NACA Newsletter

ISSN 0115-8503

Published by the Network of Aquaculture Centres in Asia-Pacific, Bangkok, Thailand

Volume XX, No. 3
July-September 2005

Sustainable aquaculture rehabilitation workshop in Aceh, Indonesia

Over the past few months, since the tsunami tragedy, some immediate assistance has been received in Aceh for the rehabilitation of the fisheries sector. This has included provision of boats, parts, gear, and other material necessary for re-establishing fishing activities. However, there has been little assistance for re-establishing productive activities in the aquaculture sector. This shortfall was recognised in mid to late May after a survey of the organizations that were working or planning to work in the aquaculture sector, the areas they were operating in and what they were doing. The survey, conducted by NACA, the Food and Agriculture Organization of the United Nations (FAO) and the Directorate General for Aquaculture (DGA) revealed that in addition to the lack of progress in the aquaculture sector, some of the organizations that were planning to assist communities with rehabilitation of aquaculture infrastructure were concerned that they did not have the necessary technical knowledge to do so. It was also evident that an overall strategy for sustainable aquaculture rehabilitation in Aceh was lacking, with regards to important issues such as environmental sustainability, social equity, and food safety.

Participants in the Aceh workshop.

Due to the sheer magnitude of the disaster no single donor or development organization can support the considerable and diverse needs for rehabilitation of aquaculture in Aceh. However, some organizations are now beginning to provide assistance to communities and authorities involved in aquaculture. These organizations have complementary skills and resources to offer; therefore NACA and FAO have advocated the adoption of a "partnership" approach between government, major supporting donors and technical agencies. The partnership will promote collaboration and communication in supporting the rehabilitation of aquaculture in Aceh. To help make this happen, a workshop was held to:

- Bring together partners involved in aquaculture rehabilitation in Aceh Province to discuss their activities, opportunities and challenges.
- Discuss major environmental issues concerning aquaculture rehabilitation.
- Draft a set of principles to guide sustainable rehabilitation of tambaks (coastal aquaculture ponds).
- Discuss proposed "International Principles on Sustainable Shrimp Farming" developed by the Consortium on Shrimp farming and the Environment and their application to shrimp aquaculture rehabilitation in Aceh.
- Assess the seed, feed and health maintenance needs and support services required for starting aquaculture production.
- Discuss the timing and sequencing of actions by locality/ district, beneficiaries, etc., considering the difficulties in quickly addressing certain vital issues.
- Discuss the need for long-term financial and economic viability of the sector.
- Identify technical and advisory needs for Aceh aquaculture rehabilitation process.
- Discuss and develop an agreed upon strategy for improving the sustainability of the aquaculture sector in Aceh.

The workshop was conducted in both Bahasa Indonesia and English languages. It involved participants from major NGOs engaged in aquaculture rehabilitation in Aceh, relevant UN agencies, central, provincial and district fisheries authorities, and other interested agencies. People involved in rehabilitation at the field level also attended as most discussions were focused at this level.

Approximately 75 people attended the workshop over three days to discuss the aquaculture status and needs for the Aceh Province and the strategies and guidelines for sustainable aquaculture rehabilitation. Participants divided into three working groups relating to the geography of the Aceh Province, namely the west coast districts, the east coast districts and Aceh Besar to discuss the relevant issues for each area. These groups focused upon the current status, concerns and constraints, particularly with regards to the selection and prioritisation of areas and beneficiaries, future planning at the micro and macro levels, practical implementation of rehabilitation work, production and income issues, capacity building, training and how progress was to be monitored and evaluated.

The outcomes of the meeting were very clear:

- Concerted action between organizations is needed to clearly identify gaps and meet the most urgent short-term needs.
- Partnerships should be encouraged between government, NGOs and technical agencies to bring together complementary skills to address requirements.
- Governments should publish the environmental principles for rehabilitation of tambaks, circulate them and encourage their use in aquaculture rehabilitation.
- DGA, FAO, NACA, the Australian Centre for International Agricultural Research and other interested donors and partners should provide further training, including training of government and NGO trainers.
- District Dinas and NGOs should work together to improve aquaculture rehabilitation planning, for short and longer-term.
- Mapping, GIS/GPS/remote sensing work should be used and efforts made to make this technology accessible for planning and rehabilitation purposes.
- Aquaculture rehabilitation planning should give more attention to rebuilding and empowering local institutions.
- The communication process started during the workshop should be continued and strengthened. District working groups operating through regular meetings or electronic means (email, fax, SMS) and Provincial level meetings should be conducted occasionally, as required, for wider communication and coordination on aquaculture rehabilitation activities.

An updated database of damage by sub-district, who is working where and the list of participants, was circulated to all attendees. For more information, contact Dr. John Ackerman, Bureau of Rural Sciences, Department of Agriculture, Fisheries and Forestry – Australia, Email: John.Ackerman@brs.gov.au.

STREAM policy briefs and better-practice guidelines

STREAM has launched two new genres of publications: Two-page quick read 'policy briefs'; and simply written four-page 'better practice guidelines' (BPGs) with pictures, illustrations and cartoons aimed at a range of stakeholders including those who work directly with poor people who manage aquatic resources.

Policy briefs

The first two policy briefs are now published in English, and are being translated into a variety of other languages through the STREAM Communications Hubs. The first on *Building Consensus* has been developed under the DFID NRSP project 'Enhancing Development Impact of Process Tools Piloted in Eastern India' and describes a tool appropriate for decision-making in a political or emotional environment, or when the decisions affect strong factions with opposing preferences. The second policy brief entitled Livelihoods Approaches in Fisheries and Aquaculture has been produced as part of the culmination of a FAO Technical Cooperation Program. It outlines a process intended to build skills and design ways of working in organizations that give fisheries professionals the capacity to understand and support aquatic resources management in people's livelihoods, especially people with limited resources. Policy briefs have also been adopted by other organizations working with STREAM including the DFID-funded Aquaculture and Fish Genetics Research Programme based at the University of Stirling in support of the uptake and promotion of their work on self-recruiting species and local resource user groups. To read more please visit the policy briefs page of the STREAM Virtual Library:

http://www.streaminitiative.org/Library/PolicyBrief/index.html.

Better-practice guidelines

These are intended to share beneficial lessons that have been learnt from local practice and research, and were developed under the DFID NRSP project mentioned above. BPGs have evolved over the period of this project through a series of discussions with STREAM Communications Hubs and stakeholders throughout the region, culminating in the recent Better-Practice Guidelines Workshop, Hanoi, Vietnam 17-18 June 2005. The three BPGs titles currently available are *Self-Help Groups*, *Information Access Surveys* and *The Consensus-Building Process*. There is also a one page introductory document entitled "What are Better-Practice Guidelines". STREAM Communications Hub managers have translated these documents into eleven languages (Bahasa Indonesia, Bengali, Hindi, Ilonggo, Khmer, Myanmar, Nepali, Oriya, Sinhala, Urdu and Vietnamese), which will soon be available in digital and hard copy through the STREAM Regional Office and National Communications Hubs. For more information visit the BPG page:

http://www.streaminitiative.org/Library/bpg/index.html.

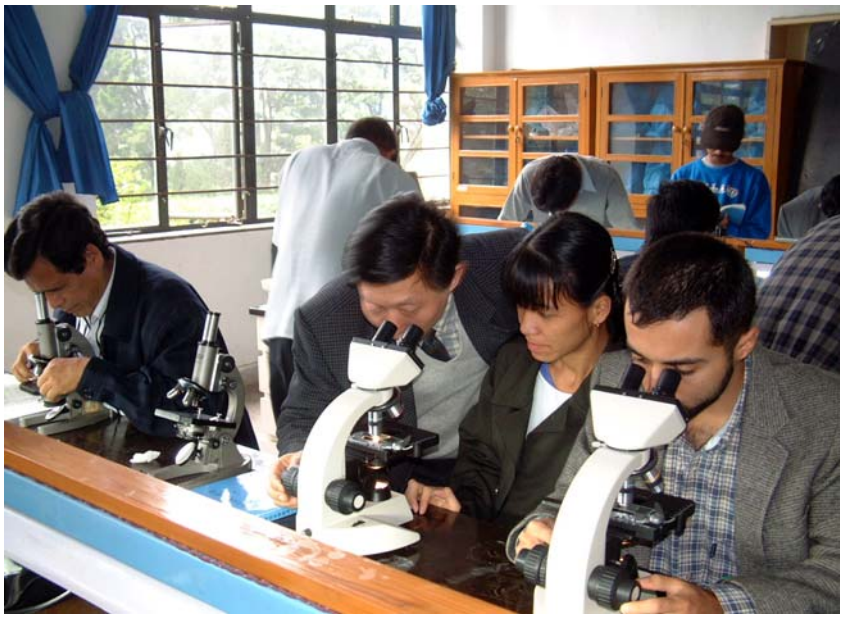
25 years of training in integrated fish farming

China is the global giant of aquaculture production. While it is the clear leader in many fields of aquaculture, one thing it truly excels at is integrated fish farming - the practice of growing fish as one component of a broader, more efficient and sustainable production system incorporating other crops and livestock, recycling wastes from one component as inputs for another.

Uninterrupted for the past 25 years, China has generously shared its expertise with other countries, assisting them to develop their own integrated aquaculture practices through regular training courses offered at its Asia-Pacific Regional Research and Training Centre for Integrated Fish Farming, an arm of the Freshwater Fish Farming Centre based in Wuxi, which is also a NACA Regional Lead Centre.

The course is unique and the training intensive, typically requiring three months to complete. Over the years nearly 700 people have attended the course, including many people that have gone on to become leaders and champions in aquaculture development throughout the region, such as Mr S.K. Pradhan, Director of Fisheries Development of Nepal; U Kyaw Myo Win, Deputy Director of Aquaculture in Myanmar; senior members of Shilat in Iran and of fisheries organizations in many other countries. The course has also stimulated advanced research and development on integrated fish farming, attracting great attention and interest from donor and research agencies such as WorldFish Center, FAO, UNDP and many others. This combination of technical training for scientists and technicians and promotion of research has made integrated fish farming widely popular as a system for environmentally friendly food production, and greatly contributed to its local adaptation.

Three months of intensive, hands-on training.



Dr Miaow Weimin (centre), Director of the Asia-Pacific Regional Research and Training Centre for Integrated Fish Farming, providing instruction to participants.

The NACA Secretariat congratulates the Government of China and the staff of the Asia-Pacific Regional Research and Training Centre for Integrated Fish Farming for 25 years of training and assistance to the region. On behalf of the network, we would like to express our appreciation to the Government of China for continuing to support the course and participants from NACA members and other developing countries in the region.

"The Responsibilities of Leadership"

Ministerial meeting planned to guide development of Asia-Pacific aquaculture

The Governing Council of NACA - at its 16th Meeting held in Los Banos, Philippines on 20-23 March 2005 - has endorsed a plan to organize a meeting of fisheries and trade ministers to "crystallize a collective vision for the development of aquaculture for the Asian and the Pacific regions and formulate a guide to pursue the vision." The region would encompass Southeast, South, Northeast, West and Central Asia and the Pacific. This objective complements the Bangkok Strategy on Aquaculture Development Beyond 2000 (formulated at the Conference on Aquaculture in the Third Millennium organized by FAO and NACA in Bangkok in February 2000) by providing policy clout to the largely technically based strategy. The main pillar of the meeting will be trade and economic cooperation in aquaculture development.

Provisionally, the theme would be "meeting the responsibilities and obligations of leadership in aquaculture development." This theme draws justification from the Asia-Pacific being the leader in aquaculture production and aspiring for accelerated and expanded development of science-based aquaculture in the region. The policy guideline will therefore draw guidance from the region's perceptions of its responsibilities and obligations. The theme will be supported by five reviews:

1. Progress of and prospects for the implementation of the Aquaculture Millennium recommendations.
2. Status of and prospects for pan-Asia-Pacific intra-regional trade and economic cooperation in aquaculture development.
3. Assessment of investments in aquaculture development in the region and their impacts.
4. Status and prospects for inter-regional cooperation.
5. Preparedness for natural disaster impacts (national and regional) on the aquaculture and fisheries sectors: Lessons from the Indian Ocean tsunami and other natural disasters.

The NACA Governing Council said these reviews and the meeting itself will require NACA and its partners to muster extensive collaboration among countries, institutions and other organizations. Operationally it will be implemented by five working groups, each chaired by an eminent person who shall be identified and invited by the Council. Preliminary consultations with officials of the Department of International Cooperation of the Ministry of Agriculture, China has found positive response as well as support to the idea of the meeting and to China hosting it. No date has been fixed but NACA is considering late 2006 or early 2007. A trade and technology show may also be held in conjunction with the meeting.

A helping hand for those who needed it after the tsunami

A short article "Her farm is destroyed, how can we help?" published in Aquaculture Asia (Volume X No. 1, January-March 2005) and on the NACA website after the tsunami led to a donation from Dr Roger Chong (QDPI & F, Australia) to Khun Chew Oi to assist her to rebuild her fish farm in Krabi, Southern Thailand.

NACA would like to thank Dr Chong for his generosity and direct assistance to a Thai farmer in great need.

NACA's Special Advisor presenting the donation to Khun Chew Oi on behalf of Dr Roger Chong.

An introduction to Mirza Koochek Khan Higher Fisheries Education & Training Centre, Iran

Both Iran's inland waters and northern Caspian Sea coastline hold considerable potential for sustainable aquaculture development. In recognition of this potential, a 'Higher School of Icthyology' was established in Gilan Province in 1969 to provide vocational training related to fisheries and aquaculture. In 1991, the school was expanded and renamed the Mirza Koocheck Khan Higher Fisheries Education Centre. Ideally situated adjacent to both warm and cold water fish propagation and farming sites and sturgeon hatcheries, the Mirza Koocheck Khan centre provides unique training facilities and is well regarded at both the national and regional level.

The centre's main activities are the provision of long-term degree courses in aquaculture, fish health, fisheries processing and fishing technology. There are currently 170 full-time students undertaking degrees and more than 500 have graduated to date. Additional courses in propagation and culture of ornamental fish, management of fishery resources and marine biology are under consideration.

The centre also offers short term in-service training courses aimed at upgrading the skill and practical knowledge of Iran's fisheries workers. The courses are organized and implemented routinely every year after completion of a needs analysis in various sectors of Iranian fisheries. Some courses are jointly established through the collaboration of major international bodies such as FAO. Past courses have included cryopreservation and short-term storage of sturgeon sperm, the reproductive physiology of fishes, enclosed aquaculture systems, pen and cage culture, cold-water fish

Afghan participants in a training course at the Mirza Koochek Khan Higher Education and Training Centre, Iran.

nutrition and the principles of cold-water fish pond design and construction. Over the last ten years more than 5,000 people have attended training courses at the centre.

The centre also provides occasional regional training courses. In 2001, a cold water fish farming course was held for fisheries experts from the Tajikistan Republic and in 2004 for fisheries staff from neighbouring Afghanistan. The course addressed the biology and culture of cold water fish species, including trout in which Iran is highly experienced, water quality, nutrition, health, farm design and the preparation of farming plans.

In total the Mirza Koocheck Khan Higher Fisheries Education and Training Centre has 52 staff operating in four educational departments: Aquaculture and Aquatic Health, Fisheries Processing, Fishing Technology and Fisheries Resources Management. The centre's educational and training facilities include:

- A one hectare fish farm.
- A fishing technology workshop and pilot plant.
- Laboratories for hydrology and hydro chemical analysis, fish health and disease, and fisheries processing.
- An ichthyology museum.
- Six classrooms of 45 person capacity.
- An amphitheatre seating 150 people.
- A library and computer centre
- Two dormitories for student accommodation.

The Mirza Koochek Khan centre enjoys strong linkages with other national and international institutions through membership in the Association of the State Universities of the Caspian Sea States, and through collaborative links with the Atyrau Institute of Oil & Gas, Astrakhan State Technical University and the State universities of Tehran, Esfahan, Guilan, Hormuzgan, Golestan, Sistan and Baluchestan. The centre is a member of the Scientific Compilation Board of Vocational Educational Materials, and a member of the Shilat Educational Planning Core. For further information about the centre, write to:

Mirza Koochek Khan Higher
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Centre
Km 5, Rasht Industrial City
P.O. Box : 41635-3836
Iran
Email: itvft@itvgil.ac.ir
Website: http://www.itvgil.ac.ir/

ACIAR funded regional project on shrimp health

The regional project *Application of PCR for Improved Shrimp Health Management in the Asian Region* has been approved by the Australian Centre for International Agricultural Research (ACIAR). Professor Peter Walker of CSIRO Livestock Industries, Australia is the project leader. NACA will coordinate the regional activities and manage the inputs to India.

The first project coordination meeting of the three-year project was held in the Central Institute of Brackishwater Aquaculture (CIBA), Chennai, India on 21-22 April 2005. Key partners include CSIRO and AusVet Services in Australia; CIBA, MPEDA, and College of Fisheries, Mangalore in India; Mahidol University, BIOTEC and NACA in Thailand; and the Ministry of Marine Affairs and Fisheries in Indonesia.

The meeting, attended by project leaders of all collaborating institutions, developed project implementation strategies including study design and identified the roles and responsibilities of key project partners.

The project will address research issues relating to the effective use of PCR for shrimp disease management through the application of population-based and molecular epidemiological methods to determine: i) the source and cause of white spot disease (WSD) in ponds; ii) the relative importance of seed and carriers as sources of infection; iii) the role of virulence variation as a disease risk factor; and iv) the contribution of other pathogens to disease. The project will also provide technical training in PCR-based diagnosis, assist in PCR test harmonization and laboratory accreditation, and provide farm-level education in the value and limitations of PCR-based screening of seed. The project will primarily focus on India, Thailand and Indonesia.

Project Summary

During the past decade, the profitability of shrimp culture in Asia has been seriously undermined by disease. PCR screening of seed prior to stocking can be very effective in reducing the risk of crop failure. Although PCR is now widely used, disease continues to impact seriously on production due to variations in the reliability of screening, compounded by on-farm factors that may result in disease even when seed has been properly screened.

The major component of this project will be a longitudinal study in India that will apply molecular epidemiological tools to trace the origin of WSSV outbreaks on farms and provide data on the reliability of PCR screening currently available. This will compliment previous and continuing activities of NACA, MPEDA, ACIAR and FAO in India and provide cooperative linkages with farms.

A second small component of the project will use samples collected from the longitudinal study in India and study farms in Thailand and Indonesia to screen for emerging pathogens. Of primary concern is a slow growth syndrome that has caused serious decline in the profitability of Thai *P. monodon* production since 2002 and which is now also occurring in Indonesia and elsewhere. This component will be largely funded by BIOTEC in Thailand and operate under an umbrella of cooperation with Australian, Indonesian and Indian scientists.

The third component of the project will also be a major investment to provide PCR training to scientists and laboratory staff in India, Indonesia and other countries, and to assist harmonization of PCR through inter-laboratory calibration of testing standards. The PCR training and inter-calibration exercises in India will be largely funded by MPEDA.

Objectives

1. Reduce risk of WSD in shrimp farms through the application of PCR-based detection tests and epidemiological probes to:

- Evaluate the quality of WSSV PCR screening available to farmers in India and Indonesia.
- Determine the relative importance of screening for viral prevalence and viral load in reducing the risk of WSD on shrimp farms.
- Determine the relative importance of infected seed and carrier crustaceans as a source of WSD in ponds.
- Determine the pattern of WSD transmission from neighbouring ponds and the likelihood of annual disease reoccurrence from virus in the farm environment.
- Determine the role of virulence variations as a risk factor in WSD.
- Apply epidemiological data to development and promulgation of improved health management strategies in India, Indonesia and other countries in the Asia-Pacific region.

2. Reduce risk of yellow head and other shrimp diseases in shrimp farms through application of PCR-based detection tests and epidemiological probes to:

- Identify and characterise new strains of YHV and other shrimp viruses in samples collected from study farms in India and Indonesia.
- Determine the role of YHV genotypes or other shrimp viruses in crop failure and MSGS in India, Indonesia and Thailand.
- Develop new and improved PCR-based diagnostics for viral

pathogens impacting on shrimp production in India, Thailand and Indonesia.

3. Improve the effectiveness of PCR-based viral screening in hatcheries and service laboratories in India, Indonesia and other countries in the Asian region:

- Implement inter-laboratory calibration of PCR testing standards in India and Indonesia
- Train technical and scientific staff from India, Indonesia and other countries in PCR detection of shrimp viruses.
- Improve molecular virology skills and networking of project staff and students in India, Thailand, Indonesia and Australia.
- Ensure uptake of PCR screening and rapid diagnostic techniques for shrimp pathogens into shrimp health management extension programs in India and Indonesia.

The project will also develop and disseminate guidelines for more effective health management on farms and in hatcheries drawing on a more precise knowledge of causal factors and transmission pathways of shrimp disease. Outputs of the project will be widely disseminated in the region by facilitating effective linkages to existing ACIAR, NACA and FAO communication channels.

Impact of aquatic animal health strategies

A collaborative project funded by DFID (UK) has recently been approved for implementation in the region. The purpose of the project is to assess the uptake and impact of aquatic animal health (AAH) strategies on rural livelihoods and sustainable aquaculture production systems in Asia. The key objectives include:

1. Assess the uptake and impact of key AAH messages disseminated to target end-users to improve AAH management within fish and shrimp production systems in Asia.
2. Evaluate the contribution of AAH training on AAH networks already established within ASEAN and assess use of monitoring and surveillance systems to provide rapid response in AAH management (national level Thailand)
3. Provide an electronic forum for production of AAH case studies within Asian aquaculture systems.
4. Produce guidelines on performing and conducting AAH impact assessment exercises within Asian aquaculture production systems and lessons learned for Region

The project is coordinated by Dr Margaret Crumlish from Institute of Aquaculture, University of Stirling. Other partners in the project include Cantho University and RIA 2 from Vietnam and Inland Aquatic Animal Health Research Institute (AAHRI) and Network of Aquaculture Centres in Asia-Pacific (NACA) from Thailand. The project activities will be implemented over a period of one year in Vietnam and Thailand.

Asia Regional Advisory Group on Aquatic Animal Health

The fourth meeting of the Asia Regional Advisory Group on Aquatic Animal Health (AGM-4) will be held on 22-24 October 2005, in conjunction with the 6th Symposium on Diseases in Asian Aquaculture (DAA VI) in Colombo, Sri Lanka. Participants will include ten Advisory Group members and invited resource experts. Members of the Advisory Group include aquatic animal disease experts, the World Animal Health Organisation (OIE), Food and Agricultural Organisation of the United Nations (FAO) and collaborating regional organizations. The Asia Regional Advisory Group (AG) was established by the NACA Governing Council to provide advice to member governments on aquatic animal health management. During the three-day meeting, the AG will undertake the following activities:

- Review and evaluate quarterly regional aquatic animal disease reporting;
- Evaluate progress made on implementation of the *Asia Regional Technical Guidelines on Health Management for the Responsible Movement of Live Aquatic Animals*;
- Revise the technical guidelines, *Manual of Procedures for the Implementation of the Technical Guidelines* and *Asia Diagnostic Guide for Aquatic Animal Diseases* as required;
- Develop procedures for advising on technical guidelines implementation; and
- Advise in identification and designation of regional aquatic animal health resources, as Regional Resource Experts, Regional Resource Centres and Regional Reference Laboratories.

Reports of earlier meetings (AGM-1, 2 and 3) are available at: www.enaca.org/modules/mydownloads/viewcat.php?op=&cid=154.

Farewell Sih Yang Sim

The coordinator of the Asia-Pacific Marine Finfish Aquaculture Network (APMFAN), Mr Sih Yang Sim or 'Yang' as he is better known in the Secretariat, is leaving us for one year to take up a position with the Department of Agriculture, Fisheries and Forestry in the Australian Federal Government, where he will work on aquaculture and seafood trade policy.

Yang has been played a significant role in developing the network's communications activities including the eNewsletter (NACA's first step into electronic publishing, which paved the way for the rest of the system), the marine finfish website, and eMagazine. He has also been instrumental in developing some unique and excellent training courses for the network, including the Regional Grouper Hatchery Production Training Course, now a regular offering, and the recent Study Program on Marine Aquaculture and Seafood Markets in Southern China. More recently, he has been contributing to a project on the artificial propagation of indigenous fish species in Sarawak, Malaysia.

Yang is on leave (without pay!) so we hope we will see him back in Bangkok in the near future.

Mr Sih Yang Sim, coordinator of the Asia-Pacific Marine Finfish Aquaculture Network,enjoying a spot of 'fishing' out the NACA tea room window.

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NACA is a network composed of 16 member governments in the Asia-Pacific Region.

This newsletter is sent free to governments, libraries, development agencies and other interested parties on request.

Mr Koji Yamamoto.

Welcome Koji Yamamoto

Dr Koji Yamamoto, who has recently joined us to work on the programme on Shrimp Farming & the Environment. We asked him to tell us a little bit about himself, and this is what he had to say:

I was born and raised in Mito, Japan, until the completion of high school when I went over to the U.K. for higher education. I completed my BSc in Marine biology at the University of Wales, Bangor (U.K.) in 2002, followed by a Masters Degree in Applied Science and a Graduate Diploma in Research Methods in Aquaculture at James Cook University, in Townsville, Australia. My interests include propagation of a wide variety of aquaculture species as well as integrated and sustainable farming systems. I have experience in culturing Asian sea bass (full grow-out cycle), clownfish (hatchery), flat oysters (full cycle at farm), red claw crayfish (full cycle at farm), tropical rock lobsters (hatchery, research), black tiger prawn (broodstock, research), and ornamental cleaner shrimp (hatchery, research). I am looking forward to contributing to the network through its various programs and activities throughout member countries.