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Deputy Minister of Agriculture and Cooperatives visits TD



Visiting onboard the M.V. SEAFDEC

The Deputy Minister of Agriculture and Cooperatives of Thailand, *Mr. Luck Wajanawat*, paid an official visit to the Training Department (TD) of

SEAFDEC on 22 November 2018. The SEAFDEC Secretary-General and Chief of TD *Dr. Kom Silapajarn* welcomed the Deputy Minister and presented the activities of SEAFDEC in the region such as the fishery resources and marine environment survey, study on transboundary mackerels in the Gulf of Thailand, fishing boat model to comply with the international requirements, study on fish passage design applicable for the region, and so on. Moreover, *Mr. Luck* visited the M.V. SEAFDEC and the R.V. Chulabhorn (the research vessel of the DOF, Thailand). ❖

Forty-first SEAFDEC Program Committee Meeting and Twenty-first FCG/ASSP Meeting convened



Participants of the 41st Meeting of the SEAFDEC Program Committee

EDITORIAL

During the last quarter of 2018, SEAFDEC organized events that are significant for the region, such as the Forty-first Program Committee Meeting (41PCM) which discussed and reviewed the program, projects, and activities implemented by SEAFDEC in 2018 and those proposed for 2019. Back-to-back with the 41PCM was the Twenty-first Meeting of Fisheries Consultative Group of the ASEAN-SEAFDEC Strategic Partnership (21FCG/ASSP) which addressed the policy considerations on issues of importance to the fisheries sector of the region.

Regional events were also organized including the Meeting on the "Regional Fishing Vessels Record (RFVR) for vessels 24 meters in length and over" which updated the RFVR Database. The "7th Meeting of the Gulf of Thailand Sub-region" and "the 4th Meeting of

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SEAFDEC organized the Forty-first Meeting of its Program Committee (41PCM) on 5-7 November 2018 back-to-back with the Twenty-first Meeting of Fisheries Consultative Group of the ASEAN-SEAFDEC Strategic Partnership (21FCG/ASSP) on 8-9 November 2018 in Langkawi, Malaysia. The Meetings were hosted by SEAFDEC Marine Fishery Resources Development and Management Department (MFRDMD) in cooperation with the SEAFDEC Secretariat.

The 41PCM was attended by the SEAFDEC Program Committee Members together with their respective delegations as well as representatives from the collaborating partners of SEAFDEC. The SEAFDEC Secretary-General, Deputy Secretary-General, and senior officials of SEAFDEC Secretariat and Departments also attended the Meeting. Starting with the 41PCM, the discussion was guided by the SEAFDEC

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EDITORIAL

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the Andaman Sea Sub-region” updated the information from the countries in these sub-regions on transboundary fishery resources, such as anchovies, mackerels, and neritic tunas. Also discussed were the respective country’s efforts on combating IUU fishing and management of fishing capacity.

Other regional events included the “2nd Regional Meeting on Enhancing Sustainable Utilization and Management Scheme of Tropical Anguillid Eels in Southeast Asia” which focused on the eel resources management policy; and the series of consultative meetings on the promotion of the ASEAN Guidelines for Preventing the Entry of Fish and Fishery Products from IUU Fishing Activities into the Supply Chain that evaluated the status of implementation of the Guidelines by the Southeast Asian countries.

SEAFDEC continued the conduct of several training courses including the “Regional Training Course on Fish Handling Technique Applicable to Various Fishing Operations” conducted by TD, as well as that on fish health management, sandfish feed production, mangrove crab nursery, and seaweed propagation by AQD; and workshop on estimating freshwater fish stock by IFRDMD.

Another highlighted activity at this quarter was the official visit to TD of the Deputy Minister of Agriculture and Cooperatives of Thailand, *Mr. Luck Wajanawat* where he observed the Department’s facilities such as the M.V. SEAFDEC and the fishing boat modification project. Another special activity was the Signing Ceremony of Memorandum of Understanding (MOU) between SEAFDEC and Southern Vocational Institute of Agriculture of Thailand. ✕

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Forty-first SEAFDEC Program Committee Meeting and Twenty-first FCG/ASSP Meeting convened

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Strategies Towards 2030 prescribed in the Resolution on the Future of SEAFDEC adopted during the Special Meeting of the SEAFDEC Council in 2017. The SEAFDEC Program Committee scrutinized the results of the programs implemented in 2018 and endorsed the proposed program of activities for 2019 to ensure that the activities address the requirements of the SEAFDEC Member Countries.

Subsequent to the 41PCM was the 21FCG/ASSP. The Meeting was attended by representatives from the ASEAN-SEAFDEC Member Countries, the representative from the ASEAN Secretariat, as well as the SEAFDEC Secretary-General, Deputy Secretary-General, and senior officials of the SEAFDEC Secretariat and Departments. The FCG/ASSP mechanism serves

as a joint platform for the ASEAN and SEAFDEC to discuss and gather recommendations regarding the collaborative programs of activities that address several fisheries-related issues and challenges confronting the region. The 21FCG/ASSP therefore discussed the ASEAN-SEAFDEC collaborative programs and activities implemented by SEAFDEC in 2018 and those proposed for 2019 as endorsed by the 41PCM, the progress of other proposals implemented under the ASSP Framework, as well as the policy considerations on issues of importance to the fisheries sector of the ASEAN-SEAFDEC Member Countries. The outputs and recommendations of the 21FCG/ASSP would be further submitted to the forthcoming meeting of the SEAFDEC Council as well as to the ASEAN Sectoral Working Group on Fisheries (ASWGF). ✕

SEAFDEC participates in GAF7 Conference



Two staff from SEAFDEC-Sweden project participated in the “7th Global Conference on Gender in Aquaculture & Fisheries (GAF7)” under the theme of “Gender in Aquaculture and Fisheries: Expanding the Horizons” from 18 to 21 October 2018 in Bangkok, Thailand. Result of the study under the SEAFDEC-Sweden Project on “Understanding Gender Dimensions in Small-scale Fisheries of Kep Province, Cambodia” was presented by *Ms. Jariya Sornkliang*.

environment to discuss strategies in enhancing gender inclusiveness and equality in the fisheries sector, as well as to develop future collaborations on gender in fisheries. ✕



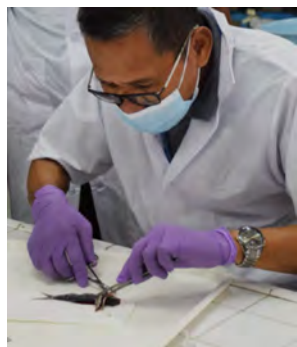
SEAFDEC staff *Ms. Jariya Sornkliang* during her presentation at GAF7 Conference

The GAF7 was attended by over 120 gender experts, researchers, and practitioners from more than 25 countries. The Conference served as a favorable

Eleven aquaculture training courses concluded

From September to December 2018, AQD conducted 10 training courses on fish health management, sandfish, freshwater aquaculture, mangrove crab, seaweeds, and algae. A total of 60 participants attended these courses.

For this year, AQD offered two sessions of the training course on “Fish Health Management” that concluded on 28 September 2018 and 29 October 2018. The twelve participants of the two sessions learned about aquatic diseases, biosecurity measures in shrimp and fish culture, and polymerase chain reaction (PCR) in disease diagnosis. There were also practical activities on sending live, fixed, and frozen samples; bacteriology; PCR; histopathology; and parasitology. The five-day training course held at AQD’s Tigbauan Main Station (TMS) in Iloilo, Philippines also taught the trainees how to process samples for diagnosis and how to prepare a diagnostic report.



A trainee prepares a fish sample for diagnosis

Another training course held at TMS was the second session of “Sandfish Seed Production, Nursery, and Management,” which was conducted from 4 to 19 October 2018. The training course had lectures on the biology and ecology of sea cucumbers, larval rearing, grow-out culture and sea ranching, natural food production, processing of sandfish, community-based resource enhancement, among others. The participants, composed of two Singaporeans and one Saudi Arabian, also had hands-on activities such as broodstock preparation for spawning, phytoplankton identification and counting techniques, media preparation

for culture of selected algal species, and larval rearing.

Additionally, fisheries officers of eight countries from Africa, Asia, and Oceania spent 16 days training at AQD in the Philippines hoping to improve the fish farming industries in their respective countries. The training course, held mostly at AQD’s Binangonan Freshwater Station in Rizal, focused on the freshwater fish farming and included lectures, practical sessions, and tours of fish farms across the provinces of Rizal, Nueva Ecija, Iloilo, and Guimaras. The training, which was funded by the Japan International Cooperation Agency (JICA), was held from 8 to 24 October 2018.



Trainees in a practical session on induced spawning of bighead carp

The Training on mangrove crab proved to be in demand. From September to December 2018 alone, five crab-related courses have been offered with a total of 27 participants. A regular training course on “Mangrove Crab Nursery and Grow-out Operations” was offered on 17-26 September 2018 held at TMS with 13 crab growers as participants. Moreover, two specialized courses on mangrove crab fattening were conducted on 4-6 September 2018 and 15-17 October 2018. Another specialized training on mangrove crab hatchery and nursery operations was held 8-26 October 2018. Lastly, a specialized training course on mangrove crab and shrimp hatchery operations were conducted for the two fisheries technical officers of the Hong Kong Special Administrative Region (HKSAR) Government from 23 to 29 October 2018.

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Capacity building on fish passage engineering design, construction, ecology, and monitoring organized



SEAFDEC/TD in cooperation with the United States Agency for International Development (USAID), Department of the Interior (DOI) of the United States, and Mekong River Commission (MRC) organized the “Fish Passage Engineering Design, Construction, Ecology, and Monitoring Workshop” from 13 to 16 November 2018 at TD in Samut Prakan Province, Thailand.

Participated in by 60 participants from the SEAFDEC Member Countries, the Workshop provided technical engineering concepts needed for the selection of appropriate fish passage designs for specific sites, including designing fish passes to maximize fish passage success, and construction of cost-effective structures with long lifespan; and information on fish passage criteria, identification of target species, understanding river hydrology, evaluating fish swimming abilities, and designing monitoring programs.

After the Workshop, the participants were able to improve their understanding on the ecology of migratory fish, understand the principles of fish passage design, develop a range of fish passage concepts for a given site, select an appropriate entrance location, understand good and bad designs, select an appropriate fish passage design, and understand the importance of monitoring programs, good and bad construction practices, and oversight.



DEPARTMENTAL ACTIVITIES

Nineteenth Meeting of SEAFDEC Information Staff Program convened

SEAFDEC/TD hosted the “Nineteenth Meeting of the SEAFDEC Information Staff Program (19ISP)” which was convened from 9 to 11 October 2018 in Pattaya, Chonburi Province, Thailand. In his welcome remarks, the SEAFDEC Secretary-General and Chief of TD, *Dr. Kom Silapajarn* stressed on the importance of enhancing the visibility of SEAFDEC through the implementation of the Information Strategies for Enhancing SEAFDEC Visibility and Communication.

After reviewing of the progress made by the Secretariat and Departments in the implementation of the Information

Strategy, suggestions were made to improve the indicators for monitoring of electronic means that have recently been very important *e.g.* electronic documents and social media. In addition, since the SEAFDEC repositories have been launched in 2018, the indicators for monitoring the access to the SEAFDEC repositories have also been discussed. Moreover, the Meeting also agreed on the revised “Guide for Notes for Writing and Editing SEAFDEC Documents,” and “SEAFDEC Standard for Official Documents and Stationeries for further consideration by the SEAFDEC Department Chiefs. ✕

SEAFDEC holds its 2018 Department Chiefs' Meeting



SEAFDEC organized its Department Chiefs' Meeting on 10 November 2018 in Langkawi, Malaysia. Participated in by the senior officials of SEAFDEC Secretariat and Departments, the Meeting discussed the required follow-up actions from the 50th Meeting of SEAFDEC Council, 41PCM, and 21FCG/ASSP. The Way Forward of 2011 Resolution and Plan

of Action was discussed, particularly the timeline for revision of the documents. Furthermore, the Meeting also noted the progress in development of “SEAFDEC Gender Strategy” which, upon the approval of the Council, shall be incorporated in the operations of the respective Departments. In addition, the Meeting approved the Notes for Writing and Editing SEAFDEC Documents, and the SEAFDEC Standard for Official Documents and Stationeries developed through the ISP forum for future usage by the staff. The Meeting took note of the need to enhance the capacity of SEAFDEC staff through the various channels such as training courses and fellowship programs. ✕

SEAFDEC participates in the 11th RPOA-IUU meeting

Two SEAFDEC staff participated in the “11th RPOA-IUU Coordination Committee Meeting” on 13-15 November 2018 in Yogyakarta, Indonesia. The Meeting was attended by nine RPOA-IUU participating countries, namely: Australia, Brunei Darussalam, Indonesia, Malaysia, Papua New Guinea, Singapore, Thailand, Timor Leste, and Viet Nam. SEAFDEC served as an Advisory Body of the “Regional Plan of Action to Promote Responsible Fishing Practices

including Combating IUU Fishing in the Region” or so-called RPOA-IUU. At this Meeting, SEAFDEC presented the progress of initiatives toward combating IUU fishing in the Southeast Asian region.

While updating on the progress in the implementation of the RPOA-IUU workplan 2018, the Meeting also agreed on the workplan for 2019 to address IUU-related issues at the regional and international levels. ✕

TD holds Fishermen Run 2018



The SEAFDEC/TD with support from numerous partners organized the SEAFDEC Mini-marathon “Fishermen Run 2018” on 16 December 2018 in Samut Prakan, Thailand. A total of 1,141 participants joined the event which aimed to elevate the health of staff and the community, while at the same time promote SEAFDEC and its programs and activities. The revenue generated from the event was donated to six elementary schools near TD. ✕

IFRDMD organizes its 2018 Annual Progress Meeting

On 19 December 2018 in Palembang, Indonesia, SEAFDEC/IFRDMD organized the “2018 Annual Progress Meeting” to review and evaluate the progress of projects implemented by IFRDMD with support from the Japanese Trust Fund under the ASEAN-SEAFDEC Fisheries Consultative Group Mechanism. The two projects were those on: 1) Promotion of Responsible Utilization of Inland Fisheries in Southeast Asia; and 2) Enhancement of Sustainability of Catadromous Eel Resources in Southeast Asia. The evaluators were *Dr. Duto Nugroho* Senior Researcher of Research Center for Fisheries, Ministry of Marine Affairs and Fisheries of Indonesia, and *Dr. Tomoyuki Nakamura* Director of Research Center for Fisheries, National Research Institute for Fisheries of the Japan Fisheries Research and Education Agency (FRA). The evaluators also gave comments and suggestions toward improving the annual reports on these two projects by IFRDMD. ✕

PTAC endorses more aquaculture R&D for AQD



*Council Director
for the Philippines
Commodore
Eduardo Gongona*

To secure sustainable fish supply and for the aggressive improvement of the aquaculture industry, the Philippine Technical and Administrative Committee (PTAC) members requested AQD to put all aquaculture research and development plans into fruition. During the 27th PTAC Meeting on 17 October 2018 in Makati City, Philippines, *Commodore Eduardo Gongona*, PTAC Chair and SEAFDEC Council Director for the Philippines, highlighted the importance of aquaculture research and development. The Meeting suggested that AQD, along with partners,

improve the mechanism of converting field-tested studies into technologies that could be adopted by stakeholders. Towards this, AQD Chief *Mr. Dan Baliao* revealed that stakeholders will soon benefit from the mass production of low-cost feeds for milkfish, a product of years of nutrition research at AQD. Through a proposed feed mill to be constructed at its Tigbauan site, AQD will be responsible for the mass production of formulated broodstock and grow-out

milkfish feeds which will be distributed to demonstration centers and facilities in the Philippines.

The PTAC is tasked to coordinate between SEAFDEC/AQD and the Philippine Government as host and comprised representatives from relevant government agencies. During the Meeting with PTAC, *Mr. Baliao* and the rest of the AQD Executive Committee renewed their commitment to contribute to aquaculture development through technology transfer and extension. PTAC reviewed SEAFDEC/AQD's accomplishments and plans in terms of research and development, technology demonstration and extension, training and information, and administration and finance. At the end of the Meeting, the Department's accomplishments in 2018 were noted and the plans for 2019, including the proposed budget for year 2020, were endorsed. ☒



*PTAC members and observers discussing
AQD's accomplishments and future
directions.*

SEAFDEC/TD signs MOU with Southern Vocational Institute of Agriculture of Thailand



On 25 October 2018 at the SEAFDEC/TD in Samut Prakan, Thailand, a 5-year Memorandum of Understanding (MOU) between TD and Southern Vocational Institute of Agriculture of Thailand was signed. This MOU covers the areas of: 1) capacity building and exchange of staff/students; 2) joint development of collaborative research projects; 3) joint development and exchange on information network; 4) collaboration and cooperation between relevant agencies; and 5) enhancement and development of fisheries technologies. ☒

IFRDMD holds two in-house trainings on catadromous eel resources and stock assessment methods



*Participants and
resource person of
the training*

SEAFDEC/IFRDMD held two in-house trainings to enhance the capacity of researchers from IFRDMD and the Research Institute for Inland Fisheries and Extension.

The first training on "Enhancement of Sustainability of Catadromous Eel Resources in Southeast Asia" was conducted on 13-14 December 2018 with *Dr. Hiroshi Hakoyama* from Japan Fisheries Research and Education Agency giving lectures on fisheries management, age structured model, and virtual population analysis of the

Japanese eel. The second training was on "Simple Stock Assessment Methods on Inland Fisheries" during 26-28 December 2018. *Dr. Toshihide Kitakado* from Tokyo University of Marine Science and Technology, Japan gave a lecture on De Lury Methods, Regression Analysis using R, Production Models, and Virtual Population Analysis. The participants were given the opportunity to consult with the lecturers on the results of their data analysis, and were assisted in analyzing the data-limited stock assessment and developing the fishery management strategies on inland waters. ☒

Raising the awareness of local communities on habitats and fishery resources enhancement

The SEAFDEC-Sweden Project through SEAFDEC/TD in collaboration with Rak Talay Nomkloa Conservation Group and local communities in Laem Klad Sub-district and adjacent areas of Trat Bay in Trat Province, Thailand organized a one-day event on 7 October 2018 to promote habitat and fisheries resources enhancement. More than 100 participants representing their respective groups attended in the event and joined activities on sea grass planting and preparation and deployment of Fish Enhancing Devices (FEDs).

Laem Klad Sub-district is one of the areas where coastal communities received support from SEAFDEC and the SEAFDEC-Sweden Project for several activities over the past



years. The area embraces the coastal habitats of fishery resources particularly mangroves and sea grass beds, which are important spawning and nursery grounds of aquatic species. Through this event, the participants fully recognized the need to conserve the natural habitats for sustainability of the resources and the communities' livelihoods that rely on utilization of such resources. ❖

SEAFDEC Secretary-General attends Our Ocean Conference

SEAFDEC Secretary-General *Dr. Kom Silapajarn* attended in the "Our Ocean Conference" held 29-30 October 2018 in Bali Indonesia. With a specific focus on generating commitments and taking actions to maintain the sustainability of the oceans, the Conference discussed expressively the efforts to realize a healthy ocean, safeguarding the security

and rights of the sea, and the sustainability of ocean resources. Specifically, under the thematic area on sustainable fisheries, the Conference strived to come up with commitments to tackle critical issues, including reversing overexploitation and fighting IUU fishing, helping to manage common ocean resources at sustainable levels, with a long-term, ecosystem-based approach.



On 29 October, *Dr. Kom* also had a bilateral meeting with officials of the Ministry of Marine Affairs and Fisheries where a discussion was made on strengthening of future cooperation and collaborative activities between SEAFDEC and Indonesia. ❖

Eleven aquaculture training courses concluded

(Continued from Page 3)

SEAFDEC/AQD also offered a training course on seaweed propagation on 26 November-5 December 2018 for the technical staff of the Philippine Bureau of Fisheries and Aquatic Resources (BFAR). The training course covered lecture topics and practical activities on the biology, ecology, and

culture and farming economics of *Kappaphycus*. Finally, AQD offered a specialized training course on algal culture for the fisheries technician of IFRDMD. The training course was held on 4-6 December, with topics on the biology and culture of plankton. ❖

Students and a lecturer from Kasetsart University visit TD



Forty-four students and one lecturer from the Faculty of Fisheries, Kasetsart University visited SEAFDEC/TD on 3 November 2018. The aim of their visit was to obtain knowledge on fishing gear and fisheries technology in Southeast Asia, and to gain hands-on experience on marine fisheries. Moreover, they also observed TD facilities such as the fishing workshop and the M.V. SEAFDEC. ❖

AQD expert talks on eel at the freshwater biodiversity symposium



AQD expert *Dr. Maria Lourdes Aralar* talks on the proper management of eel resources

Dr. Maria Lourdes Aralar, SEAFDEC/AQD's expert on freshwater aquaculture, was tapped as one of the speakers for the "2nd Philippine Symposium on Freshwater Biodiversity and Ecosystems (PSFBE)" held at the Institute of Biology, University of the Philippines (UP) Diliman in Quezon City, Philippines. *Dr. Aralar* talked about the "Sustainable Utilization, Management, and Conservation of Tropical Anguillid Eel Resources" in one of the parallel sessions on 11 December 2018, the first day of the 4-day symposium. (Continued on Page 7)

SEAFDEC joins FAO Technical Cooperation Project Inception Workshop

SEAFDEC represented by the Policy and Program Coordinator *Dr. Worawit Wanchana* and the Special Advisor *Mr. Masanami Izumi* participated in the “FAO Technical Cooperation Project Inception Workshop” which was organized by the FAO Regional Office for Asia and the Pacific in Bangkok, Thailand on 13-15 November 2018.

The Workshop brought together the representatives from the five project participating countries (Bangladesh, Cambodia, Myanmar, Thailand, and Viet Nam) and regional partners, namely SEAFDEC, Bay of Bengal Programme Inter-Governmental Organisation (BOBP-IGO), Commonwealth Scientific and Industrial Research Organisation (CSIRO), Indonesia Seas Large Marine Ecoregion (ISLME), and Oceans and Fisheries Partnership (USAID Oceans). The objectives of the Workshop

were: 1) to exchange information on national, sub-regional, and regional activities being undertaken to address IUU fishing; 2) to review the project results framework and implementation approach; and 3) to develop national and regional work plans to achieve the objectives of the Project. The implementation period of the Technical Cooperation Project is 1.5 years.

After the country’s statement on addressing IUU fishing, participants were divided into groups to prepare detailed project work plan at the national and regional/sub-regional levels. The workplan were presented and discussed among the participants for an early implementation in the respective countries. Further cooperation with regional partners was sought and confirmed for the project implementation. ❖

Staff from the Department of Science Service visit TD



The visitors toured around TD facilities

Ten staff from the Department of Science Service of Thailand visited SEAFDEC/TD on 12 November 2018.

The objective of the visit was to obtain knowledge on waste water treatment in the M.V. SEAFDEC and the M.V. SEAFDEC 2. Moreover, the visitors toured around TD facilities including the fishing and engineering workshops. ❖

Expert talks on eel at freshwater biodiversity symposium

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Dr. Aralar said that the pressure on tropical anguillid eels was due to the decline of the American, European, and Japanese eels. She explained that “*the demand for tropical anguillid eels is expected to further increase significantly in Japan, Korea, Taiwan, and China,*” and emphasized that the sustainable utilization in terms of conservation and fisheries management of eel resources is very crucial since the catadromous eel supply for the world market is dependent on the wild fisheries. Also, the techniques for full life cycle aquaculture of eel for commercial use are yet to be developed.

As a step in addressing this issue, *Dr. Aralar* presented the project of SEAFDEC in collaboration with the ASEAN Member States with funding support from Japan-ASEAN Integration Fund (JAIF) entitled “Enhancing Sustainable Utilization and Management Scheme for Tropical Anguillid Eel Resources in Southeast Asia.” ❖

Training on project cycle management for effective planning and implementation

Officials and office heads of AQD underwent the training on “Project Cycle Management (PCM)” to aid their project planning and formulation, monitoring, and evaluation. PCM is widely used for project formulation and implementation, particularly by UN organizations, donor agencies, and the World Bank.

The training, held 23-24 October 2018 at the AQD Multi-Purpose Hall, saw participants learning how to effectively use the logical framework or logframe as a tool for effective PCM. It is used to break down complex projects into essential elements and define

parameters for effective monitoring. AQD staff from different divisions prepared logframes according to their division’s development objectives. Assumptions and risks were identified along with appropriate monitoring mechanisms.

Mr. Pedro Bueno, former Director-General of the Network of Aquaculture Centres in Asia-Pacific (NACA) and FAO Consultant in Fisheries Management and Planning, and SEAFDEC Special Advisor *Mr. Masanami Izumi* served as resource persons during the training. ❖



Participants during the group discussion

SPECIAL REPORT

Alternative feed ingredients to reduce aquaculture's dependence on wild fish

by SEAFDEC/AQD

A paradox in seafood production highlights the need for alternatives to fish-based ingredients in aquaculture feed. Aquaculture has generally been seen to provide for the fish that could no longer be provided by the overharvested oceans. However, the dramatic growth of the industry has been achieved at the expense of millions of tonnes of fish caught from the oceans. Small marine fish and bycatch are important resources to derive fish meal and fish oil which are primary sources of protein and fatty acids for aquaculture feed.

While the sources of fish meal and fish oil are usually not for human consumption, the ecological impact of an ever-increasing demand to supply the growing aquaculture industry calls for a shift away from the unsustainable practice. To provide for the protein and oils in aquaculture feed, alternative sources have been sought to replace fish meal and fish oil, whether partially or totally.

The need for alternative feed ingredients is underlined by the rising cost of fish meal and fish oil. Already, feeds can account for over 50 % of the production cost in fish farms. While plant-based protein sources such as soybean meal and wheat gluten have provided lower-cost alternatives, volatile prices have incentivized the continuing search for still more alternative feed ingredients. Southeast Asia is rich in the diversity and quantity of resources that could hold potential to substitute for fish meal and fish oil. Locally-available ingredients further provide the added benefits of cost savings and reduced imports.

Advances in feed development have identified several alternative sources of protein. Terrestrial plant-based sources, as the most abundant substitute for fish meal, unfortunately tend to have a highly variable nutrient profile, lack essential amino acids, and contain anti-nutritional factors. Because of these, their ability to substitute fish meal is limited. However, advances in feed processing technologies leave much potential to improve their nutrient profile and the removal of anti-nutritional factors.

Terrestrial animal sources comprise another group of alternative feed ingredients. Meat meal, poultry meal, bone meal, feather meal, and blood meal offer good protein content and better palatability among farmed fish. Seafood by-products from processing plants include shrimp heads and shells. These have high protein content but are prone to spoilage.

Meanwhile, there are also non-conventional sources of protein such as snails, worms, frogs, and maggots. Very promising sources are single-cell microorganisms such as

yeast and algae which could further provide probiotic effects and enhance the nutritional value of fish meat.

R&D on alternative feed ingredients at AQD

SEAFDEC/AQD has been doing extensive research and development on nutritional requirements, alternative feed ingredients and their digestibility, and developed suitable feed formulations for a wide range of aquaculture species at various growth stages.



Agricultural wastes, such as mango peels, may be a future source of nutrition for feeds



Soybeans are major source of non-fish protein for feeds

In recent years, AQD has been testing agro-industrial wastes and byproducts (mango peel silage, soybean curd residues, and citrus byproducts) for suitability as protein source for tilapia breeders and fingerlings. Protein-enhanced copra meal was also analyzed and tested as protein source for grouper (*Epinephelus coioides*). For the abalone (*Haliotis asinina*) breeder diet, the algae thraustochytrid was tested for means to enhance its lipid content. A hydrolysate of milkfish byproducts, with its rich protein content, was also evaluated as a potential feed ingredient for pompano (*Trachinotus blochii*) and tilapia diets.

Promising results were obtained from distillers dried grain solubles (DDGS), a byproduct of the distillery industry,

which was shown to significantly improve milkfish growth. A dried form of the seaweed *Ulva pertusa*, when enriched with ammonium chloride, was found to be an effective protein source for abalone.

Field testing of low-cost milkfish and tilapia feeds

Alternative feed ingredients not only reduce aquaculture's demand for wild-caught fish but also provide economic benefits in reducing the cost of feeds. This year, preliminary data on the comparative performance between a commercial diet and a low-cost grow-out diet formulation by AQD has resulted in similar harvest weight in milkfish. While providing similar growth performance, the low-cost diet presented 29 % savings in feed cost. Should the savings be passed on to end-consumers, alternative feed ingredients and proper formulation hold much potential to improve food security and quality among the lower-income sectors.

In the pipeline are cheaper and sustainable feed for milkfish and tilapia that will be verified at various grow-out facilities of Bureau of Fisheries and Aquatic Resources-National Fisheries Research and Development Institute (BFAR-NFRDI) in the Philippines. Ingredient components such as DDGS, poultry byproduct meal, and protein enhanced copra meal (PECM) will be incorporated in the diets. A training course for technicians who will be involved in the project on Aquaculture Feeds and Feeding Management will be conducted prior to the start of the project, since a cost efficient feed should be complemented with appropriate knowledge and skills in feeding management.

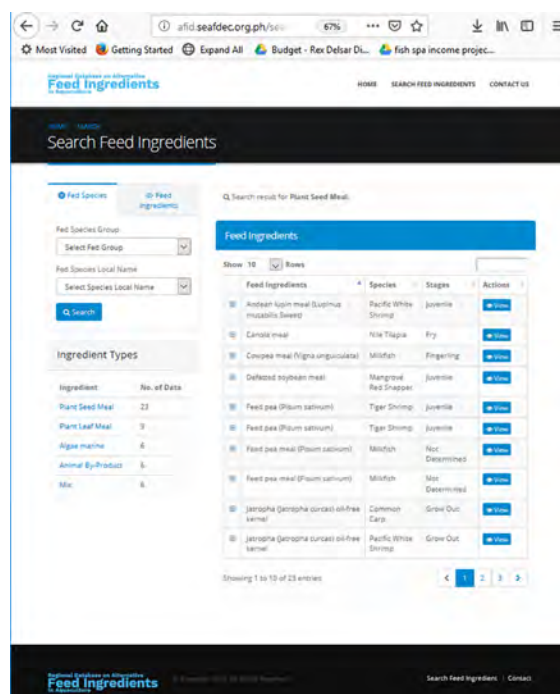


Formulated feeds at AQD with alternative ingredients

Online database of alternative feed ingredients

Numerous alternative feed ingredients have so far been identified and tested. However, their successful incorporation in feeds would still depend on multiple factors such as their unique nutritional values, feed preference of the target species, ingredient's digestibility as well as the availability and cost of the ingredient when needed by feed processors. Because of these many factors, a comprehensive knowledge on tested alternative ingredients is needed to guide researchers and feed formulators.

During the ASEAN-SEAFDEC Regional Technical Consultation on Development and Use of Alternative Dietary Ingredients or Fish meal Substitutes in Aquaculture Feed Formulation held in Myanmar in 2014, it was recognized that such information is difficult to access. It was recommended to compile and disseminate available information on alternative feed ingredients.



Regional Database of Alternative Feed Ingredients in Aquaculture accessible at <http://afid.seafdec.org.ph>

After the regional workshop in Bangkok, Thailand in May 2018, which was participated in by representatives from ASEAN Member States, the Regional Database of Alternative Feed Ingredients in Aquaculture was officially launched by SEAFDEC/AQD in July 2018. The database, accessible at <http://afid.seafdec.org.ph>, is intended to serve as a reference for the different feed ingredients that, depending on cost and availability, may be used to produce cheaper feed. The database currently lists over 70 different feed ingredients along with their nutritional composition and optimal inclusion levels. Results of feeding trials on fish species is also included where available. The data have been culled from over 100 published scientific papers on fish nutrient substitutes which were found effective for commercial applications.

More alternative feed ingredients will soon be added to the Database as representatives from SEAFDEC Member Countries have also been tasked to contribute information regarding their respective local ingredients. With further development, the public will also be invited to submit their inputs to further expand the breadth of the database. The Database is a collaborative effort between SEAFDEC/AQD and SEAFDEC Member Countries with funding support from the Japanese Trust Fund.



REGIONAL PROGRAMS

Revealing scientific knowledge on Indo-Pacific mackerel towards the sustainability of fishery resources in the Gulf of Thailand sub-region

The SEAFDEC-Sweden Project organized a two-day “Technical Meeting on Management of Transboundary Species: Indo-Pacific Mackerel in the Gulf of Thailand,” from 19 to 20 December 2018 in Bangkok, Thailand. The Meeting brought together approximately 30 participants including country representatives from Cambodia, Malaysia, Thailand, and Viet Nam, scientists, management personnel, experts from university, and SEAFDEC officers.

Through the series of consultations among countries in the Gulf of Thailand sub-region during 2016-2017, it was agreed that a DNA study would be conducted on the Indo-Pacific mackerel in this sub-region in 2018 to provide knowledge on the population of this species. This Technical Meeting was therefore meant to disseminate the

results of the DNA study and to come up with the suggestions and way forward for the development of a joint management plan for Indo-Pacific mackerel in the Gulf of Thailand. In addition, relevant knowledge which includes water current, chlorophyll-a, and planktonic and larvae stages of the fish were also discussed in order to understand the behavior of

Indo-Pacific mackerels. This Meeting also served as venue for collaboration among the Gulf of Thailand countries where scientific knowledge is used for evidence based planning and decision-making toward appropriate management measures in ensuring the sustainability of the transboundary fishery resources.



TD conducts the regional training course on fish handling technique

SEAFDEC/TD organized the “Regional Training Course on Fish Handling Technique Applicable to Various Fishing Operations in Southeast Asia” on 19-23 November 2018 at SEAFDEC/TD in Samut Prakan, Thailand.

With 10 fisheries officers from SEAFDEC Member Countries, namely: Brunei Darussalam, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, Philippines, Thailand, and Viet Nam attended, the Training transferred appropriate hygienic environmental/user friendly fish handling tools and simple techniques to maintain the quality of catch; exchanged views/details on practical skills and concepts related to reduction of post-harvest losses for fisheries in the region, including fish handling technique, ice storage, preservation techniques, transportation

of fishery products; and promoted food safety and minimized post-harvest losses in catching, storing, and transporting of fish. The participants had enhanced their knowledge and practical skills on reduction of post-harvest losses which will help reinforce the extension and promotion of activities in their respective countries, and improve awareness on hygiene and good practices on fish handling on-board the Southeast Asian fishing fleets.



Joint efforts in strengthening cooperation for the sustainability of neritic tunas in the Gulf of Thailand



To follow-up on the signing of the “Joint Declaration of Intent for the Gulf of Thailand Longtail Tuna (*Thunnus tonggol*) Fishery Improvement Project” in May 2018, the Inception Meeting was held on 13 November 2018 in Bangkok, Thailand, co-hosted by four partners, namely: the Department of Fisheries (DOF) of Thailand, Thai Tuna Industry Association (TTIA), World Wide Fund

(Continued on Page 11)

IFRDMD holds workshop on estimating freshwater fish stock

IFRDMD in collaboration with the Research Institute for Inland Fishery and Extension (RIIFE), Ministry of Marine Affairs and Fisheries of Indonesia held a “Workshop on Quantitative Estimation of Freshwater Fish Stock” on 21-22 November 2018 in Palembang, Indonesia. The objectives of the Workshop were: 1) to understand the methods on quantitative estimation of freshwater fish stock; 2) to identify appropriate methods for freshwater fish stock assessment; and 3) to discuss the strategic framework to implement simultaneously the appropriate

fish stock assessment methods among ASEAN Member States (AMSs).

The Workshop was attended by representatives from seven AMSs (Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, Philippines, and Thailand), chairman and members of the National Committee of Fish Stock Assessment for Indonesia, researchers from various institutes, and scientists from universities. *Prof. Ian G. Cowx*, Director of the Hull International Fisheries Institute, University Hull,

UK; *Prof. Dr. Indra Jaya* from Bogor Agriculture University; *Mr. Vanna Nuon* from the Mekong River Commission; and *Dr. Arif Wibowo*, IFRDMD Chief and Director of RIIFE, served as resource persons. Moreover, each country delegate presented the report on estimated freshwater fish stock in their respective countries. The Workshop was part of the activities of the project “Promotion of Responsible Utilization of Inland Fisheries in Southeast Asia” supported by Japanese Trust Fund.



Joint efforts in strengthening cooperation for the sustainability of neritic tunas in the Gulf of Thailand

(Continued from Page 10)

for Nature (WWF), and SEAFDEC with the financial support from the Government of Sweden. A total of 40 participants from various stakeholders, e.g. government sector, NGOs, producers, buyers, and SEAFDEC attended the Meeting.

The Meeting provided an overview of fishery assessment and stakeholder engagement efforts to date, and reviewed the Marine Stewardship Council (MSC) pre-assessment and gap analysis, as well as associated Action Plan for longtail tuna fishery in the Gulf of Thailand. The Meeting boosted the knowledge of participants on the application of international sustainability standards, improved cross-sectoral collaboration and enhancement of fishery traceability, and advanced the implementation of both national and regional measures for conservation and management of longtail tuna. SEAFDEC provided updates on the progress of the efforts toward the sustainability of neritic tunas in the Southeast Asian region through the implementation of the Regional Plan of Action on Sustainable Utilization of Neritic Tunas in the ASEAN Region (RPOA-Neritic Tunas), stock assessment, as well as relevant actions at regional and sub-regional levels. 

SEAFDEC-Sweden Project, IUCN-MMF, and SEI join forces to promote gender awareness in fisheries




SEAFDEC staff during the Regional Dialogue on Gender Dimension in Bangkok, Thailand

The “Regional Dialogue on Gender Dimension in Coastal and Fisheries Resources Management in South Asia and Southeast Asia: Opportunities and Challenges” was organized in Bangkok, Thailand on 15-16 November 2018, and was jointly hosted by IUCN/Mangroves for the Future (MFF), Stockholm Environment Institute (SEI), and SEAFDEC with financial support from the Government of Sweden. The Dialogue gathered approximately 60 participants from 12 countries across South and Southeast Asia who are policy makers and practitioners from national fisheries and forestry departments, representatives from the departments responsible for women affairs and development, as well as representatives and researchers from international and regional organizations and academes.

From 2017-2018, MFF, SEI, and the SEAFDEC-Sweden Project undertook the two-year collaborative “Regional

Gender Study” to examine gender dimensions in coastal resources and fisheries management in order to improve understanding on the state of men and women in environmental decision making and the structural challenges preventing the equitable opportunities for men and women in relation to coastal and marine resources in South and Southeast Asia. This Dialogue was therefore convened to reflect the key findings and to identify opportunities and challenges in integrating gender elements in coastal and marine fisheries policies and practices.

The Dialogue came up with recommendations on required actions, networking, and partnership among relevant organizations across the region. The key messages also highlighted on the need for improved capacity, awareness, budget, coordination, collaboration, and political will toward gender mainstreaming. 

IFRDMD installs fishing regulation signboards in Lao PDR and Indonesia

SEAFDEC/IFRDMD supported the installation of signboards displaying fishing regulations in Nam Xouang Reservoir, Lao PDR and in Ulak Lia Lake, Indonesia. The installation ceremony in Lao PDR was held in Jansavanh Village, Phonhong District on 31 October 2018, which was attended by the Deputy Director General and staff of the Department of Livestock and Fisheries, Lao PDR, Deputy Mayor of Phonhong District, Deputy Secretary-

General of SEAFDEC, Deputy Chief of IFRDMD, enumerators, and staff from SEAFDEC/TD and IFRDMD. In Indonesia, the installation ceremony was held in Musi Banyuasin Regency, Sumatera Selatan Province on 17 December 2018 attended by the Head and staff of Fishery and Marine Service, Deputy Chief of IFRDMD, group of fishers, and IFRDMD staff. The installation of signboards is one of the activities of the project “Promotion

of Responsible Utilization of Inland Fisheries in Southeast Asia” with financial assistance from the Japanese Trust Fund. ✦



Installation of the signboard in Indonesia

Knowledge exchange on fisheries and habitat management, climate change and social well-being through National Forum in Cambodia

The National Forum on “Fisheries and Habitat Management, Climate Change and Social Well-being” was hosted by the Fisheries Administration of Cambodia and the SEAFDEC-Sweden Project on 3-4 December 2018 in Phnom Penh, Cambodia, in partnership with the CORIN-Asia Cambodia and the Learning Institute. The Forum was attended by 50 participants from government offices of the central and provincial levels, fishers and villagers from different provinces of Cambodia both in inland and coastal communities (Kep, Kampot, Preah Sihanouk,

Battambang). The Forum aimed to: 1) disseminate experiences and lessons learnt from local implementation to relevant stakeholders; 2) raise awareness on inland and coastal communities’ livelihood and fishery and aquatic ecosystems; and 3) enhance relationship among government, organizations, and fishing communities.

Various panel discussion topics were dealt with during the Forum to allow participants involved in the project activities to share their experiences and practical knowledge

gained from different areas. The highlights of the panel discussion were on strengthening institutional capacity, sharing of knowledge on resource enhancement, alternative livelihood, collaboration between local authorities and communities, as well as gender and youth involvement. Subsequently, a half-day field visit was conducted on 5 December 2018 to coastal villages in Kampot to observe the on-going crab bank activities which served as an opportunity to share the experiences and technical knowledge from Thailand to local communities in Cambodia. ✦

MFRDMD promotes the ASEAN Guidelines for Preventing the Entry of Fish and Fishery Products from IUU Fishing Activities into the Supply Chain

SEAFDEC/MFRDMD conducted a series of consultative meetings in Myanmar, Lao PDR, Thailand, and Viet



Consultative Meeting in Myanmar



Consultative Meeting in Viet Nam



Consultative Meeting in Lao PDR

Nam during October to November 2018 to promote the implementation of the ASEAN Guidelines for Preventing the Entry of Fish and Fishery Products from IUU Fishing Activities into the Supply Chain. Consultative meetings with officials of fisheries agencies were held in each country to evaluate the status of implementation of the Guidelines.

The Guidelines are intended to provide framework to the ASEAN Member States to ensure that fish and fishery products from the region entering the global supply chain do not come from illegal, unreported, and unregulated (IUU) fishing activities. The goal of these guidelines is to enhance the credibility of the region’s fish and fishery product. ✦



Consultative Meeting in Thailand

SEAFDEC joins the 33rd INFOFISH Governing Council Meeting in Malaysia



SEAFDEC Secretary-General (left)

SEAFDEC led by the Secretary-General *Dr. Kom Silapajarn* attended the 33rd Session of the INFOFISH Governing Council held 17-20 December 2018 in Langkawi, Malaysia. While acknowledging the achievements made by INFOFISH throughout its annual working cycle, *Dr. Kom* reiterated the very significant roles of INFOFISH in providing fisheries information

particular on market and trade analysis, including the on-going compilation of on-line database on trade information and regulations and their impacts which is very much in line with the request made by the SEAFDEC Member Countries. INFOFISH also envisioned to work towards supporting countries in achieving the Sustainable Development Goals particularly the SDG14 in several aspects including those related to IUU fishing and its impacts to the value chain, labor in fisheries, gender equity, small-scale fisheries, etc. *Dr. Kom* therefore expressed the willingness to share the results of the works undertaken by SEAFDEC, and looked forward to closer collaboration between the INFOFISH and SEAFDEC in the future. ❖



Participants of the INFOFISH Governing Council Meeting

SEAFDEC participates in the 15th Regular Session of WCPFC

SEAFDEC participated as observer in the “15th Regular Session of the Western and Central Pacific Fisheries Commission (WCPFC)” organized during 10-14 December 2018 in Honolulu, Hawaii, USA. SEAFDEC was represented by the Secretary-General *Dr. Kom Silapajarn* and the Policy and Program Coordinator *Dr. Worawit Wanchana*.

The key priority issues that were discussed during the Session include improvement of management measures and set up of target reference point for the Southern Pacific albacore resources; progress in developing the harvest strategies work plan for purse seine fishery; possibility of establishing a Science-Management Dialogue to be tasked mainly for development of the Commission’s harvest strategy; future of compliance monitoring scheme based on results of the review conducted through the Intersessional Working Group meeting; and assessment of compliance for sharks conventions and management measures provisions. ❖

SEAFDEC participates in the 3rd World Small-Scale Fisheries Congress

The Training Department (TD) was represented during the “3rd World Small-Scale Fisheries Congress (WSFC) with the theme “Transdisciplinarity and Transformation for the Future of Small-scale Fisheries” organized from 22 to 26 October 2018 in Chiang Mai, Thailand. During the Congress, TD shared lessons from its work on co-management and gender in fisheries,



Participants during the field trip



Participants during the 3rd World Small-Scale Fisheries Congress

and displayed and distributed technical documents and magazines to promote the implementation of SEAFDEC activities related to small-scale fisheries in the Southeast Asian region. The overall goal of the Congress was to facilitate opportunities for researchers, students, young professionals, practitioners, fishers and fishers’ organizations, environmental groups, and policy makers to share information on all aspects of small-scale fisheries, and to formulate action plans

and capacity development programs to support the implementation of the SSF Guidelines. The Congress comprised 30 thought-provoking sessions which focused on various aspects of small-scale fisheries. There were 350 delegates from more than 55 countries who have shared their knowledge, lessons learned, and experiences on small-scale fisheries through oral and poster presentations, interactive sessions, and panel discussions. ❖

FUTURE ACTIVITIES

Date	Venue	Title	Organizer(s)
2019			
9-11 January	Bangkok, Thailand	5 th Meeting of the Scientific Working Group (SWG) for Stock Assessment on Neritic Tunas in the Southeast Asian Region	MFRDMD & SEAFDEC-Sweden
15-17 January	Iloilo, Philippines	SEAFDEC Training Workshop on Sharks Data Collection	Sec & MFRDMD
21-25 January	Rome, Italy	FAO Expert Advisory Panel for the Assessment of Proposal to Amend CITES Appendices	FAO
28-29 January	Philippines	Consultative Forum of WPEA-SM Project on Sustainable Management of Highly Migratory Fish Stocks in the West Pacific and East Asian Seas	West Pacific East Asia-SM Project
30-31 January	Bangkok, Thailand	Regional Consultation for Development of the ASEAN-SEAFDEC Common Position on the Proposed Listing of Commercially-exploited Aquatic Species into the CITES Appendices	Secretariat
1-2 February	Samut Prakan, Thailand	National Inception Meeting for the Project “Strengthening the Effective Management of Inland Fisheries and Aquaculture in ASEAN Member States and with GIS and RS Technologies”	Secretariat
11-12 February	Bangkok, Thailand	Seafood Alliance for Legality and Traceability (SALT)	SALT
13-16 February	Bangkok, Thailand	Seafood and Fisheries Emerging Technologies (SAFET) Conference	DOF Thailand, WWF
18-22 February	Bangkok, Thailand	6 th Global Fisheries Enforcement Training Workshop (GFETW)	DOF Thailand, IMCS
22-24 February	Putrajaya, Malaysia	ASEAN Workshop on the Conservation on Migratory Marine Mammals and Other Endangered Marine Organisms	MareCet
18-22 March	Surabaya, Indonesia	51 st Meeting of the SEAFDEC Council	Secretariat
25-26 March	Bangkok, Thailand	Embassy of Sweden’s Annual Regional Workshop	Sweden Embassy
26-28 March	China	30 th Governing Council Meeting of the Network of Aquaculture Centres in Asia-Pacific (NACA)	NACA
4-5 April	Sandakan, Malaysia	ASEAN Working Group on CITES and Wildlife Network Meeting	ASEAN
23 April	Manila, Philippines	Workshop on Statistic of Tropical Anguillid Eel in Southeast Asia	Secretariat
24-25 April	Manila, Philippines	Workshop on Eel Culture of Tropical Anguillid Eel in Southeast Asia	Secretariat
30 Apr-1 May (Tentative)	Bangkok, Thailand	Meeting on Way Forward of the Resolution & Plan of Action 2020	Secretariat
7-8 May	Thailand	National Workshop on NDFs for CITES Listed Marine Species	SEAFDEC EU/ CITES Project-II
7-9 May	Bangkok, Thailand	Expert Meeting on the Guide-lines for Increasing Access of Small-Scale Fishers to Insurance and Micro-finance Services	FAO
13-14 May	Rome, Italy	11 th Steering Committee Meeting of the Fisheries and Resources Monitoring System (FIRMS)	FAO
13-14 May	South Korea	5 th Global Record Working Group Meeting	FAO
15-17 May	South Korea	2 nd PSMA Technical Working Group on Information Exchange	FAO
15-18 May	Rome, Italy	26 th Session of the FAO/Coordinating Working Party on Fishery Statistics	FAO
23 May-3 Jun	Colombo, Sri Lanka	18 th Session of the Conference of the Parties to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)	CITES
3-6 June	Viña del Mar, Chile	2 nd Meeting of the Parties to the Port State Measures Agreement (PSMA)	FAO
7 June	Viña del Mar, Chile	3 rd Meeting of the Part 6 Working Group	
11-13 November (Tentative)	Chiang Mai, Thailand	42 nd SEAFDEC Program Committee Meeting (PCM)	SEAFDEC
14-15 November (Tentative)	Chiang Mai, Thailand	22 nd Meeting of the Fisheries Consultative Group of the ASEAN-SEAFDEC Strategic Partnership (FCG/ASSP)	SEAFDEC
25-29 November	Vigo, Spain	17 th Session of the COFI Sub-Committee on Fish Trade	FAO

The Second Regional Meeting on Enhancing Sustainable Utilization and Management Scheme of Tropical Anguillid Eels in Southeast Asia organized



The “Second Regional Meeting on Enhancing Sustainable Utilization and Management Scheme of Tropical Anguillid Eels in Southeast Asia” was organized by SEAFDEC on 18-19 October 2018 in Bangkok, Thailand. This 2-day meeting supported by the Japan-ASEAN Integrated Fund (JAIF) was the fourth time of the series since the projects launching in August last year. The Meeting was attended by the representatives from the ASEAN Member States, experts from Japan, members of the Assessment Committee, and staff from SEAFDEC Secretariat, IFRDMD, and AQD.

The Meeting was aimed at reporting the achievements and progressive data collection. Furthermore, the participants discussed on the important matters which need further actions. Also, the Meeting reviewed the implementation of tasks such as surveys which were undertaken during January to October 2018. Useful comments were given to improve the survey methods. On the last day, the Meeting discussed on the eel resources management policy and the countries’ management schemes to develop a basic guideline for the countries in managing their respective eel resources.



Fisheries management cooperation around the Andaman Sea sub-region strengthened

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sub-regional cooperation on Monitoring, Control and Surveillance (MCS) around the Andaman Sea. In addition, the Meeting also emphasized on the case study on the social profile and gender dimension in Kaw Thaug, Myanmar. Based on the findings of the study, it was expected that the communities would receive better opportunities of having alternative source of incomes for their well-being. It is also anticipated that the sub-regional cooperation on fisheries management in the Andaman Sea sub-region will be strengthened in the future.



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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Regional Meeting on Regional Fishing Vessels Record convened



Participants during the meeting

SEAFDEC/TD organized the “Regional Meeting on the Regional Fishing Vessels Record (RFVR) for Vessels 24 Meters in Length and Over as a Management Tool Toward Combating IUU Fishing in ASEAN” from 12 to 13 December 2018 at TD, Samut Prakan,

Thailand. There were 30 delegates from SEAFDEC Member Countries and Food and Agriculture Organization of the United Nations (FAO) participated in this Meeting. This Meeting emphasized on the management and updating of the RFVR Database for vessels 24 meters in length and over, shared information on fishing vessels in the ASEAN Member States (AMSs), and discussed initiative on future activities of the RFVR Database for vessels less than 24 meters or other appropriate size range to reduce IUU fishing in the region. The outputs of the Meeting included the current situation of AMSs in reducing

IUU fishing through updated number of fishing vessels by size (categories) and by type of fishing; way forward for AMSs and SEAFDEC to prevent, deter and eliminate IUU fishing through utilization of the RFVR; and suggestion on suitable of length for fishing vessels less than 24 meters for consideration and further inclusion in the RFVR Database as the next step. The RFVR is a practical tool for related authorities of the AMSs in checking and taking corrective actions against inappropriate behavior of its fishing vessels, thereby supporting the elimination of IUU fishing in the Southeast Asian region. ✦

Gulf of Thailand sub-regional cooperation for fisheries management holds its 7th meeting



Participants of the 7th Meeting of the Gulf of Thailand Sub-region

The SEAFDEC-Sweden Project organized the “7th Meeting of the Gulf of Thailand (GOT) Sub-region” on 1-2 November 2018 in Chonburi Province, Thailand with a total of 30 participants from the GOT countries, namely: Cambodia, Malaysia, Thailand, and Viet Nam; regional partners, *i.e.* FAO, IUCN/Mangroves for the Future, WWF-Thailand, SEAFDEC/UN Environment/GEF/Fisheries *Refugia* Project, SEAFDEC/Japanese Trust Fund; and officials from SEAFDEC. The Meeting was aimed at reviewing the progress from

the last meeting and updated information on activities undertaken by the countries and regional organizations focusing on fisheries and habitats for effective fisheries management. The Meeting discussed the issues on cooperation across sectors and borders among the countries around the GOT. The highlights of the Meeting were transboundary species and habitats for sub-regional management including Indo-Pacific mackerel, neritic tunas, among others; updated information on country efforts on managing fishing capacity; national legislations on fisheries; NPOA-capacity; NPOA-IUU; MCS implementations; and gender dimensions in coastal communities. During the discussion, the countries supported the initiative of establishing the MCS network for the GOT and appreciated the continuation of the GOT platform in the future. ✦



Fisheries management cooperation around the Andaman Sea sub-region strengthened



SEAFDEC Deputy Secretary-General during the Opening of the Meeting

The SEAFDEC-Sweden Project brought together over 35 officials from Indonesia, Malaysia, Myanmar, and Thailand, and representatives from FAO and SEAFDEC at the “4th Meeting of the Andaman Sea Sub-region,” organized from 20 to 21 November 2018 in Bangkok, Thailand. The aim of the Meeting was to report the progress on the activities made by the countries and SEAFDEC in 2016 up to the present in relation to the promotion of appropriate fisheries and habitat management, particularly on the transboundary fishery resources (anchovies, mackerels, and neritic tunas); and update on the country’s efforts on combating IUU fishing and management of fishing capacity, specifically on the

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