



Newsletter from **NOWPAP CEARAC**

Northwest Pacific Action Plan
Special Monitoring & Coastal Environmental Assessment
Regional Activity Centre

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Improving Environmental Collaboration

Greetings from the Director of CEARAC, Masanobu Miyazaki



It is my great pleasure to announce the publishing of the first issue of the NOWPAP CEARAC Newsletter. The newsletter carries CEARAC's update activities and future plans and I hope it will be a great bridge between CEARAC

and all those who are concerned with the marine environment.

What is CEARAC?

The Special Monitoring & Coastal Environmental Assessment Regional Activity Centre (CEARAC) is one of the four Regional Activity Centres (RACs) coordinating 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 Region (NOWPAP), which was adopted in the First NOWPAP Intergovernmental Meeting (IGM) (Seoul, September 1994). NOWPAP is a Regional Seas Programme of the United Nations Environment Programme (UNEP). Four members—the People's Republic of China, Japan, the Republic of Korea, and the Russian Federation—are participating in the Programme in order to develop and manage the regional coastal and marine environment wisely.

The ultimate goals of CEARAC, within the framework of NOWPAP, are to establish a collaborative regional monitoring programme while carrying out assessment of the state of the marine and coastal environment and also to develop special monitoring tools for marine and coastal environment in NOWPAP region.

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, Government of Japan. Finalization of the Memorandum of Understanding

(MoU) with UNEP was made in July 2002. This document provides the overall framework for co-operation between UNEP and NPEC and allows CEARAC full functionality and operation.

What is our task?

The CEARAC Focal Points Meeting (FPM), consisting of authorities and experts from each of the NOWPAP member was established in order to promote smooth and effective implementation of CEARAC activities. The First CEARAC FPM (Toyama, Japan, February 2003) defined the priorities and initial steps of CEARAC activities. Following the decision of the First CEARAC FPM, CEARAC has been working on monitoring and assessing Harmful Algal Blooms (HAB) under Working Group 3, and developing new monitoring tools using by Remote Sensing under Working Group 4.

I sincerely thank all of the CEARAC Focal Points and Working Group experts for their great efforts in the furthering of CEARAC activities. CEARAC has just started its activities. We are still young and some difficulties may exist in the path of our goals. However, we will make all possible efforts to achieve our goals so that future generations can enjoy the benefits of the Northwest Pacific Ocean as we do.



No. 1
August 2004

NOWPAP's Promising Future

Ellik Adler, Coordinator, UNEP Regional Seas Programme and Interim Coordinator of NOWPAP



This year is a momentous one for the Regional Seas Programme. First, it's a double anniversary: it was 30 years ago that the Programme began, and just 10 years

ago that the North West Pacific Action Plan (NOWPAP)-one of the jewels in the Regional Seas crown-was adopted.

But 2004 is also the year that UNEP once again endeavoured to put the marine environment firmly at the top of the international agenda, by choosing 'Oceans and Seas' as the theme of World Environment Day (5 June).

Though the marine environment is an issue of global concern, I for one continue to believe that the key to the protection and sustainable development of our oceans and coastal areas lies at the regional level rather than only the global. It is here where we can most effectively address the accelerating degradation of the marine environment, by engaging governments in both comprehensive and specific actions to protect their shared heritage. Not only can the regions 'customize' their action plans and legal instruments to fit their own needs-as NOWPAP has done so admirably-they can reach across regional boundaries to their sister programmes, sharing their experiences, successes and setbacks.

NOWPAP is one of our great success stories, for the sheer scale of the area it covers, the enormous number of people it represents, and its ability to unite the nations of the region in a common cause. It epitomizes the conviction shared by all the Regional Seas -that by joining forces, countries can strike a balance between the provision of human needs; use of resources; economic development; and the protection, enhancement and sustainability of the environment.

Today we celebrate a milestone of CEARAC, one of the four NOWPAP Regional Activity Centres already up and running: the launch of its first newsletter.

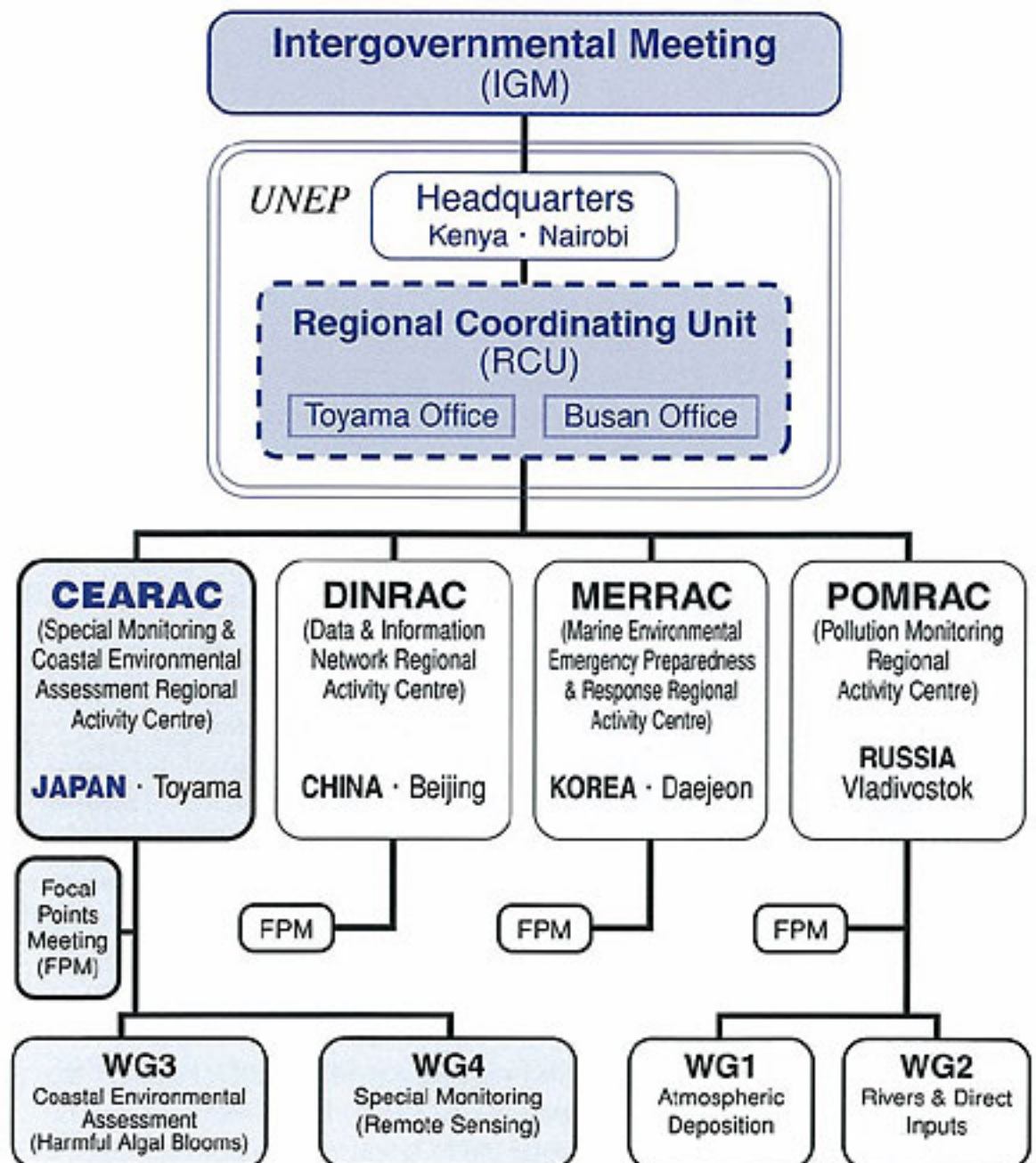
In a way, the emphasis on monitoring by CEARAC in Japan and its partner POMRAC in the Russian Federation brings the Regional Seas Programme full circle. The very first Action Plan was based on a strong programme of monitoring and assessment in the Mediterranean, and served as a model for subsequent regional programmes. Although monitoring techniques are very different today, the philosophy is the same: before we can act on behalf of the environment we must have reliable, consistent, and timely information on its health and prognosis. NOWPAP has an important role to play in continuing this scientific tradition.

In 2003 the UNEP Governing Council set

out the elements of a new strategy for the Regional Seas, the essential elements of which are echoed in the work programme of NOWPAP: intensified monitoring and assessment, emergency preparedness, land-based sources of pollution, implementation of Multilateral Environmental Agreements, biodiversity protection, public outreach, and the ecosystem approach to environmental management.

Another common element is the emphasis on partnership and commitment. It is therefore with great hope and anticipation that we join hands around the North-West Pacific and the other Regional Seas to confront the many challenges which lie before us.

NOWPAP Organization



○ Until Regional Coordinating Unit (RCU) is established, the Regional Seas Programme of UNEP functions as the Interim Secretariat of NOWPAP.

○ Focal Points Meeting (FPM) is established for each RAC in order to review and advise the RAC on its activities.

Meet the NOWPAP Family

NOWPAP has four Regional Activity Centres (RAC) for its implementation. The RACs play a central role in coordinating regional activities in specific fields of priority through a network of national institutions designated by the NOWPAP Members.

Data and Information Network Regional Activity Centre (DINRAC)

is located in the Environmental Information Center (EIC) of the State Environmental Protection Administration (SEPA) in Beijing, People's Republic of China.

Marine Environmental Emergency Preparedness and Response Regional Activity Centre (MERRAC)

is located in the Korea Research Institute of Ships and Ocean Engineering (KRISO) / Korea Ocean Research and Development Institute (KORDI) in Daejeon, Republic of Korea.

Pollution Monitoring Regional Activity Centre (POMRAC)

is located in the Pacific Geographical Institute (PGI), Far Eastern Branch of Russian Academy of Sciences (FEB-RAS), Vladivostok, Russian Federation.

Regional Coordinating Unit (RCU)

The RCU (the interim secretariat is hosted by UNEP until the establishment of the RCU) maintains close contact with the RACs and is in charge of the coordination of all activities undertaken by the RACs. The NOWPAP members agreed to establish a co-hosted NOWPAP RCU in Toyama, Japan and Busan, the Republic of Korea. The establishment of the RCU is reaching the final stage.

Step Forward — CEARAC Activities

NOWPAP CEARAC Focal Points Meeting (FPM)

NOWPAP CEARAC FPM was organized in order to give advice on CEARAC activities. The members of FPM consist of experts and authorities from the NOWPAP members. The secretariat of CEARAC always appreciates their contributions.

Thanks to the cooperation of the FPM members, CEARAC successfully held the 1st FPM in February 2003 and 2nd FPM in March 2004. The FPMs made helpful suggestions and gave useful information for the studies and management of CEARAC.

Report of the 2nd NOWPAP CEARAC FPM

The 2nd NOWPAP CEARAC FPM was held on 15-17 March 2004 in Toyama, Japan. The meeting was organized by about 25 experts and authorities, including the members of the FPM, the head of the IOC Sub-Commission for the Western Pacific (IOC/WESTPAC), the representatives of the RACs of NOWPAP, and others.

Following the opening addresses, the Director of CEARAC explained CEARAC activities for the 2002/03 biennium and expenditures of the budget for the activities. He also explained the final version of the Terms of Reference for the CEARAC FPM approved by the 8th Intergovernmental Meeting. The meeting reviewed the activities and budget of CEARAC for 2002/03 and then approved them.

During the discussion of CEARAC activities, it was suggested that NOWPAP/CEARAC should build up partnerships with other organizations such as IOC/WESTPAC, which conducts activities similar to those of NOWPAP/CEARAC.

Besides the suggestions, the invited guest, Dr. Miguel D. Fortes, head of IOC/WESTPAC, introduced the role of IOC and the recent activities of IOC/WESTPAC in the Western Pacific. FPM agreed to the need for continuous partnership between IOC/WESTPAC and NOWPAP.

The meeting also approved the Terms of Reference and workplans for Working Group 3 (WG3) and Working Group 4 (WG4) after reviewing them. One of the important activities for both WG3 and WG4 is to publish national reports. The approved workplans of the two groups indicated that

each NOWPAP member would make the first issues of the national reports in 2005. The FPM pointed out that cooperative work and communication between the two groups can be made because the groups have common focuses such as red tide and eutrophication. The meeting also recognized the importance of cooperation with other RACs, such as DINRAC, in order to implement the activities of NOWPAP efficiently.

Finally the FPM approved the workplan and budget of CEARAC activities for the 2004/05 biennium.

Announcement of the 3rd NOWPAP CEARAC FPM

The 3rd Focal Points Meeting is planned in summer 2005 in Toyama, Japan.

List of FPM Members

Country	Name	Institute or Organization
China	Mr. Jianhui Zhang	China National Environmental Monitoring Center
	Ms. Xin Jing	China National Environmental Monitoring Center
Japan	Mr. Norihiko Tanaka	Ministry of the Environment
	Dr. Yasuo Fukuyo	The University of Tokyo
	Dr. Ichio Asanuma	Japan Marine Science and Technology Center
Korea	Dr. HeeGu Choi	National Fisheries Research and Development Institute
	Dr. DongBeom Yang	Korea Ocean Research and Development Institute
Russia	Dr. Leonid M. Mitnik	Russian Academy of Sciences
	Dr. Vladimir Shulkin	Russian Academy of Sciences

NOWPAP Working Group 3 (HAB)

NOWPAP Working Group 3 (WG3) has been established mainly to implement monitoring and assessment of harmful algal blooms (HAB) including red tide, which is chosen as the initial subject of coastal environmental assessment.

Report of the 1st NOWPAP Working Group 3 Meeting

Thanks to the kind support of WG3 members, NOWPAP CEARAC held the 1st NOWPAP Working Group 3 Meeting from 28-30 October 2003 in Busan, the Republic of Korea. The meeting reviewed workplans for WG3, and discussed the details of WG 3 activities.

One of activities discussed was the publishing of the national and integrated reports on HAB in the NOWPAP region so as to accumulate reliable information and knowledge on HAB in the area. WG3 approved that each NOWPAP member would present a national report on HAB in its own country and CEARAC would create an integrated report based on those national reports. The first issuance of the national reports will be in 2005, following revision at the next WG 3 meeting.

Another activity discussed at the meeting was the establishing of a database on HAB. WG3 agreed to build the database as a common platform for HAB study in the NOWPAP region. The CEARAC secretariat gathered information and materials about HAB in the NOWPAP region as much as possible. The amount of literature information was, however, still insufficient. Therefore the CEARAC secretariat requested the WG 3 members to provide more information and

copies of articles about HAB in the region in order to construct the operational database. WG3 also agreed to establish a corresponding group in order to intensively study *Cochlodinium* because it is one of the most concerned harmful species in the NOWPAP region. Dr. Hak-Gyoon Kim (invited guest) and Dr. Yansuo Fukuyo (WG3 member) were elected as co-leaders of the group. Dr. Hak-Gyoon Kim is not a member of WG3 but he agreed to join the corresponding group as an expert on HAB from the National Fisheries Research and Development Institute of Korea.

WG3 activities in 2004

Currently WG3 is mainly moving forward with (1) the publication of national and integrated reports, (2) the establishment of a database on HAB, and (3) the establishment of a correspondence group on *cochloclodium*. First of all, CEARAC is now preparing the procedure of national reports. The national reports will be compiled based on the guideline agreed on the first WG3 meeting and are expected to be printed as a CEARAC

technical report by the end of 2005. The progress will be discussed at the next WG3 meeting.

For the database of literatures and reports about HAB activity, the prototype of the database will be constructed to demonstrate how it works. The scientists in WG3 have made great efforts to collect literatures and information on HAB for the database. The CEARAC staff would like to thank all scientists, especially, Dr. Chang-kyu Lee, Dr. Tatiana Orlova, and Mr. Mingjiang Zhou for their help with those troublesome tasks.

The CEARAC secretariat is also making a proposal of the activities of the corresponding group on *cochloclodium*. The discussion between the group members will be made using email or mailing lists to reduce the tasks and costs of meetings.

Announcement of the 2nd NOWPAP WG3 Meeting

The 2nd NOWPAP Working Group 3 Meeting is planned on November 2004 in Qingdao, China.

List of WG3 Members

Country	Name	Institute or Organization
China	Mr. Jianhui Zhang	China National Environmental Monitoring Center
	Mr. Mingjiang Zhou	Chinese Academy of Science
Japan	Dr. Yasuo Fukuyo	The University of Tokyo
	Dr. Osamu Matsuda	The Research Institute for the Seto Inland Sea
Korea	Dr. Sam-Goun Lee	National Fisheries Research and Development Institute
	Dr. Chang-Kyu Lee	National Fisheries Research and Development Institute
Russia	Dr. Vladimir Shulkin	Russian Academy of Sciences
	Dr. Tatiana Orlova	Russian Academy of Sciences

NOWPAP Working Group 4 (RS)

One of the two responsibilities that CEARAC is entrusted with is to develop special monitoring tools for marine and coastal environment which cannot be covered by routine pollution monitoring. Remote Sensing is our current target as the new monitoring tools under the Working Group 4 (WG4). At the first stage, WG4 is focusing on oil spill and eutrophication as applications supported by Remote Sensing.

Report of the 1st NOWPAP Working Group 4 Meeting

Thanks to the kind support of WG4 experts, NOWPAP CEARAC held the 1st NOWPAP Working Group 4 Meeting on 1-3 December 2003 in Vladivostok, the Russian Federation. The meeting reviewed workplans for WG4 and discussed the details of activities of WG4.

The first WG4 meeting agreed on the development of a portal site on remote sensing in the NOWPAP region as the first step for developing a remote sensing information

network. The portal site is proposed as an option to share understanding of the status, challenges, and opportunities of marine environmental monitoring by remote sensing in the NOWPAP region, and to share the information for future monitoring system establishment.

The first WG4 meeting also agreed that CEARAC would support the development of the website on remote sensing for oil spill monitoring at the Pacific Oceanological Institute (POI) of Russia.

WG4 activities in 2004

Currently, WG4 is mainly pushing forward (1) the preparation of national reports, (2) the development of a portal site on remote sensing, and (3) the development of a website on remote sensing for oil spill monitoring.

CEARAC is now preparing the procedure of national report. The national report will be compiled based on the Guidelines for National Report agreed at the First WG4 meeting and are expected to be printed as a CEARAC technical report by the end of 2005. The progress will be discussed at the

next WG4 meeting.

The portal site consists of many website addresses which provide information on marine remote sensing. The main information sources of the portal site are NOWPAP members. Each NOWPAP member will be requested to provide website addresses having related information to CEARAC. The information is referenced from national reports as well as from other regions and projects if necessary. The information is organized and is searchable by criteria such as sensor, utilization field, or country. Users in the NOWPAP region can access the portal site

and obtain information from it.

The purposes of developing the CEARAC website on remote sensing for oil spill monitoring are to help provide information such as early detection of slicks, size estimates, prediction of the movement of the slick and possibly the nature of the oil. We are thankful to Dr. Mitnik, Russian CEARAC FP/WG4 member for working on this task.

Announcement of the 2nd NOWPAP WG4 Meeting

The 2nd NOWPAP Working Group 4 Meeting is scheduled to be held on 14-15 October, 2004 in Beijing, China.

List of WG4 Members

Country	Name	Institute or Organization
China	Ms. Xin Jing	China National Environmental Monitoring Center
	Dr. Chenghu Zhou	Chinese Academy of Sciences
Japan	Dr. Ichio Asanuma	Japan Marine Science and Technology Center
	Dr. Joji Ishizaka	Nagasaki University
Korea	Dr. Young-Sang Suh	National Fisheries Research and Development Institute
	Dr. Sang-Woo Kim	National Fisheries Research and Development Institute
Russia	Dr. Leonid Mitnik	Russian Academy of Sciences
	Dr. Anatoly Alexanin	Russian Academy of Sciences



Workplan and Budget for CEARAC for 2004/05

Workplan & Budget for CEARAC for 2004/05 was approved in the 2nd CEARAC FPM. In order to put more time and budget into National Reports, it was amended in July 2004. This Workplan and Budget will be finalized in the 9th IGM (November 2004, Busan, Korea)

Activity	Planned date	Budget US\$	Activity	Planned date	Budget US\$
Organization of CEARAC 2 nd Focal Points Meeting	March 2004 ; Toyama	24,000	Harmonization of WG3 National Reports	Spring 2005	4,000
Publication of CEARAC Newsletter	Summer 2004	2,000	Harmonization of WG4 National Reports	Spring 2005	4,000
Preparation of the National Report of WG3 (HAB) (\$4,000 for each country)	July 2004-March 2005	16,000	Organization of CEARAC 3 rd Focal Points Meeting	July 2005 ; Toyama	23,000
Preparation of the National Report of WG4 (RS) (\$4,000 for each country)	July 2004-March 2005	16,000	Publication of CEARAC Newsletter	Summer 2005	2,000
Organization of 2 nd Meeting of WG3 (HAB)	Fall 2004 ; Qingdao, China	18,000	Preparation of the Integrated Report of WG3 (HAB)	Throughout 2005	4,000
Organization of 2 nd Meeting of WG4 (RS)	Fall 2004 ; Beijing, China	15,000	Preparation of the Integrated Report of WG4 (RS)	Throughout 2005	4,000
Intersessional work	Throughout 2004/5	6,000	Printing of National Reports & Integrated Reports	Throughout 2005	4,000
Cooperation, coordination of CEARAC activities	Throughout 2004/5	8,000	TOTAL		150,000

(July 2004)

Overview of the Activities on Special Monitoring and Coastal Environmental Assessment in Korea

Hee Gu Choi, Senior Researcher, National Fisheries Research & Development Institute (CEARAC Focal Point of Korea)



Effective environmental monitoring is essential so that environmental impacts can be accurately measured and mitigation measures assessed.

Environmental

monitoring in the Korean waters has been commenced in 1970s. The initial monitoring system was very simple and the measurement parameters were very limited. However, approach to environmental monitoring has changed significantly over time. Owing to large-scale change in environmental problems, more state-of-art monitoring system became to be required to access the environmental status in detail and to prepare the reasonable countermeasure for the protection of environment.

Since the first scientific report on red tide in 1961 at Jindong Bay, a subarea of Jinhae Bay, the red tide outbreaks in Korean Wa-

ters until the late 1970s were mostly restricted to some innermost bays in Jinhae bay and its vicinity, and were small-scale and lasted only a short period during summer time. However, the huge red tide was occurred in Jinhae Bay in 1981, causing severe damage to cultured living organisms as well as natural marine resources. Since then, more frequent and lasting red tides have occurred regularly every year in the south coast of Korea. Many researchers reported that the occurrence of red tide resulted in the eutrophication of the coastal waters by the input of the industrial waste and sewages. The major species changed from *Gymnodinium mikimotoi* and *Gyrodinium* sp. in 1980s to *Cochrodinium polykrikoides* in 1995. The comprehensive red tide research and monitoring have been conducted in the aquaculture areas and near coastal industrial sites by National Fisheries Research and Development Institute. Nowadays, red tide monitoring is carried out using research vessels and helicopter. However, remote sensing system combined with these

monitoring is developing for the better prediction of red tide.

As remote sensing techniques, we are operating four kinds of earth observing satellites: NOAA satellites for water temperature and SeaWiFS, MODIS and OCM satellites for ocean color. The calibration and validation of satellite data was done through the comparison with the in situ data performed in the field monitoring of the Korean offshore waters. The satellite data on water temperature and ocean color can be available in the web site (<http://www.nfrdi.re.kr/kodec>) with free. We upgrade these data very promptly every day for fisherman.

The others studies in progress are the oceanographic features of the upwelling cold water, recurring eddy, red tide, optical properties, quantification of transparency, and so on around the Korean peninsular from multi-decipherable satellite remote sensing.

Overview of the Activities on Special Monitoring and Coastal Environmental Assessment in Russian Federation

Leonid M. Mitnik, Head, Satellite Oceanography Department, V.I. Il'ichev Pacific Oceanological Institute, Far Eastern Branch, Russian Academy of Sciences (CEARAC Focal Point of Russia)



Extent of Russian western, northern and eastern marine boundaries is very high. Human activity profoundly affects the coastal ocean, and coastal waters in their turn

influence the populations that live nearby. The open areas and especially the shore zones are unique environments that support complex ecosystems. At the same time, an-

thropogenic changes during the past decades caused by increasing land use, release of municipal or industrial wastewater, and oil pollution from various direct and indirect sources are more intense in these coastal regions than elsewhere.

Investigations of marine environment quality in the northwest Pacific Ocean have been carried out aboard Research Vessels (R/V) of FERHRI and FEB RAS for the last 30 years. Application of remote sensing techniques for sensing the sea surface started

more than 25 years ago. Active and passive sensors working at microwave, infrared, and optical ranges have been installed on R/V, airplanes and helicopters. The aims of these investigations are to estimate marine environment quality under anthropogenic pressure of different intensity and to advance sensors and algorithms of polluted water detection and geophysical parameters retrieval.

In accordance with Federal Program "World Ocean" (2003-2007), several Institutes of FEB RAS (POI, IMTP, IACP, PIG, IMB)

as well as FERHRI, TINRO-Center and other organizations participate in comprehensive investigations of oceanic processes, characteristics and resources of Far Eastern Russian seas, their state and productive possibilities to better understand operation of marine ecosystems. A special attention is given to the comprehensive study of the state and variability of the coastal zone of the Far Eastern seas. Satellite remote sensing contributes significantly to solve these tasks. New generation of research satellites launched in the last decade serves as a valuable source of information on the coastal zone. Among the several different sensors Synthetic Aperture Radar (SAR) is probably the most sophisticated, because of its high ground resolution (usually 25 m and below)

and its ability to penetrate cloud and operate at night. Oil slicks appear as dark patches on SAR images because the presence of surface oil dampens ripples and thus reduces the backscatter signal recorded by the SAR. However, automatic determination of oil slicks based only on SAR images is still problematic because of the difficulty of distinguishing them from other dark features in the image, especially at low wind speeds. Among such oil look-alikes are natural (biogenic) films, wind shadows, upwelling zones, etc. The contrast between spilled oil and the surrounding oil-free water, which determines the chance of detecting the spill, depends on amount and type of spilled oil as well as on a number of environmental factors such as wind speed, SST, currents and

current shift zones. Environmental factors also determine spreading and weathering of surface oil. Thus, whilst SAR data provides the main information about oil pollution, the complex and highly changeable nature of the coastal environment means that monitoring problems require synergistic use of several instruments first of all those mounted on European ENVISAT (Advanced SAR) and American Aqua (Advanced Microwave Scanning Radiometer AMSR-E) and QuikSCAT (scatterometer) as well as Russian-Ukrainian Sich-1M satellite (Real Aperture Radar, multichannel microwave radiometer, etc.) planned to launch in August 2004.

Introduction of Noxious Red Tide

Jianhui Zhang, Vice Professor, China National Environmental Monitoring Center, (CEARAC Focal Point of China)



"Red Tide" is a common name for such a phenomenon where certain phytoplankton species contain reddish pigments and "bloom" such that the water appears

to be colored red. The term "red tide" is thus a misnomer because they are not associated with tides; they are usually not harmful; and those species that are harmful may never reach the densities required to discolor the water.

In general, red tide has two types, one is noxious red tide and the other is innocuous red tide. Noxious red tide means organism that has some toxin or excrete some toxin as main algae. If noxious red tide is happened, it will harm the fish culture and oceanic environment; sometimes even affect the human's health. If cell number exceed the standard or toxin in seashell exceeds 80µgSTX/100g (400MU/100g), we can estimate noxious red tide is happened.

Harmful algae are microscopic, single-celled plants that live in the sea. Most species of algae or phytoplankton are not harmful and serve as the energy producers at the base of the food web, without which higher life on

this planet would not exist.

A small number of species produce potent neurotoxins that can be transferred through the food web where they affect and even kill the higher forms of life such as zooplankton, shellfish, fish, birds, marine mammals, and even humans that feed either directly or indirectly on them. Scientists now prefer the term, HAB, to refer to bloom phenomenon that contain toxins or that cause negative impacts.

All the world, 260 species algae among of more than 4000 species algae can form red tide, about 70 species algae can excrete some toxin. In China, 127 species algae can form red tide, among of them, less than 30 species algae are toxin. At present, we know that the noxious red tide has five types; they are Paralytic Shellfish Poisoning (PSP), Diarrhetic Shellfish Poisoning (DSP), Neurotoxic Shellfish Poisoning (NSP), Amnesia Shellfish Poisoning (ASP) and Ciguatera Fish Poisoning (CFP). Although alga's toxin is different, but they have common mechanism: build up alleyway of cell, stop neuromuscular conduction. In China, toxic incidents were happened by PSP and DSP. Some species algae have PSP, for example, *Alexandrium catenella*, *Alexandrium tamarense*, *Gonyaulax* sp., etc.. The source of DSP is *Dinophysis* sp., for example, *Dinophysis*

acuminata, *Dinophysis rotunda*, *Dinophysis fortii*, *Prorocentrum lima*, etc..

Noxious red tide affect seashell and most of toxin are in its digestive system. If people see this kind of seashell as food, it would be alimentary toxics. At present, we have no good antidote for toxics by red tide. The way for preventive toxics is to deal with seashell by high temperature or to wipe off parts that have much toxin. This way can reduce 50% toxin.

It is known that noxious red tide is a focus point of reduced harmful. So we should enhance scientific research work and cooperate with the other countries. At the same time, it is important to ask the fishing population to inform the government when they find red tide. To protect sea environment is necessary way for reduction of red tide.



In 1999 Hong Kong red tide

Greeting for the Issuing of the First Newsletter of CEARAC

Shinichi Arai, Director, Global Environmental Issues Division, Ministry of the Environment, Japan (Former CEARAC Focal Point of Japan)



On behalf of the Ministry of the Environment, Japan (MOEJ), it is a great honor for me to greet you on the occasion of the publishing of the first issue of

CEARAC Newsletter.

NOWPAP is an important sub-regional activity in Japan in the promotion of environmental conservation of the Northwest Pacific through international co-operation among its four members and UNEP. The Ministry of the Environment has been very supportive of NOWPAP activities, in particular, monitoring and assessment of harmful algal blooms and remote sensing of the marine and coastal environment, for which Working Groups were established under CEARAC.

CEARAC, which was founded in 1999 as one of the four Regional Activity Centres and is hosted by NPEC, is responsible for

the special monitoring and coastal environmental assessment activities of NOWPAP. These activities are a part of the NOWPAP Prioritized Project; the establishment of a collaborative regional monitoring program. MOEJ is providing assistance to these activities through NPEC. For example, the Marine Environmental Watch System, which is funded by MOEJ and operated by NPEC, is designed to provide basic information which is helpful to other related NOWPAP projects, and its web site provides marine environmental status photographs sent from satellites such as NOAA into its database. (<http://www.nowpap3.go.jp/jsw/index.php>)

Recently UNEP and Korean and Japanese governments have signed MOUs on the establishment of the Regional Coordination Unit in Busan (Korea) and Toyama (Japan). I hope RCU will open and work in a full fledged manner as soon as possible, as RCU will facilitate the development of NOWPAP even though it will have limited resources. I think good co-operation among four RACs under RCU is one of the keys to the further success of NOWPAP. MOEJ hopes NOW-

PAP will expand its activities including research of and measures against marine litter through co-operation between CEARAC and other RACs.

I believe CEARAC Newsletter is a good tool to disseminate up-dated information on the latest CEARAC activities and their outcomes, not only to RACs and RCU, but also to other related institutions, government officials and the general public in a timely fashion. In particular, I would hope the CEARAC Newsletter will be easy to understand and be a source of useful information for policy makers. It is also a good means to obtain feedback, which is very much important in making CEARAC activities more user-oriented.

Finally I would like to mention that MOEJ will keep supporting CEARAC through NPEC and would like to request for better co-operation and continued support of CEARAC by NOWPAP members and all the stakeholders.

Visit CEARAC Website

Visit our Website : <http://cearac.nowpap.org/>

The CEARAC Website greatly contributes to the wider publicity for CEARAC and NOWPAP activities together with CEARAC Newsletter.

Announcement

The CEARAC Newsletter is published yearly and is distributed free of charge. For additional copies, or if you would like to be placed on our mailing list, please contact us at the following address : webmaster@cearac.nowpap.org

NOWPAP CEARAC

Northwest Pacific Action Plan
Special Monitoring & Coastal Environmental Assessment Regional Activity Centre

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