reorganization in the North Pacific Ocean (14-23 October, Khabarovsk, Russia), Workshop on "Remote sensing techniques for HAB detection and monitoring" (15 October)
- 3) The 9th POMRAC FPM (25-26 October, Khabarovsk, Russia)
- 4) The 16th NOWPAP IGM (20-22 December 2011, Beijing, China)

2.5. Publication of CEARAC annual newsletter

The 7th issue of CEARAC's annual Newsletter was published in 2010 with introduction of CEARAC activities for 2010-2011 and some articles from experts and focal points of CEARAC. The 8th issues will be published at the end of 2011. These leaflets are distributed to people who are concerned with CEARAC activities and special monitoring and coastal environmental assessment for free of charge.

2.6. CEARAC Activities on RAP MALI

CEARAC has been conducting its designated activities on marine litter (RAP MALI) under leadership of NOWPAP RCU and cooperation with other RACs:

2.6.1. Revise "Marine Litter Guidelines for Tourists and Tour Operators in Marine and Coastal Areas"

The contents of the current guidelines are general ones on marine litter issue. So, specific issues on marine litter in the tourism industry and good practices for prevention of marine litter generation in this sector will be added to the revised guidelines. The revised guidelines will be published by the end of 2011 in digital format.

2.6.2. Update the pamphlet "Current situation on marine litter in the NOWPAP region"

CEARAC published the pamphlet “Current situation on marine litter in the NOWPAP region” which introduces current status based on the data submitted from each member state in 2009. CEARAC will update this pamphlet using the latest data from NOWPAP member states. The updated pamphlet will be published by the end of 2011.

2.6.3. Compile and harmonize marine litter monitoring data on beaches (provided by the member states) and submit collected data to DINRAC

CEARAC submitted the data in 2009 on marine litter monitoring provided from each member state to DINRAC and updated the website “NOWPAP National Monitoring of Marine Litter”. The data in 2010 will be submitted to DINRAC after being provided from each member state.

2.6.4. Provide information on best practice to reduce marine litter generation from land-based sources

To reduce marine litter in the NOWPAP region, it is necessary to develop and take countermeasures against litter generation from land-based sources. NOWPAP member states conduct effective countermeasures. Thus, CEARAC will collect such useful information and provide them through CEARAC website. CEARAC plans to contract with experts on marine litter to collect such countermeasures taken in each member state

2.7. Others

A large earthquake in Tohoku region of Japan on March 11, 2011 generated tsunami that caused great damage to a wide range of coastal areas in Tohoku area. NPEC submitted a research proposal for understanding the damage of sea grass bed from the earthquake and tsunami by remote sensing data to the Mitsui and Co. Ltd. Environment Fund in May, 2011. The proposal was accepted in July, 2011 and the research will be conducted from July 2011 to March 2014.

3. Budget and Expenditures of CEARAC activities for the 2010-2011 Biennium

In accordance with the decision of the 14th NOWPAP IGM, planned budget for implementing CEARAC activities for the 2010-2011 biennium was decreased to US\$ 107,000, excluding activities on RAP MALI. The revised workplan and budget was informed to the CEARAC FPs soon after the IGM. The 8th CEARAC FPM reviewed the

revision of workplan of the 2010-2011 once again and adopted them. Table 1 shows planned budget, paid expenditure and expected expenditure (including partially paid ones) of CEARAC for the 2010-2011 biennium. Status of implementation of planned activities and incurred expenditure is regularly reported to UNEP through NOWPAP RCU in accordance with the Project Document that was signed between UNEP and NPEC.

**Table 1 Planned budget and tentative expenditures of CEARAC
for the 2010-2011 biennium (in USD)**

Activities	Actions	Planned Budget (in USD)			Expenditures (Expected) (in USD)		
		In 2010	In 2011	Total	In 2010	In 2011	Total
2 FPMs with Expert Meetings	Participants (experts on HAB, RS, eutrophication, marine biodiversity and CEARAC FPs)	27,000	27,000	54,000	27,000	27,000	54,000
Web Maintenance - WG3 - WG4	- Update HAB Integrated Website - Develop the website in the member states' languages - Update Ocean Remote Sensing Portal Site - Update Website on the RS Educational Materials	3,000	2,000	5,000	0	5,000	5,000
Specific projects - Biodiversity - WG3+WG4(joint) - WG3(HAB) - WG4(RS)	- Develop new marine environmental assessment method focusing on marine biodiversity eutrophication assessment by the member states - Update Integrated Report - Update Integrated Report - 3 rd Training Course on RS Data Analysis	In kind 12,000 8,000	in kind 4,000 2,000 4,000 10,000	 40,000 + In-kind	In-kind 0 0	In-kind 16,000 10,000 4,000 10,000	 40,000 + In-kind
Cooperation and coordination of CEARAC activities		2,000	2,000	4,000	213	3,787	4,000

Newsletter		2,000	2,000	4,000	0	4,000	4,000
<u>Sub-TOTAL</u>		54,000	53,000	107,000	27,213	79,787	107,000
Activities on RAP MALI	- Revise sectoral guidelines - Update pamphlet - Compile/harmonize ML monitoring data on beaches (provided by member states) and submit to DINRAC - Provide info. on best practice to reduce ML generation from land-based sources			5,000 2,500 in-kind 3,000	0 0 In-kind 0	5,000 2,500 In-kind 3,000	5,000 2,500 In-kind 3,000
<u>Sub-TOTAL</u>				10,500	0	10,500	10,500
<u>GRAND TOTAL</u>				117,500	27,213	90,287	117,500