

SEAFDEC holds its 34th PCM back-to-back with 14th FCG/ASSP Meeting

SEAFDEC/AQD in collaboration with the Philippine Bureau of Fisheries and Aquatic Resources (BFAR) hosted the 34th Meeting of SEAFDEC Program Committee (PCM) from 14 to 16 November 2011 in Manila, Philippines.

The main objectives of the 34th PCM were to monitor the progress in the implementation of programs and activities undertaken by SEAFDEC in 2011, scrutinize the programs to be undertaken in 2012, as well as discuss the

fisheries-related issues that are important for the region.

While endorsing the programs undertaken by SEAFDEC in the year 2011, the Program Committee discussed and provided recommendations on the important areas that should be incorporated in the 2012 programs in order to address the priority needs and concerns of the Member Countries. In particular, these included the reformulation of SEAFDEC Departmental Programs to address R&D requirements of the Member Countries, as well as the regional programs under the Fisheries Consultative Group (FCG)



The Thirty-fourth Meeting of SEAFDEC Program Committee hosted by AQD in collaboration with the Philippine BFAR from 14 to 16 November 2011

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Sub-regional consultative meeting of Southern Andaman Sea

To strengthen collaboration in management of fishing capacity around the Andaman Sea, SEAFDEC with funding support from the Swedish International Development Cooperation Agency (Sida) in collaboration with the Bay of Bengal Large Marine Ecosystem (BOBLME) project, organized the “Sub-regional Consultative Meeting of the Southern Andaman Sea” in Phuket, Thailand on 20-22 October 2011.

Attended by local fishers and representatives for various agencies from Indonesia, Malaysia and Thailand, e.g. from Fisheries, Environment and Transport agencies as well as representatives from relevant academic institutions and regional projects, the Meeting aimed to follow up the recommendations from a series of on-site events conducted earlier in Medan

(Indonesia), Langkawi (Malaysia) and Satun (Thailand) which are located in the triangular area of the Southern Andaman Sea; synthesize priority issues that are common for these three countries; and seek guidance on the priority action-oriented recommendations for the development of joint approaches and agreements to address the common problems/issues.

The Meeting discussed the specific thematic issues and identified the gaps, possible solutions and steps that should be taken, e.g.

Discussion on specific thematic issues during the Sub-regional Consultation Meeting of the Southern Andaman Sea

improving information collection and understanding the movement and life cycle of *Rastrelliger* spp. that could serve as basis for regulating fishing activities and promoting the management of their habitats; strengthening MCS network and port monitoring; and enhancing regional cooperation to support the development of vessel registration system, vessel record and inventory. ☒



EDITORIAL

During the last quarter of 2011, SEAFDEC organized a number of events to address priority issues identified in the newly adopted “Resolution” and “Plan of Action”, particularly in combating IUU fishing, improving safety at sea, and improving/rehabilitating important fishery habitats. The events included the Sub-regional Consultative Meeting of the Southern Andaman Sea which aims to develop joint approaches among countries in the Southern Andaman Sea and improve the understanding and management of fishing capacity and fishery resources in the area; the Regional Core Experts Meeting on Fishing License, Boats Registration and Information on Export of Fisheries Products in the region aimed at developing regional guidelines on fishing license and boat registration to prevent IUU fishing and trading of IUU products.

SEAFDEC also conducted the 34th Meeting of SEAFDEC Program Committee back-to-back with the 14th FCG/ASSP meeting, where important discussions focused on improving the SEAFDEC programming exercises to be able to address the priorities and needs of the Member Countries, especially to support the ASEAN countries in the implementation of the Plan of Action and in achieving sustainable fisheries and food security towards the coming decade.

In addition to the consultative meetings mentioned above, several HRD activities were put in place, both for Member Countries, *e.g.* training on GAPs, freshwater aquaculture, fish health, fishing technologies and vessel operations, EAF concept and approach, fish processing and product traceability; as well as for SEAFDEC officers, *e.g.* on statistics and information-related aspects, including cooperative research on marine fisheries policy of the region to enhance the capacity of SEAFDEC in providing better services to the Member Countries.



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TD organizes new training course on EAF

SEAFDEC Training Department successfully organized a regional training course on Ecosystem Approach to Fisheries from 22 November to 16 December 2011 in Samut Prakan, Thailand. Newly developed by SEAFDEC, the course aimed to enhance the understanding of relevant officers of the Member Countries on the concept of Ecosystem Approach to Fisheries or EAF. Nineteen fisheries and fisheries extension officers responsible for fisheries resource management attended the course.

The planning and arrangement of this course took into consideration the importance of “human capacity” and “environmental awareness”, with emphasis being placed on the impacts of IUU fishing on the marine ecosystems. Important training subjects included those on responsible fishing practices and the concept of ecosystem approach to fisheries; while the elements on

extension methodologies and techniques as well as communication and media production were also integrated as part of the training sessions.

At the end of the training course, each trainee is expected to get acquainted with the concept and approach of the EAF, and be able to formulate fisheries management policies and strategies aimed at enhancing sustainable development of fisheries in the region.



Discussion among trainees during the EAF training course

AQD exhibits R&D work in four fairs

AQD was at four exhibit-fairs in the Philippines to promote its R&D work: 1) “Fish Conservation Week” held on 6-22 October 2011 in Quezon City; 2) “AgriLink 2011” held on 6-8 October in Pasay City; 3) “1st Regional Organic Agri Research Fair” held on 14-18 November in Iloilo City; and 4) “4th Pinoy Aquatic Fair & Bazaar” held on 2-4 December in Quezon City.

During the same quarter, aquaculture stakeholders from outside the Philippines

also came to visit AQD. On 22 November, government officials from Papua New Guinea came looking for information and to see milkfish & tilapia hatcheries at AQD. On 29 November, Dr. Richard Knuckey and Prof. Abigail Elizur from the Australian Centre for International Agricultural Research (ACIAR) also came to observe AQD’s sandfish hatchery-broodstock facilities and to discuss a new collaborative project.



Visitors take interest in AQD publications during the exhibits/fairs

SEAFDEC holds its 34th PCM back-to-back with 14th FCG/ASSP Meeting

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Participants of the 14th FCG/ASSP Meeting held in Manila, Philippines

mechanism to enhance the impacts from the programs and initiatives undertaken by SEAFDEC in line with the Resolution and Plan of Action adopted by the ASEAN-SEAFDEC Ministers and Senior Officials during the 2011 ASEAN-SEAFDEC Conference.

Among the important regional programs and initiatives that have been formulated and to be implemented starting from 2012 included the program on “Strategies for Trawl Fisheries By-catch Management” to be supported by FAO/GEF with SEAFDEC as regional facilitating unit and executing partner; the program on “Enhancing Coastal Community Resilience for Sustainable Livelihood and Coastal Resources Management” of which the proposal has been approved in principle by the Islamic Development Bank (IDB); and the program on “Climate Change and its Impacts on Sustainable Fisheries and Aquaculture: Adaptation and Mitigation Towards Food Security” of which initial consultations for possible support would be undertaken with the ASEAN-US Technical Assistance and Training Facility (AU-TATF) as an ASEAN dialogue partner. The PCM also witnessed the efforts undertaken by the SEAFDEC Secretariat and Departments in mobilizing their respective expertise to come up with the “Southeast Asian State of Fisheries and Aquaculture” or SEASOFIA which aims to support better understanding of the state of fisheries and important fisheries-related issues of the region that could serve as basis for

science-based policy formulation and management for sustainable fisheries and to serve as reference in reflecting the specificity of Southeast Asia fisheries as well as relevant issues in the global arena.

Back-to-back with the PCM, SEAFDEC also arranged the 14th Meeting of the Fisheries Consultative Group (FCG) of the ASEAN-SEAFDEC Strategic Partnership (ASSP) from 17-18 November. While taking note of the programs implemented in 2011 and



proposed for 2012 under the FCG/ASSP mechanism, as previously scrutinized by the SEAFDEC Program Committee, the Meeting provided recommendations, particularly in developing regional approach for fishery resource rehabilitation, combating IUU fishing and enhancing the implementation and monitoring of the progress in the implementation of the 2011 Resolution and Plan of Action. The Meeting also took note of the progress of other activities under the ASSP framework, *i.e.* the conduct of the ASEAN-SEAFDEC Conference, the implementation of the ASEAN Fisheries Consultative Forum (AFCF) and the ASEAN Shrimp Alliance (ASA), and the activities to be undertaken to support the ASEAN Integrated Food Security (AIFS) Framework.

The outcomes from the 34th Meeting of the SEAFDEC Program Committee, and the 14th Meeting of the FCG/ASSP would be submitted to the 44th Meeting of SEAFDEC Council and to the 20th Meeting of the ASEAN Sectoral Working Group on Fisheries (ASWGFi), respectively, for consideration and endorsement, as well as policy support in the implementation of activities as discussed and concluded during the two Meetings. ❏

Participants visited the National Fisheries Biological Center of BFAR during the field trip conducted after the 34th PCM

DEPARTMENTAL ACTIVITIES

MFRDMD organizes an international seminar

MFRDMD, in collaboration with the Faculty of Fisheries Sciences of Hokkaido University in Hakodate, Japan, organized the International Seminar on Sustainable Production of Fisheries Resources in Southeast Asia on 15 December 2011 in Kuala Terengganu, Malaysia under a program of the Japan Society for the Promotion

of Science (JSPS). With partial financial support from the Japanese Trust Fund, the seminar had 25 participants including representatives from the Department of Fisheries Malaysia, the Embassy of Japan in Thailand and Hokkaido University, researchers from Fisheries Research Institute Malaysia and staff from MFRDMD. The seminar also

discussed future collaboration, where three professors from Hokkaido University explained about international exchanges under the JSPS Asia-Africa Science Platform Program, fish stock management of walleye pollock in Japan, and research activities of fisheries informatics including green technology, artificial reefs and a new sonar for coastal seaweed research. Two officers from MFRDMD presented their findings on the genetic identification of pelagic fishes in the South China Sea and Andaman Sea, and the overall research activities of MFRDMD. Since the international exchanges under the JSPS program will continue until March 2014, the seminar was an excellent starting point for future collaboration in fishery resources management as well as other related fields. ☒



Participants of the International Seminar at MFRDMD

TD and NATC collaborate on fishing technology training

TD in collaboration with Malaysia's National Agriculture Training Council (NATC), organized three tailor-made training courses to enhance the capacity of fisheries officers in Malaysia.

The first training course on "line fishing" was conducted in Labuan, Sabah, Malaysia from 26 September to 3 October 2011. The training was focused on line fishing technology and practices. Fifteen fisheries officers from the Department of Fisheries Malaysia participated in this course, where the participants went through the entire process of longline fishing technology, *i.e.*, fishing gear materials, construction of longline and its accessories, bottom and tuna longline design, and longline assembly. To put all these theoretical lectures into practice, the trainees were given shipboard training, during which the individual trainee was assigned to undertake actual fishing operations at sea.

The second training course on "purse seine fishing" was conducted in Lumut, Perak, Malaysia from 17 to 27 October 2011. Focusing on purse seine fishing technology, the training course dealt with the appropriate materials for the fishing gear, construction of purse seine and its accessories, designing of bottom and tuna purse seines, practice on purse seine construction; and concluded by the conduct of shipboard training for

the trainees. The third training course on "trawl fishing" was conducted from 10 to 17 November 2011 in Kampong Ache, Perak, Malaysia. A total of 15 Malaysian fisheries officers participated in the course to learn the entire process of trawl fishing technology, materials for trawl net, construction of trawl net and its accessories, trawl net designs, and trawl fishing operation. Similar to the first two training courses, the trainees were



also given a shipboard training, where they were required to put their classroom learning into practice at sea. ☒

The trainees undertaking practical session on trawl fishing operation

AQD gives updates on grouper and genomics



Grouper stricken by VNN

AQD Chief Dr. Joebert Toledo gave updates on grouper during the “International Symposium on Grouper Culture” held on 8-11 November 2011 in Pingtung, Taiwan. Dr. Toledo cited that although research work on production from the hatchery to grow-out has significantly improved, but the industry’s sustainability is threatened by viral disease outbreaks. He emphasized on the efforts made by AQD in developing protective immunity in grouper against viral nervous necrosis (VNN) by vaccination. Prior to this, Dr. Toledo attended the “FAO/SPC regional Scoping Workshop: Development of a Pacific Aquaculture Regional Cooperative Programme” organized by FAO and Secretariat of the Pacific Community (SPC) from 11 to 14 October 2011 in Fiji. The FAO/SPC Workshop discussed the current status of aquaculture in the region, emerging issues & opportunities, and potential regional aquaculture development framework and programs for Pacific island countries and territories. Moreover, scientist Dr. Ma. Rowena Eguia also represented AQD at the: 1) “Fisheries Genomics Workshop” on 11 November in Quezon City; and 2) “Launching of the Philippine Genome Center” on 28 November in Makati City. The “Fisheries Genomic Workshop” was meant to finalize the R&D roadmap for fisheries genomics where AQD expressed its interest in pursuing collaborative work on shrimp, milkfish, mud crab, and abalone genomics, and in augmenting AQD’s molecular genetic marker research for selective breeding in penaeid shrimps and other priority aquaculture species.



Fishing vessel operations training course

SEAFDEC Training Department in collaboration with the Vocational Education Commission of Thailand organized a four-month Training Course on “Fishing Vessel Operations” starting from 3 October 2011. The course would be completed on 24 February 2012.

Nine students from Tinsulanonda Fisheries College, Songkhla Province attended the course. The lecture part

comprised six subjects, namely: 1) ship construction and stability; 2) marine communication; 3) laws and regulations of navigation; 4) navigation technology and practices; 5) marine machinery technology and practices; and 6) fishing gear technology and practices.

Moreover, as part of the practical session, the students also had opportunity to undertake hands-on practice onboard the M.V. SEAFDEC and the M.V. Plalung, and were conducted on study visits to various shipping facilities relevant to their training subjects.



Students during the practical session to gain experience on life raft operation.

Capacity building for Thai and Japanese students

SEAFDEC Training Department organized a University Student Training Course on “Utilization, Conservation and Environment-friendly Fishing Operations for Sustainable Fishery Resource” from 19 to 29 October 2011 in Samut Prakan, Thailand. In attendance were 43 students from six universities in Thailand, and eight from two universities in Japan.

This university training course aimed to develop skills for students in the conduct of responsible fishing operations

and to establish network among fisheries students from different universities in Thailand and Japan. As part of the course, the students joined study tours and were given lectures on various aspects of sustainable utilization of fishery resources. Moreover, practical sessions on fishing operations using gill net and collapsible crab trap, as well as oceanographic survey, were also conducted in Samut Prakan and Rayong Provinces. With this course, it is expected that the students would be able to apply the knowledge and experience gained in their further studies and future works.



Practical session on fishing operation at sea to enhance the skills of student trainees

AQD hosts aquaculture interns from China and Philippines

As part of a two-year collaboration between AQD and FFRC-CAFS (Freshwater Fisheries Research Center -Chinese Academy of Fishery Sciences), AQD arranged the internship of Mr. Ming Junchao in November through December 2011. Mr. Ming studied freshwater aquaculture, among other disciplines.

AQD also accepted interns from the veterinary medicine schools of

Capiz State University and Aklan State University, Philippines, to engage in fish health laboratory work. The internship for Capiz State was during

2-16 November 2011; while for Aklan State, it started from 24 October and will continue until 10 February 2012.



The AQD intern from China interviews a member of the local community during the practical session of the freshwater aquaculture training

SEAFDEC dispatches officers for training and cooperative research in Hokkaido

Starting from April 2011 to March 2014, SEAFDEC and the Hokkaido University collaborated under the Asia-Africa Science Platform Program (AASPP) with financial support from the Japan Society for the Promotion of Science (JSPS) as part of an effort to promote scientific, educational and technical cooperation for sustainable development of fisheries. The AASPP comprises five components, namely: 1)

marine fisheries policy; 2) sustainable production of fisheries resources; 3) environmental friendly aquaculture and stock enhancement; 4) highly efficient utilization and processing of fisheries resources; and 5) globalization of education in fisheries science. The activities under AASPP includes cooperative research, technical training through researcher exchange, and dispatch to international meetings and organizations.

Fisheries Stock Assessment” and learned the importance of fishery information factsheet as a management tool to support sustainable fisheries which has been promoted by the Fishermen’s Cooperative Association of Japan as well as observed rights-based fisheries management activities particularly those related to set-net fishery.



Under the AASPP Program, SEAFDEC Secretariat and Training Department sent two officers to Hokkaido University, Japan. From 3 to 27 October 2011, Ms. Namfon Imsamrarn, Information Technology Officer of TD, visited the Faculty of Fisheries, Hokkaido University and learned about Sustainable Production of Fisheries Information Materials. She also attended the seminar on “Quantitative

In addition, Ms. Sawitree Chamsai, the Policy and Program Officer of the Secretariat joined the program from 23 November to 17 December 2011 for a research study on Marine Fisheries Policy in Southeast Asia. The objectives of her training were to learn the Japanese fisheries cooperative system and its community-based fisheries management as well as the potential ways in which those lessons could be applied to fishery resources management in the Southeast Asian context.



Activities as part of the training: observation of the auction process at the fish wholesale market in Hokkaido (above); and harvest from set-net fisheries (below)

Hokkaido University in collaboration with SEAFDEC and Kasetsart University also planned to organize the “International Seminar JSPS Asia-Africa Science Platform Program on Marine Fisheries Policy and Higher Education in Fisheries in Southeast Asia” on 21 February 2012 at SEAFDEC Secretariat in Bangkok to wrap-up the activities undertaken during the first year of AASPP.

AQD and Hokudai highlight exchange programs for young researchers

On the first of December 2011, AQD and Hokkaido University in Japan (Hokudai) highlighted the exchange programs for young researchers through an international seminar held at AQD's main station in Iloilo. The seminar served as the culminating activity of Asia-Africa Science Platform (AASP) Program under JSPS on environment-friendly aquaculture and stock enhancement.

During the seminar, Dr. Katsutoshi Arai of Hokkaido University gave an overview of AASP's international exchange programs and extended the invitation to AQD for more collaborative research work. He also presented a

brief review of abalone genetics with special reference to hybridization, triploidization, and genetic mapping. Dr. Yasuaki Takagi, also from Hokudai, discussed the wise use of fisheries wastes to develop environment-friendly aquaculture.

Meanwhile, AQD associate scientists Dr. Frolan Aya and Dr. Ma. Michelle Peñaranda, and AQD technical assistant Ms. Ellen Grace Tisuela, reported their academic experiences. The work of Dr. Aya and Dr. Peñaranda was made under the "Advanced program to foster young and female researchers from Southeast Asia in sustainable fisheries" of JSPS

while that of Ms. Tisuela was under the three-year research collaboration between AQD and Hokudai. Ms. Tisuela undertook the training on cytogenetic studies for hybridization and polyploidization of tropical abalones under Prof. Dr. Arai from 3 to 27 October 2011.

JSPS also sponsored two more AQD staff – biotech lab microscopist Mr. Norwell Brian Bautista and senior technical assistant Ms. Schara Rose Novilla. Both studied at the University of Tsukuba from 15 September to 31 October 2011 as part of the JSPS Japan-East Asia Network of Exchange Students and Youths (JENESYS) program. Supervised by Dr. Nakao Nomura, Mr. Bautista learned SDS-PAGE, a protein analysis/profiling tool using *Artemia* as sample, while Ms. Novilla worked on the effect of environmental stress on the biochemical composition of *Artemia*.



AQD researchers and Dr. K. Arai of Hokkaido University during the international seminar held at AQD's Tigbauan Main Station

SEAFDEC Secretariat staff undertakes training on application of statistics and information

Information Officer of SEAFDEC Secretariat, Ms. Saivason Klinsukhon spent a fortnight in Japan to take part in the Program on Collection/Compilation and Utilization of Fishery Information and Statistics for Fisheries Management, which was arranged by the Marine Forum 21 of Japan, from 27 November to 10 December 2011.

The program was aimed at enhancing the capacity of relevant information staff in compiling fishery statistics at regional level as well as in gaining better understanding of the nature of fishery statistics particularly reflecting the specificity of fisheries in the region, and on the available tools and methodologies that can support fishery data collection and compilation. The program featured a systematic way of dealing with problems that could arise in the collection/ compilation of fishery statistics, and

was capped with a technique of coming up with comprehensive information that would be useful and beneficial for fisheries management in the Southeast Asia.

The training course culminated with a study visit to the Fisheries Agencies of Japan, Fisheries Research Agency (FRA), Tokyo University of Marine

Science and Technology (TUMSAT), Fishermen's Cooperative Association (FCA), and relevant organizations in Japan, which gave Ms. Saivason the opportunity to discuss with concerned officers the methodologies, tools and processes/mechanisms of collecting fishery data and information in Japan.

Considering that fishery statistics, data and information in many countries in the Southeast Asian region are either inadequate or far from complete and not timely, it was suggested during the study visit that SEAFDEC should develop easier mechanism/process and other methodologies, e.g. fishery research data collection, stock assessment (non-routine data), in order to improve the collection of fishery data and information in the Southeast Asian region, a goal which could become attainable after the said training.



SEAFDEC Secretariat Information Officer (second from the left) during the capacity development program

SPECIAL REPORT

Innovations in Aquaculture

By SEAFDEC Aquaculture Department



Seahorse hatchery at SEAFDEC/AQD

The challenges facing the aquaculture industry are aplenty, and it is up to SEAFDEC Aquaculture Department (AQD) to help make innovations to sustain the industry. AQD must also help ensure that the aquatic environment maintains its integrity while fish for human food or fish for resource enhancement are produced through aquaculture. The innovations in aquaculture take the form of a simple technique (e.g. feeding disinfected live food) to a complicated biotechnology tool (e.g. development of vaccine). Here are two examples of useful innovations that AQD recently contributed.

Innovation for captive seahorses breeding: disinfected live food

Like most highly valued commercial species, seahorses have been very much exploited and nowhere to be found in some areas. Their international trade is now strictly regulated by international conventions like CITES. AQD breeds them in captivity for potential restocking in the wild, as part of a resource enhancement program for communities dependent on coastal resources for their livelihood.

The bottleneck for mass production has been low survival in the hatchery until a simple technique was discovered: washing the live food (e.g. copepods) with low-dose formalin (30 ppt) and UV-sterilized seawater to remove adhering pathogens. The copepods – microscopic crustaceans – are replacement of the commercially available but expensive brine shrimp *Artemia*; they are collected from brackishwater ponds. When fed to newborn seahorses, copepods increased survival (78%) in the hatchery for 15 days after birth; in contrast, no seahorse survived when fed untreated live food. After a month, survival of seahorses fed formalin-treated copepods was 65%.

This technique could pave the way for mass breeding the seahorse *Hippocampus comes*, and AQD could begin experimental stock releases. While resource enhancement may be the key to conservation and rehabilitation of depleted stock seahorses, AQD is well cognizant of these important factors:

- (1) a partnership with the local village must be strong to make a resource enhancement project sustainable;
- (2) hatchery-raised seahorse juveniles to be released must come from seahorse parents that were taken from the same site to ensure and maintain genetic integrity in local waters; and



Seahorse produced from hatchery (above); and AQD Associate Researcher, Ms. Shelah Mae Buen-Ursua working on seahorses (right)



Vaccination trial for grouper

The process to develop and elucidate the efficacy of the vaccine through *in vitro* and *vivo* studies, respectively, took approximately two years. First, the Philippine strain of the VNN-causing betanodavirus was propagated in live cells; second, the virus was inactivated with formalin and this vaccine immunogen was injected to a few marine fish juveniles (sea bass, grouper, pompano) that were subsequently challenged with the homologous virus at scheduled intervals after vaccination. As a result, vaccinated fish juveniles can be protected up to 6 months, time enough for fish to grow in sea cages and be harvested. With a single vaccination, survival can be 90-100% in fish experimentally exposed to betanodavirus.

(3) a well thought-out aquaculture and resource management plan can reduce risks in resource enhancement (e.g. disease transmission from hatchery to indigenous fauna).

For the moment, AQD's seahorse captive breeding studies – nursery and grow-out phases – continue at its Igang Marine Station in Guimaras, west central Philippines. These studies are under the thematic R&D program area on Quality Seed Production. AQD's resource enhancement studies, on the other hand, which are funded by Japanese Trust Fund to SEAFDEC, presently focused on abalone (*Haliotis asisina*), giant clam (*Tridacna gigas*) and sandfish (*Holothuria scabra*) and are mostly done in Sagay, northern Negros, also in central Philippines.

Innovation for marine fish hatchery: a vaccine for viral disease

Viral nervous necrosis (VNN) is a devastating disease in cultured marine fish in Southeast Asia, and there is no cure but prevention. Although fish farmers can ensure that they do not use VNN-infected stock, the cost for screening fish broodstock, eggs and larvae by reverse transcriptase polymerase chain reaction (RT-PCR) is rather prohibitive and screening cannot protect stock from infection when fish are raised in openwater sea cages because VNN-causing virus is widespread, if not ubiquitous, in natural waters. AQD's innovative solution is the development of a vaccine.

AQD credits Professor Dr. Toshihiro Nakai of Hiroshima University for the cell line (called E-11) used for the propagation of the betanodavirus *in vitro*. Dr. Nakai's lab is the reference laboratory for VNN as recognized by the Paris-based World Organization for Animal Health (Office



International des Epizooties or OIE). AQD's vaccination studies are funded by the the Japanese Trust Fund under the SEAFDEC regional fish disease program.



Fish health laboratory at AQD where the vaccine against VNN was developed by AQD scientist Dr. Rolando Pakingking Jr.

REGIONAL PROGRAMS

Regional training course on processing of value-added products from freshwater fish

The Regional Training Course on Processing of Value-added Products Using Freshwater Fish was conducted by MFRD in Singapore on 18-21 October 2011. Fourteen participants – two each from the project participating countries; two from the Malaysian Department of Fisheries and four from the industrial sector of Singapore attended the training. In addition one participant each from the private sector in Lao PDR, Myanmar and Indonesia also attended the course.



Participants of the Regional Training Course on Processing of Value-added Products from Freshwater Fish

The training course included lectures and hands-on practices on the processing of six value-added products which had been previously agreed by the participating countries during the Project Inception and Planning Meeting. The processing techniques involved the use of simple, inexpensive equipment and technology that are suitable for

village level and small- to medium-sized industries. The value-added products included snack products and frozen comminuted fish products. Good manufacturing practices to ensure product

safety and quality was emphasized in the course. The participants were also instructed on how to conduct shelf-life studies and sensory analyses on fish products. ❖

TD organizes workshop on safety at sea and energy saving operations

The 3rd Regional Technical Workshop on Safety at Sea and Optimizing Energy Use for Small Fishing Boats was organized at the SEAFDEC Training Department in Samut Prakan, Thailand on 19-22 December 2011.

The Workshop was attended by representatives from the SEAFDEC Member Countries, officers from SEAFDEC Secretariat, TD and MFRDMD, as well as resource persons from various institutes, namely the Fisheries Research Agency (FRA)



of Japan, the International Maritime Organization (IMO), the International Labor Organization (ILO), and from the private sector.

The important outputs from the Workshop included: 1) updated information on various initiatives and efforts undertaken by the respective Member Countries in improving safety at sea for small fishing boats as a follow-up to the recommendations from the 2nd Workshop on Safety at Sea; 2) identification of minimum safety requirements and working standards for small fishing boats and fishers in the region; 3) format and reporting mechanism for documenting accidents

at sea of small fishing boats, which have been agreed among the countries; 4) identification of activities to address key issues on energy optimization for small fishing boats for possible formulation and subsequent implementation; 5) agreement on the development of regional guidelines; 6) identification and compilation of relevant materials that could be used for the conduct of further training and awareness building activities; and 7) plans for the establishment of a network for “Safety at Sea and Optimizing the Use of Energy for Small Fishing Boats in Southeast Asia” or the “SOS Network”. The Workshop has been envisaged to pave the way for SEAFDEC to undertake further initiatives and efforts to promote improved safety conditions of the region’s fishing vessels and the fishers on board in accordance with international standards and practices. ❖

The 3rd Regional Technical Workshop on Safety at Sea and Optimizing Energy Use for Small Fishing Boats

RTC on addressing technical issues on commercially-exploited aquatic species

The Regional Technical Consultation on Addressing Technical Issues on Commercially-exploited Aquatic Species was organized by the SEAFDEC Secretariat and Training Department from 18 to 20 October 2011 in Bangkok, Thailand. Attended by representatives from the ASEAN-SEAFDEC Member Countries, SEAFDEC senior officials and a representative from the UNEP Regional Office for Asia Pacific, the RTC aimed to build Member Countries' awareness of the issues related to commercially-exploited aquatic species, particularly sharks and rays, tuna, sea cucumber, as well as species under international concern where activities have already been put in place to develop aquaculture technologies for stock enhancement of the species, especially for seahorse and humphead wrasse. In addition, the Consultation also aimed to facilitate the development of policy recommendations reflecting the common views of the Member Countries that could be made known at relevant fora.

After reviewing the status and trends of the selected commercially-exploited aquatic species that are of international concern, the Meeting discussed and identified some of the management problems for most of the species, particularly on insufficient data and information to support management



Participants at the RTC on Addressing Technical Issues on Commercially-exploited Aquatic Species

decisions, which could be due the fact that the catch of most species under international concern are only small quantities, thus the information is rarely collected. Meanwhile, catch data in most of the national statistics systems are not recorded at the detailed species level due to inadequate knowledge and human capacity at the local level. In addition, trade of the species under international concern is mostly in small quantities (or mixed with other species without appropriate tagging methodology) and the inspection of specimens is usually done randomly. Even for species where aquaculture technologies are available, applications for farm registration and certification still take long process to undertake, resulting in continued illegal trade of such species. Furthermore, the issue of look-alike species, where even if the species itself may not be threatened

with extinction but since the products could not be differentiated, results in difficulties in implementing of conservation and management measures, including the implementation of the “look-alike provision” of CITES.

Although there are several initiatives aimed to regulate and conserve several commercially-exploited aquatic species at the global level including the trade regulation imposed by CITES, the Meeting viewed that initiatives in ensuring sustainable exploitation of fishery resources as a whole should be further promoted taking into consideration the multi-species nature of fisheries in this region, while activities to improve data collection at the national level should be strengthened to obtain better understanding of the status and trends of these species in the future. ❖

1st On-site training workshop in traceability systems for aquaculture products

The 1st On-site Training Workshop in Traceability Systems for Aquaculture Products was successfully conducted by MFRD in collaboration with Vietnam's Ministry of Agriculture and Rural Development (MARD) on 28-30 November 2011 in Ho Chi Minh City, Vietnam. The training workshop had 23 participants from ten ASEAN Member Countries. The Japanese Trust Fund Assistant Manager also attended the Workshop as observer.

The Training Workshop included lectures by three resource speakers, and on-site visits and case study at a *basa* catfish aquaculture farm and a fish processing plant. The participants also discussed the aquaculture products supply chain in their countries and the basic elements needed for the traceability systems of aquaculture

products as well as the issues and challenges of implementing traceability in their respective countries. ❖

Group discussion during the Traceability Training Workshop



Critical fishing ground and habitat rehabilitation workshop

Thirty-three representatives from SEAFDEC Member Countries attended in the Regional Workshop/Expert Consultation on the Identification of Critical Fishing Grounds and on Regional Habitat Rehabilitation and Management Approach organized by the SEAFDEC Training Department from 11 to 13 October 2011 in Bangkok, Thailand.

The objectives of the workshop were to update the information on existing critical fishing grounds in Southeast Asia; identify appropriate and effective resources enhancement tools, measures and rehabilitation plan for various fishing grounds and fishery habitats; share the updated information and experiences on critical fishing grounds; strengthen collaboration and cooperation among SEAFDEC Member Countries; and formulate strategies and action plans in rehabilitating selected critical fishing grounds and coastal habitats particularly through applicable practices of responsible fisheries in order



Representatives from SEAFDEC Member Countries at the Habitat Rehabilitation Workshop

to minimize impacts to the environment and achieve sustainable coastal fisheries.

Discussion was also made on the information needed for identifying critical fishing grounds and the issues, problems and obstacles in the management of critical fishing grounds, as well as on the implementation of the Plan of Action on the Regional

Habitat Rehabilitation and Management Approach. The sharing of lessons learned and the outputs from the discussions and brainstorming sessions are expected to contribute to the identification of critical fishing grounds, fisheries habitats and to pave the way for proper management and rehabilitation of fishing grounds and habitats in the Southeast Asian region.



TD and MFRDMD jointly organize core experts meeting on fishing license and boat registration

The Regional Core Experts Meeting on Fishing License, Boats Registration and Information on Export of Fisheries Products in Southeast Asia was organized by SEAFDEC Training Department in collaboration with MFRDMD from 4 to 7 October 2011 in Bangkok, Thailand. Thirty-five participants, including representatives from Brunei Darussalam, Indonesia, Lao

PDR, Malaysia, Myanmar, Philippines, Thailand, and Vietnam as well as from SEAFDEC Secretariat, TD and MFRDMD attended in the Meeting.

During the Meeting, the participants discussed the minimum requirements for fishing license and boat registration in the Southeast Asian region and the ways forward, as well as the information



The group discussion and brainstorming session during the Core Experts Meeting

required for the development of regional guidelines to prevent the trading of IUU fishing products. The Meeting also expressed the need for the development of dedicated e-mail network on combating IUU fishing to enhance sharing of information. As a result from the discussions, the format of minimum requirements for the regional guidelines on fishing license and boat registration was agreed among the countries. Such set of minimum requirements could serve as basis for further development of the relevant regional guidelines during the subsequent Core Expert Meeting to be organized in the future.



Participants sharing knowledge and experiences during the group discussion conducted as part of the Core Experts Meeting

AQD gives training on fish health and mud crab in Lao PDR and Myanmar

AQD administered two on-site training courses funded by the Japanese Trust Fund to benefit aquaculture development of the region. In Lao PDR, the “Basic Training on Freshwater Fish Health Management” was conducted on 11-14 October 2011 in cooperation with the Department of Livestock and Fisheries (DLF) at its Namxouang Aquaculture Development Center.

The lectures and practical activities for the 20 participants (DLF staff and fishfarmers) were handled by AQD scientist Dr. Rolando Pakingking Jr. and AQD researcher Ms. Gregoria Pagador. Both resource persons also carried out a survey on zoonotic parasites in freshwater fishes while in Lao PDR. AQD scientist Dr. Edgar Amar, on the

other hand, conducted a separate survey at Namxouang to assess the status of fish health management in small-scale aquaculture farms. These training and surveys are part of AQD and the Trust Fund Project on Accelerating Fish Health Management Awareness and Capacity Building in Southeast Asia.

In Myanmar, AQD organized the “International Course on Mud Crab Culture” from 26 September to 1 October 2011 in Chaung Thar in collaboration with the Department of Fisheries-Myanmar.

AQD scientist Dr. Emilia Quintio and AQD socio-economist Mr. Renato Agbayani gave the lectures; while AQD technical assistant Ms. Joana Joy de la



Practical activities on freshwater fish health management

Cruz-Huervana assisted in the practical sessions. AQD Deputy Chief Dr. Teruo Azuma graced the closing ceremony. Six participants from Brunei Darussalam, Thailand, Cambodia and Myanmar, and 11 observers mainly from Myanmar, were in attendance. ✦

MFRDMD hosts 12th ISEP Meeting in Kuala Lumpur

On 3-4 November 2011, SEAFDEC organized its 12th Meeting of Information Staff Exchange Program (ISEP) in Kuala Lumpur, Malaysia under the warm hospitality of SEAFDEC/MFRDMD.

The objectives of this ISEP Meeting were to monitor the progress in the implementation of information-related activities undertaken by SEAFDEC Secretariat and Departments in 2011, provide platform for the discussion, as well as strengthen activities especially in information sharing, communication and networking among SEAFDEC Secretariat, Departments and others in the future. The Meeting was attended by the SEAFDEC Secretary-General Dr. Chumnarn Pongsri, the MFRDMD Chief Ms. Mahyam Mohd Isa, and information-related officers of SEAFDEC Secretariat and Departments.

In his opening remarks, Dr. Chumnarn emphasized the importance of the ISEP as a venue to ensure the harmonization and efficient dissemination of the activities undertaken by SEAFDEC Secretariat and Departments to achieve the goals and mandate of SEAFDEC. He also



Participants of the 12th ISEP Meeting held in Kuala Lumpur, Malaysia

reiterated that for the future planning and implementation of information-related activities by SEAFDEC, the Resolution and Plan of Action recently endorsed at the ASEAN-SEAFDEC Conference held in June 2011 should be taken into account so that such activities would dovetail with the implementation of the two policy framework documents.

Discussion was then made on the progress of the various initiatives undertaken to help in facilitating the accessibility of the information produced by SEAFDEC to the public and enhance the visibility of SEAFDEC.

The Meeting also explored ways to improve the production and dissemination of tools and materials in the future. The need to convert technical/scientific data into information that could be easily understood by the audience and catch the attention of planners and policy makers was particularly raised. In addition, the Meeting also expressed the need to sustain the conduct of staff exchange to facilitate sharing of expertise among the SEAFDEC Departments, particularly for the possible development of SEAFDEC institutional repository in the future. ✦

FUTURE ACTIVITIES

Date	Venue	Title	Organizer
2012			
23-27 January	Iloilo, the Philippines	Training Course on Tilapia Hatchery & Grow-out Operations	AQD
30 January - 1 February	Bangkok, Thailand	FAO, BOBLME and SEAFDEC Workshop on Putting into Practice the FAO Technical Guideline on Marine Protected Areas (MPAs)	TD
2-3 February	Bangkok, Thailand	Regional Workshop on Promotion of Strategic Implementation of Fisheries Co-management and Right-based Fisheries for Enhancing Good Governance in Coastal and Inland Fisheries Management	TD
8-9 February	KLIA, Putrajaya	Information Gathering Workshop with Malaysian Officials to Prevent Export of IUU Fishing Products Management	MDRDMD
13-14 February	Pursat, Cambodia	National Workshop on Compilation of Fishery Information and Statistics on Inland Fisheries	TD
14 February	Vietnam	On-site Training Program on Environmental/User Friendly Fish Handling and Preservation Technique: Ice Slurry System Onboard Fishing Boats, Phuyen Province, Vietnam	TD
19-23 February	Myanmar	Study on Impact of Squid Fishing on By-catch of Juvenile of Commercial Important Fish Species in Kow Thaug, Myanmar	TD
20 February - 2 March	Iloilo, the Philippines	Training Course on Freshwater Prawn Hatchery & Pond Grow-out Operations	AQD
21 February	SEAFDEC Secretariat	International Seminar JSPS Asia-Africa Science Platform Program Marine Fisheries Policy and Higher Education in Fisheries in Southeast Asia	Hokkaido University
22-23 February	SEAFDEC Secretariat	2 nd Meeting of SEAFDEC Program Review of JTF Program for 2011 and Onward	SEAFDEC
27-29 February	Binh Dinh, Vietnam	National Training on Improvement of Data Collection for Tuna Gillnet and Purse Seine Fisheries in Vietnam	TD
1-2 March	Iloilo, the Philippines	International Workshop on Fish Health Management "Accelerating Awareness and Capacity Building"	AQD
5-16 March	Samut Prakan, Thailand	Regional Training Course and Practical Workshop on Monitoring, Control and Surveillance (MCS) in Combating IUU Fishing in Southeast Asia Region	TD
5-19 March	Iloilo, the Philippines	Training Course on Fish Health Management	AQD
12 March	SEAFDEC Secretariat	SEAFDEC-Sida Project Annual Review Meeting	SEAFDEC/SIDA
12-15 March	Iloilo, the Philippines	Trainers' Training on Mangrove Conservation, Management & Rehabilitation	AQD
12-16 March	Malaysia	Fishing Trial and Demonstration to Promote the Use of Circle-hook in Bottom Longline Fishing, Sabah, Malaysia	TD
13-14 March	Bangkok, Thailand	Sub-regional Consultative Meeting of Northern Andaman Sea (Myanmar and Thailand)	SEAFDEC/Sida
18-29 March	Samut Prakan, Thailand	Regional Training Course on Identification of Critical Fishing Grounds and Habitat Rehabilitation and Management Approach	TD
19-23 March	Iloilo, the Philippines	Training Course on Carp Hatchery & Grow-out Operations	AQD
2-6 April	Nay Pyi Taw, Myanmar	44 th Meeting of the SEAFDEC Council	SEAFDEC
11-25 April	Iloilo, the Philippines	Training Course on Sea Cucumber Production and Management	AQD
22-26 April	Kuala Terengganu	Regional Workshop on Taxonomy and Identification of Sharks and Rays in Southeast Asia	MFRDMD
23-27 April	Philippines	Training Course on Catfish Hatchery and Grow-out Operations	AQD

SG attends series of meetings at FAO

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development initiatives undertaken by FAO were also presented. These included among others Vessel Record Management Framework (FVRMF) that could serve as system for gathering vessel information (any scale of vessels, without trying to verify the data, but avoiding double registrations of the same vessel). The data would also serve as inputs for the FAO Global Record, which is also under development. Although the data as of this moment has been provided mainly by RFMOs, FAO has also been trying to make the system applicable and capable of accommodating any data on registered vessels from the countries. The newly developed fishery statistical database "FishStatJ" was also presented which could enhance access and usage of the FAO statistics database in the future.



AQD conducts regional courses on GAPs, freshwater aquaculture, and information activities

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also in Iloilo and attended by six information officers from SEAFDEC Secretariat, TD and MFRDMD, as well as the staff of AQD and related institutes in the Philippines. Organized in collaboration with the SEAFDEC Secretariat, the activity was funded by the Japanese Fund. This course was offered for the first time by AQD, and was meant to provide the participants with skills on information dissemination, digitization of information materials, development of institutional repositories, and online data management. There were lectures on 1) organization-wide databases and institutional repositories; 2) web technologies & applications in libraries; 3) selective dissemination of information; 4) subject analysis & use of controlled vocabulary; 5) writing/editing/designing; and 6) improving websites. Practical sessions on digitizing library materials, writing & online posting were likewise conducted. An integration workshop and visits to information centers followed.



SEAFDEC information officers during the training course on capacity building on information dissemination and data management arranged by 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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SG attends series of meetings at FAO

On 7-9 December 2011, the Secretary-General, Dr. Chumnarn Pongsri, attended the FAO Workshop on Development of a Strategy for Assessing the State of Inland Capture Fishery Resources, which was participated in by experts and scientists all over the world to discuss issues and difficulties faced in the collection of data and information that could be used as a basis for assessment of inland capture fisheries. During the deliberation and discussion, the workshop agreed that data collection and assessment models should be developed for the varying characteristics of inland fisheries, and pilot projects should be initiated to explore the feasibility of using these models in coming up with better information on the state of inland capture fishery resources.

A week later, the Secretary-General together with Ms. Nualanong Tongdee, the Information Program Coordinator, *a.i.* also attended the 7th Session of the Steering Committee of the FAO/

Fishery Resource Monitoring System (FIRMS) held back-to-back with the Coordinating Working Party on Fishery Statistics (CWP) Inter-sessional Capture Group Meeting on 12-16 December 2011. The two meetings elaborated on the important new developments under FIRMS and CWP.

Specifically for FIRMS, the initiative to categorize/segregate data provided by partners into various levels was discussed, *e.g.* regional, sub-regional, national levels, in order to better support different levels of management objectives. In addition, an initiative to establish NatFIRM was explored for future development to collect and compile information from countries that would fill the gap particularly for areas where no fisheries management organization could provide the necessary information to FIRMS. Several new thematic pages are also being developed for “tuna” and demersal resources” aimed at enhancing better knowledge on

the status and trends of important groups of commercially-exploited species. In addition, although still in an initial phase, FIRMS has developed distinct systems for “resources” and “fisheries” inventories, due to the fact that there is no clear cut between these two systems. Attempts had also been made to simplify and facilitate the searching across both types of inventory through a single entry point interface.

For CWP, besides the report of the progress made by partners during the year, the main discussion focused on the development of CWP Handbook, particularly for Capture Fisheries. As noted, several new chapters are still at their development stages requiring inputs from partners, *e.g.* on “Vessels-gears related component”, “Socio-economic component”, and “Ecosystem monitoring, impacts on ecosystem component”. During the Meeting,

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AQD conducts regional courses on GAPs, freshwater aquaculture, and information activities

Three regional courses were completed by AQD in the last quarter of 2011. “Capacity-building on GAPs (good aquaculture practices)” was conducted on 11-15 October 2011 in collaboration with Southeast Asia Fish for Justice Network (SEAFISH), an organization of 17 civil societies from seven countries. The 19 participants from SEAFISH and Tambuyog Development Center said that, after having undergone the training, they now have a better understanding of the science of aquaculture and its social-economic-environmental impacts. The training venue was AQD’s Iloilo station in the Philippines.

Ten participants meanwhile attended AQD’s international training course on “Community-based Freshwater Aquaculture for Remote Rural Areas of Southeast Asia”. Funded by the Japanese Trust Fund to SEAFDEC,



Site visit during the Training Course on Community-based Freshwater Aquaculture for Remote Rural Areas of Southeast Asia

it was conducted from 22 November to 1 December 2011 also at AQD’s Iloilo station. The trainees were from Cambodia, China, Indonesia, Lao PDR, Malaysia, Myanmar, Spain, Thailand, and Philippines. One trainee, Mr. Txomin Azpetia Badiola of Spain shared his thoughts: “I have seen that having expert AQD lecturers enhances the learning

very well. I also enjoyed the demos and field visits to AQD stations”.

The last course offered by AQD in 2011 was the “Capacity building on information dissemination and data management” held 12 to 22 December

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