

## Plenary Sessions

### Report of PLENARY SESSION 1

Moderator: DR. ANGEL B. ENCARNACION

Rapporteur: Dr. Renan U. Bobiles

First Plenary talk was given **Dr. Sakiko Orui Sakaguchi**, the first plenary speaker is an engineer in Japan Agency for Marine- Earth Science and Technology (JAMSTEC), Kanagawa Japan. Dr. Sakaguchi talk centered on Brackishwater Copepod Faunas in Kuroshio Current Region, and Diet Analysis of Juvenile Fishes Associated with Zooplankton including Copepods. According to her copepod density and abundance is link to the primary productivity and fishery production in the region.

Her study surveys on copepod faunas in 99 estuaries in the Kuroshio Current region (the western Japan, the Nansei Islands between Kyushu Island and Taiwan, South Korea and the northern Luzon, the Philippines) from 2006 to 2010. A total of 23 brackish-water copepod species were identified, including two new species, one revived species, and four undescribed species. The 2<sup>nd</sup> study look into the diet of Juvenile associated with the zooplankton and copepods. Diet analysis of prey taxa found in the stomach includes different methods that employs the conventional use of morphometrics, DNA analysis and combination of the aforementioned methods. Dr. Sakaguchi were able to identify 36 species using the conventional method (Morphometrics), 80 species using DNA analysis and 19 species for the combination of the two methods.

Dr. Sakaguchi concluded that the DNA-based method has advantages in detecting a higher number of prey species, but disadvantages, e.g., occurrence of unknown taxa due to lack of available sequence information in public gene databases and detection of secondary prey. Her study suggests that feeding habit (diversity of stomach contents) of juvenile fishes can be precisely understood by DNA-based method in addition to morphological observation.

The 2<sup>nd</sup> Plenary speaker is **Dr. Raul G. Bradecina** is the University Professor of Partido State University and currently the SUC President II at Partido State University in Goa, Camarines Sur. Dr. Bradecina obtained his PhD Environmental Economics at Kochi University, Kochi Prefecture, Japan through the Japan Society for the Promotion of Science (JSPS)-Department of Science and Technology, Ronpaku Dissertation PhD Scholarship Program. The talk of the 2<sup>nd</sup> Plenary speaker focused on Estimating the Value of Ecosystem Services and Biological Resources of Malabungot Protected Landscape and Seascape: An Application of the Total Economic Valuation Framework.

The objective of Dr. Bradecina study is to come up with

sustainable funding mechanism e.g. users fee and etc. Most importantly, is to estimate the economic value of annual benefits derived from the Malabungot Protective Landscape and Seascape. The method of Dr. Bradecina employed the use of "Total Economic Valuation (TEV) framework. The methods look into the benefits beyond those transacted in the market e.g. the existence value of resource.

The results of his study indicated that for the Direct use value of the Protected Landscape and Seascape were estimated around 308 million annually this includes the value of fishery production that can be derived and 1.29 million for the indirect use value coming from Ecotourism. Finally, the non-use value of the area were estimated around 69.25 million worth of benefits. Overall, the Malabungot protected landscape and seascapes were estimated with an annual total economic value of 379.5 million.

During the Open forum, Mr. Charlie \_\_\_\_\_ of Partido State University in Camarines Sur, raise a question if the abundance and density of copepod is affected by Climate change and what is its possible implication to the resource along the Kuroshio Region. Dr. Sakaguchi elucidate that there is direct impact to the diversity of organism in the region. Prof. Penaflo of ISU, directed his question to Dr. Bradecina regarding the hypothetical scenario presented to the respondents during the valuation of the Protected Landscape and Seascape. Dr. Bradecina explain four contingent valuation scenarios how monetary values can be derived.

### Report of PLENARY SESSION 2

Moderator:Dr. Plutomeo M. Nieves

Bicol State University Tabaco Campus

Rapporteur:Dr. Nico Jose Leander

BFAR RO3

**1. Plenary Talk #3:** "Kuroshio Current: What it means to Philippine Fisheries Management and Climate Change Adaptation"

Speaker: Dr. Mudjekeewis D. Santos

National Fisheries Research and Development Institute

Summary:

Dr. Santos discussed the uniqueness and importance of the Northeastern Seaboard of Northern Luzon, the areas influenced the Kuroshio Current, as evidenced by his numerous publications covering the areas of population genetics, biodiversity and fisheries. He also emphasized the detrimental effects of climate change in the areas influenced by Kuroshio

Currents in terms of fisheries, spawning habitats of the fish and the displacement of various commercially important fish species. In addition to this, Dr. Santos also presented various areas for research in the Northern Philippines. In the last part of his presentation, Dr. Santos presented his hypothesis on the importance of the Philippine Rise (Benham Rise) in combination with the Kuroshio Current on the marine biogeography and biodiversity in Northern Philippines.

**2. Plenary Talk #4:** “Launching Collaborative Projects with Biotechnological Techniques under Kuroshio Science Ph.D. network”

Speaker: Dr. Satoshi Kubota  
Professor, Graduate School of Integrated Arts and Sciences  
Kochi University

**Summary:**

Dr. Satoshi covered the following topics in his presentation: (1) diversity of biotechnology, (2) his experiences in helping setting up the Biotechnology Laboratory in Bicol University, (3) collaborative projects and (4) Framework Research and Education for Networking. He also discussed his protocol plan for Ludong of Region 02 to achieve Resource Conservation and Sustainable Utilization. The proposed plan includes: (1) Conservation Ecology, which includes the establishment of species identification thru DNA sequencing, (2) food science (Chemical Analysis of the \_\_\_\_\_ and Preference Test, and (3) Community Surveillance.

**I. OPEN FORUM**

1. Dr. Dick Soliman of Bicol University asked Dr. Santos about the national government’s action in addressing the difficulty in implementing fishery management

offshore and the perspective in Fishery Management in the offshore water. Dr. Santos answered that the programs and plans already in place but the problem is the implementation and possible researches from various stakeholders. He also stressed that dividing the country into 12 FMA’s is a good step in achieving science-based fishery management. In addition to this, he also pointed out that the other problem facing the government is the lack of desired deliverables for each of the action plans of the government because there is a lack of people/researches working in those areas.

2. Dr. Cleto L. Nanola, Jr of University of the Philippines in Mindanao asked Dr. Kubota if their research collaboration can be extended to the SUCs in Mindanao even though they are no longer part of the Kuroshio Area. To which Dr. Kubota answered that collaboration can be extended in various SUCs in Mindanao.

3. Dr. Charina Lyn Amedo-Repollo of UP-MSI asked Dr. Santos for possible collaboration to which the latter answered that the oceanographic data collected by UP-MSI’s team would be invaluable in science based fisheries management and NFRDI can be the bridge in helping translate science to policy. Dr. Santos also suggested that UP-MSI team should consult the different stakeholders to know their specific management objectives.

4. Dr. Evelyn Ame of BFAR RO2 asked Dr. Kubota to help them on their Ludong Project specifically in the chemical analysis/composition of Ludong in terms of taste and smell. Dr. Kubota answered that he is willing to extend help. It would be easy to do chemical analysis using chromatography.