



# SEAFDEC NEWSLETTER

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## EDITORIAL

For the last quarter of 2015, many events have been organized to recast the role of SEAFDEC in the sustainable development of fisheries in Southeast Asia. At the beginning of the quarter, there was a change in the organization of SEAFDEC. *Dr. Kom Silapajarn* was appointed the new Secretary-General and Chief of the Training Department (TD) succeeding *Dr. Chumnarn Pongsri* who served SEAFDEC for 6 years since October 2009. Since Dr. Kom was scheduled to officially occupy his post in January 2016, controlling the rein of SEAFDEC in the meantime was the Deputy Secretary-General, *Mr. Hajime Kawamura* as the Acting Secretary-General and Acting Chief of TD.

Organizational meetings were convened such as the 38<sup>th</sup> Meeting of the Program Committee of SEAFDEC (38<sup>th</sup> PCM) and the 18<sup>th</sup> Meeting of the Fisheries Consultative Group of the

*(Continued on Page 2)*

## SEAFDEC welcomes Dr. Kom Silapajarn as new Secretary-General

SEAFDEC recently welcomed *Dr. Kom Silapajarn* as the new Secretary-General and Chief of the Training Department (TD), succeeding *Dr. Chumnarn Pongsri* who had served as the Secretary-General and Chief of the TD for six years from 1 October 2009 to 30 September 2015.

Dr. Kom, as he is fondly called, started working as Fisheries Biologist at the Department of Fisheries (DOF) of Thailand since 1981, where he obtained vast experiences in coastal fisheries research and development including the aquaculture of coastal aquatic species, and in environmental management. He served as Director of the Institute of Coastal Aquaculture of DOF during 2008-2010 after which he was promoted



*New SEAFDEC Secretary-General, Dr. Kom Silapajarn*

as Director of the DOF Planning Division in 2010, and subsequently as Director of the Coastal Fisheries Research and Development Division in 2012. In December 2015, Dr. Kom was nominated as the Secretary-General of SEAFDEC to lead the operation and implementation of SEAFDEC activities based on the

*(Continued on Page 15)*

## SEAFDEC convenes the 38<sup>th</sup> PCM and 18<sup>th</sup> FCG/ASSP Meeting



*Discussion during the 38<sup>th</sup> meeting of SEAFDEC Program Committee*

SEAFDEC convened the 38<sup>th</sup> Meeting of its Program Committee, hosted by the SEAFDEC Aquaculture Department on 23-25 November 2015, to assess the progress and achievements of SEAFDEC programs in 2015 and those proposed for 2016. Specifically, the Committee

reviewed twenty on-going ASEAN-SEAFDEC FCG/ASSP collaborative projects that were undertaken in 2015, and two new projects proposed for 2016; eight Departmental Programs; and three Other Programs, and provided suggestions for

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## SEAFDEC convenes the 38<sup>th</sup> PCM and 18<sup>th</sup> FCG/ASSP Meeting

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improving such programs to address the priorities of countries in the region.

While noting that “High-level Consultation on Regional Cooperation in Sustainable Fisheries Development Towards the ASEAN Economic Community: Combating IUU Fishing and Enhancing the Competitiveness of ASEAN Fish and Fishery Products” is scheduled on 3 August 2016 in Bangkok, Thailand, and would be attended by SOM level officials of the ASEAN-SEAFDEC Member Countries, the Program Committee urged SEAFDEC to expedite the development of the Draft Joint Declaration for timely consideration by the respective countries.

On the “FAO Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries in the Context of Food Security

and Poverty Eradication,” the Program Committee was of the view that SEAFDEC should consider developing the Regional Guidelines taking into consideration the priorities and specificities of fisheries in the ASEAN Member States.

Conducted back-to-back with the 38<sup>th</sup> PCM, was the 18<sup>th</sup> Meeting of the Fisheries Consultative Group of the ASEAN-SEAFDEC Strategic Partnership (FCG/ASSP) on 26-27 November 2015. While endorsing the FCG/ASSP projects as scrutinized earlier by the 38<sup>th</sup> PCM, the Meeting expressed the need for the region to exert collective effort in addressing issues at relevant international fora, especially the CITES-related issues. The FCG/ASSP also provided directives on the development of several regional frameworks and tools to support combating IUU fishing;



*FCG/ASSP Meeting co-chaired by Dr. Su Myo Thwe on behalf of the current Chairperson of the ASWGF and Acting SEAFDEC Secretary-General Mr. Hajime Kawamura*

promoting sustainable fisheries, and traceability of aquaculture products. The results and recommendations of the 18<sup>th</sup> FCG/ASSP would be submitted to the higher authorities of the ASEAN and SEAFDEC for consideration and appropriate action. ☒

### EDITORIAL

(Continued from Page 1)

ASEAN-SEAFDEC Strategic Partnership (18<sup>th</sup> FCG/ASSP) in the Philippines in November. The meetings came up with recommendations on the improvement of SEAFDEC programs and work plans to address the directives of the 47<sup>th</sup> Meeting of the SEAFDEC Council. These were immediately followed by the Department Chiefs Meeting to discuss the direction that SEAFDEC should undertake in conjunction with the instructions given at the 38<sup>th</sup> PCM and 18<sup>th</sup> FCG/ASSP. Also discussed were the upcoming activities that each Department should carry out in preparation for the celebration of the 50<sup>th</sup> Anniversary of SEAFDEC in December 2017. Another equally important event was the 16<sup>th</sup> Meeting of SEAFDEC Information Staff Program, which highlighted on the publication of SEASOFIA 2017 as source of information on the status and trend of fisheries and aquaculture in Southeast Asia.

Of the many events organized in this quarter, another most substantial was the

First National Mud Crab Congress organized by AQD in the Philippines in November. Prior to this, AQD conducted a Press Briefing at its Tigbauan Main Station premises for participants of APEC 2015 in the High-level Policy Dialogues on Food Security and the Blue Economy. Although aquaculture for food security was the main focus for discussion, the occasion has boosted the visibility of SEAFDEC as a whole.

Other significant events included the conduct of the Workshop on Cold Chain Management for Seafood by MFRD in November in Singapore, and the RTC on Development of the Regional Plan of Action for Managing Fishing Capacity organized by MFRDMD, TD and SEAFDEC Secretariat in December in Thailand. While the former developed the work plan for Cold Chain Pilot Trials in 2016, the latter finalized the draft RPOA-Capacity which would be submitted for endorsement during the 48<sup>th</sup> Meeting of the SEAFDEC Council in April 2016. Meanwhile, IFRDMD was actively involved during the Eel Symposium in December in Indonesia which focused on eel farming, and distribution and species classification of eel in Indonesian waters.

SEAFDEC continued to strengthen its linkage with partners through its participation in various collaborative activities. These included the 9<sup>th</sup> meeting of the ASEAN Fisheries Acoustic Society (AFAS) which promoted the progress of sciences and technologies on fisheries acoustics in Asia, and Meeting on the 8<sup>th</sup> Regional Plan of Action to Promote Responsible Fishing Practices including Combating IUU Fishing in the Southeast Asian Region for sustaining efforts to combat IUU fishing through the bilateral dialogues.

Meanwhile, the conduct of training courses was sustained to strengthen the capacity of the countries in the region in sustainable fisheries. These included the regional training course on E-EAFM at TD, and the on-site EAFM training sessions in Lao PDR and Myanmar. ☒

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

## AQD conducts Press Briefing for APEC 2015 at its Tigbauan Main Station

During the press briefing for APEC 2015 participants in the “High-Level Policy Dialogues on Food Security and the Blue Economy” convened in Iloilo City in October 2015, SEAFDEC/AQD Chief Dr. Felix Ayson said *“There is a need for continuous research and development (R&D) and innovation as well as institutions that will undertake these to intensify aquaculture production towards food security.”*

*“If you think of a fish species that is really suited for the masses then you should go for fish species that are cheaper to produce – and one of these is milkfish,”* said Dr. Ayson.

Dr. Ayson elaborated that, *“We can continue to produce milkfish and address*



*AQD Chief Dr. Ayson explains to the media that AQD has five thematic programs and one of them is “Adapting to climate change” and the other programs are “Quality seed for sustainable aquaculture,” “Healthy and wholesome aquaculture,” “Maintaining environmental integrity through responsible aquaculture,” and “Meeting social and economic challenges”.*

*the problem of food security but the problem is the volatility of the market price.”* At present there are only three countries that are producing milkfish and these are Indonesia, the Philippines and Taiwan. Dr. Ayson pointed out one area in milkfish seed production that needs further scientific study which is on how the embryo and larvae would survive in water temperatures higher than the present normal levels due to climate change.

He cited studies conducted at AQD on the rabbitfish where even at temperature of 33°C rabbitfish still spawned eggs but the embryos did not survive, where normal levels would be around 30°C. If milkfish would behave similarly like rabbitfish, then there is a problem. This scenario would be a threat to aquaculture production because if the embryos would not survive there are no fry to stock the milkfish production ponds.

*“Higher temperatures due to climate change would also affect the survival and growth of seaweeds and mud crabs, the latter a P3-billion industry in the Philippines, and we are conducting studies to address these concerns too,”* Dr. Ayson added. Studies on seaweeds focus on how to maintain the production of seaweed seeds based on species-environment interactions while those on mud crabs would be on how to keep them producing offspring at higher temperatures. *“All these activities of AQD*

*address the global concerns for food security, considering that at present, for every two fishes you see in the market, one of that is from aquaculture,”* Dr. Ayson concluded. ☒



*Also present during the press briefing are panel of experts from AQD, 2<sup>nd</sup> from left, Dr. Mae Catacutan, nutrition and feed development expert; Dr. Edgar Amar, fish health; Ms. Rovilla Luhan, seaweed, Dr. Emilia Quintio, mud crab; and Ms. Kaylin Corre, Head of the Administration and Finance Division.*



*TID Head Dr. Junemie Lebata-Ramos, AQD Chief Dr. Felix Ayson entertaining questions from the audience*

## AQD joins Agrilink 2015

AQD officials, scientists, researchers and staff attended the annual Agrilink (22<sup>nd</sup> International Agribusiness Exhibition



and Seminars, 16<sup>th</sup> International Food Processing, Packaging and Products Exhibition and 11<sup>th</sup> National Fisheries Exhibition and Seminars) with the theme “Regional Agribusiness Development:

*AQD’s Training and Information Division Head Dr. MJHL Ramos, Chief Dr. FG Ayson, Scientist Dr. ET Quintio, and Administration and Finance Division Head Ms. KG Corre entertaining questions from guests at the AQD booth*

Cornerstone of Inclusive Growth” from 15 until 17 October 2015 at the World Trade Center in Manila.

At AQD’s booth, information materials about the aquaculture technologies developed on various commodities were displayed and disseminated. AQD technical resource persons provided free consultation on various aquaculture technologies. ☒

# DEPARTMENTAL ACTIVITIES

## SEAFDEC participates in Eel Symposium

Dr. Satoshi Honda, Deputy Chief of IFRDMD, attended the “International Symposium on the Tropical Eel Genus *Anguilla*: Its Science, Conservation and Management for Sustainable Use,” organized by the Indonesian Institute of Sciences (LIPI) in Banda Aceh, Indonesia on 10-11 December 2015. Many invited speakers including Asian, European and Indonesian scientists, government officers concerned with eel management in Indonesia, owners of eel farms, introduced the results of their studies, management policies and the present status of eel farming in Southeast Asia. Dr. Honda also gave a lecture on “How should we cope with the shortage of statistics on Catadromous Eel Fishery” with co-authors Dina Muthmainnah, Ni Komang Suryati, Dian Oktaviani, Somboon Siriraksophon, Taweekiet Amornpiyakrit and Budi Iskandar Prisantoso from

SEAFDEC/IFRDMD and Secretariat. Dr. Somboon Siriraksophon, Policy and Program Coordinator of SEAFDEC Secretariat, also presented the framework of “Regional Cooperation on Conservation and Management of the Tropical Eel Order Anguilliformes Genus *Anguilla*.”

Most of the presentations focused on the distribution and species classification of *Anguilla* eels in Indonesian waters. Although the latest technique of genetic

analysis for species determination had been made, differences in interpretation of the results remained the same, indicating the difficulties in species identification of genus *Anguilla*. Few reports regarding eel fishery especially focus on the amount and fishing pressure on glass eel. Some valuable connection was therefore developed with scientists, organizations and eel farmers for possible cooperation with IFRDMD to investigate eel fishery in future. ❖



*Some participants and SEAFDEC staff attending the Eel Symposium*

## SEAFDEC holds the sixteenth meeting of its Information Staff Program

The Sixteenth Meeting of the Information Staff Program (ISP) of SEAFDEC was organized in Kuala Lumpur, Malaysia from 26 to 28 October 2015, and hosted by SEAFDEC/MFRDMD. Attended by SEAFDEC Departments’ information officers, staff and senior officers from SEAFDEC Secretariat and Departments, the Meeting reviewed the progress in the implementation in 2015 of SEAFDEC Information Strategy which is aimed at enhancing the visibility of SEAFDEC

and strengthening the communication link within SEAFDEC among others. This year’s ISP Meeting also included special agenda on the preparation of the Southeast Asian State of Fisheries and Aquaculture (SEASOFIA) 2017, and information-related activities to commemorate the 50<sup>th</sup> Anniversary of SEAFDEC in 2017.

Several recommendations were raised by the Meeting, including the need to improve the implementation and

monitoring of the progress of SEAFDEC Information Strategy in the future. On SEASOFIA 2017 which has been highlighted as source of useful information and serving as tool to promote the outputs of SEAFDEC programs and projects, the Departments agreed to provide the necessary inputs. While entering the threshold of its 50<sup>th</sup> Anniversary, SEAFDEC continues to reap the fruit of its hard work obtaining greatness in terms of the quality of its achievements and is committed to sustain such efforts for the sustainability of the region’s fisheries. SEAFDEC would therefore produce a “coffee-table book” to portray its 50-year journey which should go on beyond its 2017 Golden Jubilee.

At the closing of the 16<sup>th</sup> Meeting of the ISP, SEAFDEC/IFRDMD extended its appreciation to MFRDMD for the excellent hosting of this year’s Meeting in Malaysia, and offered to host the 17<sup>th</sup> Meeting of the ISP in 2016 in Indonesia. ❖



*Staff from SEAFDEC Secretariat and Departments joining the discussion on information-related activities for enhancing SEAFDEC visibility in the region*

## Students from Kasetsart University visit Training Department

TD welcomed 29 students taking the course on fisheries economics at the Faculty of Economics, Kasetsart University. During the two-day study tour from 10 to 11 October 2015, the students were able to gain knowledge on fisheries situation and fishing gear technologies in the Southeast Asian region through lectures by TD experts. Moreover, they also practiced net preparing and making of small-scale fishing gear. All these activities made them understand more and gained experience in fishing operations that could be applied in their course.

In addition, on 21 November 2015, 120 students from the Faculty of Fisheries, Kasetsart University also visited TD. After being briefed on the roles and functions of SEAFDEC, the



*Students attending a lecture on fishing gear technology (left), and observing the facilities on-board the M.V. SEAFDEC at TD (right)*



students also visited TD facilities such as the Fishing Workshop to observe model of commercial fishing gears, for example, purse seine, gill net, push net; traditional fishing gears; modern fishing gear technologies, such as deep sea trap, longline, squid jigging; and fishery resource conservation tools, such as Turtle Excluder Devices (TEDs) and

Juvenile and Trash Fish Excluder Devices (JTEDs), and visited the M.V. SEAFDEC.

All these activities made the students who are studying on fishery-related subjects obtaining better understanding on various kinds of fisheries operations undertaken in the Southeast Asian region.



## SEAFDEC convenes its Department Chiefs' Meeting in Manila

SEAFDEC convened its Department Chiefs' Meeting in Manila, Philippines on 28 November 2015. Attended by the Acting Secretary-General, Department Chiefs, Deputy Chiefs and officials of SEAFDEC Secretariat and Departments, the Meeting discussed several up-coming works of SEAFDEC in 2016 and onwards.

At the outset, the template and timeframe to follow-up the actions undertaken by SEAFDEC in response to the recommendations of the 38<sup>th</sup> PCM and the 18<sup>th</sup> FCG/ASSP were discussed and agreed upon. The required preparatory works for the High-Level Consultation and several information-related matters were also raised and discussed, *e.g.* sustaining Departmental inputs for the



*Participants of the SEAFDEC Department Chiefs' Meeting*

special publication "Fish for the People" and preparation for the SEASOFIA 2017. In addition, another important issue discussed was on the preparation for the 50<sup>th</sup> SEAFDEC Anniversary Celebration in 2017. Initial activities for the occasion could include preparation of a "coffee-table book" and arrangement for special launching of the book, and incorporating the SEAFDEC anniversary celebration in future events (*e.g.* exhibitions) to be organized by the Departments to enhance the visibility of SEAFDEC. ☒



*The SEAFDEC Department Chiefs' Meeting*

## TD holds SEAFDEC Technical Seminar 2015

SEAFDEC/TD holds the "SEAFDEC Technical Seminar 2015" on 24 December 2015 at the SEAFDEC Secretariat in Bangkok, Thailand. Fifty-five participants including the staff of TD and Secretariat, students from Kasetsart University, and officers from the Thai DOF attended the Seminar, which aims to enhance the staff's skills in writing technical papers and making presentations to promote the activities of SEAFDEC. The Seminar comprised seven themes, namely: Responsible Fisheries; Combating IUU Fishing; Energy Optimization; Fisheries Biology and Resource Survey; Fishery Resources Enhancement; Human Resource Development and Capacity Building; and Other Issues Related to Marine Fisheries. ☒



*Participants attending the SEAFDEC Technical Seminar 2015*

## SEAFDEC/TD and MFRDMD collaborate in gathering fisheries information in areas bordering Malaysia and Thailand

On 4-5 November 2015 in Kuala Terengganu, Malaysia, SEAFDEC/TD in collaboration with MFRDMD convened an internal meeting to discuss on the progress of activities undertaken under the project on “Strengthen Malaysia and Thailand Partnership in Support of Joint Fisheries Planning and Management in the Western Gulf of Thailand,” which was initiated as result of a bilateral dialogue between Malaysia and Thailand.

The project aims to gather information on fishing efforts at the areas bordering Malaysia and Thailand. While baseline information relevant to monitoring and control of fishing effort and landings of the two countries were gathered, more detailed information on fishing vessels in the areas was further collected through questionnaire surveys. After the presentation of initial survey results, the Meeting was of the view that some data from the surveys could provide some clues on IUU fishing activities; thus second

level data analysis should proceed in close cooperation between TD and MFRDMD. Second level data analysis should focus on in-depth analysis to provide information on current situation pertaining to fisheries activities near bordering provinces/states, including possibilities of fishing vessels engaging in IUU activities.

Considering the good result from this project, the Meeting discussed the possibility of expanding the activities to areas bordering Malaysia and Thailand in the Andaman Sea Sub-region in the future. ✦



*TD and MFRDMD staff discussing the survey results*

## AQD joins 10<sup>th</sup> Shrimp Congress, the first in Gensan

SEAFDEC/AQD Chief *Dr. Felix Ayson* and more than 20 senior and junior AQD staff participated in the 10<sup>th</sup> National Shrimp Congress, with the theme “Maximizing the Benefits of Shrimp Culture for a Modern Globally Competitive Industry.” The event was held from 11 to 13 November 2015, for the first time, in General Santos City (Gensan), the shrimp production hub in Mindanao.

This year’s Congress was geared towards regaining the Philippines’ position in shrimp export, hence; topics during



*Shrimp Congress participants checking out AQD publications*

technical sessions focused on updates/recent developments in aquaculture production, health management, feeding management, marketing and policies.

The event also had an exhibit where AQD was able to showcase its aquaculture technologies, reaching out to more aquaculture stakeholders in the Mindanao area. About 100 participants and guests visited AQD’s booth.

The 10<sup>th</sup> National Shrimp Congress was organized by the Bureau of Fisheries and Aquatic Resources, Philippine Shrimp Industry Inc., and SARGEN Stakeholders’ Association. Other institutions which supported this conference were the Department of Science and Technology Region XII, AQD, Provincial Governor’s Office of Sarangani, Congressional District of Sarangani, Department of Trade and Industry Region XII, and the Department of Tourism Region XII. ✦

## TD organizes Fishermen Run 2015



*Participants in the mini-marathon: Fisherman Run 2015 in Samut Prakan*

TD organized “SEAFDEC Mini-marathon: Fishermen Run 2015” on 27 December 2015 in Samut Prakan, Thailand as part of the celebration for the 48<sup>th</sup> SEAFDEC Anniversary. This activity aimed to enhance and strengthen the health of staff and public, and promote SEAFDEC visibility. Part of the proceeds of the activity was donated as scholarship to more than 160 students from four primary schools around TD. ✦

## TD and Secretariat staff visit MFAI for the development of fishing licensing database

Representatives from SEAFDEC/TD and the Secretariat visited the Marine Fisheries Administration Inspectorate (MFAI) at Sihanoukville Province, Cambodia from 22 to 24 December 2015. The aim of this mission was to discuss with responsible authorities at provincial level on fishing licensing procedures, as well as the overall existing forms related to application of fishing licensing. Results from the discussion would be useful for developing the fishing licensing database system. It is also expected that these would enhance effective fisheries management by the FiA of Cambodia in the near future. ✦



*Discussion on fishing licensing of Cambodia*

## AQD organizes first National Mud Crab Congress



*Integrated Services for the Development of Aquaculture and Fisheries’  
Dr. Clarissa Marte summarizes the outputs of the workshop.*

SEAFDEC/AQD together with Department of Science and Technology – Philippine Council for Agriculture, Aquatic and Natural Resources Research and Development (DOST-PCAARRD) and University of the Philippines in the Visayas (UPV) made history for organizing the very first National Mud Crab Congress from 16 until 18 November 2015 in Iloilo City.

As expressed by DOST Secretary Engr. Mario Montejo in his keynote speech (read by DOST VI Regional Director Engr. Rowen Gelonga), “*The conduct of this congress is a timely intervention as mud crab has been an emerging commodity in domestic and export*

*markets.*” He also said that it is about time for our country to take a significant leap in mud crab production – as said by the congress’ theme “Philippines: In the forefront of the mud crab industry development.”

And to start that leap, the Congress invited a good combination of resource speakers, from members of the academe, government units and industry players, giving either oral and poster presentations about mud crab biology, genetics and ecology; husbandry; feeds and feeding management; diseases and aquasilviculture. Additional topics were also presented such as post-harvest, value adding, marketing, capacity building ordinances and financing standards. A workshop was also held to know the status, identify the research gaps & training needs in hatchery and nursery, and in grow-out and post-harvest of mud crabs.

With over 200 participants coming from various sectors and different parts of the Philippines, the first National Mud Crab Congress was a success. According to DOST-PCAARRD’s Dr. Dalisay Fernandez during her closing remarks, “*For the past three days, we gained knowledge on the present state of the mud crab industry and on the significant findings of the mangrove crab [mud crab] projects being implemented by AQD, UPV and other research institutions. We also learned the Philippine National Standards that will serve as guidelines for exporters and traders and for us [the Philippines] to be [more] competitive with our neighboring countries.*” She also mentioned that with these activities, the participants had learned that information sharing of S&T-based knowledge and continuous private and public partnership are vital in achieving the development of the mud crab industry in the country.



*AQD Scientist Dr. Emilia Qunitio gives an overview of the mud crab industry in the Philippines.*



*AQD Chief Dr. Felix Ayson welcomes guests and participants to the congress. Behind him are special guests DOST-PCAARRD Inland Aquatic Division Director Dr. Dalisay Fernandez, DOST Region VI Regional Director Engr. Rowen Gelonga in behalf of DOST Secretary Mr. Mario Montejo, Iloilo City Agriculturist Mr. Romulo Pangantihon in behalf of Iloilo City Mayor Hon. Jed Patrick Mabilog, and UPV Chancellor Dr. Rommel Espinosa*



*Guests and participants in the First National Mud Crab Congress*

## The Role of SEAFDEC/AQD in the Seaweed Industry of the Philippines

By SEAFDEC Aquaculture Department

In 2010, seaweed production in the Philippines was about 85,000 metric tons (MT) that represented a good 70% of the total aquaculture production of the country. More than 170,000 Filipinos are deriving livelihood, either directly or indirectly, from seaweed farming but only 57,000 hectares (ha) or 23% of the total potential areas for seaweed farming of about 255,000 ha in the country are operational seaweed farms. Seaweed export in 2010 was about 35,000 MT valued at USD 155 million while seaweed carrageenan export was 17,000 MT valued at USD 116 million mostly produced by the 15 carrageenan processors in the country with an estimated capacity of 34,500 MT.

By the middle of the 70s, the development of farming technology on *Kappaphycus alvarezii* and *Eucheuma denticulatum* significantly increased seaweed production in the Philippines. Then for several decades that followed, the Philippines was the world's number one producer of raw materials for carrageenan production but was later replaced by Indonesia starting 2008. Indonesia produced about 108,000 MT of seaweeds in 2010.

The Aquaculture Department (SEAFDEC/AQD) began its research work on seaweeds in the late 1980s with the primary aim of increasing seaweed production in the Philippines by improving culture techniques and developing new strains of cultivable seaweeds. Land-based tanks and sea-based cages were being developed as nurseries to supply healthy seedlings to farmers. The capability of seaweeds as extractive biofilter species was also promoted by AQD in integrated aquaculture.

For *Gracilaria* and *Kappaphycus* in particular, AQD researchers have developed techniques for farming *Kappaphycus* and culture of *Gracilaria* in tanks, established methods for growing *Kappaphycus* and *Gracilaria* from spores or tissues in the laboratory, explored the use of *Gracilaria* as biofilter in a recirculating water system for milkfish broodstock as well as in brackishwater ponds, and collected samples of seaweeds from the wild for characterization of carrageenan quality, for genetic profiling, and for taxonomic identification. These research activities had allowed AQD scientists to come up with an extension manual titled "The Farming of the Seaweed *Kappaphycus*" in 2000 and a taxonomic guide on the "Seaweeds of Panay" in 2006.



The seaweed *Kappaphycus sp* in a tank set-up at SEAFDEC/AQD's Tigbauan Main Station

Recently, the seaweed researches of AQD have come up with "new" plantlets of *Kappaphycus* produced in the laboratory through tissue culture. This is in response to the need for planting materials which is often the problem of newly established farms or when adverse weather conditions devastate existing farms. When super typhoon Haiyan cut a path of destruction across the Philippines in November of 2013, among those hardest hit were the seaweed farmers. They did not only lose their crops, but were also left with no planting materials to start the next season. These new plantlets are timely not only as new planting materials but also for their faster growth. The AQD plantlets are currently being field tested in the seaweed farms in the Philippines where they are reported to be performing very well with growth rates of 6-7% per day compared to the 2 -5% growth rates of seedlings from cuttings that the farmers have been using for many years. The Seaweed Industry Association of the Philippines was impressed by the performance of the AQD plantlets that they now request AQD to produce planting materials for a particular strain of *Eucheuma* called "milyon-milyon" because this strain is also very important to the industry. The hard work of our seaweeds group, currently headed by Miss Maria Rovilla Luhan and also



Close up of *Kappaphycus* plantlets

by Dr. Anicia Hurtado during the early years, has paid off. These developments came after many years of testing and refinement.

In the area of capacity building, AQD through its Training and Information Division offers a yearly specialized training course on “Seaweed Farming” starting in the early 90s up to the present. This 15-day course consists of lecture sessions, practical activities, field trips, library work, and presentation of results. More than a hundred international trainees have attended this seaweed course since its inception. Recently, training sessions of shorter duration are also conducted on-site at seaweed farms. The lectures cover topics like the seaweed industry status, biology and taxonomy of eucheumatoid seaweeds, identification of their life stages, common diseases as well as food safety in seaweed production and processing. There are also practical activities such as preparation of culture media, production of micropropagules, land-based nursery culture, planting of seaweeds for grow-out culture, and preservation of seaweed for later taxonomic identification. Aside from this specialized seaweed course, the other regular courses of AQD like “Abalone Nursery and Grow-out” have a seaweed culture component since *Gracilaria* spp are the most suitable food for abalones.

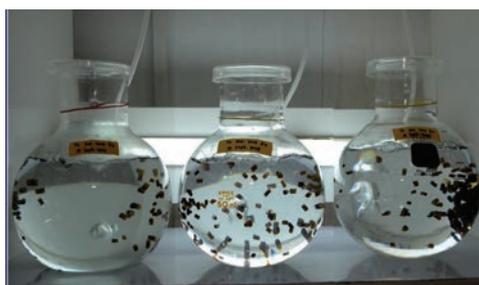
Like in all AQD training courses for other commodities, the economics of seaweed farming is also extensively discussed in this course. The economics of cultivating *Gracilaria* and *Kappaphycus* with both experimental and actual inputs were analyzed by AQD researchers using economic indicators like return on investment (ROI) and payback period. Results showed that farming these seaweeds using the line method, fixed off-bottom, raft (single or multiple), and hanging long line methods are all profitable, however, production is negatively affected

by environmental factors such as typhoons, salinity drops or temperature increases, and by fluctuating farmgate prices.

While it is a given that seaweed farming is a profitable activity, small seaweed farmers are still in dire need of soft- and long-term loans to enhance their production and as a form of crop insurance during times of natural disasters but most importantly to improve their bargaining power with big seaweed exporters and processors. Various sectors have expressed concern that despite the benefits gained by seaweed exporters due to the increasing demand of carrageenan in the world market, small seaweed farmers continue to be exploited and live on subsistence levels. The government should help organize the farmers into cooperatives to serve as a forum for discussing problems, formulating solutions, and drawing of action plans. AQD is aware of these constraints and in 1992, AQD extended its science-based seaweed farming technology to thirty-one families on Malalison Island, Antique, together with an interest-free operating capital. The run was completed in 17 weeks using 190 man-hours of family labor. A second run in 1993, however, failed due to an unexpected off-season typhoon. There were two problems encountered in the Malalison experience: the area suitable for seaweed farming is exposed to “habagat” or the southwest monsoon, and seedlings are not available nearby and had to be sourced from Panagatan Cay which is 6-8 hours by motorboat. But despite these constraints some families on Malalison Island continued to farm seaweed on their own.

As long as the problem of financing is sorted out, on their part, seaweed farmers must ensure that their activities will not conflict with other users of the coastal area as their farms will pose potential aesthetic changes. In the past, there was conflict over the development of seaweed farming at Tubbataha Reef, a pristine dive spot in the Philippines, and is one example where some of the user conflicts are derived from concern over potential aesthetic and ecological impacts. The large area required for an economically viable seaweed culture has resulted in significant conflicts with users concerned with visual impact and for fishermen and tourists concerned with access.

Still and all, the seaweed industry of the Philippines has the potential to grow further and AQD will maintain a significant role in its development. Also, AQD will continue to explore the use of seaweed as extractive species in polyculture systems as well as in multitrophic aquaculture and to study the carrying capacities of farms to prevent disease outbreaks and occurrence of epiphytes. AQD will also continue its work on the micropropagation of quality eucheumatoid seedstocks and to come up with new and improved strains of *Kappaphycus* through strain development and hybridization guided by the use of polymorphic genetic markers and through protoplast fusion techniques. All these advanced technologies will ensure the growth, profitability and sustainability of the seaweed industry in the Philippines and the rest of Southeast Asia. ❖



*Culture flasks containing Kappaphycus micropropagules*

# REGIONAL PROGRAMS

## Regional Workshop on Trawl Fisheries Socio-Economics and Update on Countries Progress: REBYC-II CTI Project

Under the project on “Strategies for Trawl Fisheries By-catch Management,” TD organized the “Regional Workshop on Trawl Fisheries Socio-economics and Update on Countries’ Project Progress” on 26-29 October 2015 in Da Nang City, Viet Nam. Twenty fisheries officers of REBYC-II CTI partners from five countries, namely: Indonesia, Papua New Guinea, Philippines, Thailand, and Viet Nam attended the Workshop, which aimed to review the progress made by countries in the implementation of REBYC-II CTI project for the final project period. The



*The REBYC-II CTI Workshop participants*

Workshop also discussed the findings and plans related to the socio-economic

studies undertaken by REBYC-II CTI partner countries, and recommended on how the project reports could be improved. Specifically, the Workshop highlighted on the good practices and constraints for socio-economic studies relating to trawl fisheries in Asia, including gender mainstreaming based on studies conducted/planned, and discussed how to better integrate socio-economic studies into the human well-being component of the Essential Ecosystem Approach to Fisheries Management. ❖



*Participants reviewing progress made in the implementation of the REBYC-II CTI project*

## SEAFDEC jointly organizes the 9<sup>th</sup> Annual Meeting of Asian Fisheries Acoustic Society (AFAS)

TD in cooperation with the Asian Fisheries Acoustic Society (AFAS), Kasetsart University and Research Institute for Humanity and Nature (RIHN) conducted the “Ninth Annual Meeting of the Asian Fisheries Acoustics Society, (AFAS2015): The International Conference on Underwater Acoustic for Sustainable Fisheries in Asia” on 16-17 November 2015 in Bangkok, Thailand. Approximately 70 scientists from seven countries, including Japan, China, South Korea, Malaysia, Australia, Norway, and Thailand, participated in the Meeting.



*Participants of the 9<sup>th</sup> Annual AFAS Meeting*

The Asian Fisheries Acoustic Society (AFAS) was established in 2007 in Dalian, China, and has experienced in organizing eight annual meetings in Dalian, Incheon, Taipei, Penang, Qingdao, Busan, Tokyo,

and Kaohsiung. The purpose of AFAS is to promote the progress of science and technologies on fisheries acoustics in Asia. The ninth annual meeting of AFAS 2015 conducted in Bangkok consisted of Board Meeting, General Meeting, Special

Session, Technical Sessions, and Poster Session. The five Technical Sessions include those on: 1) Acoustic Technology; 2) Theory and Target Strength; 3) Acoustic Application; 4) Echo Survey; and 5) Ecosystem Monitoring. ❖

## Regional Training Course on E-EAFM and Fisheries Extension Methodologies



*Participants of the E-EAFM training course from SEAFDEC Member Countries*

The Regional Training Course on Essential Ecosystem Approach to Fisheries Management (E-EAFM) and Fisheries Extension Methodologies was organized by TD with support from the Japanese Trust Fund during 6-16 October 2015 in Rayong Province, Thailand. The course aims to develop the capacity on application of EAFM concept by extension officers, fishery officers, as well as related economic development and planning staff, who are responsible for administering fisheries and the marine environment at the national/local levels of the respective countries. Extension concept, tools, facilitation and communication skills required for extension officers were

also introduced. Nineteen trainees from SEAFDEC Member Countries attended the course.

During the course, lectures were provided on threats and issues in current fisheries management; fisheries management and the ecosystem approach; concept and principles of EAFM; and process in moving toward EAFM. Lectures were also provided to allow participants to understand the process of EAFM planning, starting from defining and scoping the Fisheries Management Unit (FMU); identifying and prioritizing issues and goals; identifying constraints and opportunities in meeting FMU goals;

facilitating discussion with partners in focus group discussion; and conflict management techniques. Participants were subsequently tasked to develop EAFM plan, which include aspects in implementation, monitoring, evaluation and adaptation of the plan.

The 10-day EAFM and Fisheries Extension Methodologies training course gave the participants great opportunity to learn by sharing their experiences and knowledge of their works. The course finished with all participants having better understanding of EAFM as well as concept and requirements for fisheries extension work, which can help them in their related works in the future.



*E-EAFM trainees actively participating in the course activities*

## Capacity building on EAFM for Lao PDR and Myanmar

TD organized the Training Course on Essential Ecosystem Approach to Fisheries Management (E-EAFM) in Lao PDR from 2 to 7 November 2015 for 25 fisheries officers, and in Myanmar from 14 to 18 December 2015 for 17 fisheries officers, with support from the SEAFDEC-Sweden project.

The trainees who attended this course have been engaged in fisheries management through involvement in the development of fisheries management plan. The training course provided the skills that help trainees to develop a management plan mobilizing the EAFM concept to better manage fisheries. Trainees learned about EAFM concepts and with an EAFM plan template, developed a draft plan for their fishery. They also understood the

principles of co-management, adaptive management and how to foster cross-sector coordination, and practiced the crucial skills of effective communication, facilitation and conflict management.

At the last day of the training course, the trainees expressed their appreciation

to SEAFDEC for organizing the training course and for the excellent, comprehensive and well executed course that provided a good concept of EAFM and good participatory training method as well. It is hoped that the concept of EAFM will help and support their works for sustainable fisheries development in their respective countries in the future.



*Participants brainstorming on the development of fisheries management plan*



## SEAFDEC participates in the 30<sup>th</sup> Session of INFOFISH Governing Council

INFOFISH convened the 30<sup>th</sup> Session of its Governing Council on 14-17 December 2015 in Phnom Penh, Cambodia. Hosted by the Fisheries Administration of Cambodia, the Meeting reviewed the works undertaken by INFOFISH during the year 2015, and advances of major markets and technological development related to aquaculture and fish processing that could be useful for its members.

SEAFDEC was represented by the Information Program Coordinator *Ms. Nualanong Tongdee* in the Meeting. In response to issues of interest of INFOFISH members, e.g. the need for technologies that could be applicable for small-scale farmers and processors, and development of alternative ingredients to substitute the

use of fishmeal in aquaculture feed, the Meeting noted that other organizations including SEAFDEC has developed technologies and relevant R&D that could also be applicable for INFOFISH members. Other relevant initiatives undertaken by SEAFDEC were also informed, particularly those that aim to enhance sustainable supply of fish and fishery products from

the region, e.g. combating IUU fishing, enhancing quality, safety and traceability of fish and fishery products. Furthermore, SEAFDEC also expressed the willingness to strengthen collaboration with INFOFISH in the areas of mutual interest, including sharing of information on results of works that could also be applicable for INFOFISH members in the future. ❖



*At the Inaugural Ceremony were: (from left to right) Ms. Nualanong Tongdee from SEAFDEC; Director-General of the Fisheries Administration, H.E. Eng Cheasan; and INFOFISH Director Dr. Abdul Basir V. Kunhimohamed*

## TD joins Symposium on Women and Community-based Coastal Resources Management

TD joined the KIARA (Koalisi Rakyat untuk Keadilahan Perikanan) and SEAFish for justice in the “Women and Community-based Coastal Resources Management Symposium” held in Jakarta, Indonesia from 29 to 30 December 2015. In this symposium, TD presented the initiatives of SEAFDEC in relation to women and the way forward in mainstreaming gender issues in future program implementation.

The symposium aimed to promote and encourage further work towards social development in seafood production. The

Symposium was a good opportunity for SEAFDEC to obtain information on gender issues useful for proceeding its related tasks in the future.

Moreover, the Symposium expected that the visibility of the role of women in fishery community-based coastal resources management in Southeast Asia will be increased. The Symposium also came up with recommendations for the government and ASEAN to protect and empower fisherwomen by allocating special budget for their activities. ❖



*Keynote speakers from Southeast Asian Countries*

## 9<sup>th</sup> CBFWA focuses on resource management

The 9<sup>th</sup> session of the International Training Course on Community-based Freshwater Aquaculture (CBFWA) for Remote Areas of Southeast Asia, with funding support from the Government of Japan – Trust Fund, was successfully held at the Binangonan Freshwater Station from 24 November to 3 December 2015. The CBFWA course had nine participants from Cambodia (1), Viet Nam (1), the Philippines (5) and Papua New Guinea (2).

The ten-day training course consisted primarily of lectures and practical activities to provide the trainees with updates on freshwater aquaculture technologies from broodstock development to seed



*CBFWA participants interacting with members of the community*

*(Continued on Page 13)*

## SEAFDEC participates in the 8<sup>th</sup> Coordination Committee Meeting of the RPOA-IUU



*Participants of the 8<sup>th</sup> Coordination Committee Meeting of RPOA-IUU*

SEAFDEC was represented by the Acting Secretary-General *Mr. Hajime Kawamura* and Policy and Program Coordinator *Dr. Somboon Siriraksophon* during the 8<sup>th</sup> Coordination Committee Meeting of the Regional Plan of Action to Promote Responsible Fishing Practices including Combating IUU Fishing in the Region (RPOA-IUU). The Meeting aimed to discuss the progress under the RPOA-IUU 2014-2015 Work Plan, endorse the reports from the Sub-Regional Groups,

review the overall progress and outlook of the RPOA-IUU implementation, identify new issues, and develop the RPOA-IUU 2015-2016 Work Plan. The Meeting was organized in Brunei Darussalam on 17 to 19 November 2015, and was attended by Australia, Brunei Darussalam, Cambodia, Indonesia, Malaysia, Philippines, Singapore, Thailand and Viet Nam,

During the Meeting, SEAFDEC in collaboration with the DOF Thailand

reported on the progress of works in the Gulf of Thailand Sub-region, especially the establishment of bilateral dialogues such as between Thailand-Malaysia, Thailand-Cambodia, and Malaysia-Viet Nam to address trans-boundary issues among countries.

In this connection, highlights of the ASEAN-SEAFDEC initiatives toward combating IUU fishing in the ASEAN Region were presented. These include the development of ASEAN Guidelines for Preventing the Entry of Fish and Fishery Products from IUU Fishing into the Supply Chain, the establishment of the Regional Fishing Vessels Record (RFVR) for vessels 24 meters in length and over, the development and promotion of the ASEAN Catch Documentation Scheme (ACDS), and initiatives in enhancing regional cooperation to support the implementation of Port State Measures in the Southeast Asian region.



## 9<sup>th</sup> CBFWA focuses on Resource Management

*(Continued from page 12)*

production and nursery & grow-out phase of tilapia, freshwater prawn, bighead carp and native catfish. Other major topics discussed were on genetics and sustainable management of farmed tilapias, diseases of freshwater fishes & food safety, business planning & management, and nutrition & feeding. The trainees experienced to conduct actual spawning trials of bighead carp and catfish, observations of egg and larval development, and supervised maintenance of these commodities. The trainees also visited Tagaytay and toured the facilities of the National Fisheries Biological Center in Taal, Batangas.

With these learnings and experiences, the participants were able to prepare a business plan or a project proposal for their community, which they presented during the last day of the training.



## SEAFDEC at the Final BOBLME Steering Committee Meeting



*Participants of BOBLME Steering Committee Meeting*

SEAFDEC was represented during the “Final Bay of Bengal Large Marine Ecosystem (BOBLME) Steering Committee Meeting” held in Phuket, Thailand on 17-18 November 2015.

At the final stage of this project, the project achievement was highlighted, especially the Transboundary Diagnostic Analysis (TDA) that identifies the major shared issues affecting the Bay of Bengal ecosystem, and the Strategic Action Program (SAP) that sets out the actions

needed to address issues and causes, and other activities. During the Meeting, results of the final evaluation and its finding were presented, including the best practices and challenges, as well as the proposed new phase of the project. In this connection, the SEAFDEC-Sweden project staff informed the Meeting of the areas of works undertaken in the Andaman Sea sub-region, and that such works would be continued by incorporating the lessons learnt from the BOBLME project in the future SEAFDEC activities.



# FUTURE ACTIVITIES

Date	Venue	Title	Organizer(s)
<b>2016</b>			
29 January	TMS-Philippines	2015 AQD Japanese Trust Fund-6 Annual Progress Meeting	AQD
29 January - 5 February	Rayong, Thailand	Regional Training Course on Stock Assessment - Part I: The Basic Knowledge of Fisheries Biology	SEAFDEC-Sweden Project
1-13 February	Samut Prakan, Thailand	Regional Training Workshop on Larval Fish Identification and Fish Early-life History Science (Basic course: Key to Family)	SEAFDEC-Sweden Project
2-4 February	Bangkok, Thailand	Expert Meeting on Regional Cooperation for Implementation of the Port State Measures in the Southeast Asian Region	Secretariat
8-10 February	Colombo, Sri Lanka	6 <sup>th</sup> APFIC Regional Consultative Forum Meeting: Promoting Blue Growth in Fisheries and Aquaculture in the Asia Pacific	APFIC
9-11 February	Mawlamyine, Myanmar	National Workshop on Validation of Sharks and Rays Landing Data	SEAFDEC
12-14 February	Colombo, Sri Lanka	34 <sup>th</sup> Session of the Asia-Pacific Fisheries Commission	APFIC
15-19 February	BFS-Philippines	Training Course on Freshwater Prawn Hatchery & Grow-out Operations	AQD
22-24 February	Makati City, Philippines	Regional Technical Consultation on EMS/AHPNS and Other Trans-boundary Diseases for Improved Aquatic Animal Health Management in Aquaculture in Southeast Asia	AQD & BFAR
25-27 February	Bangkok, Thailand	Regional Technical Consultation on Labor Issues	SEAFDEC-Sweden Project
1-4 March	Bangkok, Thailand	Stakeholders' Consultation and Drafting Committee Meeting (for preparation of the Draft Joint Declaration in Combating IUU Fishing and Enhancing the Competitiveness of ASEAN Fish and Fishery Products)	Secretariat
6-10 March	Thailand and Lao PDR	Experts Workshop on Fishway Design Principles to Enhance Sustainability of Inland Fishery in the Southeast Asian Region	Secretariat & TD
7-9 March	Kuala Lumpur, Malaysia	Regional Technical Consultation on Promotion of "ASEAN Guidelines for Preventing the Entry of Fish and Fishery Products from IUU Fishing Activities into the Supply Chain"	MFRDMD
14-18 March	BFS-Philippines	Training Course on Tilapia Hatchery and Grow-out Operations	AQD
21-30 March	Samut Prakan, Thailand	Regional Training Course on Stock Assessment - Part II: The Stock Assessment	SEAFDEC-Sweden Project
4-8 April	Nha Trang, Viet Nam	48 <sup>th</sup> Meeting of the SEAFDEC Council	SEAFDEC
18-22 April	BFS-Philippines	Training Course on Carp Hatchery & Grow-out Operations	AQD
22 Apr-6 May	TMS-Philippines	Training Course on Sandfish ( <i>Holothuria scabra</i> ) Seed Production, Nursery and Management	AQD
28 April	Bangkok, Thailand	SEAFDEC-Sweden Project Annual Review Meeting	SEAFDEC-Sweden Project
9-13 May	BFS-Philippines	Training Course on Freshwater Prawn Hatchery & Grow-out Operations	AQD
9-30 May	TMS-Philippines	Training Course on Mud Crab Hatchery and Nursery Operations	AQD
10-30 May	TMS-Philippines	Training Course on Abalone Hatchery and Grow-out Operations	AQD
13-22 June	TMS-Philippines	Training Course on Mud Crab Nursery & Grow-out Operations	AQD
13 Jun-19 Jul	TMS-Philippines	Training Course on Marine Fish Hatchery	AQD
11-15 July	Rome, Italy	32 <sup>nd</sup> Session of FAO Committee on Fisheries	FAO
July-December (tentative)	TMS-Philippines	Distance Learning Course on Principles of Aquaculture Nutrition	AQD
3 August	Bangkok, Thailand	High-level Consultation on Regional Cooperation in Sustainable Fisheries Development Towards the ASEAN Economic Community	Secretariat
4-6 August	Bangkok, Thailand	ASEAN Fisheries Conference and ASEAN Seafood Exposition	DOF Thailand, SEAFDEC & NACA

## SEAFDEC welcomes Dr. Kom Silapajarn as new Secretary-General

(Continued from Page 1)

directives of the SEAFDEC Council, for a period of 2 years from 30 November 2015 to 30 September 2017. However, He was set to officially start his duty at SEAFDEC in January 2016. In the meantime, Deputy Secretary-General *Mr. Hajime Kawamura* served as Acting Secretary-General.

Dr. Kom obtained his Bachelor of Science (Fisheries Biology) degree from Kasetsart University (Thailand) in 1980; Master of Science in Technology of Environmental Management from Mahidol University (Thailand); and Ph.D. in Fisheries and Allied Aquaculture from Auburn University in Alabama (U.S.A.) in 2004. At Auburn University, Dr. Kom focused his studies on culture pond dynamics and aquaculture management. Dr. Kom attended several training courses on pond culture and management in various institutes and centers including SEAFDEC Aquaculture Department. He has also published a number of papers on aquaculture and environmental management in peer-reviewed scientific journals.



## Regional Workshop on Cold Chain Management for Seafood

(Continued from Page 16)

The Workshop succeeded in delivering the following outcomes: (1) Equipping the participants with basic knowledge and skills required for implementing and monitoring the cold chain for key seafood commodities in their countries; and (2) Familiarization with the methodology to measure and monitor the quality parameters, and develop quality indices for key seafood commodities of the countries, namely white shrimp, tiger shrimp, seabass, tilapia, pompano, blue swimming crabs, and squid.

Following the Workshop, project participating countries would be conducting the next project activity, *i.e.* Cold Chain Pilot Trials, with their respective commercial co-operants for one year in 2016.



The resource trainer, Dr. Janet Howieson delivering a lecture to participants (left); and participants assessing the quality parameters of fish during the practical session (right)

### 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

## SEAFDEC holds RTC on Development of Regional Plan of Action for Managing Fishing Capacity



*Participants of the RTC on development of RPOA-Capacity*

SEAFDEC organized the Regional Technical Consultation on Development of the Regional Plan of Action for Managing Fishing Capacity (RPOA-Capacity) on 15-17 December 2015 in Phuket, Thailand with support from the Japanese Trust Fund and SEAFDEC-Sweden Project. The Meeting was attended by the representatives from Cambodia, Japan, Lao PDR, Malaysia, Myanmar, Philippines, Singapore, Thailand, and Viet Nam together with

their respective delegations, as well as the Chief of SEAFDEC/MFRDMD and senior officials of SEAFDEC.

With the main objective of updating the zero draft and coming up with the final draft of RPOA-Capacity which could be used as basis for the discussions on options and relevance to develop specific sub-regional actions plans, the Consultation reviewed and discussed the zero draft developed during Experts

Group Meeting in August 2015 leading to the final draft of RPOA-Capacity.

After the adoption of the final draft, the Consultation agreed that the final Draft RPOA-Capacity and the template for development of NPOA-Capacity would be submitted for endorsement during the 48<sup>th</sup> SEAFDEC Council Meeting in April 2016 in Viet Nam as well as the 24<sup>th</sup> ASEAN Sectoral Working Group on Fisheries (ASWGF) scheduled in June 2016. ✕



*Participants of the RTC RPOA-Capacity were briefed before visiting Phuket fishing port.*

## Regional Workshop on Cold Chain Management for Seafood

The “Workshop on Cold Chain Management for Seafood” was organized by the Post-Harvest Technology Centre (PHTC), Agri-Food & Veterinary Authority (AVA) of Singapore as SEAFDEC collaborating center during 17-19 November 2015 under the MFRD Programmes on Cold Chain Management for Seafood. The Workshop was attended by 17 participants from

government and private sectors of nine ASEAN Member States, except Brunei Darussalam, as well as three participants from the local Singapore seafood industry. *Dr. Janet Howieson* (Curtin University, Perth) and *Mr. Mark Boulter* (Technical and Sustainability Manager, Sydney Fish Market) were engaged as resource trainers for the Workshop.

The Workshop comprised lectures delivered by the resource trainers on seafood safety and quality, supply chain monitoring methods, icing and packaging techniques, as well as existing and emerging cold chain technology to extend the shelf life of seafood. Laboratory demonstrations and hands-on practicals were also conducted to train participants in quality assessment of key seafood commodities and development of seafood quality indices. Also included were discussion sessions on the cold chain pilot trials, international guidelines and cold chain requirements, as well as the status of regulations and guidelines of the respective countries. A field trip was organized on the 3<sup>rd</sup> day of the Workshop to visit the advanced cold chain facilities at one of Singapore’s leading seafood processing companies.



*Participants and resource trainers during the Regional Workshop on Cold Chain Management for Seafood*

*(Continued on Page 15)*