

Reports of Workshop on NOWPAP Regional Action Plan on Marine and Coastal Biodiversity Conservation (RAP BIO) and Workshop on CEARAC Medium-term Strategy for Marine Biodiversity Conservation (CEARAC MTS)

CEARAC organized two workshops jointly on 28-29 November in Chiba, Japan. Nominated experts for RAP BIO and nominated experts for CEARAC coastal habitat and environmental DNA (eDNA) projects participated in the workshops.

On the first day, 28 November, the workshop on RAP BIO was held. Unfortunately, international consultant for RAP BIO, Dr. David Coates couldn't participate in the workshop, and Dr. Ning LIU, scientific officer of NOWPAP RCU moderated the workshop. After Dr. Ning explained the objective of the workshop and the discussion paper prepared by Dr. Coates, contracted experts of the NOWPAP member states introduced national actions for marine biodiversity conservation in their respective states. Then, they agreed to review the discussion paper and provide additional information based on the national biodiversity strategies of each member state, if necessary. All participants reviewed the discussion paper and provided their comments. Main comments provided from them are as follows;

- NOWPAP RAP BIO should be along with national biodiversity strategies. At the beginning of RAP BIO, existing national strategies should be reviewed and it should show the common objectives among the member states
- Strategic Plan for Biodiversity 2011-2020, including Aichi Biodiversity Targets will be revised to Post 2020 Targets at the COP15 held in China in 2020. When NOWPAP develops the Action Plan, we should refer to the new global targets.
- Assessment of ecosystem services is an important element for marine biodiversity conservation. However, NOWPAP has not assessed ecosystem services with support of economist/social scientists, so it is difficult to assess the historical trend of ecosystem services.
- In the past biodiversity activities, we faced the limitation of available data on marine biodiversity. Therefore, it may be difficult to assess the trend on several biodiversity topics in the NOWPAP region.

After a long discussion, the participants of the workshop agreed to revise the workplan and the schedule of the activity on RAP BIO. Based on the comments provided from the experts of RAP BIO, the discussion paper will be revised and submitted to the next NOWPAP IGM (IGM24) to be held in February 2020. CEARAC used only 15,000 USD

for this project, and still has 15,000 USD. With the leftover money, an additional workshop will be held in summer 2020 with NOWPAP RCU, all RACs and international consultant in order to prepare a draft RAP BIO. The draft RAP BIO will be submitted to the member states by the end of 2020 to be reviewed during the 2021, which is expected to be approved by the end of 2021.

On 29 November, another workshop on CEARAC MTS was held. After introduction of the workshop, the participants reviewed the final draft of CEARAC MTS. They agreed to submit the CEARAC MTS to CEARAC FPs for their approval for submission to the 24th IGM.

In the morning session, the participants discussed a new project for the 2020-2021 biennium, assessment of distribution of tidal flats and salt marshes in the NOWPAP region. As a keynote speaker, CEARAC Secretariat invited Dr. Nicholas Murray, James Cook University, Australia. Dr. Murray is an expert who developed a tidal flat distribution mapping tool and the manager of the Global Intertidal Change. In order to map the distribution of tidal flats and salt marshes in the NOWPAP region with satellite images, support from Dr. Murray is helpful. Dr. Murray introduced the history of development of the global tidal flats mapping tool and provided ideas of how to collaborate with CEARAC project through the video conference. The workshop participants recognized the mapping tool developed by Dr. Murray is a very useful tool for the NOWPAP region and asked for his support to the CEARAC project.

Then, the experts on tidal flats and salt marshes of the NOWPAP member states introduced information on tidal flats and salt marshes distribution in each member state. In the NOWPAP region, wide tidal flats are distributed in the coastal area of China and Korea in the Yellow Sea. In Japan, most of tidal flats are located in the Seto Inland Sea and Ariake Sea. In Russia, tide is very weak and distribution of tidal flats in the coastal area of Russia is very limited, only in the northern part of the NOWPAP region, Strait of Tartary, intertidal areas are located. Each member state has available data and information on tidal flats and salt marshes distribution. The participants discussed the CEARAC's workplan for assessment of distribution of tidal flats and salt marshes in the 2020-2021 biennium, and agreed as follows:

- In 2020, CEARAC Secretariat with support by Dr. Murray will develop a draft tidal flats and salt marshes distribution map using satellite images. National experts will review the draft map and revise it based on available data and information in each member state.

- In 2021, CEARAC Secretariat will prepare a historical distribution map from 1980s.

Using information, such as report on reclamation in the NOWPAP region will be developed by DINRAC, anthropogenic impacts on tidal flats and salt marshes will be assessed by CEARAC Secretariat and experts.

The expected outputs of this project are a tidal flats and salt marshes distribution map in the NOWPAP region and a regional report on assessment of distribution of tidal flats and salt marshes in the NOWPAP region.

In the afternoon, a session for another new project, environmental DNA (eDNA) was held. The experts of the member states reported the status on application of eDNA techniques in their respective states. Japan is a pioneering country, and has a long history on study using eDNA. A Japanese expert group developed a database of fish metabarcoding (MiFish) and assessed the distribution of fishes along all Japanese coasts. In China, eDNA is used for conservation of Chinese egrets. By using eDNA, the number of Chinese egrets and their sex are monitored. In Korea, distribution of phyto- and zooplankton is monitored using eDNA. Korean experts try to assess the relation between fish distribution and plankton distribution using eDNA. In Russia, eDNA has just be started its application. Monitoring of phytoplankton species using eDNA, development of a database of fish metabarcoding were just started. We found out that in the all NOWPAP member states, eDNA technique has been applied, but the degree of its application is different among the member states. The experts agreed to organize a training course to share the methodology of eDNA analysis among the member states and develop a common manual for eDNA analysis. The first training course will be held in spring 2021 in Kobe University, Japan. In addition, participants recognized the usefulness of analysis manual developed by the eDNA Society, Japan, and need to develop metabarcoding database in each country and share among the NOWPAP member states.

The draft workplans of assessment of distribution of tidal flats and salt marshes in the NOWPAP region and a training course of eDNA analysis reviewed by the experts during the workshop and both of them were agreed. More detailed workplans will be prepared by CEARAC Secretariat and propose the activities at the next CEARAC FPM to be held in early summer in 2020.

The meeting also discussed the future CEARAC activities after 2020, and agreed to continue discussion in the next biennium.