



SEAFDEC NEWSLETTER

VOLUME 45 NUMBER 4 October–December 2022

BANGKOK, THAILAND, ISSN 0857 - 233X

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SEAFDEC convenes the Forty-fifth SEAFDEC Program Committee Meeting and the Twenty-fifth FCG/ASSP Meeting



The Forty-fifth Meeting of the SEAFDEC Program Committee (45PCM) was held on 5–7 December 2022 in Iloilo City, Philippines to review the project implemented by SEAFDEC in 2022 and endorse the projects and activities for 2023. Hosted by the

SEAFDEC Aquaculture Department (AQD) in cooperation with the SEAFDEC Secretariat, the 45PCM reviewed the progress and achievements of the 19 ongoing projects under the FCG/ASSP Mechanism, including the two projects

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EDITORIAL

During the last quarter of 2022, SEAFDEC organized events that are significant for the region, such as the Forty-fifth Program Committee Meeting (45PCM) where the programs, projects, and activities implemented by SEAFDEC in 2022 and those proposed for 2023 were discussed and reviewed. Back-to-back with the 45PCM was the Twenty-fifth Meeting of the Fisheries Consultative Group of the ASEAN-SEAFDEC Strategic Partnership (25FCG/ASSP) which addressed the policy considerations on the issues of importance to the fisheries sector.

Moreover, the Seventh Meeting of the Regional Scientific and Technical Committee under the project “Establishment and Operation of a Regional System of Fisheries *Refugia* in the South China Sea and Gulf of Thailand” was organized to discuss the achievements at the national and regional levels, review the lessons learned, and consider the way forward. Also, the Smart Infrastructure of the Mekong Closeout Workshop was also organized to deliberate the results of the project “Implementing the Lower Mekong Fish Passage Initiative in Cambodia, Thailand, and Viet Nam” and demonstrate the fishway model.

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SEAFDEC Department Chiefs’ Meeting organized



The SEAFDEC Departments Chiefs’ Meeting was convened in Iloilo City, Philippines on 10 December 2022. The SEAFDEC Secretary-General, Deputy Secretary-General, SEAFDEC Department Chiefs, and senior officials from the SEAFDEC Secretariat, TD,

MFRD, AQD, MFRDMD, and IFRDMD attended the Meeting. During the Meeting, the recommendations provided during 54CM, 45PCM, and 25FCG/ASSP and progress of the follow-up actions made by the Departments were

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EDITORIAL

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SEAFDEC conducted several training courses including the “Regional Training Course on Gender Mainstreaming in Small-scale Fisheries and Aquaculture for Sustainable Development in Southeast Asia” which covered theoretical and practical sessions on gender concepts, mainstreaming tools, and analysis framework; “Regional Workshop to Exchange Information on Catch Documentation Scheme and Traceability of Fish and Fishery Products” which provided updated information on the traceability of fish and fishery products to combat IUU fishing; “Regional Practical Training Course on Geographic Information System and Remote Sensing for Aquaculture” which enhanced the capacity of human resources on the utilization of GIS and RS for aquaculture; “Regional Training Course on Fish Larvae Phase I and II” to improve skill in larval fish identification for managing the fish stock and in utilization of data from fish larvae surveys to determine fishing grounds and season; and “Regional Training and Workshop on Chondrichthyan Taxonomy, Biology, and Data Collection” to enhance skill in elasmobranch taxonomy and biology as well as identification of sharks and rays at species level.

In continuing its cooperation and collaboration with partners, SEAFDEC attended the 19th Meeting of the Conference of the Parties (CoP19) to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) and organized the side event “Resource Utilization of Commercially-exploited Aquatic Species (CEAS) in Southeast Asia: Regional Cooperation to Support National Actions” to share information on relevant work of SEAFDEC including regional initiatives and lessons learned in supporting the ASEAN-SEAFDEC Member Countries as well as the common and coordinated positions of the ASEAN-SEAFDEC Member Countries on the proposed listing of commercially-exploited aquatic species into the CITES Appendices at the CITES-CoP19. SEAFDEC also participated in the Workshop on Fisheries Data Collection and Statistics: Global organized by FAO which was intended to consolidate the needs and priorities for improving fisheries statistics and identify the main pillars for a potential global strategy to streamline fisheries statistical systems. ❖

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SEAFDEC convenes the Forty-fifth SEAFDEC Program Committee Meeting and the Twenty-fifth FCG/ASSP Meeting

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that would be completed in December 2022. The 45PCM also reviewed the five new projects under the FCG/ASSP Mechanism in 2023, eight Departmental Programs, six Other Programs, and one Pipeline Project. In addition, the 45PCM also noted the progress of monitoring and evaluation of the implementation of the ASEAN-SEAFDEC Resolution and Plan of Action on Sustainable Fisheries for Food Security for the ASEAN Region Towards 2030. The results of the 45PCM were submitted for endorsement to the Twenty-fifth Meeting of the Fisheries Consultative Group of the ASEAN-SEAFDEC Strategic Partnership (25FCG/ASSP) convened on 8–9 December 2022 back-to-back with the 45PCM.

The 25FCG/ASSP discussed the follow-up actions carried out by SEAFDEC and ASEAN Member States

(AMSs) with respect to the directives given at the Fifty-fourth Meeting of the SEAFDEC Council, meetings of ASEAN bodies related to fisheries, and other meetings of SEAFDEC held in 2022. The 25FCG/ASSP took note of the programs and activities implemented in 2022 and the proposed activities for 2023 under the FCG/ASSP mechanism, as endorsed by the 45PCM as well as the five new projects and one Pipeline Project. Moreover, the 25FCG/ASSP noted the progress of the proposals under FCG/ASSP framework, and important issues that impact the sustainability of the fisheries sector of the respective AMSs. The results and recommendations of the 25FCG/ASSP would be submitted to the SEAFDEC Council for approval and to the higher authorities of the ASEAN for endorsement through the ASEAN Sectoral Working Group on Fisheries (ASWGF). ❖



SEAFDEC Department Chiefs' Meeting organized

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discussed. For the information-related matters, the Meeting took note of the results of the 23rd Meeting of SEAFDEC Information Staff Program, especially on the issues that need to be considered by the concerned Departments such as theme of SEAFDEC Calendar 2024, development of SEAFDEC e-News,

and new mechanism of the Special Publication “Fish for the People.” After the discussions on administrative and financial matters, the Meeting also discussed the preparation of the 55th Meeting of SEAFDEC Council in 2023. ❖

SEAFDEC holds its Twenty-third Meeting of Information Staff Program



Participants of the Twenty-third Meeting of SEAFDEC Information Staff Program

The Twenty-third Meeting of SEAFDEC Information Staff Program or 23ISP was organized on 18–20 October 2022 in Bali, Indonesia and hosted by the Inland Fishery Resources Development and Management Department (IFRDMD). The Meeting was attended by the SEAFDEC Deputy Secretary-General, Chief and Deputy Chief of IFRDMD, as well as senior officials and information-related staff

from the SEAFDEC Secretariat and Departments.

During the Meeting, the progress made by the Secretariat and Departments in the implementation of the Information Strategies for Enhancing SEAFDEC Visibility and Communication during the year 2022 was reviewed. The Meeting also discussed and provided recommendations on the preparation and enhancement of SEAFDEC information

tools/activities for the upcoming year of 2023. In addition to suggestions for improving the regular information materials, the Meeting also provided specific recommendations for improving the mechanism and guide for authors to contribute articles to the Special Publication “Fish for the People,” while the more timely dissemination of information on SEAFDEC activities through a new platform – the SEAFDEC eNews – were discussed.

The results from this 23ISP meeting were submitted to the SEAFDEC Department Chiefs’ Meeting on 10 December 2022 for consideration and further directives. It is expected that the recommendations from the ISP Meeting would help improve the information activities and the visibility of SEAFDEC in the future. ❖

SEAFDEC visits Japanese institutions to strengthen fisheries and aquaculture cooperation

A delegation from SEAFDEC comprising the Secretary-General and Chief of SEAFDEC/TD, Deputy Secretary-General and Deputy Chief of TD, Assistant JTF Project Manager, Policy and Program Coordinator, and Marine Engineering Section Head, visited a number of institutions in Japan during 3–8 October 2022 to explore areas of collaboration and cooperation in fisheries and aquaculture. Specifically, the call was paid to the Marino Forum 21; SEAFDEC Council Director for

Japan; SEAFDEC Alternate Council Director for Japan; Japan Fisheries Research Agency in Yokohama Field Station, National Research Institute of Fisheries Engineering in Kamizu; Tokyo University of Marine Science and Technology; Hokkaido Field Science for Northern Biosphere; and Hokkaido Faculty of Fisheries Science Graduate School of Fisheries Sciences.

During the visit, several key areas of collaboration were identified, including capacity-building programs for young SEAFDEC technical staff; technologies to reduce waste from processing and application of innovations and technologies for fisheries and aquaculture in Southeast Asian countries; programs related to mitigation of impacts from climate change; research on the stock status of fishery resources; sharing research results in the breeding of *Anguilla japonica* and some tuna species, training programs on hydroacoustic equipment; research on the global warming effect on fisheries and the environment; research on inland/coastal

ecosystem services and coastal real-time ecosystem sensing; feasibility studies on applying eco-telemetry environmental evaluation; and research on the appropriate ingredients used in aquatic species feeds to reduce the unnecessary raw materials and ingredients in the feed, which can help indirectly reduce CO₂ emissions.

SEAFDEC and the visited institutions in Japan expressed the willingness to work together to strengthen their capabilities and achieve their shared goals in fisheries and aquaculture. Collaboration on these key areas are envisaged to help promote sustainable fisheries development in the region and contribute to global efforts to address the challenges facing the world’s fisheries and aquaculture industries.

The SEAFDEC trip to Japan was a success, and the organization looks forward to continued cooperation with its partners in Japan to build a brighter future for fisheries and aquaculture in Southeast Asia. ❖



SEAFDEC Secretary-General, Ms. Malinee Smithrithee pays a courtesy visits to Mr. Takashi Koya, Director-General of Fisheries Agency of Japan

SEAFDEC participates and convenes side event at the CITES CoP19



SEAFDEC participated in the 19th Meeting of the Conference of the Parties (CoP19) to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) which was held on 14–25 November 2022 in Panama City, Panama and convened the side event “Resource Utilization of Commercially-exploited Aquatic Species (CEAS) in Southeast Asia: Regional Cooperation to Support National Actions” on 18 November 2022. With support from the Japanese Trust Fund, the side event was intended to share the experiences of SEAFDEC including regional initiatives and lessons learned in supporting the ASEAN-SEAFDEC Member Countries through the implementation of capacity-building programs on the identification of sharks

and rays and conduct of the study on the market and trade of sharks including the major actors, market channels, practices, and utilization, to support sustainable development and management of shark and ray resources in the Southeast Asian region. Moreover, the common positions of the ASEAN-SEAFDEC Member Countries on the proposed listing of commercially-exploited aquatic species into the CITES Appendices at the CoP19 were also shared during the side event.

The side event was facilitated by the SEAFDEC Secretariat Senior Policy Officer, *Ms. Pattaratjit Kaewnuratchadasorn*. The panelists were the Senior Advisor to SEAFDEC and sharks expert, *Dr. Ahmad bin Ali*; Head of the Marine Resource

Management Office, CITES and Conservation of Endangered Species Unit of the Department of Fisheries Sabah in Malaysia, *Mr. Lawrence Kissol, Jr.*; Director of the Conservation Division of the Fisheries Administration of Cambodia, *Mr. Ouk Vibol*; and expert from the Food and Agriculture Organization of the United Nations (FAO), *Dr. Kim Friedman*.

CITES is an international agreement between governments that ensure that international trade in specimens of wild animals and plants does not threaten the survival of the species. Every two years, CITES holds the Conference of the Parties (CoP) to discuss the amendments of the proposals. During the CoP19, the amendments of the 52 proposals for inclusion into Appendix I and II for animals and plants including commercially-exploited aquatic species were discussed. As a result of the CoP19, sharks, hammerhead sharks, guitarfishes, sea cucumbers, and ornamental fishes (*e.g. Potamotrogonidae* spp. and *Hypancistrus zebra*) were listed in Appendix II. ❖

SEAFDEC takes part in FAO Workshop on Fisheries Data Collection and Statistics

SEAFDEC Information Program Coordinator, *Ms. Nualanong Tongdee*, together with Senior Information Officer, *Ms. Saivason Klinasukhon*, and two officers from the Training Department attended the online “Workshop on Fisheries Data Collection and Statistics: Global” which was organized by the Food and Agriculture Organization of the United Nations (FAO) on 9 November 2022. The Workshop was participated by FAO Member Countries, including five Southeast Asian countries, namely: Brunei Darussalam, Malaysia, Philippines, Thailand, and Viet Nam. Based on the outcomes of the previous regional workshops for Asia/Pacific, Americas, and Africa/Mediterranean/Middle East, the Workshop was aimed at consolidating the list of needs and related priorities for improving fisheries statistics and identifying the main



pillars for a potential global strategy to streamline fisheries statistical systems based on the identified priorities.

During the Workshop, some suggestions from the “Regional Technical Consultations on Fishery Statistics and Information” organized by SEAFDEC in August 2022, *i.e.* requirement for support from regional/international organizations in conducting training on comprehensive analysis of statistical

data, and developing a module and manual for gathering statistics data by the community were raised. In addition, the Workshop also highlighted the global strategy which includes three pillars: 1) standard methodologies framework; 2) fisheries statistical national (national plans, legal framework); regional and global governance; and 3) building regional and global capacity building framework for sustainable fisheries statistics systems. ❖

DEPARTMENTAL ACTIVITIES

SEAFDEC signs MOA to support the rehabilitation of oil rig platform



On 19 December 2022, SEAFDEC signed with the Department of Fisheries (DOF) of Thailand, the PTT Exploration and Production (PTTEP) Public Company Limited, the Faculty of Fisheries, Kasetsart University of

Thailand, and the Prince of Songkla University (PSU) of Thailand, a Memorandum of Agreement (MOA) for a research study project on the construction of fisheries habitats from oil rig platform legs in an offshore area in the Gulf of Thailand. The project has the objectives of promoting and supporting cooperation to enhance fishing activities by developing and restoring aquatic habitats, fishery resources, and marine ecosystems, as well as promoting the development of the country's knowledge toward aquatic resource management in accordance with the concept of

sustainable and balancing marine ecosystems. The duration of the MOA is three years from 19 December 2022 to 18 December 2025.

Represented during the signing ceremony at the DOF Thailand premises were *Mr. Chalermchai Suwannarak* Director-General of the DOF Thailand, *Ms. Malinee Smithrithee* SEAFDEC Secretary-General, *Assoc. Prof. Dr. Sutkhet Nakasathien* from Kasetsart University, *Mr. Sakanan Platong* from the PSU, and *Mr. Montri Lawanchaikul* from the PTEP. ❖

SEAFDEC attends the 3rd Meeting of the Sustainable Ocean Initiative Global Dialogue with Regional Seas Organizations and Regional Fisheries Bodies



The “3rd Meeting of the Sustainable Ocean Initiative Global Dialogue with Regional Seas Organizations and Regional Fisheries Bodies” was convened in Busan, Republic of Korea from 25 to 28 October 2022 by the Secretariat of the Convention on Biological Diversity (CBD), United Nations Environment Programme (UNEP), and Food and Agriculture Organization of the United Nations (FAO). The Meeting was supported by the Government of the Republic of Korea (through the Ministry of Oceans and Fisheries), Government of Japan (through Japan Biodiversity Fund), and Government of France (through French Biodiversity Agency).

The Meeting was attended by representatives from several regional

seas organizations (RSOs) and regional fisheries bodies (RFBs) and aimed at enhancing the impact of the Sustainable Ocean Initiatives (SOIs) Global Dialogues with RSOs and RFBs since its inception in 2016. During the Meeting, SEAFDEC Secretary-General, *Ms. Malinee Smithrithee*, and Policy and Program Coordinator, *Dr. Worawit Wanchana*, shared the experiences of SEAFDEC in coordination and collaboration with RSOs and RFBs.

It was noted that the issues discussed at the Meeting need to be further addressed through continued regional coordination and that the outcomes of the Meeting would serve as the basis for sustained dialogues at the regional level in the respective regions. ❖

Visitors flock to AQD



From October to December 2022, SEAFDEC/AQD had a total of 68 visitors who came to the research facility for benchmarking, educational tours, and site visits. The guests included consultants and technicians from the Philippine Department of Agriculture, executive officials from various provinces and towns, policymakers, researchers, university students, and fishers. Most of them wanted to learn about AQD's culture commodities, seek expert advice from scientists, and discuss potential aquaculture projects and research collaborations. Furthermore, students joined educational trips to learn about the latest research advances and ongoing studies at AQD and see firsthand the technology and processes used. The visitors were given a tour of the various AQD research facilities, hatcheries, and FishWorld Museum. ❖

TD presents gender studies, panelist in GAF8



The Fisheries Management Scientist and Gender Focal Person from the SEAFDEC Training Department (TD), *Ms. Jariya Sornkliang*, participated in the 8th Global Conference on Gender in Aquaculture and Fisheries (GAF8) in Kochi, Kerala, India from 21 to 23 November 2022. *Ms. Jariya* made an oral presentation entitled “Women Leaders in Fisheries and Aquaculture Groups in Thailand” under Session 1: Women’s voice and agency: Individual collectives, associations, platforms, institutions. Her

presentation highlighted the successful fisheries management activities of the fishers groups in Thailand, namely: Sub Somboon Aquatic Animal Food Bank in Buri Ram Province and Kaoyod small-scale fisher group in Rayong Province, which are being led by women. The women were accepted by members of the fishers groups to lead not only because the leadership was passed to them by their fathers but also because of their high education. Women in both areas proved to be strong leaders and they intend to support their respective groups in the long-term for sustainable utilization of fishery resources and inspire and empower more women to be involved in fisheries management activities.

Moreover, *Ms. Jariya* also served as a panelist in Special Session 1: Women and the Changing Tide: Breaking the Bias in Small-scale Fisheries and

Aquaculture in the context of IYFA 2022. In this session, she shared the work of SEAFDEC in supporting equal rights and access to services, markets, and decent work for women in fisheries in the Southeast Asian region.

With the theme “Shaping the Future: Gender Justice for Sustainable Aquaculture and Fisheries,” GAF8 was jointly hosted by the Gender in Aquaculture and Fisheries Section of the Asian Fisheries Society, the ICAR-Central Institute of Fisheries Technology, Kochi, and the Society of Fisheries Technologists (India) (SOFTI), Kochi. The Conference brought together over 300 scientists, academicians, gender experts, policymakers, and students from several countries around the world. GAF8 featured a total of 126 oral and poster presentations in six Sessions and nine Special Sessions. ✦

International online training for crab production



SEAFDEC/AQD’s mangrove crab production techniques were highlighted in a four-day InfoFish Online Crab Training from 14 to 18 November 2022. The 38 trainees came from Bangladesh, Fiji, Malaysia, Papua New Guinea, Philippines, Sri Lanka, and Thailand.

AQD experts used the Zoom platform to discuss the biology of mangrove crabs,

biological considerations in establishing a crab hatchery, broodstock management and larval rearing, and nursery and grow-out management. The Training Course provided participants with technical knowledge of seed production, nursery, and grow-out of mangrove crabs, emphasizing *Scylla serrata* for sustainable livelihood and employment generation. ✦

AQD Scientist Emerita elected fellow of global science academy



SEAFDEC/AQD Scientist Emerita, *Dr. Jurgenne Primavera*, is one of 50 new fellows elected to The World Academy of Sciences (TWAS). *Dr. Primavera* was one of the two Filipino fellows elected.

The election was held during the TWAS 16th General Conference in Hangzhou, China from 21 to 24 November 2022. Her fellowship will be effective 1 January 2023.

Recognized by the Philippine National Academy of Science and Technology

as one of its academicians, and hailed as one of Time Magazine’s Heroes of the Environment, *Dr. Primavera* was accorded recognition for her extensive work on mangroves and aquaculture. During her stint as a scientist at AQD, *Dr. Primavera* initially focused on the breeding and seed production of shrimp. Eventually, her research shifted to the rehabilitation of greenbelts and reversion of abandoned fishponds to mangroves for the protection of coastlines, food resources, and livelihoods.

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Nueva Valencia folk receive gifts from AQD

After receiving gift packs from SEAFDEC/AQD, some 100 residents of two barangays in Nueva Valencia, Guimaras, Philippines returned home with smiles etched on their faces. The gift packs were an assortment of grocery items. The residents, composed of 50 each from the barangays of Magamay and Pandaraonan, were beneficiaries

of the “Gift-Giving Activity” of the Department.

The event, which took place on 13 December 2022 at the Sitio Paho Multi-Purpose Gym in Barangay Magamay, was part of AQD’s annual activities during the Christmas season.



Training Course on EAFM for the Mekong River



The SEAFDEC Training Department (TD) organized the “Training Course on Ecosystem Approach to Fisheries Management (EAFM) for Mekong River” from 7 to 11 November 2022 in Samut Prakan, Thailand. Under the Departmental Program “Promotion on Strengthening of SEAFDEC Visibility and Enhancing Human Capacity Building,” the Training was participated by 18 fishery officers from the Department of Fisheries (DOF) Thailand working in the provinces along the Mekong River. The aim of the Training was to build the capacity of the trainees in developing management measures/actions, project planning, and co-management in the Mekong River.

EAFM is also a suitable tool for developing plans for inland fisheries management because of its ecosystem-based, stakeholder-led approach while it has been applied mainly to coastal fisheries management. The Mekong River is one of the world’s great rivers flowing through China, Myanmar, Thailand, Lao PDR, Cambodia, and Viet Nam. However, the river is rapidly changing as economic development, urbanization, and industrialization alter the basin. Applying EAFM principles in the Mekong River would involve practical and effective means to manage fisheries more holistically for the sustainable use of fishery resources and sustain the local people’s social well-being.



AQD Scientist Emerita elected fellow of global science academy

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To be elected, TWAS fellows must meet the highest international standards and have made significant contributions to the progress of science in their home countries. They retain the membership

for life. TWAS, based in Trieste, Italy, promotes long-term prosperity via research, education, policy, and diplomacy.



SEAFDEC initiatives for combatting IUU fishing presented at the 10th EAMF

The Head of the Training and Information Section of the SEAFDEC Training Department, *Mr. Kongpathai Saraphaivanich*, was invited to present at the 10th Expanded ASEAN Maritime Forum (EAMF) on 7 December 2022 in Manila, Philippines. Hosted by the Office of ASEAN Affairs of the Department of Foreign Affairs of the Philippines, the Forum was composed of four sessions: 1) UNCLOS in ASEAN, 2) implications of sea-level rise, 3) updates on the effectiveness of information exchange mechanisms, and 4) combating IUU fishing in the region. During Session 4 of the Forum, *Mr. Kongpathai* highlighted the initiatives of SEAFDEC for combatting IUU fishing including the ASEAN Guidelines for Preventing the Entry of Fish and Fishery Products from IUU Fishing Activities into the Supply Chain, traceability system for fish and fishery products from fishing to plate, Regional Fishing Vessels Record (RFVR) database, regional coordination to support the implementation of port State measures, and so on.

The EAMF is a Track 1.5 forum on cross-cutting maritime issues of common concern convened regularly by the East Asia Summit (EAS) participating countries, namely: ASEAN Member States, Australia, China, India, Japan, New Zealand, Republic of Korea, Russian Federation, and United States of America.



Research paper on aquaculture-aided resource enhancement conferred with Dr. Elvira O. Tan Award

A SEAFDEC/AQD research paper showing that abalone seeds produced in hatcheries can be used to rehabilitate its fisheries in marine reserve multiuse buffer zones was conferred with the Dr. Elvira O. Tan Award as an outstanding published paper in the aquatic sciences category. Lead author, *Dr. Nerissa Salayo*, received the award from the Department of Science and Technology (DOST)-Philippine Council for Agriculture, Aquatic and Natural Resources Research and Development (PCAARRD) during

their 50th Founding Anniversary held last 10 November 2022 at the Council's headquarters in Los Baños, Laguna.

The paper "Stock enhancement of abalone, *Haliotis asinina*, in multi-use buffer zone of Sagay Marine Reserve in the Philippines" was published in the Aquaculture journal in 2020 by *Dr. Salayo* with co-authors *Teruo Azuma*, *Raisa Joy Castel*, *Rafael Barrido*, *Dianne Hope Tormon-West*, and *Takuro Shibuno*. The paper revealed that hatchery-reared

abalone's mean shell length, body weight, and body mass index are not significantly different from those of the recovered wild stocks.

The Dr. Elvira O. Tan Award honors Filipino scientists and researchers for their outstanding research publications, which contribute to PCAARRD's mission of advancing the Philippine economic and food security. ✦

AQD's Deputy Chief visits community-based freshwater prawn hatchery



Dr. Sayaka Ito (fourth from right) during the activities

SEAFDEC/AQD Deputy Chief, *Dr. Sayaka Ito*, visited the giant freshwater prawn hatchery being constructed in Pipindan, Binangonan, Rizal, Philippines, which is funded by the Government of Japan Trust Fund.

Dr. Ito toured the hatchery on 21 November 2022 along with the officers and active members of the Pipindan Aquaculture Producers Association (PAPA) which is the beneficiary of the facility. Since March 2022, the Project

Leader, *Dr. Nerissa Salayo*, said that the PAPA members have been faithfully visiting AQD's nearby Binangonan Freshwater Station daily to assist in the maintenance of the hatchery facilities and gain experience so they can maintain their own hatchery once it is completed.

The hatchery is designed to hold 30 units of 80-liter-capacity larval rearing tanks and is hoped to be completed in early 2023. It is envisioned to help provide an alternative income for the local fisherfolk association, cater to the high demand for postlarvae of the prawn *Macrobrachium rosenbergii*, and stimulate its grow-out in lake cages and freshwater ponds. ✦

AQD holds int'l training on community-based freshwater aquaculture

Researchers and fisheries staff from Malaysia, Philippines, and Viet Nam took part in a 14-day training on community-based rural freshwater aquaculture at SEAFDEC/AQD's Binangonan

Freshwater Station in Rizal, Philippines. The training, held from 7 to 21 November 2022, included hands-on activities on broodstock management, spawning, and larval rearing of freshwater species such as carp, catfish, freshwater prawn, and tilapia.

The lectures covered the different aspects of aquaculture including site selection, natural food production, feed preparation, culture protocols, health management, post-harvest, economics, and others.

The trainees visited a nearby community to conduct a rapid rural appraisal, and prepared project proposals that could be implemented in their home countries. They also visited AQD's nearly-completed community-based giant freshwater prawn hatchery in Pipindan, Binangonan, Rizal.

The closing program was graced by the Deputy Chief of AQD, *Dr. Sayaka Ito*, and Training and Information Division Head, *Dr. Edgar Amar*. ✦



Malaysian university eyes collab with AQD

Representatives from the Center for Marine and Coastal Studies (CEMACS) of Universiti Sains Malaysia (USM) went to SEAFDEC/AQD on 3 November 2022 to discuss a possible collaboration.

CEMACS Director and USM professor, *Dato' Dr. Aileen Tan Shau Hwai*, said they wanted to link and strengthen the collaboration of research primarily on mangrove crabs and explore other opportunities such as training. They also wanted to get in touch with AQD's mangrove crab team since the research center is making strides in aquaculture research.



Together with their industry partner, Bayu Aquaculture Sdn Bhd., the USM research team is looking for collaboration between neighboring countries to improve mangrove crab farming among the coastal communities in Malaysia as part of an initiative to empower

them to have sustainable income from sustainable aquaculture. During the dialogue, AQD Chief, *Mr. Dan Baliao*, provided an overview of the ongoing projects in the Department while sharing some research breakthroughs that have occurred over the years. ❖

AQD scientist embarks on research trip in Japan

SEAFDEC/AQD scientist, *Dr. Maria Rowena R. Eguia*, embarked on a month-long research trip to Tohoku University in Japan to conduct research, reconnect with faculty members, and explore opportunities for collaboration on genetics and genomics research.

Dr. Eguia visited the University's Onagawa Field Center in Onagawa, Miyagi, and Aobayama Campus in Sendai, Miyagi from 7 November to 6 December 2022 with funding from the Japan Society for the Promotion of Science (JSPS).

On 15 November, she presented her current study funded by the



Japan-ASEAN Integration Fund (JAIF) on e-DNA survey to the Aobayama campus faculty members who are experts in e-DNA technology. She also spoke with experts on how to ensure the extraction of sufficient quantities of

e-DNA from field-drawn water samples. On 5 December, she also delivered a lecture on aquaculture genetics and genomics to undergraduate students enrolled in the global program at Tohoku University. ❖

Sandfish culture training for Papua New Guinea National Fisheries Authority employees

Four trainees from the National Fisheries Authority of Papua New Guinea completed the Training Course on Sandfish (*Holothuria scabra*) Seed Production, Nursery, and Management at SEAFDEC/AQD. During the 15-day training which began on 3 October 2022, the trainees were immersed in lectures on the biology of sea cucumbers with emphasis on sandfish. They learned the sea cucumber processing,

spawning techniques, nursery rearing, and community-based sea ranching from AQD specialists. Furthermore, the trainees were involved in broodstock preparation and spawning induction; spawning and larval rearing tank setup; and egg collection, counting, and stocking. They also participated in nursery pen harvesting and sea ranch site monitoring at Molocaboc, Sagay City, Negros Occidental, Philippines. ❖



Free books on aquaculture announced by AQD

SEAFDEC/AQD announced between 23 and 26 December 2022 through its Facebook page that two new extension manuals and one conference proceedings were freely available for download through its Institutional Repository (repository.seafdec.org.ph). Print copies of one of the manuals released titled “Hatchery Production of Sea Cucumbers (Sandfish *Holothuria scabra*)” are also available at the AQD bookstore. This manual, partly supported by the Australian Centre for International Agricultural Research (ACIAR), highlighted the importance of sea cucumbers and their potential as an aquaculture commodity, particularly that of the tropical sea cucumber *H. scabra*, commonly known as sandfish. It described the various hatchery production methodologies specifically optimized for sandfish and designed to be practical and easy to implement.

The other manual “Nursery and Grow-out Culture of Rabbitfish *Siganus guttatus* in Brackishwater Ponds” covered topics on the biology of rabbitfish and brackishwater pond culture techniques based on the research and verification studies conducted by AQD. Meanwhile, the conference proceedings “Understanding Current Challenges and Future Prospects in Integrated Multi-Trophic Aquaculture

(IMTA) Research” was fully funded by the Japan International Research Center for Agricultural Sciences (JIRCAS). The proceedings is a compilation of the 10-year results of IMTA research conducted by JIRCAS and AQD researchers and their collaborators. It is an output of the JIRCAS-SEAFDEC/AQD Joint Workshop on IMTA research held at AQD’s Tigbauan Main Station in the Philippines on 6–8 August 2019.



IFRDMD convenes Consolidation of the 2023 Performance Plan

IFRDMD organized the “Consolidation of the 2023 SEAFDEC/IFRDMD Performance Plan” on 15–17 December 2022 in South Lampung, Indonesia. The Meeting was attended by the Chief and Deputy Chief of IFRDMD, Acting Head of the Research Institute for Inland Fisheries and Extension, and 14 IFRDMD staff. The Meeting was aimed at exploring the potential of in the people in charge on to achieve the objectives of project activities and develop the strategies for 2023.



Participants of the Consolidation of the 2023 SEAFDEC/IFRDMD Performance Plan

The IFRDMD officials including the Special Departmental Coordinator, Head of Administration and Finance, Finance staff, Head of Technical Services, as well as the project leaders made presentations at this Meeting. The presentations included the activities of the two projects under the Japan Trust Fund VI Phase 2 “Management Scheme of Inland Fisheries in the Southeast Asian Region” and “Sustainable Utilization of

Anguillid Eels in the Southeast Asia Region.” Besides, presentations were also made on the two projects supported by the Japan-ASEAN Integration Fund (JAIF) entitled “Regional Collaborative Research and Capacity Building for Monitoring and Reduction of Marine Debris from Fisheries in Southeast Asia” for the freshwater fish and “Development of Stock Assessment Methods and Strengthening of Resources Management

Measures for Tropical Anguillid Eel in Southeast Asia.” The program of the Ministry of Marine Affairs and Fisheries “Smart Fisheries Village” was introduced as well.

After the Meeting, IFRDMD also organized a team-building activity to strengthen the relationship among staff as part of human resource development.

SEAFDEC Alternate Council Director for Indonesia visits IFRDMD



SEAFDEC Alternate Council Director and Head of Marine and Fisheries Research and Human Resources Development Agency, *Dr. I Nyoman Radiarta*, visited SEAFDEC/IFRDMD on 22 December 2022 in Palembang, Indonesia. *Dr. Nyoman*, together with the Head of Fisheries Research Center, *Ms. Yayan Hikmayani*, and the Head of Fisheries Research Center for Marine and Fisheries Socio-Economic Research, *Dr. Rudi Alek Wahyudin*, discussed with the IFRDMD Deputy

Chief, *Mr. Tomohito Shimizu*, Special Department Coordinator, *Dr. Dina Muthmainnah*, and staff of IFRDMD.

During the visit, the programs of IFRDMD as well as the ongoing project activities supported by the Japan Trust Fund VI Phase 2 and Japan ASEAN Integrated Fund were presented and discussed. The Ministry of Maritime Affairs and Fisheries (MMAF) expressed its strong support for IFRDMD and suggested that future

activities in Indonesia should align with the MMAF program. MMAF also supported IFRDMD for its improving the performance to achieve valuable results and encouraged Indonesian experts to support capacity building of staff.

The day before of the visit, *Mr. Shimizu* and staff accompanied *Dr. Nyoman* to tour Patra Tani, Muara Enim, South Sumatra, Indonesia, to evaluate the MMAF program “Smart Fisheries Village” or SFV. Since 2020, IFRDMD has also been conducting activities to support SFV through the Special Area for Conservation and Fish Refugia (SPEECTRA) program focusing on local fish conservation in inland waters and educational tourism. Besides, IFRDMD is conducting monthly observation of the water quality and monitoring of growth of various fishes through the project “Management Scheme of Inland Fisheries in the Southeast Asian Region” supported by the Japan Trust Fund. ❖

IFRDMD organizes 2022 Annual Progress Meeting



The 2022 Annual Progress Meeting with the theme “Securing the Sustainability of Fisheries to Contribute to Food Security, Poverty Alleviation, and Livelihood of People in the Region” was held by SEAFDEC/IFRDMD on 20 December 2022 in Palembang, Indonesia to discuss the achievements of activities in 2022 and plans for 2023.

On this occasion, the SEAFDEC Alternate Council Director and Head of Marine and Fisheries Research and Human Resources Development Agency, Ministry of Maritime Affairs

and Fisheries, *Dr. I Nyoman Radiarta*, represented by the Head of the Fisheries Research Center, *Ms. Yayan Hikmayani*, delivered the Keynote Remarks. *Ms. Yayan* conveyed that IFRDMD is expected to enhance the cooperation with the SEAFDEC Member Countries and related stakeholders in promoting sustainable management of inland fishery resources and encouraging community involvement in managing inland waters.

In 2022, the activities of the two projects funded by the Japan Trust Fund VI

Phase 2 entitled “Sustainable Utilization of Anguillid Eels in the Southeast Asia Region” and “Management Scheme of Inland Fisheries in the Southeast Asian Region” were carried out. IFRDMD invited two evaluators, namely: *Dr. Sakie Kodama* from Nagano University, Japan and *Prof. Dr. Gadis Sri Haryani* from the National Research and Innovation Agency, Indonesia to evaluate the achievements of the two Projects and provide suggestions on the future activities.

After the Meeting, *Dr. Kodama* delivered a lecture entitled “The Latest Fish Observation Method: eDNA analysis” via an online platform. The Meeting and Lecture were attended by the staff from the Marine and Fisheries Research and Human Resources Agency, Fisheries Research Center, the Research Institute for Inland Fisheries and Extension, and academicians from University, as well as IFRDMD staff. ❖

SPECIAL REPORT

Evaluating the Application of EAFM in Inland Fisheries Management

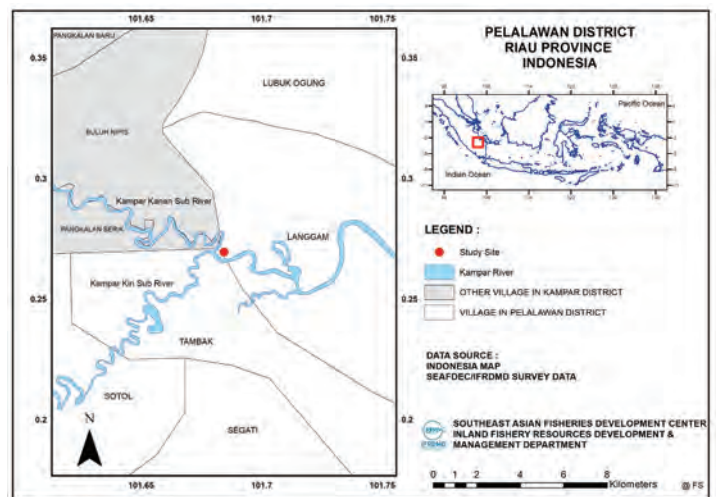
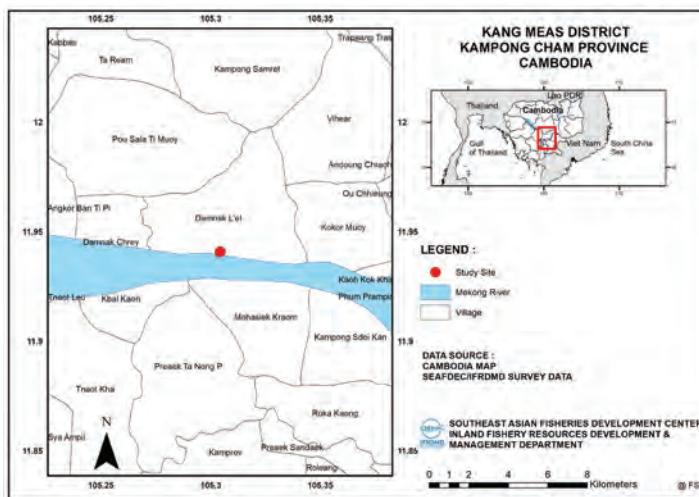
Dina Muthmainnah, Aroef Hukmanan Rais, and Freddy Supriyadi

SEAFDEC/IFRDMD

Inland waters refer to lakes, rivers, brooks, streams, ponds, inland canals, dams, and other land-locked (usually freshwater) waters. Inland fisheries including capture and aquaculture are an important source of food and livelihood for the people living around the inland water areas. However, inland fisheries activities adversely impact the environment, aquatic organisms, and other sectors. To address the negative impacts of inland fisheries activities, the ecosystem approach to fisheries management (EAFM) is a holistic approach to fisheries management towards systems and decision-making processes that balance ecological well-being with human and societal well-being, within improved governance frameworks. Although EAFM has been applied mainly to coastal fisheries management, it is also a suitable tool for developing plans for inland fisheries management because of its ecosystem-based, stakeholder-led approach (FAO, 2019).

Under the project “Management Scheme of Inland Fisheries in the Southeast Asian Region” supported by the Japan Trust Fund VI Phase 2, IFRDMD evaluated the EAFM in inland fisheries of the Mekong River in Kang Meas District of Kampong Cham Province in Cambodia and Kampar River in Pelalawan District of Riau Province in Indonesia using the EAFM domains. The EAFM domains are the technical guidelines for assessing fisheries management indicators in inland waters applying an ecosystem approach which was developed by the Ministry of Marine Affairs and Fisheries of Indonesia (MMAF, 2020). The obtained information would support the development of science-based management measures to sustain and manage inland fisheries.

The study sites were primarily lowland areas with huge floodplains where the people are either full-time or temporary fishers. The data were gathered in 2022 through interviews using a structured questionnaire. The respondents included fishers, local government officers, indigenous



*Kang Meas, Kampong Cham, Cambodia (left) Pelalawan, Riau, Indonesia (right)
Location of the study sites for evaluation of EAFM implementation in Cambodia and Indonesia in 2022*



Interview of the inland fisheries stakeholders in Kang Meas District, Kampong Cham Province in Cambodia (left) and Pelalawan District, Riau Province in Indonesia (right) in 2022

Table 1. EAFM domains and indicators, flag status, and range of composite index to assess the inland fisheries management in Mekong River in Kang Meas District of Kampong Cham Province in Cambodia and Kampar River in Pelalawan District of Riau Province in Indonesia in 2022

EAFM domain and indicators	Flag status and range of composite index		
	Poor Fisheries management in the local ecosystem needs to pay attention to applying the principles of sustainable fisheries.	Moderate Fisheries management in the local ecosystem has applied the principles of sustainable fisheries but needs to improve in specific domains and indicators.	Good Fisheries management in the local ecosystem has applied the principles of sustainable fisheries.
Habitat quality	500-833	834-1,168	1,169-1,500
Fishing technology	367-611	612-857	858-1,100
Social	433-722	723-1,012	1,013-1,300
Economic	367-611	612-857	858-1,100
Managed fishery resources	367-611	612-857	858-1,100
Governance	367-611	612-857	858-1,100
Stakeholders participation	300-500	501-701	702-900

communities, non-government organizations, and other relevant stakeholders. The respondents were asked to share their perceptions of the application of EAFM in their areas based on the indicators of each EAFM domain. The Likert score was used to measure their perceptions of a particular indicator. The flag status (Table 1) of each domain was determined based on the composite value which was obtained by multiplying the score of each indicator with the weight of the corresponding domain and the weight of the indicator (Adrianto *et al.*, 2005).

As shown in Table 2, the communities in the study sites understood the principles of ecological sustainability and are able to manage inland waters well, but Pelalawan District still needs to be improved. Communities in Kang Meas

Table 2. Status of inland fisheries in the Mekong River in Kang Meas District of Kampong Cham Province in Cambodia and Kampar River in Pelalawan District of Riau Province in Indonesia through the evaluation of EAFM domains in 2022

EAFM domain	Kang Meas District, Kampong Cham Province, Cambodia (n = 14)	Pelalawan District, Riau Province, Indonesia (n = 14)
Habitat quality	1,343	1,079
Fishing technology	417	760
Social	1,021	1,214
Economic	612	833
Managed fishery resources	753	640
Governance	900	1,065
Stakeholders participation	467	350

District understood that the types of fishing gear they use are not environment-friendly. However, fishery resources are still sufficient, although they realize that fish populations and diversity are declining. For the social and governance domains, the communities in both study sites inferred that their leaders are capable of minimizing conflicts. For the economic domain, the catch of fishers could support their livelihood; but at the same time, they were aware of protecting the fish stock for its sustainability. Considering that the inland waters are an ecosystem utilized by multisector, the low stakeholder participation needs to be addressed. There should be a synergy of policies among the different sectors and partnerships should be built between government and stakeholders to support the sustainable utilization of inland water resources and management of inland fisheries. IFRDMD would continue to evaluate the EAFM implementation in inland fisheries management in other areas to generate reliable data and provide appropriate recommendations to enhance inland fisheries management in the Southeast Asian region.

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REGIONAL PROGRAMS

IFRDMD promotes Guidelines for Conservation Model in swamp areas



SEAFDEC/IFRDMD organized a one-day meeting at the Regency Office of Ogan Komering Ilir (OKI), Kayu Agung, South Sumatra Province, Indonesia on 29 November 2022. The Meeting was organized to gather feedback from the stakeholders on the draft “Guidelines for Remodeling Swamp Fisheries as Conservation Areas.” There were 35 participants in the Meeting including fisheries extension officers, local government officers, and IFRDMD staff.

The Meeting was opened by the IFRDMD Chief, *Mr. Zulkarnaen Fahmi*, and emphasized that the importance of conservation areas should be understood by all stakeholders, including the community, government as well as interested parties. Therefore, IFRDMD held socialization activities on the draft Guidelines. Furthermore, the Secretary of the OKI Fisheries Service, *Ms. Eka Nurmayani*, delivered the opening remarks and welcomed this activity hoping that the Guidelines could be

implemented in the OKI swamp fisheries supported by the Ministry of Marine Affairs and Fisheries and IFRDMD.

Two speakers were invited to share their knowledge of swamp fisheries. The Head of the Aquaculture Division at the Muara Enim Fishery Service, *Mr. Johan*, talked about the swamp fisheries in Muara Enim Regency. Then, the Head of the Research and Development Section of IFRDMD, *Dr. Dina Muthmainnah*, presented the draft Guidelines. During the discussion, the participants made suggestions to improve the draft Guidelines.

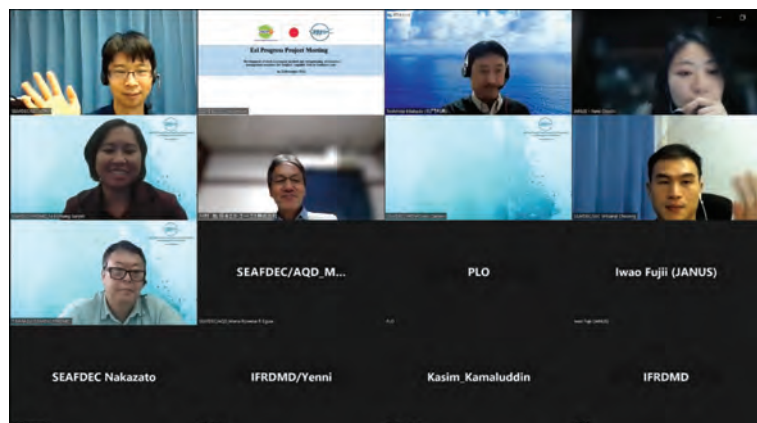
The Meeting was closed by the Deputy Chief of IFRDMD, *Mr. Tomohito Shimizu*. He appreciated the participants in the Meeting for their interest to gain valuable knowledge and share innovative ideas. The feedback from the stakeholders has been invaluable for planning such activity in the future.



SEAFDEC organizes progress meeting for project on anguillid eel

Under the project “Development of Stock Assessment Methods and Strengthening of Resources Management Measures for Tropical Anguillid Eel in Southeast Asia,” SEAFDEC Secretariat organized a meeting on 22 December 2022 via Zoom to review the project activities conducted in 2022 and schedule the work plan for 2023. The Meeting was attended by officials and staff from the SEAFDEC Secretariat and IFRDMD; consultants from JANUS in Japan; *Dr. Toshihide Kitakado* from Tokyo University of Marine Science and Technology (TUMSAT); and *Dr. Maria Rowena R. Romana-Eguia* from AQD.

The planned activities of the Project for 2023 discussed during the Meeting include the verification and analysis

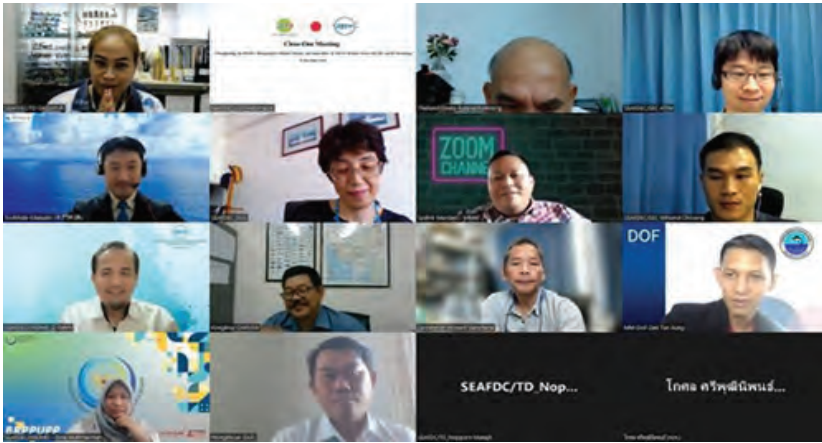


of collected data in 2022, statistics survey, catch sampling, and genetic study. Supported by the Japan-ASEAN Integration Fund (JAIF), the Project is implemented by SEAFDEC from 2020 to 2023 to collect the catch data and biological/ecological information for

the estimation of eel resources stocks, and to develop mathematical/statistical methods for estimating tropical anguillid eel resources stocks in order to formulate effective management measures for the sustainable use of tropical anguillid eels in Southeast Asia.



SEAFDEC organized the close-out meeting for project on use of GIS and RS technology



The SEAFDEC Secretariat organized a Close-out Meeting for the project “Strengthening the Effective Management of Inland Fisheries and Aquaculture in AMS with GIS and RS Technology” on 21 December 2022 via Zoom. The Project was implemented

with the support of the Japan-ASEAN Integration Fund (JAIF) . The project duration was from 1 January 2019 to 31 December 2022 with the aim of contributing to effective management of inland fisheries and aquaculture in AMSs countries through the promotion

of GIS Mapping/RS technology. The participants of the Meeting were the Project focal points from Cambodia, Indonesia, Lao PDR, Myanmar, and Thailand; officials and staff from the SEAFDEC Secretariat, TD, IFRDMD; and *Dr. Toshihide Kitakado* from Tokyo University of Marine Science and Technology (TUMSAT).

The aim of the Close-out Meeting was to summarize all Project activities. The Project outputs include manuals for data collection on inland fishing sites, downloading LST and CHL of Sentinel-3 from the EUMETSAT portal, and analysis of catch data. As soon as finalized, the manuals will be published on the JAIF website. ❖

MFRDMD collects sharks and rays samples for DNA analysis



utilized to study the stock structure of selected species of sharks and rays by the genetic marker. The Project has four sampling sites in Malaysia, namely: Kuantan in Pahang, Larut Matang in Perak, Kota Kinabalu, and Sandakan in Sabah covering the Andaman Sea, South China Sea, and Sulu Sea.

of fisheries. The delineation of stock boundaries provides a tool to distinguish groups of fish affected by stressors such as fishing pressure and recognizes stock boundaries that may not be contiguous units but rather comprise aggregations of spatially separated populations connected by migration. ❖

Knowledge of the stock structure is integral to the sustainable management

Under the project “Research for Enhancement of Sustainable Utilization and Management of Sharks and Rays in the Southeast Asian Region” funded by the Japanese Trust Fund (JTF) VI Phase II, SEAFDEC/MFRDMD in collaboration with the Department of Fisheries Sabah collected samples of spot-tail shark (*Carcharhinus sorrah*), hammerhead shark (*Sphyrna lewini*), and sharpnose stingray (*Maculabatis gerrardi*) from two fish landing sites in SAFMA, Kota Kinabalu and Sandakan Wet Market in Sabah, Malaysia on 6–15 November 2022. The samples will be



Regional workshop on traceability of fish and fishery products



The SEAFDEC Training Department (TD) organized the “Regional Workshop to Exchange Information on Catch Documentation Scheme and Traceability of Fish and Fishery Products” from 29 to 30 November 2022 in Samut Prakan, Thailand. There were 40 participants in the Workshop including fishery officers from the ASEAN Member States (AMSs), officials and staff from SEAFDEC, and representatives from regional fisheries management organizations (RFMOs).

During the Workshop, the representatives from RFMOs including the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR), Indian Ocean Tuna Commission (IOTC), Seafood Alliance for Legality and Traceability (SALT), Food and Agriculture Organization of the United Nations (FAO), and United States Agency for International Development

(USAID) shared information on the implementation of catch documentation scheme (CDS) and traceability systems for fish and fishery products. SEAFDEC updated the Workshop on its initiatives for combatting IUU fishing in the region including the “ASEAN Guidelines for Preventing the Entry of Fish and Fishery Products from IUU Fishing Activities into the Supply Chain” and electronic ASEAN Catch Documentation Schemes (eACDS). Moreover, the practices and lessons learned from the implementation of CDS and traceability systems in the respective countries of the Southeast Asian region were also presented.

As a way forward, cooperation and information exchange among the AMSs, RFMOs, and other trading States will be strengthened through capacity-building and awareness-raising activities to efficiently implement traceability systems for fish and fishery products to combat IUU fishing in the region.

The Workshop was an activity under the project “Strengthening Regional Cooperation and Enhancing National Capacities to Eliminate IUU Fishing in Southeast Asia” implemented by TD in 2020–2024 and supported by the Japanese Trust Fund. ❖

TD promotes eACDS for small-scale fisheries in Krabi Province



Under the project “Small-scale Fisheries Management for Better Livelihood and Fisheries Resources,” SEAFDEC Training Department (TD) organized a meeting on the initial implementation of the electronic ASEAN Catch Documentation Scheme (eACDS) for small-scale fisheries. The Meeting was held in Ban Nainang Village, Krabi Province, Thailand from 7 to 8 December 2022. There were 41 participants in the Meeting including staff from TD, fishery officers from the Department of Fisheries (DOF) Thailand, fishers, and representatives from the private sector. During the Meeting, TD staff underscored the need of implementing eACDS in small-scale fisheries especially the part of Catch Declaration to enhance the value and marketing of fisheries

(Continued on Page 17)

Regional Practical Training Course on Geographic Information System and Remote Sensing for Aquaculture



Under the project “Sustainable Utilization of Fisheries Resources and Resources Enhancement in Southeast Asia,” SEAFDEC Training Department (TD) organized the “Regional Practical

Training Course on Geographic Information System (GIS) and Remote Sensing (RS) for Aquaculture” from 6 to 9 December 2022 in Samut Prakan, Thailand. There were 19 participants in

the Training including junior fisheries officers and researchers from the ASEAN Member States (AMSs). The resource persons include a GIS and RS expert from Burapha University and coastal aquaculture and marine microbiology specialist from Kasetsart University in Thailand. The lectures and exercises during the Training Course focused on the potential site selection for green mussel aquaculture in coastal areas. It is anticipated that after Training Course the participants could apply the knowledge and skills they obtained on the utilization of GIS and RS for aquaculture development and management. ❖

TD promotes eACDS for small-scale fisheries in Krabi Province

(Continued from Page 16)

products. Then, the use of eACDS in the part of Catch Declaration which covers catch reports at sea and e-logbook was demonstrated to the participants.

Furthermore, TD staff and fishery officers from the DOF Thailand brainstormed in identifying the Key Data Elements (KDEs) for eACDS application. The needed KDEs were: 1) name of boat owner and specs of the boat, 2) name and address of fishing port, 3) name of fishing gear, 4) name of aquatic animal with picture, and 5) fishing ground. The DOF officers committed to collecting such information and sending it to SEAFDEC to input in the eACDS application. Once the eACDS application is ready to be used for small-scale fisheries, a training course on the utilization of the eACDS will be conducted for the fisheries officers and fishers in Krabi Province.

The eACDS is an application for enhancing a traceability system for fish and fishery products from fishing to plate. It was developed by SEAFDEC with the support of the Japanese Trust Fund and is being implemented for commercial fisheries in Brunei Darussalam, Cambodia, Malaysia, and Viet Nam. The initial implementation of eACDS for small-scale fisheries in Ban Nainang Village will use only the Catch Declaration part for the time being. ❖

Key Stakeholders Workshop to Monitor the Implementation of EAFM Plan in Ranong Province, Thailand



The SEAFDEC Training Department (TD) organized the “Key Stakeholders Workshop to Monitor the Implementation of Ecosystem Approach to Fisheries Management (EAFM) Plan” from 22 to 25 November 2022 at the pilot site in Ban Hat Sai Khao Village in Ranong Province, Thailand. There were 15 participants in the Workshop including stakeholders from the squid bank group and fish processing group as well as local fisheries and fisheries-related government agencies in Ranong Province.

During the Workshop, the EAFM plan was discussed and the participants shared ideas on the EAFM activities they are willing to support. For the squid bank group, the Marine Fisheries Patrol Unit under the Department of Fisheries (DOF) Thailand will introduce another method using plastic tanks for hatching squid eggs as well as support the demarcation of the conservation area

in consultation with the community. The Community Development Office and Andaman Coastal Research Station for Development will support the capacity-building activities for livelihood and for increasing marketing channels for the fish processing group. Furthermore, SEAFDEC provided a vacuum sealer to the fish processing group to improve the packaging of their fish and fishery products.

Meanwhile, the squid bank was established in Ban Hat Sai Khao Village after the monsoon season. Squid seed will be released in the mangrove area which will be proposed as the conservation zone to enhance fishery resources. These activities are under the project “Small-scale Fisheries Management for Better Livelihood and Fisheries Resources” implemented by TD in 2020–2024 with support from the Japanese Trust Fund. ❖

Training on Gender Mainstreaming for MFRDMD and fishery agencies in Malaysia



Under the project “Small-scale Fisheries Management for Better Livelihood and Fisheries Resources,” SEAFDEC Training Department (TD) in collaboration with MFRDMD conducted

the “Training on Gender Mainstreaming in the Fisheries Sector” on 25–27 October 2022 in Kuala Terengganu, Malaysia. The Training was aimed at promoting gender and relevant concepts and introducing tools for gender mainstreaming in fisheries. The trainees were staff from MFRDMD, Academy of Fisheries Malaysia, Fisheries Research Institute Rantau Abang, and Department of Fisheries Malaysia Putrajaya who are mainly involved in planning, extension, and community fisheries management. After the Training, the trainees obtained understanding of gender concepts and are able to apply the appropriate tools for mainstreaming gender in their works and developing fisheries policies and programs. ❖


TD conducts a series of training on fish larvae

The SEAFDEC Training Department (TD) organized the “Regional Training Course on Fish Larvae Phase I: Larval Fish Identification and Fish Early Life History Science” from 16 to 27 November 2022 and “Regional Training Course on Fish Larvae Phase

II: Determining Spawning-nursing Ground and Season Using Larvae Survey Results” from 28 November to 3 December 2022 in Samut Prakan, Thailand. The Training Courses were participated by a total of 26 fisheries biologists from the ASEAN Member

States (AMSs). The resource persons were larval fish experts from several universities and research institutes in Japan, Malaysia, and Thailand.

The lectures and practical sessions focused on larval fish identification, determining fishing grounds and seasons, and utilization of data from fish larvae surveys. It is envisaged that the participants could apply the knowledge and skills they gained from the Training Courses in managing fish stocks at the national and sub-regional levels.

The two Training Courses were activities under the projects “Establishment and Operation of a Regional System of Fisheries *Refugia* in the South China Sea and the Gulf of Thailand” and “Sustainable Utilization of Fisheries Resources and Resources Enhancement in Southeast Asia,” respectively. 



Regional Training Course on Determining Spawning-nursing Ground and Season Using Larvae Survey Results

FUTURE ACTIVITIES

Date	Venue	Title	Organizer(s)
2023			
23–25 January	Bangkok, Thailand (hybrid)	FAO Regional Workshop for a Network of Practitioners on Fishery Stock Assessment	FAO
21–22 February	Online	Online Practical Workshop on Preparation and Installation of the eACDS Application to Server for Myanmar	TD
21–23 February	Rome, Italy	4 th Session of the Intergovernmental Technical Working Group on Aquatic Resources for Food and Aquaculture	FAO
27 Feb–1 Mar	Lisbon, Portugal	World Ocean Submit & Expo	The Economist Group
27 Feb–3 Mar	Samut Prakan, Thailand	Training on Applying Drawing Program for Fishing Gears Illustration	TD
28 February	Bangkok, Thailand	International Year of Artisanal Fisheries and Aquaculture (IYAFA) Closing Ceremony for Asia	DOF Thailand, TBTI, INFOFISH
6 March	Malaysia	Meeting of Stock and Risk Assessment New Methodologies for Pelagic Fish	MFRDMD
20–24 March	Philippines	Training Course on Giant Freshwater Prawn Hatchery and Grow-out Operations (Session 1)	AOD
17 April–2 May	Philippines	Training Course on Sandfish (<i>Holothuria scabra</i>) Seed Production, Nursery and Management	AOD
9 and 11 May	Online	55 th Meeting of the SEAFDEC Council	Sec & Myanmar
15–25 May	Philippines	Training Course on Abalone (<i>Haliotis asinina</i>) Hatchery and Grow-out	AOD
22–26 May	Philippines	Training Course on Giant Freshwater Prawn Hatchery and Grow-out Operations (Session 2)	AOD
6–8 June	Brunei Darussalam	Sustaining Marine Biodiversity Through Blue Economy Symposium 2023	DOF Brunei Darussalam
19–23 June	Geneva, Switzerland	32 nd Meeting of the Animals Committee of CITES	CITES

Seventh Meeting of the Regional Scientific and Technical Committee for Fisheries *Refugia* Project convened

(Continued from Page 20)

technical closures in six participating countries, namely: Cambodia, Indonesia, Malaysia, Philippines, Thailand, and Viet Nam. There were 29 participants in the Meeting, including national scientific and technical focal points, regional experts, stakeholders, and representatives from TD, MFRDMD, MMAF, and Project Coordinating Units.

During the implementation period of the Project in 2016–2022, the overall area of fisheries *refugia* established with about four times larger than the proposed *refugia* area of 269,500 ha was presented. In addition, 15 *refugia* sites were established instead of the proposed 14 sites. Among these, three are in Cambodia in Kep Province for blue swimming crab, Preah Sihanouk for blood cockle, and Koh Kong Province for Indo-pacific mackerel; and two are in Thailand in Surat Thani for blue swimming crab and Trat Province for Indo-pacific mackerel. Other eight fisheries *refugia* sites are being established which include one in Cambodia in Kampong Province for the juvenile grouper; two in Malaysia in Tanjung Leman, Johor State for spiny lobster and Kuala Baram, Miri, Sarawak State for black tiger prawn; three in the Philippines in Bolinao for siganids, Masinloc for one-stripe fusilier, and Coron for redbelly yellowtail fusilier; and two in Indonesia in West Kalimantan for white prawn and Bangka Regency for squid. Moreover, two *refugia* sites were identified in Viet Nam in Phu Quoc - Kien Giang for blue swimming crab and Lagi, Binh Thuan for the Subcrenata ark clam. It is anticipated that the outcomes of the Project in the South China Sea and Gulf of Thailand are appropriate for application in other large marine ecosystems where overfishing and use of inappropriate fishing gears are significant impediments to more sustainable exploitation of fish stocks, habitats, and associated biodiversity. ❖

Closeout Workshop on smart infrastructure for the Mekong River

(Continued from Page 20)

Pursat Watershed, Srei Snom Spillway, Romlech I Spillway, and Romlech II Spillway in Cambodia; Haug Wang Chang Weir in Thailand; and Ea Tul Fish Passage in Viet Nam.

Moreover, a demonstration model of a fishway was presented in the Workshop. The fishway model was utilized for studying the swimming capacity of 10 indigenous species and the application of fish passage design principles to facilitate migration and minimize fish injury across the barrier. To facilitate fish migration, the factors to be considered in designing a fishway include headwater up-down stream, slope level, water velocity and turbulence, slot opening width and depth, and migration behavior. ❖

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 Training and Workshop on Chondrichthyan Taxonomy, Biology, and Data Collection



SEAFDEC/MFRDMD organized the “Regional Training and Workshop on Chondrichthyan Taxonomy, Biology and Data Collection” on 2–6 October 2022 in Kuala Terengganu, Malaysia. The Training was intended to enhance

the skills of human resources from the ASEAN Member States, namely: Cambodia, Malaysia, Philippines, and Thailand, as well as staff from SEAFDEC Training Department and MFRDMD in elasmobranch taxonomy and biology

as well as impart the techniques in data collection and identification of sharks and rays to the species level. The elasmobranch expert, *Dr. Ahmad Ali*, was invited as a lecturer to share his knowledge of the taxonomy and biology of sharks and rays. During the Training, the trainees learned to encode the data into Excel and analyze the encoded data using the pivot table.

This Training was an activity under the project “Research for Enhancement of Sustainable Utilization and Management of Sharks and Rays in the Southeast Asian Region” funded by the Japanese Trust Fund. ❖

Seventh Meeting of the Regional Scientific and Technical Committee for Fisheries *Refugia* Project convened



The SEAFDEC Training Department the SEAFDEC/UNEP/GEF project (TD), as the executing agency for “Establishment and Operation of a

Regional System of Fisheries *Refugia* in the South China Sea and the Gulf of Thailand” in collaboration with the Ministry of Marine Affairs and Fisheries (MMAF) Indonesia co-organized the “Seventh Meeting of the Regional Scientific and Technical Committee (RSTC7)” from 8 to 10 November 2022 in Jakarta, Indonesia. The RSTC7 aimed to discuss the progress of project outputs and achievements at the national and regional levels, experience notes, good practices, and way forward on project

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Closeout Workshop on smart infrastructure for the Mekong River

The SEAFDEC/TD organized the “Smart Infrastructure for the Mekong Closeout Workshop” on 18 October 2022 in Samut Prakan, Thailand. The Workshop aimed to discuss the key results of the project “Implementing the Lower Mekong Fish Passage Initiative in Cambodia, Thailand, and Viet Nam” supported by the U.S. Department of the Interior (DOI) and the United States Agency for International Development (USAID). There were 43 participants in the Workshop including representatives from the U.S. Government, SEAFDEC, Cambodia, Lao PDR, Thailand, Viet



Nam, and other organizations. During the implementation of the Project in 2018–2022, six demonstration

fish passages were developed in the participating countries, namely: Stung

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