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EDITORIAL

During the third quarter of 2018, SEAFDEC/AQD capped its 45th Anniversary Celebration on 13 July 2018. The Celebration included several activities such as Farmers' Forum and Aquaculture Clinic, AQD's Memorial Lecture, Building Dedication and Unveiling of Commemorative Markers, and the Anniversary Program. The Regional Database of Alternative Feed Ingredients in Aquaculture was also launched for public access during the celebration.

Specifically during this quarter, SEAFDEC continued to organize events that are beneficial to the Member Countries. Significant regional events included the ASEAN Regional Technical Consultation on Aquatic Emergency Preparedness and Response Systems for Effective Management of Transboundary Disease Outbreaks

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SEAFDEC convenes the consultation on sub-regional cooperation for Monitoring, Control and Surveillance (MCS) in fisheries in Northern Andaman Sea



Participants in the consultation on MCS sub-regional cooperation of Northern Andaman Sea

To address the critical challenges for Monitoring, Control and Surveillance (MCS) in fisheries in Northern Andaman Sea, the SEAFDEC-Sweden Project facilitated the consultation between Thailand and Myanmar on MCS sub-regional cooperation of Northern

Andaman Sea in Bangkok, Thailand on 24-25 July 2018. The outputs included recommendations for improving the efficiency and effectiveness of fisheries-related MCS activities through enhanced cooperation, coordination, information

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SEAFDEC/MFRDMD convenes the Fourth Core Expert Meeting on Comparative Studies for Management of Purse Seine Fisheries in the Southeast Asian Region



SEAFDEC/MFRDMD organized the "Fourth Core Expert Meeting on Comparative Studies for Management of Purse Seine Fisheries in the Southeast Asian Region" on 18-19 September

2018 in Kuala Lumpur, Malaysia. The Meeting was attended by resource persons from Japan and Malaysia, representatives from Brunei Darussalam,

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EDITORIAL

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in Southeast Asia that identified the workable ways to establish a functional and effective engagement of emergency preparedness and response system; the Technical Experts Meeting on Information Compilations on Transboundary Species as Scientific Basis for National Measures for Southern and Northern Andaman Sea which established the possible national measures to secure a sustainable stock status of transboundary fish stocks in the Andaman Sea; the Meeting on Monitoring, Control and Surveillance (MCS) in Fisheries; Comparative Studies for Management of Purse Seine Fisheries; and Gender Equity and Social Well-being in Fisheries Communities.

SEAFDEC also continued to conduct activities and get involved with collaborating organizations in dealing with the prevailing fisheries concerns in the region. The 2018 SEAFDEC Aquaculture Technical Support Meeting was convened in Mie Prefecture, Japan to achieve stronger collaboration between Japanese and AQD researchers on the sustainable development of aquaculture in Southeast Asia.

Several trainings and workshops were also organized to enhance the capacity of SEAFDEC staff, SEAFDEC Member Countries, and fisheries students. The topics of the trainings/workshops included the development of fisheries management plan, simple stock assessment methods in inland fisheries, fish handling techniques, culturing of HAB species and toxin characterizations, and project cycle management. ☒

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You can also send your comment on our Newsletter to secretariat@seafdec.org

SEAFDEC convenes the consultation on sub-regional cooperation for Monitoring, Control and Surveillance (MCS) in Fisheries in Northern Andaman Sea

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collection and exchange among national organizations and institutions responsible for fisheries-related MCS. The discussion was attended by national technical groups from relevant agencies such as fisheries, port authorities, and navy from Myanmar and Thailand as well as SEAFDEC staff and the Regional Fisheries Policy Network (RFPN) members. It was considered as an initial step for framing the MCS network

for Northern Andaman Sea toward sustainability of fisheries in this area. During the discussion, the participants agreed on the common concerns and requirements of each M, C and S with the collaboration of responsible agencies to secure the mandate and approach in setting up of the sub-regional MCS network anchoring on the existing cooperation. ☒

SEAFDEC/MFRDMD convenes the Fourth Core Expert Meeting on Comparative Studies for Management of Purse Seine Fisheries in the Southeast Asian Region

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Cambodia, Malaysia, Myanmar, Philippines, Thailand, and Viet Nam; as well as the Chief, Deputy Chief, and Officials from SEAFDEC/MFRDMD, and representatives from SEAFDEC Secretariat and SEAFDEC/TD.

With the final goal of formulating management measures for small pelagic fisheries in the Southeast Asian region, the Meeting shared and discussed the latest information about landings and the Catch Per Unit Effort (CPUE) of purse seine fisheries in the region. The latest outputs of the regional synthesis of purse seine fisheries in the region and the findings on genetic population study on the pelagic species *Amblygaster sirm* were presented during the Meeting. The Meeting also made clarifications on the misleading data from the participating Member Countries.

The highlight of the Meeting was the discussion on the results of the regional analysis which could be utilized in formulating recommendations for concerted actions of the Member Countries in the management of shared stocks of small pelagic fishes. However, the regional analysis can only serve as a good scientific assessment but not as a

scientific evidence due to the limitation of reliable data. The participating Member Countries were aware of and agreed on the importance of reliable statistics in order to effectively manage the purse seine fisheries in the region. The Meeting also emphasized on the need to report the progress and impacts of the implemented management measures so that it can be applied by the other Member Countries.

Furthermore, the genetic experts reported that there are different sub-species of *Amblygaster sirm* or other similar species in Southeast Asia. This assumption was based on the different genetic contents between the samples from the two ecosystems, namely: the South China Sea including Banda Aceh in Indonesia and the Northern Andaman Sea including Ranong Province in Thailand. Although it was presumed that some factors may have contributed to the population or genetic break such as hybridization, faster rate of genetic evolution, or discovery of new or cryptic species, further studies would be needed to confirm the findings by using other DNA markers (*e.g.* microsatellite), morphological studies, and collection of additional samples from larger geographical areas. ☒

USAID Oceans Third Technical Working Group Planning Workshop convened



The Oceans and Fisheries Partnership (USAID Oceans) in collaboration with the Department of the Interior (DOI) of the United States and SEAFDEC organized the “Third Technical Working Group Planning Workshop” from 16 to 18 July 2018 in Bangkok, Thailand. A total of 93 participants from USAID Oceans, representatives from ASEAN Member States (including USAID Oceans Technical Working Group members), SEAFDEC, Coral Triangle Initiative on Coral Reefs, Fisheries, and Food Security (CTI-CFF), USAID Regional Development Mission for Asia (USAID/RDMA), USAID Office of Forestry and Biodiversity, USAID Asia Bureau, U.S. National Oceanic and Atmospheric Administration (NOAA),

U.S. Department of the Interior, Tetra Tech ARD, and USAID Oceans project staff and implementing partners attended this Workshop. The Workshop came up with: 1) endorsement by the Technical Working Group (TWG) of the process and outline related to the development of proposed set of regional guidelines for the Southeast Asia-wide implementation of eCDT systems; 2) documented input from TWG members regarding the current and future regional priorities that will provide the future direction of USAID Oceans during the second half of the project, as well as US-supported development initiatives beyond USAID Oceans; and 3) documented inputs on USAID Oceans’ Year Four Activity Work Plan. ❏

NOAA staff visits TD for possible future collaboration



Dr. Gabrielle L. Johnson, Senior International Program Analyst from the National Oceanic and Atmospheric Administration (NOAA), United States Department of Commerce visited the SEAFDEC Training Department (TD) on 12 July 2018. The SEAFDEC Departments and programs and activities were presented to *Dr. Johnson* and she subsequently toured around the TD facilities. During the discussion, collaborative activities in the future were raised up such as capacity building and skills enhancement of TD trainers on Ecosystem Approach to Fisheries Management (EAFM) and Port State Measures (PSM). ❏

Capacity building on the development of fisheries management plan for Cambodia

SEAFDEC/TD organized the “Training-Workshop on the Development of Fisheries Management Plan” for Prek Thnot Commune, Teok Chhou District, Kampot Province, Cambodia from 4 to 7 September 2018 in Rayong Province, Thailand. Nine fisheries officers and three fisherfolk from Cambodia participated in this Training-Workshop aimed at

strengthening their understanding on the process to develop management plan and capacity building on the existing methods to increase the income of fishing communities. During the lectures and practicals, the participants learnt about the definition and scope of the Fisheries Management Area (FMA), identified and prioritized issues, developed the



Participants visited the local fish processing factory

goals, vision, objectives, indicators and benchmarks, management actions, and planned the implementation of the work plan as well as communication strategy, and monitoring and evaluation. Moreover, the participants also visited the local fish processing and fish sauce factories in Rayong Province. ❏

DEPARTMENTAL ACTIVITIES

Semi-annual Meeting of SEAFDEC/IFRDMD convened

SEAFDEC/IFRDMD convened its “2018 Semi-annual Meeting” in Palembang, Indonesia on 16 August 2018 to review the outputs and ongoing activities of the Japanese Trust Fund (JTF) VI projects implemented since 2015 and conducted in 2018, as well as to discuss the proposed activities for 2019. The Meeting was attended by the IFRDMD Deputy Chief and Assistant JTF Manager, *Dr. Takuro Shibuno*, researchers, and administrative staff. The two projects that were presented and reviewed include “Promotion



of Responsible Utilization of Inland Fisheries in Southeast Asia” and “Enhancement of Sustainability of Catadromous Eel Resources in Southeast Asia.”



Aquaculture geneticists gather to update on research advances



A/QD Scientist *Dr. Maria Rowena Eguia* presents her study on abalone during the 13th International Symposium on Genetics in Aquaculture

Genetic experts including SEAFDEC/AQD Scientist *Dr. Maria Rowena Eguia*, gathered at the “13th International Symposium on Genetics in Aquaculture” in Cairns, Australia from 16 to 19 July 2018 to discuss the updates and advances in aquaculture genetics research. Results

of *Dr. Eguia's* study on the “Growth and microsatellite marker analysis of the Philippine donkey's ear abalone *Haliotis asinina* stocks for use in broodstock development,” was among the 86 papers presented during the Symposium. “For an aquaculture geneticist, this Symposium is a must to participate in, either as a poster or an oral presenter,” stated *Dr. Eguia* in her report.

Held once every three years, the Symposium paves the way for presenters to have the opportunity to publish their papers in the Aquaculture journal. Aside from presenting her study on abalone, *Dr. Eguia* also showed other initiatives in aquaculture genetics being done at AQD which gained the interest of other participants to collaborate with the institution.



TD joins National Fisheries Exhibition in Thailand

SEAFDEC/TD joined the Department of Fisheries of Thailand in staging a fisheries exhibition at the annual national fair “*Pramong Nomklao*” organized this year at the Future Park Department Store in Pathumthani Province, north of Bangkok, Thailand. At the 10-day exhibition from 29 June to 8 July 2018, TD presented the “Fish Enhancing Devices (FEDs) for Fisheries Resources Conservation” a research project which was conducted and promoted by TD. The model of FEDs was shown for better understanding. Moreover, distribution of various technical publications, brochures, VCDs, and fisheries-related souvenirs was also carried out for the audience. Through this event, the visibility of SEAFDEC was promoted.



Japanese students and lecturers visit TD



Five students and lecturers from Yaizu Fisheries High School, Shizuoka Prefecture, Japan visited the SEAFDEC Training Department (TD) on 23 August 2018. The aim of the visit was for the students to develop professional and global skills for the industrial and academic fields in capture fisheries, aquaculture, and food processing and marketing. TD and its programs and activities were presented to the visitors and they had the chance to observe the TD facilities such as the fishing workshop, engine workshop, and the M.V. SEAFDEC. Moreover, they also visited the eco-friendly shrimp farm and local fish market near TD.



Database of feed ingredients is now online


As part of the activities during SEAFDEC/AQD's 45th Anniversary Celebration, the Regional Database of Alternative Feed Ingredients in Aquaculture was launched for public access on 13 July 2018. This is AQD's contribution to bringing down the cost of feeds in aquaculture, since feed is the largest single cost item in aquaculture accounting for 50-60% of production cost. The Database is intended to serve as a reference on the different feed ingredients that, depending on cost and availability, could be used to produce cheaper aquafeeds.

“Applying local ingredient alternatives for the formulation of an aquaculture feed is a way forward for the industry to remain profitable,” said AQD Scientist and Head of its Nutrition and Feed Development Section *Dr. Roger Edward Mamauag*. A collaborative effort between AQD and SEAFDEC Member Countries through



Alternative feed ingredient database proponents (from left) Mr. Joseph Biñas, Ms. Mary Ann Mandario and Dr. Roger Edward Mamauag present the database to the audience

their representatives with funding support from the Government of Japan Trust Fund, the Database currently lists 70 different feed ingredients along with their nutritional composition and optimal inclusion levels, based on information that have been culled from different 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, revealed *Mr. Joseph Biñas*, AQD Associate Researcher and member of the team behind the Database, who added that in the future, the public will also be invited to submit their inputs to further expand the breadth of the Database, which could now be accessed at <http://afid.seafdec.org.ph>. 

Former Secretary-General encourages tiger shrimp production in the Philippines




Former SEAFDEC Secretary-General Dr. Siri Ekmaharaj talks about the current tiger shrimp production techniques during his DKV lecture

High export demand for tiger shrimp prompted a Thai shrimp expert to encourage the Southeast Asian countries to revive and improve the production of the prime commodity. *“The demand for big-sized tiger shrimp has been expressed by different countries including China and Japan,”* said former Secretary-General of SEAFDEC *Dr. Siri Ekmaharaj*, as he explained what encouraged Thai shrimp farmers to improve the production of

tiger shrimp. Tiger shrimp production in Thailand increased up to 10,000 mt/year in 2016 and 2017.

“Now is the good time to [bring back] the culture of tiger shrimp which is the local species of the region,” *Dr. Siri Ekmaharaj* said during his lecture on “Aquaculture of Black Tiger Shrimp (*Penaeus monodon*): Perspectives and Future Direction,”

wherein he presented the experiences and current success of the tiger shrimp industry in Thailand despite the threat of emerging diseases. He also shared culture techniques in Thailand which he believes can prevent diseases and lead to successful production runs. These include using disease-free broodstock, proper preparation of pond bottom, enough seawater to supply clean water to culture ponds, availability of auto-feeding machines to minimize nutrient wastes, and application of biosecurity measures. For stocking of shrimp fry, the stocking density commonly observed for PL 15-20 is 25-30 pieces per square meter.

Dr. Siri Ekmaharaj was the lecturer during the “26th Dean Domiciano K. Villaluz Memorial Lecture” on 12 July 2018, as part of AQD's 45th Anniversary Celebration. AQD is also currently working on a program “*Oplan Balik Sugpo*” which aims to increase tiger shrimp production and strengthen the shrimp industry. 

Capacity building on Project Cycle Management for SEAFDEC staff



Dr. Kom Silapajarn during the opening of the training

SEAFDEC organized the “Training Course on Project Cycle Management (PCM)” with the support from the Japanese Trust Fund (JTF) from 26 to 27 September 2018 in Samut Prakan, Thailand. A total of 23 participants including the staff from SEAFDEC Secretariat and Training Department as well as the members of the Regional Fishery Policy Network (RFPN) attended. The participants were imparted

with knowledge on the PCM concepts. During the practical sessions, the participants were divided into groups and each group presented their project proposals using the logical framework. After the training course, the participants should be able to apply the logical framework in their current and future works, particularly in the formulation and development of projects. ☒



Participants during the group discussion

SEAFDEC conducts Inter-Departmental Meeting on the Development of SEAFDEC Gender Strategy



Participants during the Inter-Departmental Meeting

SEAFDEC/TD in cooperation with SEAFDEC-Sweden Project organized the “Inter-Departmental Meeting on the Development of SEAFDEC Gender Strategy” from 3 to 4 September 2018 in Bangkok, Thailand. With 24 participants from SEAFDEC Secretariat and Departments, the Meeting discussed and provided feedbacks to the draft

SEAFDEC Gender Strategy, developed the action plans on gender to be integrated in all projects and programs of SEAFDEC and the Terms of Reference (ToR) for SEAFDEC Gender Focal Persons (SGFP). The Meeting came up with the final draft of SEAFDEC Gender Strategy and the possible actions to implement the SEAFDEC Gender Strategy. ☒

Aquatic News Index launched for public access

An online database indexing aquatic science-related news articles appearing in various newspapers has been launched for public access during the 27th Book Launching on 12 July 2018 as part of AQD’s 45th Anniversary Celebration. The Aquatic News Index, nicknamed ANI as an allusion to the Filipino word for harvest, is an initiative of the AQD Library to improve the accessibility of current and historical news articles on aquatic science and to preserve them in digital form. The aquaculture news index may now be accessed through the link <http://ani.seafdec.org.ph>.

In addition, digital fisheries library devices, also known as the IAMSILIC Digital Fisheries Library box, each containing over 26,000 aquatic and marine science publications, were donated to 14 state colleges and universities around the Philippines. Funded by AQD, the devices were turned over to representatives of the colleges and universities who attended the said event. ☒



Acting Head of AQD Library and Data Banking Services Mr. Stephen Alayon, launches the Aquatic News Index during AQD’s 27th Book Launching



The IAMSILIC Digital Fisheries Library box

Forum updates fish farmers on aquaculture technologies



The resource persons during the Farmer's Forum and Aquaculture Clinic, (clockwise): Dr. Roger Edward Mamauag, Dr. Maria Lourdes Aralar, Mr. Victor Emmanuel Estilo, and Dr. Maria Rowena Eguia

Over a hundred fish farmers and other stakeholders availed of free lectures and consultations on 11 July 2018 during the Annual Farmers' Forum and Aquaculture Clinic as part of AQD's 45th Anniversary Celebration. Aimed at providing the public with aquaculture updates, the Forum availed of the expertise of AQD specialists who shared the developments on aquaculture feeds made from locally available ingredients, giant freshwater prawn farming, shrimp farming, and tilapia breeding and farming. In the aquaculture clinic that followed the lectures, the stakeholders had the opportunity to consult various AQD specialists regarding their specific concerns including problems in farming and opportunities for investment. The lectures were focused on the following topics:

- **Cost-effective aquaculture feeds made from locally available ingredients:** to promote the use of cost-effective aquaculture feeds, AQD Feed Nutrition Scientist *Dr. Roger Edward*

Mamauag shared different alternative protein sources for fish feeds. Protein is usually sourced from fish meal but feeding captured fish to farmed fish is considered an unsustainable practice. Aside from reducing the use of fish oil and fish meal, *Dr. Mamauag* stressed the importance of ensuring the efficient conversion of nutrient inputs and the use of technologies that are environmentally sensible and sustainable.

- **Giant freshwater prawn farming:** AQD Scientist *Dr. Maria Lourdes Aralar* narrated the protocols in the culture of the prawn from broodstock management,

hatchery design, requirements for larval rearing, water management, feeding schedule, nursery system, and the different grow-out systems. *Dr. Aralar* also presented sample growth parameters in lake-based culture using batch system with a stocking density of 10-15 pieces/m².

- **Shrimp farming:** AQD Shrimp Pond Culture Expert *Mr. Victor Emmanuel Estilo* presented different strategies to avoid disease occurrences. *Mr. Estilo* listed the basic facilities required to ensure biosecurity in shrimp farms, e.g. hand wash/foot bath stations, tire baths stations, bird scare devices, water filters and crab fences. Other proactive strategies to avoid diseases include the use of high health, specific-pathogen-free postlarvae, probiotics, minimum to zero water exchange systems, and the conduct of regular disease surveillance and monitoring.

- **Tilapia breeding and farming:** AQD Scientist *Dr. Maria Rowena Eguia* revealed that four out of the top ten tilapia-producing countries in the world are in Southeast Asia, namely: Indonesia, Philippines, Viet Nam and Thailand. *Dr. Eguia* added that tilapia involves a simple hatchery and nursery technology, enjoys wide consumer acceptance, and is used as a bio-control agent for luminous bacteria in shrimp ponds in the Philippines. *Dr. Eguia* also outlined the research work being done by AQD for tilapia such as the genetic improvement of performance traits, DNA marker assessment of improved strains, and marker-aided broodstock management.



AQD's Fish Health team discussing biosecurity issues with the farmers during the Aquaculture Clinic

SPECIAL REPORT

Enhancing Coastal Communities' Resilience through Sustainable Livelihood and Coastal Resources Management

by SEAFDEC/MFRDMD

The Southeast Asian region is home to the largest Muslim population in the world, with Indonesia having the world's biggest Muslim population (about 42 % of the region's total population). Most of the Muslim communities are in coastal areas with fishing as an ethnic occupation. The coastal areas in Southeast Asia provide the means of livelihood to the coastal dwellers, where hundred of thousands of coastal families are directly engaged in fishing activities and coastal aquaculture including related activities such as fish processing, marketing, boat building, net making, etc. The coastal resources should therefore be sustainably utilized by coastal communities as source of food security and livelihoods.

To assist the fishing communities, building up and strengthening community resilience to ensure the sustainable livelihood of coastal communities becomes necessary. The project “Enhancing Coastal Community Resilience for Sustainable Livelihood and Coastal Resources Management,” funded by the Islamic Development Bank (IDB), was aimed at improving the socio-economic status of the coastal communities through community fisheries organization and governance. The project involved various cross cutting issues which required strong commitment and coordination among the national governments, organizations, and local institutions. The overall goal of the project was to improve the socio-economic status of the coastal dwellers and to promote sustainable utilization and management of the coastal resources. The specific objectives were: 1) to enhance the capacity and capability of fishers and women in the fishing community to improve their social well-being and contribute to poverty alleviation; and 2) to build the capacity of the fishing communities to engage in sustainable livelihoods and improve coastal resource management. The target beneficiaries were the coastal Muslim communities in the IDB countries, namely Brunei Darussalam, Indonesia, and Malaysia. The project sites were located in Kg. Sungai Bunga and Kg. Serasa, Muara District in Brunei Darussalam; in Laikang Village, Takalar District, South Sulawesi Province in Indonesia; and in Tok Jembal Village, Kuala Nerus District in Peninsular Malaysia.

The Technical Assistance Grant Agreement of the project was signed on 18 November 2015 between SEAFDEC and IDB with SEAFDEC/MFRDMD as the Lead Department. The first disbursement of US\$125,000 was received by MFRDMD in March 2016 and the project started with the appointment of a focal point and the working team for Brunei Darussalam, Indonesia, and Malaysia. Then, a series of internal meetings and meetings with Malaysian officials were conducted to draft the assessment questionnaires. Assessment surveys in coastal communities were conducted in July-August 2016 in the three countries. The surveys revealed that each country prioritized the capacity building needs of each selected community and planned the related capacity building activities for the fisheries associations and coastal communities.

The project held the First Regional Technical Consultation on Enhancing Coastal Community Resilience for Sustainable Livelihood and Coastal Resources Management in Kuala Lumpur, Malaysia on 16-19 May 2016. The Meeting was attended by the representatives from Brunei Darussalam, Indonesia, and Malaysia, representative from the IDB, MFRDMD officials, resource person from Universiti Putra Malaysia (UPM), and an observer from the German International Cooperation. A representative from IDB in Jeddah, Saudi Arabia also joined the meeting through video conference.



Participants in the First Regional Technical Consultation on Enhancing Coastal Community Resilience for Sustainable Livelihood and Coastal Resources Management

The Second Regional Technical Consultation on Enhancing Coastal Community Resilience for Sustainable Livelihood and Coastal Resources Management was organized by MFRDMD in collaboration with Ministry of Marine Affairs and Fisheries (MMAF) in Makassar, Indonesia on 24-27 August 2017. The Meeting was attended by the representatives and stakeholders from Indonesia and Malaysia, the Chief and officials from MFRDMD, officials from MMAF, and the local government officials of Indonesia.



Participants in the Second Regional Technical Consultation on Enhancing Coastal Community Resilience for Sustainable Livelihood and Coastal Resources Management

Seven capacity building activities for related fisheries associations were conducted in the three countries which involved more than 300 participants. Moreover, 11 capacity building activities for coastal communities were also conducted involving 283 participants. Among activities conducted were Surimi-based Processing Technology and Product Quality Control Course in Brunei Darussalam; Seashell Craft Making Course in Indonesia; and Maintenance and Repair of Outboard Engine in Malaysia.



Participants in Surimi-based Processing Technology and Product Quality Control Course in Brunei Darussalam



Maintenance and Repair of Outboard Engine in Malaysia

The Terminal Regional Technical Consultation on Enhancing Coastal Community Resilience for Sustainable Livelihood and Coastal Resources Management was co-organized by MFRDMD and the Department of Fisheries of Brunei Darussalam in Bandar Seri Begawan, Brunei Darussalam on 20-22 March 2018. The Meeting was attended by the representatives and community leaders from Brunei Darussalam, Indonesia, Malaysia, Cambodia, Philippines, Thailand, Viet Nam, and the Department Chief and officials from MFRDMD.



Participants in the Terminal Regional Technical Consultation on Enhancing Coastal Community Resilience for Sustainable Livelihood and Coastal Resources Management

The impacts of the project include: 1) reduction of the breakdown time and cost saving of up to 30 % for the repair and maintenance of engine and fiberglass boats; 2) improved quality of fisheries products which had been standardized to comply with hygienic standards; 3) increased participation of women in community business activities; and 4) establishment of a new entity of small-scale entrepreneurs in fisheries business.

The outcomes of the project are: 1) significant involvement of the fisheries organizations and stakeholders particularly the Muslim fishing communities in the Southeast Asian region in the planning and undertaking of activities on sustainable livelihood and coastal resource management; and 2) standard of living of coastal communities, and the food security and job opportunities were enhanced while the coastal environment is protected and conserved. The project had successfully achieved its goal which was to enhance capacity of the Muslim coastal communities in Brunei Darussalam, Indonesia, and Malaysia. It is planned that the project with similar activities would be extended in the future to all ASEAN Member States with possible funding support from Japan-ASEAN Integration Fund (JAIF).



Seashell Craft Making Course in Indonesia

REGIONAL PROGRAMS

SEAFDEC conducts Practical Workshop on Stock Assessment of Indo-Pacific King Mackerel and Narrow-barred Spanish Mackerel at SEAFDEC/TD

SEAFDEC Secretariat in collaboration with SEAFDEC/MFRDMD and SEAFDEC/TD conducted the “Practical Workshop on Stock Assessment of Indo-Pacific King Mackerel and Narrow-barred Spanish Mackerel in the Southeast Asian Waters” from 16 to 20 July 2018 with funding support from the Government of Sweden. The Practical Workshop was attended by five representatives from Cambodia, Malaysia, Myanmar, Thailand, and Viet Nam as well as some scientists from MFRDMD, TD and Secretariat. With support from the Fisheries Research Agency of Japan, *Dr. Tsutomu Nishida* participated as key resource person and lecturer for this practical workshop.


The practical workshop transferred specific knowledge to scientists who have experiences on basic stock assessment and IT skills. The specific subjects focused on stock assessment analysis of the Indo-Pacific king mackerel and narrow-barred Spanish mackerel



Participants in the Practical Workshop on Stock Assessment of Indo-Pacific King Mackerel and Narrow-barred Spanish Mackerel

using ASPIC, Kobe plot (stock status trajectory) as a decision making tool for management and other relevant programs.

During the practical workshop, the participants were separated into four groups for practicing the specific software of the stock assessment

analysis *e.g.* ASPIC, Kobe Plot I-II, and Risk Assessment using the sample data provided by the countries. The results of the stock assessment analysis were presented, and the workshop was capped with the discussion on the recommendations and conclusion including the management advice in areas of responsibility. 

Regional Training Course on Culturing of HAB Species and Toxin Characterization




Under the Japanese Trust Fund VI project on “Chemical and Drug Residues in Fish and Fish Products in Southeast Asia – Biotoxins (ASP, AZA and BTX) and Harmful Algal Blooms (HABs) in the ASEAN Region,” the “Regional Training Course on Culturing for Harmful Algal Bloom (HAB) Species and Toxin

Characterization” was organized by the Post-Harvest Technology Centre of Agri-Food & Veterinary Authority of Singapore, which is the collaborating centre of SEAFDEC/MFRD programme in collaboration with the Institute of Ocean & Earth Science University of Malaya (IOES-UM), Bachok Marine Research Station (BMRS) in Kelantan, Malaysia on 8-14 July 2018. The 7-day training course was last of the series of three regional training courses on HABs that were conducted since 2016.

This year, the course which comprised both lectures and hands-on practical sessions, was tailored to focus on the culturing cells of HAB species for identification and

enumeration using microscopy and molecular methods. Participants were also exposed to different methodologies on species identification and biotoxin characterization, particularly on the use of molecular techniques.

The training course was conducted by three expert trainers from IOES-UM and one Japanese expert and attended by 20 participants from the 10 ASEAN Member States. Positive feedbacks were received from the participants stating that they were able to gained better understanding on different HAB species responsible for marine biotoxins. Overall, the participants felt that the course was very informative and suggested for the course to continue. 

Strengthening bilateral relation between Cambodia and Thailand for sustainable fishery resources

The SEAFDEC-Sweden Project organized the “Second Sub-regional Meeting on Effective Fisheries Management between Cambodia and Thailand” on 29-30 August 2018 in Koh Kong Province, Cambodia. The Meeting was attended by the representatives from relevant agencies in both countries including experts on fisheries, environmental and coastal resources and habitats, as well as representatives from SEAFDEC/UNEP/GEF/Fisheries *Refugia* Project, IUCN/MFF, and SEAFDEC officers. The Meeting aimed to strengthen the good relationship between Cambodia and Thailand in the conservation and management of fishery resources across the two countries. The Meeting was part of the work in progress under the Gulf of Thailand sub-region, which has built the interest of the countries to cooperate in fisheries management. Moreover, the Meeting served as a platform for sharing of information on the progress of the countries’ efforts and implementation of regional projects such as transboundary



fishery resources (Indo-Pacific mackerel and neritic tunas), which is linked to the integration of habitat management, and updated national fisheries laws and regulations, vessels monitoring, and catch landings. In the end, the countries agreed on key priority actions for cooperation to sustain the fishery resources and habitat.

Prior to the bilateral meeting, the SEAFDEC-Sweden Project also supported the National Consultation on

the Monitoring, Control, and Surveillance (MCS) on 28 August 2018, led by *Mr. Buoy Roitana*, Deputy Director-General of the Fisheries Administration (FiA) of Cambodia. The Meeting was attended by the representatives from FiA, marine police, navy, national committee on maritime security, and other relevant agencies. The Meeting discussed the national priorities on MCS in fisheries, in order to strengthen the national and sub-regional cooperation with Gulf of Thailand countries. ☒

Fish experts call for proactive approach to \$6 billion problem

During the “ASEAN Regional Technical Consultation on Aquatic Emergency Preparedness and Response Systems for Effective Management of Transboundary Disease Outbreaks in Southeast Asia (AEPRS)” organized in Bangkok, Thailand on 20-22 August 2018, representatives from the ASEAN Member States called for proactive approaches to address diseases in farmed aquatic animals that cost the region almost six billion dollars annually. The ASEAN RTC on AEPRS was organized by SEAFDEC/AQD together with the Network of Aquaculture Centres in Asia-Pacific (NACA) and the Department of Fisheries of Thailand with funding support from Japan-ASEAN Integration Fund (JAIF).

In the workshop, the Aquaculture Officer from Food and Agriculture Organization of the United Nations



Participants in the ASEAN RTC on AEPRS for Effective Management in Southeast Asia

(FAO) *Dr. Melba Reantaso* stressed that “disease is the number one issue in limiting yield, reducing profit and preventing investment,” and that “emergent diseases in aquaculture are mainly driven by trading of live animals and products, limited stakeholder knowledge on pathogens and their hosts,

poor aquatic management and health control, and changes in the ecosystem.” She added that “emergency preparedness, which is the ability to respond effectively and in a timely fashion to disease emergencies and early warning, is necessary in order to have advance

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Marine fishery resources and environmental survey in the Gulf of Thailand conducted using the M.V. SEAFDEC 2

With support from the Japanese Trust Fund and using its fishery research and training vessel, the M.V. SEAFDEC 2, SEAFDEC carried out the “Collaborative Research Survey on Marine Resources and Marine Environment in the Gulf of Thailand” from 17 August to 7 November 2018. This survey is being undertaken by SEAFDEC/TD, in collaboration with the Fisheries Administration of Cambodia, the Department of Fisheries of Thailand, the Directorate of Fisheries of Viet Nam, the Department of Marine and Coastal Resources of Thailand, Office of Atoms for Peace of Thailand, as well as some other academic institutions in Thailand.

Throughout the past decades, the Southeast Asian countries have been



SEAFDEC Secretary-General and Chief of TD, Dr. Kom Silapajarn visited the crew members and researchers onboard the M.V. SEAFDEC 2 right after the completion of the survey mission in the Gulf of Thailand on 21 September 2018, after which similar surveys in the waters of Cambodia and Viet Nam would be pursued

exerting efforts to expand their respective fishing activities, especially in the marine areas where resources are yet to be fully exploited. One of SEAFDEC tasks is therefore to conduct research and exploration surveys on potential underutilized fishery resources, and promote the utilization of such resources in a sustainable manner. Marine fishery and environmental surveys using the research and training vessel of SEAFDEC

are therefore important activities in order to obtain data and information that are necessary to determine the status of fishery resources and to serve as basis for management to ensure the sustainable utilization of such resources. Furthermore, such surveys would also help in enhancing the capacity of concerned staff of the Member Countries for their respective future undertakings related to marine resources exploration. ☒

Two-day capacity building on stock assessment in inland fisheries

SEAFDEC/TD organized the “Training Course on Introduction of Simple Stock Assessment Methods in Inland Fisheries” from 19 to 20 September 2018 in Samut Prakan, Thailand. A total of 48 participants from Thailand, Mekong River Commission

(MRC), RFPNs, AQD, IFRDMD, TD, MFRDMD, and Secretariat participated in this training course. The objective of the training course was to strengthen the capacity of researchers from SEAFDEC and Member Countries on some simple stock assessment methods that could be



Participants during the capacity building on stock assessment in inland fisheries



applied in processing and analyzing the limited data to assess the inland fishery resources. After the training course, the participants were expected to conduct stock assessments in inland fisheries, increase the number of stock assessment studies, and recommend further activities that will support stock assessment studies in their respective countries. ☒

SEAFDEC organizes workshop on gender equity and social well-being in fisheries communities



SEAFDEC/TD in collaboration with the SEAFDEC Secretariat with funding support from the SEAFDEC-Sweden Project organized the “Expert Consultation Workshop on Guidance to Monitoring and Evaluation of Gender Equity and Social Well-being in Fisheries Communities” from 8 to 10 August 2018 in Bangkok, Thailand. A total of 28 participants from SEAFDEC Member Countries, SEAFDEC Gender Working Team, and regional organizations and partners such as the Asian Institute of Technology (AIT), Asian Coastal Resources Institute-Foundation Cambodia (CORIN-Asia Cambodia), Food and Agriculture Organization of the United Nations (FAO), Learning Institute (LI), Mekong River Commission (MRC), Sustainable Development Foundation (SDF), Embassy of Sweden in Bangkok, and the United States Agency for International Development, the Oceans and Fisheries Partnership (USAID Oceans) participated in this Workshop.

During the Workshop, information and experiences were shared in implementing

policies to support the integration of gender aspects in fisheries communities. Through discussion, the Workshop was able to identify the indicators for monitoring and evaluation of progress of programs and projects to ensure gender equality and equity and enhance the social well-being in fisheries communities. At the end, the Workshop came up with: 1) updated information on the existing monitoring and evaluation mechanisms of gender activities in fisheries projects; 2) reference paper to provide guidance on monitoring and evaluation in assessing gender equity and social well-being in fisheries communities; and 3) established informal network among partners to share experiences and methods on assessing progress in social well-being and integration of gender aspects.

The SEAFDEC-Sweden Project recognizes the significance of providing support to gender mainstreaming through cooperation with SEAFDEC Secretariat and Departments, Member Countries, and various stakeholders at multiple levels.



SEAFDEC conducts meetings on transboundary species in Southern and Northern Andaman Sea

On 10-11 July 2018, the SEAFDEC-Sweden Project convened the “Second Technical Experts Meeting on Information Compilation on Transboundary Species as Scientific Basis for National Measures for Southern Andaman Sea,” with the participation of countries’ delegations from Thailand and Indonesia; and on 12-13 July 2018, the Project conducted the “Second Technical Experts Meeting on Information Compilation on Transboundary Species as Scientific Basis for National Measures for Northern Andaman Sea,” in Chonburi Province, Thailand, with the participation of delegates from Thailand and Myanmar.

These two meetings were conducted to follow-up on the progress made after the first meetings conducted in April 2018. The purpose of both Meetings, therefore, was to discuss, update and revise the key deliverables (digital maps) based on the available information on spawning grounds, fishing grounds, migration routes of three (3) target species namely: mackerels, anchovies and neritic tunas, as well as discuss the relevant fisheries regulations of each country and agree on the final format of the maps, and identify possible national measures to secure the sustainable stock status of transboundary fish stocks in the Southern and Northern Andaman Sea.



Fish experts call for proactive approach to \$6 billion problem

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knowledge of high risk diseases likely to threaten biosecurity.” The fish health experts and industry representatives from around Southeast Asia therefore agreed that setting up biosecurity systems in farms and hatcheries are more cost-effective and better than having to find solutions once diseases hit. Moreover, they also identified the workable ways to establish a functional and effective

engagement on emergency preparedness and response system in each country. Furthermore, the Fish Health Coordinator for NACA Dr. Eduardo Leaño, who reviewed the history and impact of transboundary diseases on ASEAN aquaculture, pointed out that “*aquatic animal disease outbreaks are likely to continue and there will be more new threats to come.*” Considering that lack of

collaboration was the main gap identified during the workshop, and lack of funding and resources as well as poor information sharing and seeking efforts were the other identified gaps, Dr. Leaño suggested that a collaborative approach between research, government and the industry should be established to come up with a system for preventing and responding to aquatic disease outbreaks.



FUTURE ACTIVITIES


Date	Venue	Title	Organizer(s)
2018			
8-10 October	Yangon, Myanmar	On-site Training on Optimizing Energy and Safety at Sea for Small Fishing Vessels	TD
9-10 October	Kuala Lumpur, Malaysia	Core Expert Meeting on Research for Enhancement of Sustainable Utilization and Management of Sharks and Rays in the Southeast Asian Region	MFRDMD
9-11 October	Pattaya, Thailand	19 th Meeting of SEAFDEC Information Staff Program (ISP)	SEAFDEC Secretariat
11-12 October	Yangon, Myanmar	On-site Training Program on Proper Fish Handling Techniques Applicable to Local Fishing Vessels in Myanmar	TD
15-18 October	Vientiane, Lao PDR	Consultative Meeting for Promotion of the “ASEAN Guidelines for Preventing the Entry of Fish and Fishery Products from IUU Fishing Activities into the Supply Chain” in Lao PDR	MFRDMD
18-19 October	Bangkok, Thailand	2 nd Regional Meeting on Enhancing Sustainable Utilization and Management Scheme of Tropical Anguillid Eel Resources in Southeast Asia	SEAFDEC Secretariat
22-26 October	Rizal, Philippines	Training Course on Catfish Hatchery and Grow-out Operations	AQD
24-25 October	Palembang, Indonesia	Workshop on Regional Awareness Raising in Asia on Prospective Species Proposals to CITES COP18 and Preparation of Fisheries Related Information to Support Review of Species Proposals Against CITES Listing Criteria	IFRDMD
29-30 October	Chiang Rai, Thailand	Bilateral Dialogue between Thailand and Lao PDR	SEAFDEC Secretariat
1-2 November	Pattaya, Thailand	7 th Meeting of the Gulf of Thailand Sub-region	SEAFDEC Secretariat
5-7 November	Langkawi, Malaysia	41 st SEAFDEC Program Committee Meeting (PCM)	SEAFDEC
8-9 November	Langkawi, Malaysia	21 st Meeting of the Fisheries Consultative Group of the ASEAN-SEAFDEC Strategic Partnership (FCG/ASSP)	SEAFDEC
12-15 November	Bangkok, Thailand	Consultative Meeting for Promotion of the “ASEAN Guidelines for Preventing the Entry of Fish and Fishery Products from IUU Fishing Activities into the Supply Chain” in Thailand	MFRDMD
13 November	Bangkok, Thailand	Gulf of Thailand Tonggol Tuna FIP Inception Meeting	SEAFDEC/TTIA/WWF/DOF Thailand
13-14 November	Yogyakarta, Indonesia	11 th RPOA-IUU Coordination Committee Meeting	RPOA-IUU
15-16 November	Bangkok, Thailand	Regional Dialogue on Gender Dimension in Coastal and Fisheries Resources Management in South Asia and Southeast Asia: Opportunities and Challenges	SEAFDEC Secretariat/IUCN/SEI
19-23 November	Samut Prakan, Thailand	Regional Training Course on Fish Handling Technique Applicable to Various Fishing Operations in Southeast Asia	TD
20-21 November	Thailand	4 th Meeting of the Andaman Sea Sub-region	SEAFDEC Secretariat
20 Nov-4 Dec	Rizal, Iloilo	Training Course on Community-Based Freshwater Aquaculture for Remote Rural Areas of Southeast Asia	AQD
21-22 November	Palembang, Indonesia	Workshop on the Quantitative Study to Estimate Freshwater Fish Stock	IFRDMD
23 November	Bangkok, Thailand	Planning Meeting for the JAIF Project on “Strengthening the effective Management of Inland Fisheries and Aquaculture in ASEAN Member States with Geographic Information System (GIS) & Remote Sensing (RS) Technology”	SEAFDEC Secretariat
25-28 November	Hanoi, Viet Nam	Consultative Meeting for Promotion of the “ASEAN Guidelines for Preventing the Entry of Fish and Fishery Products from IUU Fishing Activities into the Supply Chain” in Viet Nam	MFRDMD
4-5 December	Samut Prakan, Thailand	Project Steering Committee (PSC) Meeting of the SEAFDEC/UNEP/GEF Fisheries <i>Refugia</i>	SEAFDEC/UNEP/GEF/Fisheries <i>Refugia</i> Project
12-13 December	Samut Prakan, Thailand	Regional Meeting on the Regional Fishing Vessel Record (RFVR) for 24 meters in length and over as a Management Tool Toward Combating IUU Fishing in ASEAN	TD

Enhanced cooperation among researchers from AQD and Japan boosted

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the Japanese Trust Fund. The “*Application of Adjuvants, Carriers and RNAi Technology to Enhance the Antiviral Immune Response of Shrimp to WSSV*” evaluated the efficacy of the double-strand RNA (dsRNA) treatment in protecting shrimps against the white spot syndrome virus (WSSV). In addition, the scheme using combination of rVP28 vaccine and VP28 dsRNA treatment, and a practical method of delivery for rVP28 and VP28 dsRNA treatments are being developed. This is very crucial for the sustainability of the shrimp industry in the region, which at one time had been almost completely devastated by the severe incidence of WSSV. On the other hand, the “*Promotion of Resource Enhancement of Seahorses*” has demonstrated not only the appropriate release and monitoring strategies of seahorses for resource enhancement but also in enhancing the involvement of a community in the management of this natural resource.

On the part of the academe and institutions in Japan, the technical support of TUMSAT to AQD comes in the form of assistance in the research on shrimp diseases and seed production of aquaculture commodities. Such support is being carried out through the core-to-core program of the Japan Society for the Promotion of Science (JSPS) as well as through the Science and Technology Research Partnership for Sustainable Development (SATREPS) Program. JIRCAS also supports the efforts of AQD in promoting technological advancements through its program that aim to enhance international collaborations in the field of agriculture, forestry and fisheries (AFF) research. This is part of the comprehensive experimental research of JIRCAS in AFF and related industries in tropical and sub-tropical zones of developing regions to provide solutions to global environmental problems, food insecurity, and extreme poverty for the future of AFF in the developing world. Marino-Forum 21 also undertakes activities relevant to the efforts of SEAFDEC in attaining sustainability in fisheries development, which are being promoted by providing assistance in building the capacity of the Southeast Asian countries in the sustainable development of fisheries and aquaculture.

After the information sharing, AQD was assured that FRA would continue to maintain contact with the various experts in Japan in order to respond to the requirements of AQD. Specifically, FRA would be coordinating with NRIA for the exchange of expertise and information on the recent developments in aquaculture. The Meeting was therefore crucial for the continuity of the exchange of expertise and information on aquaculture for the benefit of the Southeast Asian region. Through the exchange of experiences and relevant information, strong support and collaboration had been demonstrated by the researchers in Japan through FRA and the Southeast Asian countries through AQD. 

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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AQD thrives at 45 with tiger shrimp as its banner program

“Enduring forty-five years means that SEAFDEC/AQD is relevant and I am sure it still is and will be in the next 50 years,” said AQD Chief Mr. Dan D. Baliao in his message during AQD’s 45th Anniversary Program on 13 July 2018. *“Shrimp culture was the priority program during AQD’s incipient years and still is,”* he added. Mr. Baliao believes that tiger shrimp culture will gain a boost in the future aided by AQD’s ongoing program *“Oplan Balik Sugpo”* aimed at reviving the industry which suffered losses since the 90s due to diseases.

AQD is now fast tracking the improvement of protocols to immediately detect diseases in shrimps. Its Dumangas Brackishwater Station was recently rehabilitated and reconfigured incorporating biosecurity features. Production of good quality shrimp fry and broodstock development using refined protocols ongoing. Low cost diets which are at least 30% cheaper compared to commercial feeds, are also being developed.

Over the last eight months, technology transfer activities have been intensified in partnership with other agencies and invitations for collaborations and requests for assistance have poured in. The establishment of legislated multi-species hatchery at different sites in the Philippines is now being undertaken with the Department of Agriculture-Bureau of Fisheries and Aquatic Resources (DA-BFAR). Another project on mangrove crab seedbanks, nurseries and grow-out farms is also ongoing. ☒



AQD Chief Dan Baliao delivering his message

A memorial to the life of Mr. Budi Iskandar Prisantoso, former Chief of SEAFDEC/IFRDMD



Mr. Budi Iskandar Prisantoso, former Chief of SEAFDEC/IFRDMD

With most profound sorrow, SEAFDEC extended its deepest condolences to the bereaved family of Mr. Prisantoso, who passed away on 21 June 2018. His life was a blessing to SEAFDEC, where he contributed much to make the establishment of IFRDMD a reality, a legacy that will always live in the memories of SEAFDEC and especially IFRDMD. ☒

Enhanced cooperation among researchers from AQD and Japan boosted



Participants in the 2018 SEAFDEC Aquaculture Technical Support Meeting, 11 September 2018 at NRA, Mie Prefecture, Japan

In order to deepen the better understanding between Japanese researchers and SEAFDEC/AQD on the sustainable development of aquaculture in Southeast Asia, the 2018 SEAFDEC Aquaculture Technical Support Meeting was convened 11 September 2018 at the National Research Institute of Aquaculture (NRIA) of Japan Fisheries Research and Education

Agency (FRA) in Mie Prefecture, Japan. In attendance were representatives from FRA, Fisheries Agency of Japan (FAJ), Japan International Research Center for Agricultural Sciences (JIRCAS), Marino-Forum 21, Mie University, NRIA, AQD, SEAFDEC Secretariat, and Tokyo University of Marine Science and Technology (TUMSAT). The Meeting, which highlighted on exchanging and

sharing of information between AQD and the various fishery R&D institutions in Japan, also aimed to boost the support of the Government of Japan to AQD in the years to come.

For AQD, its role in Achieving Food Security through Aquaculture Research, Capacity Building, and Information Dissemination is being sustained through the development and promotion of technologies on the sustainability of aquaculture anchoring on the Priority R&D Programs of AQD which aim to promote the sustainable development of aquaculture in the Southeast Asian region, and ensure that the aquaculture techniques and production systems developed are environment-friendly and socially equitable. Examples of such endeavors are two projects carried out by AQD with funding support from

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