



# SEAFDEC NEWSLETTER

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## SEAFDEC convenes the 39<sup>th</sup> Program Committee and 19<sup>th</sup> FCG/ASSP Meetings



*Participants of the 39<sup>th</sup> Program Committee Meeting*

SEAFDEC organized the 39<sup>th</sup> Meeting of the Program Committee (PCM) and the 19<sup>th</sup> Meeting of the Fisheries Consultative Group of the ASEAN-SEAFDEC Strategic Partnership (FCG/ASSP) on 28-30 November 2016 and 1-2 December 2016, respectively, in Yogyakarta, Indonesia to review the progress and achievements of implementation of SEAFDEC projects in 2016 and the programs of activity for 2017. The Meetings were hosted by IFRDMD with the cooperation of the Ministry of Marine Affairs and Fisheries (MMAF) of Indonesia.

The 39PCM reviewed twenty-one projects those were categorized under SEAFDEC Program Thrusts and two special projects, as well as one pipeline project under Japan-ASEAN Integration Fund (JAIF) which will be implemented in 2017. In addition, the 39PCM also discussed the Concept Proposal for the Special Event to commemorate the 50<sup>th</sup> Anniversary of SEAFDEC and another Concept Proposal on the Development of the ASEAN Common Fisheries Policy. Results from the review process and the recommendations of the 39PCM will be

submitted for endorsement by the higher authorities of the ASEAN through the FCG/ASSP and to the 49<sup>th</sup> Meeting of SEAFDEC Council for consideration and approval.

Back-to-back with the 39 PCM, the 19FCG/ASSP highlighted on the follow-up actions carried out by SEAFDEC and the ASEAN Member States with respect to the directives given at the 48<sup>th</sup> Meeting of the SEAFDEC Council, meetings of ASEAN bodies related to fisheries and other meetings of SEAFDEC. Status of the programs and activities implemented by SEAFDEC in 2016 and proposed for 2017 under the FCG/ASSP mechanism endorsed by the 39 PCM, the progress of the proposals under the ASSP framework, and issues of importance to the fisheries sector of the ASEAN-SEAFDEC Member Countries, especially those on CITES issues and combating IUU fishing, were also discussed. The results and recommendations of the 19FCG/ASSP would be submitted to the SEAFDEC Council and the ASEAN Sectoral Working Group on Fisheries (ASWGF) for endorsement to the higher authorities of ASEAN as appropriate.

## EDITORIAL

The fourth quarter of 2016 marked the close of 49 years of SEAFDEC presence in fisheries of the Southeast Asian region. As SEAFDEC soars higher towards attaining sustainable fisheries development in the region and as it enters the threshold of its Golden Anniversary in 2017, it continued to organize significant events that are beneficial to the countries in the region. The 39<sup>th</sup> Meeting of the SEAFDEC Program Committee was convened in November to sustain discussion and review of SEAFDEC programs and activities to make sure that these address the requirements and priorities of SEAFDEC Member Countries. Back-to-back with the Program Committee Meeting was the 19<sup>th</sup> Meeting of the Fisheries Consultative Group of the ASEAN-SEAFDEC Strategic Partnership which discussed issues and concerns on the sustainable development of fisheries in ASEAN-SEAFDEC Member Countries, and came up with corresponding policy recommendations for endorsement to the

*(Continued on Page 2)*



## EDITORIAL

(Continued from Page 1)

higher authorities of SEAFDEC and the ASEAN.

Collaboration with other organizations and agencies was also strengthened and/or forged, one of which was the signing of MOU by SEAFDEC and the Fish Market Organization of Thailand on the development and promotion of electronic system of the ASEAN Catch Documentation Scheme (e-ACDS). This is expected to pave the way for the development and implementation of the e-ACDS in the ASEAN Member States. SEAFDEC also joined various trade exhibitions on fisheries, including the one organized by the Seaweed Industry of the Philippines where AQD provided information on the seaweed culture technologies that it has developed.

SEAFDEC sustained the conduct of training courses and organization of workshops through its technical Departments, namely: TD, MFRD, AQD, MFRDMD, and IFRDMD. This included the training on capacity building for operating fishing vessels for Thai fishery officers, training on community-based freshwater aquaculture for remote rural areas, EAFM writeshop for the promotion of EAFM in sustainable fisheries management, workshop on regional cooperation for port State measures, international seminar on environment-friendly aquaculture, among others.

Another memorable event during the quarter was the assumption to office of the new Chief of MFRDMD, *Mr. Raja Bidin Raja Hassan* succeeding *Mr. Ahmad Adnan Nurudin* whose tour of duty at MFRDMD ended in October. With *Mr. Raja Bidin Raja Hassan* at the helm of MFRDMD, SEAFDEC looks forward to putting his expertise on pelagic stock assessment, fishery oceanography, climate change, remote sensing, and GIS, to optimum use for the benefit of the SEAFDEC Member Countries. ❖

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You can also send your comment  
on our Newsletter to  
[secretariat@seafdec.org](mailto:secretariat@seafdec.org).

## SEAFDEC signs MOU with Fish Market Organization to collaborate on e-ACDS



The MOU signed between FMO and SEAFDEC

On 27 December 2016 at Training Department (TD) premises in Samut Prakan, Thailand, SEAFDEC by the Secretary-General *Dr. Kom Silapajarn* signed an MOU with Fish Market Organization (FMO) of Thailand for collaboration on development and promotion of electronic system of the ASEAN Catch Documentation Scheme (e-ACDS).

During the 48<sup>th</sup> Meeting of the SEAFDEC Council in 2016, the SEAFDEC Council endorsed the plan to pilot test the ASEAN Catch

Documentation Scheme for Marine Capture Fisheries or ACDS initially in Brunei Darussalam, and SEAFDEC has been developing an e-ACDS as well as paper-based ACDS that could be applied by countries in the region with a view of combating IUU fishing and enhancing traceability of fish and fishery products from the region. Considering that the Fish Market Organization has already put in place an e-system of Marine Catch Purchasing Document (MCPD) for catches landed at ports under the operation of the FMO, it is therefore anticipated that such e-MCPD applied by FMO could provide a practical basis for development of e-ACDS for pilot testing in SEAFDEC Member Countries. Furthermore, considering that FMO has also gathered landing data throughout the past years, it is expected that under this MOU SEAFDEC could make use of such data for stock assessment of several species that are economically important for the region that could lead to more sustainable utilization of the resources.



## SEAFDEC joins the 9<sup>th</sup> Coordination Committee Meeting on the RPOA-IUU

As an Advisory Body to the Regional Plan of Action (RPOA) to Promote Responsible Fishing Practices including Combating Illegal, Unreported and Unregulated (IUU) Fishing in the Southeast Asia Region (RPOA-IUU), SEAFDEC represented by its Secretary-General, *Dr. Kom Silapajarn* accompanied by *Dr. Magnus Torrel* the Senior Advisor and other technical staff attended the 9<sup>th</sup> Coordination Committee Meeting on the RPOA-IUU organized from 22 to 24 November 2016 in Bangkok, Thailand. Hosted by the Government of Thailand, the Meeting was attended by RPOA-IUU participating countries, discussed the progress under the RPOA-IUU 2015-2016 Work Plan, and endorsed the reports from the Sub-Regional Groups.

During the Meeting, the representatives from SEAFDEC presented the key

issues on the implementation of RPOA-IUU which cover current resource and management situation, implementation of international and regional instruments, port State measures, regional market measures, regional capacity building and strengthening of MCS system. Several initiatives to support those key/core elements have been implemented by SEAFDEC, such as supporting the ASEAN Member States (AMSs) in developing the NPOA-IUU and NPOA-Capacity, encouraging AMSs in sharing fishing vessels information via the establishment of the Regional Fishing Vessels Record (RFVR), developing and promoting the ASEAN Catch Documentation Scheme (ACDS) to enhance the traceability of capture fisheries, as well as supporting the implementation of port State measures.



## SEAFDEC takes part in the International Forum on Global Food Resources



Participants during the Forum on Global Food Resources

Hokkaido University of Japan through its Graduate School of Global Food Resources in collaboration with Kasetsart University of Thailand organized the 3<sup>rd</sup> International Forum on Global Food Resources with the theme “Universities’ Role in Contributing to Asian Nations for the Issues of Global Food Resources,” on 13-14 December 2016 in Bangkok, Thailand. The event was aimed at obtaining/exchanging information on

issues and educational challenges faced by various sectors producing food resources, and establishment of international partnership particularly among academes for further educational programs in relation to global food resources.

During the Forum, SEAFDEC represented by the Information Program Coordinator Ms. Nualanong Tongdee, introduced and discussed the issues related to fishery and aquaculture in ASEAN region, highlighting on the important contribution of Southeast Asian fisheries to food security, and the challenges faced by various fishery sub-sectors in the region. Other presentations by the forum participants included issues and challenges confronting the fisheries and agricultural sectors, application of various farming systems, innovative R&D, and the roles of education in ensuring food security. ☒

## SEAFDEC takes part in FAO Expert Workshop on exploring human rights-based approach in implementing and monitoring the SSF Guidelines

SEAFDEC was represented during the “FAO Expert Workshop on Exploring the Human Rights-based Approach in the Context of Implementation and Monitoring of the SSF Guidelines” in Rome on 24-26 October 2016. Among other things, the SSF Guidelines (Article 1.2) indicates that the objectives are to be “*achieved through the promotion of a human rights-based approach by empowering small-scale fishing communities, including both men and women, to participate in decision-making processes, and to assume responsibilities for sustainable use of fishery resources by placing emphasis on the needs of developing countries and for the benefit of vulnerable and marginalized groups.*” Applying a human rights-based approach to the implementation of the SSF Guidelines has raised concerns from the ASEAN-SEAFDEC Member Countries as to the suitability of the approach for the region.

The Meeting provided useful recommendations that will be followed-up in the process of developing the (ASEAN) Regional Approach for the implementation of the SSF Guidelines during 2017 and 2018. A brief report of the Meeting highlighted some points that should be considered in the process of implementing the Guidelines, with the basic understanding that the SSF Guidelines is much more about the rights of people to fish and to generate livelihoods and income from small-scale fisheries as this is about the sustainable use of fisheries resources and conservation of important habitats.

The SSF Guidelines is people-centered, in addition to providing basic livelihoods as well as to balance and mitigate impacts of climate variability and economic/social difficulties. Thus, the interests, rights and responsibilities of small-scale fisher-folk, fish workers and communities need to be considered and strengthened. ☒

## AQD scientist presents poster paper at the World Lake Conference held in Bali



AQD scientist during the Conference

AQD Scientist Dr. Maria Lourdes Aralar and Senior Technical Assistant Engr. Emiliano Aralar presented a poster paper on “Plankton diversity in an aquaculture and capture fisheries site in Laguna de Bay, Philippines” during the 16<sup>th</sup> World Lake Conference (WLC) on 7-11 November 2016 in Bali, Indonesia, which gathered over 800 participants from around 40 countries. The Conference sessions included topics on policy improvement on lake management, limnology, biodiversity conservation, managing land use system, climate change and water crisis, ecotechnology and ecotourism and culture, and integrated lake basin management – all related to the conference’s theme “Lake Ecosystem Health and its Resilience: Diversity and Risks of Extinction.”

Among the highlights of the Conference was the awarding of the Ibaraki-Kasumigaura Prize given to deserving WLC member. This year’s award went to Philippines’ Engr. Alvin Faraon and his co-authors for their paper on “Valuation of Ecosystem Service of the Laguna Lake Basin: Erosion Control and Flood Water Retention.” This is the third WLC in a row where the Philippines won the prize.

A special meeting for the establishment of SEALNet or the “Southeast Asian Limnological Network” took place during the Conference with Indonesia taking the interim lead. The participants also went on a field trip to Lake Bratan and Lake Buyan, two of the crater lakes in the mountain range of Central Bali. ☒

# DEPARTMENTAL ACTIVITIES

## Capacity building for college students on fishing vessel operations



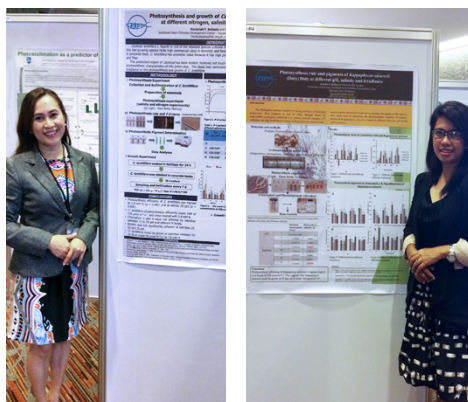
Students attending a lecture from TD staff

A 4-month “Training Course on Fishing Vessel Operations” is being conducted by TD during 4 October 2016 to 17 February 2017 at its premises in Samut Prakan, Thailand. A total of 21 students from Tinsulanonda Fisheries College in Songkhla Province attend

the training course designed to cover six relevant subjects, namely: 1) construction and stability of fishing vessels; 2) marine communication; 3) laws and regulations of navigation; 4) navigation technology practices; 5) marine machinery technology and practices; and 6) fishing gear technology and practices. During the training, the students undergo practical training onboard the M.V. SEAFDEC and the M.V. Plalung, and field visits to various shipping facilities. This training course is being organized in accordance with the Memorandum of Understanding signed between TD and the Vocational Education Commission of Thailand.



## AQD junior researchers present papers at the algal biotechnology conference



AQD Technical Assistants Ms. Hananiah Sollesta (left) and Ms. Jonalyn Mateo (right) beside their poster papers

Algal biotechnology is presently recognized as one of the most promising forefronts that provide sustainable sources of food, feed, and biofuel among others. Thus, this year’s theme for the 9<sup>th</sup> Asia-Pacific Conference on Algal Biotechnology (APCAB) was “Algae for Food, Feed, Fuel and Beyond.” The Conference was held from 15 to 18 November 2016 in Bangkok, Thailand.

During the Conference, AQD Senior Technical Assistant Ms. Rena Santizo-

Taan discussed the results of her study on the use of enriched *Ulva pertusa* meal as a feed (or diet) for juvenile abalone. She reported that enriched *U. pertusa* meal can be utilized as a feed ingredient in abalone juvenile diets, substituting fishmeal and soybean meal in providing up to 30% of the protein in the feed.

In addition, AQD’s Technical Assistants Ms. Jonalyn Mateo and Ms. Hananiah Sollesta presented poster papers on their studies “Photosynthesis rate and pigments of *Kappaphycus alvarezii* (Doty) at different pH, salinity and irradiance” and “Photosynthesis and growth of *Caulerpa lentillifera* J. Agardh at different nitrogen, salinity and irradiance levels,” respectively. The presentation of Ms. Mateo revealed that nursery-produced *K. alvarezii* can be best grown in rearing water at salinity of 35 ppt, pH 8 and under 350  $\mu\text{mol m}^{-2}\text{s}^{-1}$  of irradiance. Meanwhile, Ms. Sollesta’s poster showed that *C. lentillifera* could be grown at a wide range of salinities between 25 to 35 ppt. Optimal irradiance is 155  $\mu\text{mol m}^{-2}\text{s}^{-1}$  and nitrogen level is best at 1.8 mM.



## SEAFDEC participates in the Lower Mekong Fish Passage Conference

SEAFDEC Secretary-General, Dr. Kom Silapajarn, and officers of TD attended the “Lower Mekong Fish Passage Conference: Applying Innovation to Secure Fisheries Productivity” convened by the Charles Sturt University, U.S. Department of the Interior, Living Aquatic Resources Research Center (LARReC), and the National University of Laos on 14-17 November 2016 in Vientiane, Lao PDR. Participants of the Conference included global experts in the fields of riverine development, fish passage and aquatic ecosystem management, government agencies, researchers, and natural resource managers.

During the Conference, Dr. Chumnarn Pongsri, former SEAFDEC Secretary-General and Leader of SEAFDEC Fishway Project presented a paper on the “Results from the Laboratory into the Field: Flume-based Fishway Design Approaches,” where he explained the works undertaken by SEAFDEC on the development of on-station fishway model that aimed to study the ability of indigenous fish species to swim upstream, with initial experimental trials undertaken in 2016 for few fish species. Dr. Kom Silapajarn also chaired the session on “Perspectives on Fishery Importance.”



The experiment, the result of which was presented at the Conference

## Kasetsart students visit and take study trip to TD



*Students from Kasetsart University on-board the M.V. SEAFDEC*

TD welcomed seventy-one (71) students from the Faculty of Fisheries, Kasetsart University on 21 October 2016. During the visit, TD presented an institutional video introducing SEAFDEC and the activities in each Department, as well as the “Fishing Technology in ASEAN.” Moreover, the students also visited the TD facilities such as the fishing and engineering workshops, the M.V. SEAFDEC and M.V. SEAFDEC 2. The knowledge which the students gained is expected to enhance their experience in fisheries. ❖

## SEAFDEC holds its 2016 Department Chiefs' Meeting



*Participants of the SEAFDEC Department Chiefs' Meeting*

SEAFDEC organized its Department Chiefs' Meeting on 3 December 2016 in Yogyakarta, Indonesia to discuss matters that are urgent as well as emerging issues that need to be addressed among the Secretariat and SEAFDEC Departments. The discussion dwelled on the recommendations made during the recently concluded 39<sup>th</sup> Meeting of SEAFDEC Program Committee and 19<sup>th</sup> Meeting of ASEAN-SEAFDEC Strategic Partnership of the Fisheries Consultative

Group, and the corresponding follow-up actions that need to be undertaken by the SEAFDEC Departments. Arrangements for the 50<sup>th</sup> Anniversary Celebration of SEAFDEC, the information and important activities to be carried out in 2017, and the scheme for monitoring and evaluation of the achievements of the FCG/ASSP programs were also discussed and finalized for submission to the forthcoming 49<sup>th</sup> Meeting of the SEAFDEC Council in 2017. ❖

## Capacity building on fisheries management for Thai fishery officers



*Participants of the training course*

TD in collaboration with REBYC-II CTI Project organized the “Training on Fisheries Management for Thai Fishery Officers” in Rayong Province and Songkhla Province of Thailand on 1-4 and 15-18 November 2016, respectively. A total of 47 new fishery officers who are in charge for the Port In - Port Out Control (PIPO) participated in the said training, which aimed to build the officers' capacity and enhance their knowledge on

the principles of fisheries management and fish gear technology which could be applied to support their works for the PIPO Control. The training course focused on the status of fishery and management at the national and regional level, fishing gear materials, classification of fishing gear, basics of fishing gear construction and design through fishing operations.

Port In-Port Out Control (PIPO), a measure to check on IUU fishing vessels, was fully implemented in Thailand starting from July 2015. Under such measure, fishing vessels weighing 30 gross tonnage and over have to report before 12 hours when they enter and depart from the fishing port, with the required documents such as fishing license, boat registration, logbook, ID of Master Fisherman, etc. Fishing vessels that are not registered could not depart for any fishing operation. ❖

## Students from Burapha University visit and conduct study trip to TD



TD welcomed two lecturers and 48 students from the Faculty of Marine Technology, Burapha University, Chanthaburi Campus, who visited TD premises from 26 to 27 November 2016. TD presented the institutional video introducing SEAFDEC and the activities in each department, and conducted the students to a tour of TD facilities such as the fishing and engineering workshops, the M.V. SEAFDEC and M.V. SEAFDEC 2. Moreover, students also had the chance to practice net repair and knot tying on the second day. ❖

## The Ambassador of Sweden pays visit to TD



*H.E. Staffan Herrstrom during his on-board visit to the M.V. SEAFDEC*

H.E. Staffan Herrstrom, the Ambassador of Sweden to the Kingdom of Thailand and his party paid an official visit to the SEAFDEC Training Department in Samut Prakan, Thailand on 24 November 2016. At the welcoming reception, SEAFDEC Secretary-General and Chief of TD, *Dr. Kom Silapajarn* led the SEAFDEC staff in greeting

the Ambassador. The role played by SEAFDEC and TD on the regional fisheries development and significant achievements were presented to the guests. Subsequently, a tour to observe TD facilities such as fishing workshop, engineering workshop, M.V. SEAFDEC and on-board visit to M.V. SEAFDEC 2 was conducted. ❖

## SEAFDEC convenes 17<sup>th</sup> Meeting of its Information Staff Program



SEAFDEC organized the 17<sup>th</sup> Meeting of the Information Staff Program (17ISP) in Tangerang, Indonesia from 26 to 28 October 2016. Hosted by IFRDMD, the Meeting was attended by information officers and staff from the Secretariat and Departments, and reviewed the information strategy of SEAFDEC which is generally aimed at raising the visibility and strengthening communications among the SEAFDEC Departments and Secretariat.

During the Meeting, the progress made by the Secretariat and Departments in implementing the Information Strategy was discussed and recommendations were raised for improvement. The 17ISP Meeting also initiated discussions on the

events to be organized for the celebration of the 50<sup>th</sup> Anniversary of SEAFDEC in 2017, as well as the production of the Coffee Table Book which would be launched in 2017. The recommendations of the 17ISP Meeting on these aspects would be submitted for consideration during the forthcoming Department Chiefs Meeting. Moreover, the Meeting also discussed the draft texts provided by the Secretariat and Departments for the publication of the Southeast Asian State of Fisheries and Aquaculture (SEASOFIA) in 2017. Results of the discussions and required updates would be submitted for endorsement during the 39<sup>th</sup> Meeting of the SEAFDEC Program Committee in November 2016. ❖

## AQD wins big at WINFISH Congress



*Ms. JG Suyo with AQD scientist Dr. Jon Altamirano (in yellow)*

AQD's research paper on "That's my spot! Local fishing and its implications on sandfish *Holothuria scabra* sea ranching in Pandaraonan, Guimaras, Philippines" by AQD Research Assistant *Ms. Jee Grace Suyo* won the Best Presentation Award at the 8<sup>th</sup> National Conference on Gender and Fisheries of the National Network on Women in Fisheries in the Philippines, Inc. (WINFISH) organized on 28-30 September 2016 in Iloilo City, Philippines. In her paper, *Ms. Suyo* explained that the study looked into the fishing activities of men and women, as well as fishing spaces, socio-demographic profile and perceptions on project management and governance. She demonstrated how to quantify the involvement of men and women in fishing and fishing-related activities, and the gender differences in coastal zone utilization. The paper highlights on the need to consider women as important stakeholders in fisheries management projects wherein they should be highly involved in the decision-making process, particularly in the formulation of policy interventions that may limit women's access to certain areas in the intertidal zone.

Supported by the Bureau of Fisheries and Aquatic Resources, with the Philippine Council for Agriculture, Aquatic and Natural Resources Research and Development, and the University of the Philippines Visayas, WINFISH serves as a venue for sharing research findings, experiences and emerging ideas on gender and fisheries. ❖

## M.V. Umitaka Maru visits and docks at TD



*M.V. Umitaka Maru docking at TD pier*

Operated by the Tokyo University of Marine Science and Technology (TUMSAT), the M.V. Umitaka Maru arrived TD and was docked at TD Pier from 25 to 30 November 2016. The visit aimed to take the TUMSAT cadets onboard the vessel to a study trip in Thailand. In welcoming the thirty-four cadets on 25 November 2016, TD presented the institutional video on the introduction of SEAFDEC and its activities. The cadets visited and observed TD facilities such as the fishing and engineering workshops, the M.V. SEAFDEC and TD Library. Moreover, 56 students from Chulalongkorn University,

49 students from Kasetsart University, 19 students from Burapha University, Bangsaen Campus, and 48 students from Burapha University, Chanthaburi Campus also visited the M.V. Umitaka Maru on 26 November 2016.

M.V. Umitaka Maru is a training and research ship of TUMSAT, which implements practical training onboard as well as conducts investigation and research in the Pacific Ocean, Indian Ocean, Antarctic Ocean, etc., and teaches the students on Advanced Course of Fisheries, Advanced Marine Technology through Ocean Navigation. ✪

## AQD scientist presents paper at Shellfish Restoration Conference



*Dr. MJHL Ramos during her presentation*

AQD Scientist and Training & Information Division Head *Dr. Ma. Junemie Hazel Lebata-Ramos* presented a paper at the 18<sup>th</sup> International Conference on Shellfish Restoration (ICSR) held on 16-19 November 2016 in Charleston, South Carolina, USA. The Conference highlighted on the use of shellfish restoration to address challenges and opportunities related to coastal development; resource policy, regulation and management; shellfish diseases; community engagement in

shellfish population; shoreline stabilization and climate change.

The paper of *Dr. Lebata-Ramos* on “Restoring abalone population through family-based grow-out culture in intertidal reef flats” was presented under the session on “Goods and services provided by shellfish populations and their habitat.” The paper was an output of her work in the National Abalone R&D Program: Grow-out of abalone in small islands and communities.

ICSR provides a forum to scientists, academicians, farmers and businessmen actively involved or interested in shellfish restoration. It also aims to foster partnerships to further the exchange and application of science-based information in support of public and private shellfish restoration and aquaculture. ✪

## AQD scientist named as Promoter of Mangrove Crab Aquaculture



*(From right to left) Dr. ET Qunitio together with former House of Representatives Speaker Jose de Venecia, Jr. and BFAR-NIFTDC Chief Dr. Westly Rosario*

The Philippine Aquaculture Society Incorporated and the Society of Aquaculture Engineers Incorporated named AQD Scientist *Dr. Emilia Qunitio* as Promoter of Mangrove Crab Aquaculture in the Philippines for her outstanding leadership and devoted services in crab aquaculture, on 7 December 2016 in Dagupan City, Pangasinan, Philippines.

Dubbed as the Giant Step Award, footprints of the awardees were embedded in a slab of cement and displayed at the Asian Fisheries Academy. Together with *Dr. Qunitio* is another awardee, the former Speaker of the Philippine House of Representatives *Jose de Venecia, Jr.*, who was named the prime mover in Philippine shrimp industry for bravely lifting the ban on Philippine importation of the whiteleg shrimp *Penaeus vannamei*.

The first ever Giant Step Award was given in 2013 to *Dr. Herminio Rabanal*, one of the pioneers in Philippine aquaculture industry development. ✪



*Dr. Qunitio's Giant Step Award*

## DNA Barcoding of Sharks and Rays

by SEAFDEC MFRDMD

The Southeast Asian region has a rich fauna of sharks and rays. At least 174 species of sharks and 148 species of rays and skates are inhabiting this region from freshwater to deep ocean. Indonesia recorded the highest number of sharks and rays with 111 and 106 species, respectively.

Sharks and rays are exploited directly or indirectly in commercial fisheries; however, detailed data on landings and by-catch are often lacking. Global reviews of sharks and rays fisheries indicate that in most cases there are large gaps in the basic biological information required to implement strategic management plans. The primary threat is overfishing where increasing global demand for meat, fins, liver oil, gill plates and other parts and products driving towards extinction.

An accurate identification of sharks and rays species is one of the most difficult tasks especially for look-alike species. DNA barcoding potentially offers scientists who are not expert taxonomists, a powerful tool to support the efficiency and accuracy of field studies involving the challenging identification of diverse taxa. Taxonomic misidentification and the presence of cryptic species can seriously compromise the veracity of ecological, fisheries and conservation-related research and management. These problems are further compounded by the 'greying' of the taxonomic workforce and the decline in the teaching of taxonomy and training of field biologists at universities, both issues identified as major impediments to the conduct of biodiversity science and conservation biology.

The challenges for ecologists seeking verification of their field-based identifications are not trivial. Even when adequate taxonomic keys and field guides are available, it is often difficult to identify organisms in the field with confidence. A 650-base fragment of the cytochrome c oxidase I (COI, *cox1*) also call as DNA barcoding is proposed by Paul D. N. Hebert as a 'global' standard to identify species because the variation in COI within species is lower relative to that among species.

DNA information for species of elasmobranch (cartilaginous fish in the class Chondrichthyes, including sharks (Selachii) and the rays, skates and sawfish (Batoidea)) is accumulating. Total number 14,284 specimens with barcodes of elasmobranch

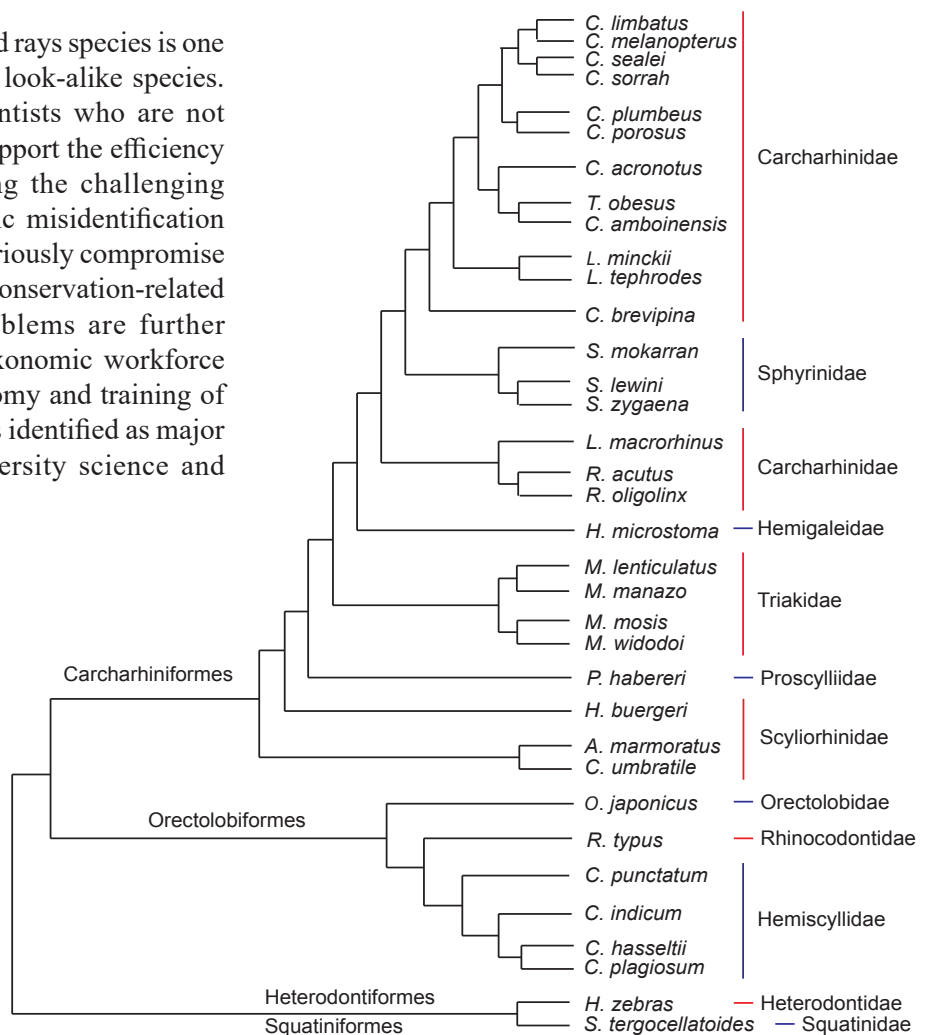


Figure 1. Phylogenetic relationship of among 35 species of sharks



COI sequences were lodged on BOLD (Barcode of Life Data System) to date involves of 899 species collected from 47 countries worldwide. This suggests that there is now a sufficient DNA database available to support a DNA barcoding approach for taxonomic identification of sharks and rays.

MFRDMD is also implementing a research on “Identification of sharks and rays species by DNA barcoding” under the project on “Research for Enhancement of Sustainable Utilization and Management of Sharks and Rays in the Southeast Asian Region,” with support from the Japanese Trust Fund IV. Through this project, data on DNA barcoding of sharks and rays in Southeast Asian region are being compiled.

MFRDMD and SEAFDEC Member Countries have been collecting genetic samples of sharks and rays to conduct barcoding research, which is progressing in the world. MFRDMD visited and collected specimens from Malaysia (Pahang, Terengganu, Perak, Sabah and Sarawak) and Vung Tau, Viet Nam. A total of 35 species of sharks (131 specimens) and 41 species of rays (134 specimens) has been identified so far. **Figure 1** shows the phylogenetic relationships among 35 shark species. The tree showed that DNA relationships follow the taxonomy classification.



(Top) Shark specimens collected (*Sphyrna lewini*); and  
(Below) Ray specimens collected (*Pastinachus gracilicaudus*)

## REGIONAL PROGRAMS

### EAFM Writeshop on Material Finalization for LEAD



Participants of the EAFM writeshop

TD through the REBYC II-CTI Project organized the Ecosystem Approach to Fisheries Management (EAFM) Leader Writeshop on Material Finalization for Leaders, Executives and Decision Makers (LEAD) from 10 to 14 October 2016 in Bangkok, Thailand.

Attended by 13 participants from IMA International, NOAA, and SEAFDEC, the Writeshop came up with complete materials on EAFM that make LEAD more understandable and the importance of EAFM. The materials include brochure, conversational handouts, animated leaflets, video clips, posters, PowerPoint presentations, etc.

To continue promoting the EAFM concept, TD organized the Ecosystem Approach to Fisheries Management (EAFM) High-Level Consultation for Leaders, Executives and Decision Makers (LEAD) in Viet Nam and the Philippines on 17-18 October 2016 and 25-26 October 2016, respectively. The

EAFM and LEAD EAFM toolkit was presented and imparted to participants who are leaders, executives and decision-makers in fisheries and other sectors. Understanding and supporting the EAFM to achieve sustainable fisheries management through improved planning and implementation are the expected outputs of the Consultations.



Activities during the writeshop

## SEAFDEC and MRC co-organize Regional Stakeholder Consultation Workshop on Basin-wide Fisheries Management and Development Strategy (BFMS) back-to-back with the 22<sup>nd</sup> Meeting of TAB on BFMS



*Participants of the Consultation Workshop on BFMS*

SEAFDEC through the SEAFDEC-Sweden Project in collaboration with the Mekong River Commission (MRC) jointly hosted two regional events: the “Regional Stakeholder Consultation Workshop on Proposal for a Basin-wide Fisheries Management and Development Strategy (BFMS)” on 11 October 2016, and the “22<sup>nd</sup> Meeting of Technical Advisory Body on Fisheries Management (TAB) on BFMS” on 12-13 October 2016 in Siem Reap, Cambodia.

The “Regional Stakeholder Consultation Workshop on Proposal for BFMS” brought together around 70 participants from relevant agencies of MRC Member Countries namely: Cambodia, Lao PDR, Thailand and

Viet Nam as well as from international and non-government organizations who shared the views and provided feedbacks on the draft BFMS. The BFMS focuses on how sustainable development goals can be achieved, and how national plans can be adapted to address longer-term needs and provide a comprehensive response to climate change and other challenges in Mekong River Basin. At the later stage, the final version of BFMS will be endorsed by the MRC Joint Committee.

On this occasion, *Dr. Kom Silapajarn*, Secretary-General of SEAFDEC in his remarks, highlighted that common concerns of SEAFDEC and MRC is the sustainable use of aquatic resources in the Mekong River Basin. In this respect,

he emphasized that the cooperation between MRC and SEAFDEC has been promoted over the last two decades. With recognition of the principles outlined in the Strategy, it is critical to build a platform of institutional coordination and cooperation to ensure continued support to the implementation of the Strategy.

Back-to-Back with the Workshop, officers from SEAFDEC Secretariat and IFRDMD also participated in the “22<sup>nd</sup> Meeting of Technical Advisory Body on Fisheries Management (TAB) on BFMS” which took place from 12 to 13 October 2016. The Meeting reviewed and agreed on the draft BFMS that considered the results of the Regional Stakeholder Consultation Workshop, and discussed the ways of supporting the next steps to be taken to facilitate MRC Joint Committee endorsement and MRC Council approval of the final version of BFMS. During the Meeting, TAB members also reviewed and provided comments on the draft MOU between SEAFDEC and MRC. This MOU would formalize the basis for relevant collaborative efforts of SEAFDEC and MRC in fostering research and development on inland fisheries and aquatic wetland ecosystems in the countries of the Mekong River Basin.



## AQD hosts the International Seminar on Environment-friendly aquaculture & stock enhancement in Southeast Asia and the International Training Course on Community-based Freshwater Aquaculture for Remote Rural Areas of Southeast Asia.



*Participants of the International Seminar*

Attended by the AQD community, the international seminar was a culminating activity of the Japan Society for the Promotion of Science’s Asia-Africa Science Platform (JSPS-AASP) program on environment-friendly aquaculture & stock enhancement which featured six presentations. *Dr. Katsutoshi Arai* of Hokkaido University, Faculty of Fisheries Sciences (HUFFS) in Japan

*(Continued on Page 11)*

## Workshop on Comparative Study of Law and Legislation between Cambodia - Lao PDR and Cambodia - Viet Nam



*Participants of the Bilateral Workshop between Cambodia and Viet Nam*

Under existing MOU(s), the SEAFDEC-Sweden Project facilitated the bilateral dialogue between Cambodia-Lao PDR and Cambodia-Viet Nam to agree on mutual interest and MOA(s) for continued collaboration that were developed and signed by concerned agencies to enhance transboundary fisheries resources management including capacity building of human resources to utilize and manage the resources in designated areas.

One of important areas specified in the MOA(s) indicated that comparative study of laws and relevant regulations and institutional responsibilities should

be based on basic knowledge for transboundary fisheries management. In December 2016, the SEAFDEC-Sweden Project played an essential role in facilitating two (2) Bilateral Consultative Workshops on the Comparative Study of

Laws and Regulations between Cambodia and Lao PDR (6-8 December 2016) and between Cambodia and Viet Nam (13-15 December 2016). The Comparative Study of Laws and Regulations and institutional responsibilities of bordering countries (Cambodia-Lao PDR and Cambodia-Viet Nam) based on the compilation of national laws and regulations was aimed at providing in-depth understanding and knowledge to relevant officials and local resource users on the sustainable use of fisheries management in designated areas. The study also recommended that countries should live up to international standards with regards to trade in fisheries products from the ASEAN Member States that requires an understanding of the structure and applicability of laws and regulations among neighboring countries. ❖



*Participants during the Workshop*

## AQD hosts the International Seminar on Environment-friendly aquaculture & stock enhancement in Southeast Asia and the International Training Course on Community-based Freshwater Aquaculture for Remote Rural Areas of Southeast Asia

*(Continued from page 10)*

gave an overview of JSPS-AASP's international exchange programs and extended the invitation to AQD for a collaborative research work. He also presented a Mini-review on abalone genetics with special reference to hybridization, triploidization, and genetic mapping. *Dr. Yasuaki Takagi*, also from HUFFS, discussed the wise use of fisheries wastes for development of environment-friendly aquaculture. AQD associate scientists *Dr. Frolan Aya* & *Dr. Ma. Michelle Peñaranda*

and AQD technical assistant *Ms. Ellen Grace Tisuela* reported their academic experiences through the program's study grants. AQD Deputy Chief and Co-manager of GOJ-TF projects, *Dr. Teruo Azuma*, chaired the seminar.

Meanwhile, AQD congratulated the graduates of the international training course. Ten trainees from Cambodia, China, Indonesia, Lao PDR, Malaysia, Myanmar, Spain, Thailand, and the Philippines learned

freshwater aquaculture technologies and practices which they can transfer to rural communities for livelihood promotion and poverty alleviation. Eight of the ten trainees were supported by GOJ-TF.

The back-to-back international events exhibit AQD's efforts to strengthen R&D and technology transfer capacities of researchers and extensionists through international exchanges and training programs in aquaculture. ❖

## IFRDMD holds discussion on establishing catch statistics on eels in Indonesia

IFRDMD organized a small discussion on anguillid eel resources and their catch statistics in Indonesia on 14-15 December 2016 at the IFRDMD Office in Palembang. The resource persons were *Ms. Sri Dyah Retnowati* and *Mr. Hudya Syarif Umroni*, both from Directorate General of Fisheries Resources Management-MMAF, and *Mr. Ichiro Nomura* from JICA. The participants came from the eel research team.

Chaired by *Dr. Satoshi Honda*, Deputy Chief of IFRDMD, the discussion focused on the importance of information on status and trends of eel resources for sustainable management of the species. It was noted that since data collection

on status and trends of eels, which inhabit the deep oceans, is not possible, monitoring of the trends of eel juveniles caught for aquaculture purposes could provide some picture on the trend of eel population in their natural habitats. Besides, data collection is also a way of ensuring sustainable utilization of tropical Anguillid eels and avoiding

possible listing of the species under the CITES Appendices or imposition of other instruments that may impact on the utilization and trade of the species in the future. The discussion came up with a way forward to develop template for gathering necessary data, as well as questionnaire which would be prepared together by IFRDMD and DGFRM-MMAF. ✂



## Workshop on regional cooperation for port State measures



*Participants' discussion during the Workshop*

TD in collaboration with ASEAN and the Department of Fisheries of Thailand organized the “Workshop on Regional Cooperation for Implementation of Port State Measures to Improve Fisheries Management and Reduce IUU Fishing in Southeast Asia” from 7 to 10 November 2016 in Bangkok, Thailand. Supported by the Japanese Thrust Fund, Sweden Government, FAO, USAID, and Marinoforum 21, the Workshop had fifty-three participants representing the SEAFDEC Member Countries, SEAFDEC and collaborating agencies.

The Workshop outputs included: 1) updated understanding of the implications to the region about the entry into force

of the Port State Measures Agreement (PSMA); 2) identified issues in the PSMA that confront the region; 3) updated status, constraints, problems on PSM implementation in the region; 4) list of capacity building needs to support PSM implementation in the region; and 5) SEAFDEC workplan on steps ahead to facilitate implementation of PSM in the region.

Moreover, the Meeting also suggested that in order to reduce IUU fishing, balance should be kept between the various measures for all fishery products while proper verifiable catch documentation should be developed. ✂

## Regional Inception Workshop for Fisheries *Refugia* in the South China Sea and Gulf of Thailand

TD through the UNEP/GEF Project organized the “Regional Inception Workshop on Establishment and Operation of Regional System of Fisheries *Refugia* in the South China Sea and Gulf of Thailand” from 1 to 3 November 2016 in Bangkok, Thailand. Forty-two participants from seven participating countries (Cambodia, Indonesia, Malaysia, Myanmar, Philippines, Thailand and Viet Nam), SEAFDEC Secretariat and TD attended the Workshop.

The project aims to improve integration of habitat and biodiversity conservation in South China Sea and Gulf of Thailand; enhance good practices in fisheries management; improve understanding among stakeholders, fisherfolk, policy makers and fisheries managers; and build the capacity of fisheries departments to engage in the environment sector regarding the improvement of fisheries and management of interactions between fisheries and marine habitats. ✂

## SEAFDEC convenes Workshop on Management of Longtail Tuna and Kawakawa Resources in the Southeast Asian Region



MFRDMD in collaboration with SEAFDEC Secretariat organized the “Workshop on Management of Longtail Tuna and Kawakawa Resources in the Southeast Asian Region and Development of Ecosystem Approach to Fisheries Management (EAFM) as Alternate Approach” on 19-21 December 2016, in Kuala Lumpur, Malaysia with funding support from the SEAFDEC-Sweden Project. The Workshop was attended by representatives from Brunei Darussalam, Cambodia, Indonesia, Malaysia, Thailand, and Viet Nam together with the resource person on stock assessment, *Dr. Tsutomu Nishida* from the National Fisheries Research Institute of Far Seas Fisheries (NRIFSF) of Japan and *Ms. Tan Geikh Hong*, Director of Resource

Management Division, Department of Fisheries Malaysia.

With the overall objective of developing the appropriate model of Ecosystem Approach for Neritic Tunas Fisheries Management (EAFM-neritic tunas), the Workshop introduced lessons learned on EAFM in fisheries resources



*Participants during the Workshop*

management in Malaysia and how to apply EAFM for fisheries management for neritic tunas. The Workshop also discussed country workplans as well as the timeframe for tissue sampling for longtail tuna and kawakawa.

The highlighted output of this Workshop was the risk assessments of the longtail tuna and kawakawa in the Western Pacific Ocean and Indian Ocean through identification of key issues and stakeholders concerned with neritic tuna resources in these two sub-regional areas. The Workshop also determined the detailed workplan for the genetic study of the said species and data preparation for seer fish stock assessment in 2017-2018. ✦



*Secretary-General Dr. Kom as Workshop Chair*

## SEAFDEC promotes gender-equitability for small-scale fisheries



*Participants during the Experts Workshop on Gender-Equitability*

In its effort to promote gender-equitability for small-scale fisheries, SEAFDEC sent its TD and Secretariat staff to take part in the “Experts Workshop on Gender-Equitable Small-scale Fisheries in the Context of the Implementation of the SSF Guidelines” organized by FAO at the FAO Headquarters in Rome, Italy

from 28 to 30 November 2016. Presented and discussed at the Workshop was the draft implementation guide on how to practically apply the SSF Guidelines in relation to gender issues in order to support awareness raising, advocacy and capacity development activities on the application of the relevant principles

of the SSF Guidelines, as well as development and implementation of gender-sensitive sectoral and cross-sectoral policy frameworks and investment plans and programs. At the end, the Workshop came up with the way forward to support the countries in gender-reviews of their policies, strategies, and use the gender guide in capacity development at country/regional level. The Workshop also recommended that countries should continue to work on gender-disaggregated statistics to improve knowledge and support policies and monitoring, and explore the development of repository of case studies/good practices to support advocacy and capacity development. ✦

# FUTURE ACTIVITIES

Date	Venue	Title	Organizer(s)
<b>2017</b>			
30 Jan-2 Feb	Trat Province, Thailand	Training Course on Essential Ecosystem for Fishery Management (E-EAFM)	TD
7-8 February	Bangkok, Thailand	Planning Meeting on Development of Stock Study for AIB-Species in the Gulf of Thailand	SEAFDEC-Sweden project
7-9 February	Cambodia	Strengthen Training On-site to Introduce the Appropriate Participatory Mechanism of CBFM Including the Methodology on Gathering Fisheries Activity Information in Cambodia	TD
20-24 February	Binangonan, Philippines	Training Course on Freshwater Prawn Hatchery & Grow-out Operations	AQD
20-24 February	Thailand	Strengthen Training On-site to Introduce the Appropriate Participatory Mechanism of CBFM Including the Methodology on Gathering Fisheries Activity Information in Thailand	TD
20-24 February	General Santos, Philippines	Oceans Project Technical Working Group (TWG) Meeting	TD
27 February	Nha Trang, Viet Nam	APEC Joint Meeting between Policy Partnership on Food Security (PPFS) and Ocean and Fisheries Working Group (OFWG)	APEC
28 Feb-2 Mar	Bangkok, Thailand	6 <sup>th</sup> Meeting of the Gulf of Thailand Sub-region	SEAFDEC-Sweden Project
1-3 March	Lao PDR	Strengthen Training On-site to Introduce the Appropriate Participatory Mechanism of CBFM Including the Methodology on Gathering Fisheries Activity Information in Lao PDR	TD
6-9 March	Samut Prakan, Thailand	Workshop on Establishment of Institutional Repository of SEAFDEC Secretariat and Departments	Secretariat
7-8 March	Kuala Lumpur, Malaysia	Workshop on Comparative Studies for Management of Purse Seine Fisheries in the Southeast Asian Region	MFRDMD
13-15 March	Geneva, Switzerland	Cooperation on Implementing CITES for Marine Species: Achievements, Lessons Learned and Future Opportunities	MFRDMD
13-17 March	Binangonan, Philippines	Training Course on Tilapia Hatchery & Grow-out Operations	AQD
15-17 March	Bangkok, Thailand	Final Seminar for RIHN Project on Coastal Area Capability Enhancements in Southeast Asia	TD
29-30 March	Thailand	Working Groups Meeting for Follow-up Activities on Joint Program on Tuna Research in Sulu and Sulawesi Seas	TD
3-7 April	Brunei Darussalam	49 <sup>th</sup> Meeting of the SEAFDEC Council	Secretariat
19 Apr-3 May	Tigbauan, Philippines	Training Course on Sandfish ( <i>Holothuria scabra</i> ) Seed Production, Nursery & Management	AQD
24-28 April	Binangonan, Philippines	Training Course on Carp Hatchery & Grow-out Operations	AQD
24-28 April	Dhaka, Bangladesh	28 <sup>th</sup> Meeting of the NACA Governing Council	NACA
28 April	Bangkok, Thailand	SEAFDEC-Sweden Annual Review Meeting	SEAFDEC-Sweden Project
8-12 May	Binangonan, Philippines	Training Course on Freshwater Prawn Hatchery & Grow-out Operations	AQD
10-30 May	Iloilo, Philippines	Training Course on Abalone Hatchery & Grow-out	AQD
15-16 May	Singapore	9 <sup>th</sup> Meeting of the ASEAN Fisheries Consultative Forum (AFCF)	ASEAN Secretariat
17-19 May	Singapore	25 <sup>th</sup> Meeting of the ASEAN Sectoral Working Group on Fisheries (ASWGF)	ASEAN Secretariat
5-9 June	New York, USA	United Nations Ocean Conference	UN
10-13 July	Malaysia	Regional Training Course on Specimen Preservation and its Application in HAB Monitoring and Studies	MFRD
14-18 August	Binangonan, Philippines	Training Course on Tilapia Hatchery & Grow-out Operations	AQD
14 Aug-4 Sep	Tigbauan, Philippines	Training Course on Mangrove Crab Hatchery & Nursery Operations	AQD
21-25 August	Tigbauan, Philippines	Training Course on Catfish Hatchery & Grow-out Operations	AQD

## AQD supports the Philippine Seaweed Industry as it moves forward



Members of the seaweed industry gather in Cebu City for the Philippine Seaweed Convention 2016

The Seaweed Industry Association of the Philippines (SIAP) invited seaweed and carrageenan processors, exporters, traders, farmers and representatives from government and private institutions to their annual Philippine Seaweed Convention (PSC) in Cebu City, Philippines from 23 to 25 November 2016. The convention's plenary session includes topics on the current state of the seaweed industry, its local market condition and trends, farming and livelihood opportunities, government programs and the Asian market prospects of Philippine seaweeds. This was followed by a workshop to discuss issues and gaps, and formulate appropriate actions and solutions in aiding the growth of the seaweeds industry in the country – staying true to this year's theme "Moving forward. One vision, one goal."

This year's convention had an exhibit that showcased various seaweed products and technologies. AQD had a booth that provides information materials on seaweeds and other commodities. AQD Seaweeds Team led by Associate Scientist *Ms. Ma. Rovilla Luhan* and Technical Assistant *Ms. Jonalyn Mateo* attended to the information requirements of booth visitors, answered their queries and shared their knowledge on seaweed culture development based on the experience of AQD.

SIAP is a non-profit organization which aims to unite and assist all stakeholders of the industry in attaining global leadership in seaweeds and carrageenan.



PSC participants and guests at AQD booth

### Note for contributors

The SEAFDEC Newsletter publishes quarterly news on all aspects of fisheries in Southeast Asia. The Editors reserve the right to accept and/or abridge articles based on available space. Anyone wishing to submit an article to the SEAFDEC Newsletter is requested to send it to the Editor in Chief or Editors at the given addresses.

Information in this Newsletter may be quoted only if reference is made to SEAFDEC.

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**Layout:** Satana Duangsawasdi

## MFRDMD welcomes its new Chief and Special Departmental Coordinator



*Mr. Raja Bidin Raja Hassan, new Chief of MFRDMD*

MFRDMD recently welcomed *Mr. Raja Bidin Raja Hassan* and *Mr. Abdul Razak Latun* as its new Chief and Special Departmental Coordinator (SDC), respectively. *Mr. Raja Bidin Raja Hassan* succeeded *Mr. Ahmad Adnan Nuruddin* who retired on 14 October 2016. Before becoming Chief he was the Head of Biology and Resources Assessment Section and Special Departmental

Coordinator at MFRDMD. His career as Research Officer at MFRDMD started since 1992 where he obtained vast experiences in Pelagic Stock Assessment, Fishery Oceanography, Climate Change, Remote Sensing and GIS. Hopefully, with his true leadership, passion and experiences will bring more successes to MFRDMD.

*Mr. Abdul Razak Latun* was appointed as the new SDC replacing *Mr. Raja Bidin Raja Hassan*. As SDC, he also acted as the Head of Biology and Resources Assessment Section. Before that, he was the Head of Fishery Oceanography and Resources Enhancement Section for many years. Now, the Fishery Oceanography and Resources Enhancement Section will be led by *Dr. Ahmad Ali*. ❖



*(Left) Mr. Ahmad Adnan Nuruddin, former Chief of MFRDMD; and (Right) Mr. Abdul Razak Latun, new Special Departmental Coordinator*

## SEAFDEC holds the Third Meeting of the Andaman Sea Sub-region

On 18-20 October 2016, SEAFDEC Secretariat with support from the Swedish Government organized the “Third Meeting of the Andaman Sea Sub-region” at Novotel Sukhumvit 20 in Bangkok, Thailand. The Meeting aimed to facilitate and support the development of the Andaman Sea Sub-regional agreements/arrangements based on an ecosystems approach to fisheries through the integration of fisheries and habitat management. The Meeting looked for action-oriented recommendations towards the development of joint approaches and agreements to address problems/issues common to all four countries in the Andaman Sea (Indonesia, Myanmar, Malaysia and Thailand), including options for development of a management plan for the whole Andaman Sea and related water bodies.

The three-day Meeting reviewed the recommendations of previous meetings and updated the progress and results of actions by the Andaman Sea Countries, the integration of fisheries and habitat management and importance of transboundary stocks and habitat in Andaman Sea Sub-region, the effective management of fishing capacity and reducing illegal fishing: Laws and

Regulations in the Andaman Sea Countries.

Finally, the Meeting came up with workplan on the management of trans-boundary fisheries resources and the management of fishing capacity including reducing unregulated fishing, unrecorded and combating of illegal fishing for implementation in the future. ❖



*Participants attending the Third Meeting of the Andaman Sea Sub-region*