

## Messages

### Greetings from Bicol University, 11<sup>th</sup> International Kuroshio Science Symposium, Kochi University, Kochi, Japan

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On behalf of Bicol University (BU), I would like to extend our warm greetings to all guests, participants, and benefactors of the 11th International Kuroshio Science Symposium in Kochi University (KU), Japan. I would like to take this opportunity to thank KU for the continued assistance to and collaboration with BU for more than a decade now. Our University President Dr. Arnulfo M. Mascarinas would like to send his sincere thanks to KU and best hopes for the outcomes of this symposium.

A little more than 12 years ago we met with a group of scientists from KU who went to our research presentation. Our presentation then was on Lagonoy Gulf that covered a comparative analysis of fisheries, coastal habitats and socio-economics from 1994 to 2004. We think that this technical presentation sparked interest among us to cooperate toward mutually beneficial programs. In 2007, the first Symposium was held in Japan where BU researchers were invited. In the following years, several faculty members of BU have pursued and completed PhD degrees in KU as scholars of the Japanese government. Scholarships are the single, most impactful program to the R & D and education efforts of BU. They do not simply enhance the ways of doing science, but they provide benefits that are lifelong that transcend formal agreements. Researchers from BU continue to avail of this competitive opportunity particularly the presentation of papers in the annual Kuroshio Symposium.

Like the Kuroshio Current that gathers and transports productive and warm waters, the Symposium continually brings in together young and beautiful minds with heightened enthusiasm for scientific productivity. Our formal relationship bound by education agreements has basis in nature because the Philippines and Japan are closely connected through the Kuroshio Current. Our convergence as peoples seems to stem from the convergence of our natural ecosystems. We share a huge, encompassing marine waters that is Kuroshio-influenced including the challenges and problems to sustain its integrity and productivity. The pioneers in forging this agreement are not only scientists but are also genuine visionaries. We thank them for this vision.

Let us maintain our fervor to improve the science that each one of us professes for the welfare of our peoples, in particular, and the world, as a whole.

Thank you to one and all!

### Opening message for 11<sup>th</sup> International Kuroshio Science Symposium

#### Milagros C. Morales

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and Aquatic Resources Regional Office  
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Respected officials and professors of Kochi University, distinguished representatives of the different member institutions of the Kuroshio University League Network, vigorous young researchers from the 2017 Sakura Science Plan, strong-willed graduate students of the Graduate School of the Kuroshio Science, ladies and gentlemen: Good Afternoon!

In 2014, I had the opportunity to be here at Kochi University to attend the 8<sup>th</sup> International Kuroshio Science Symposium which focused on the formation of the Kuroshio University League Network towards the establishment of a sustainable society in the Kuroshio Region through cross border education. Today, three years later, we are all here again gathered for the 11<sup>th</sup> International Kuroshio Science Symposium while exploring on the future perspective on cross-border network for research and education of Kuroshio Science.

Looking back, we may ask, “*what has been done?*” so we can move forward on “*what should we do?*” As we promote the cross border education in the Kuroshio Region, we started to break barriers among countries in the region by sharing resources that stimulate learning and intensify favorable relationship among the collaborating nations. The annual convention, which provide an avenue for exchange of ideas on the multi-disciplinary approach on coastal and resource management is a substantial progress on what has been done. The multiplicity of information and knowledge is beneficial to all member institutions. In addition, I would like to highlight and commend the strong initiative of the Kochi University in the promotion of the Program of Nurturing Talented People to Establish a Sustainable Society in the Kuroshio Region. The program, which is now on its third year, is expected to have its first output in the next few months. And I am confident and in full hope that the development of these young professionals will contribute to the advancement and future perspectives of

the marine and coastal resources along the Kuroshio region. Their training in the university and advancement of their respective areas of expertise is a great contribution to the development of human capital in the continuous quest for the maintenance and protection of resources along the Kuroshio Current.

As we enter the fourth cycle of the conference series, it is but proper that we need to reckon and view specifically on how to push forward what we have started in the last few years on the development of the Kuroshio University League Network through the promotion of cross border education. With all the invited speakers and presentation of recent researches on the biological, ecological and social concepts and perspectives, may we all be able to upgrade and enhance our knowledge on how to effectively and efficiently address the current and emerging challenges in the coastal and marine resources. In as always, may this symposium enkindle our spirits in our pursuit of safeguarding protection, management and conservation of marine resources through strengthening and intensifying our collaborations and commitment within the Kuroshio Region. At the end of this conference, it is anticipated that we will be able to see our way forward by conceiving strategies to mitigate the probable challenges and expanding the available opportunities.

The Bureau of Fisheries and Aquatic Resources is once again reaffirming its commitment as one of the partner institutions of the Kuroshio Network in ensuring the sustainable management of shared resources along the Kuroshio Region. We may not be an academic institution, but as the leading agency mandated to oversee the management, conservation and protection of the coastal and marine resources, we are open to any intervention particularly those which uphold reciprocity among institutes with the same principles as ours.

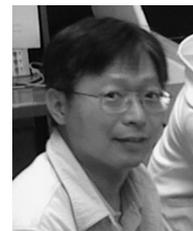
Finally, in behalf of the Bureau of Fisheries and Aquatic Resources, I would like to congratulate the Kochi University for hosting this year's symposium. Further, I would like to thank the organizers for making our participation possible and wish for the success of this event. With this, I would like to express our long desire to host the symposium in its turn in the Philippines.

Thank you very much and may we all have a fruitful and pleasant stay here in Japan.

*Mabuhay tayong lahat!!!*

### **Ching-Nen Nathan Chen**

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The powerful Kuroshio Current is involved in many aspects of the countries it flows by. The North Equatorial Current flows westwards between 10° and 20° North in the Pacific Ocean. It meets the land of the Philippines at Bicol region where it bifurcates towards north and south that are called the Kuroshio Current and the Mindanao Current, respectively. The Kuroshio Current continues its journey past eastern Taiwan and the Ryukyu islands of Japan, then reaches Kyushu, Shikoku and finally Honshu. Seawater of the Kuroshio Current is warm, higher than 20°C year round. Varying at different regions, its flow rate is between 0.5 and 3 meters per second, a non-stop natural transport belt in the ocean. Eddies and upwellings created in the Kuroshio path contribute to high primary productivity which supports abundant marine lives. Marine lives also use this current for long distance travel. The physical properties of the Kuroshio Current influence the climate, agriculture, and fishery of the Philippines, Taiwan and Japan.

There are many common interests brought by the Kuroshio Current among the three countries. One of the most important issues is marine conservation. A restoration case in Taiwan achieved with the help from friends in the Philippines was about giant clams. Giant clams, the big beautiful bivalves with symbiotic microalgae in their cells, drove to extinction *de facto* in Taiwan waters due to overfishing and water pollution. In the perspective of the Kuroshio Current, we can believe that the extinct giant clams in Taiwan waters were close relatives, if not exactly the same species, of the giant clams in the Philippine waters since their larvae can travel to Taiwan using Kuroshio Current. Transplantation of giant clams from the Philippines to Taiwan will be an effective solution to restore these bivalves, and this project is at work. On the other hand, the costly experience in Taiwan can be used by the Philippines for protection of giant clams and other species. This example demonstrates how the natural environments of the three countries are interconnected by the Kuroshio Current.

The Kuroshio Science Symposium provides a dialogue platform for marine scientists from the three countries to work together for common interests. My heartfelt thanks go to all the colleagues who organize and participate in this symposium. Wish all the participants in this symposium fruitful discussion.