



Fish Health Section

Asian Fisheries Society

DAA VII Website and First Announcement Launched

The Fish Health Section (FHS) of the Asian Fisheries Society (AFS) proudly announces the "Seventh Symposium on Diseases in Asian Aquaculture (DAA VII)" with the theme "Communication, Co-operation and Co-ordination: Key Issues on Aquatic Animal Health Management" to be held on 22-26 June 2008 in Taipei, Taiwan. The 8th Triennial General Meeting (TGM-8) of the FHS will also be held in conjunction with DAA VII.

Following DAA VII, there will be a 2-3 day special seminar on recent advances in the immunology of fish and shellfish. As part of the continuing professional educational program of the FHS, there will also be a 3-day training workshop on pathogen risk analysis for aquatic animal movement.

DAA VII participants will also be offered a welcome/ice-breaker cocktail, a student reception, FHS Member reception, a farewell dinner and a wide choice of technical and cultural tours. More details can be found at the symposium website at:

<http://homepage.ntu.edu.tw/~daaseven/index1.htm>



Member Updates

New members (since 2005). Belated welcome to our new members!

Australia: Francis J Stephens

Cambodia: Chamnan Chhoun

China: Hong Ji, Jianming Chen, Yusheng Jiang, Lujia Wu, Yanging Huang

New Zealand: Rissa Williams, Lincoln Tubbs

India: Kuldeep Kumar Bass, U Unnikrishnan, Sayd Mohammed Manush, T.N. Devaraja, S.D. Singh, Theparambil, Mohamed Najmudeen, Rajeev Khumar Jha, S. Jagan Mohan

Korea RO: Tae-Sung Jung

Malaysia: Siti Zahrah Abdullah

Nigeria: Adedeji Adeola Adenugba, Ehireme Okonufua

Philippines: Marilou Directo

Singapore: Brian Sheehan, Neil Wendover

Sri Lanka: Sivashanthini Kuganathan

Thailand: Varinee Panyawachira, Wannalai Pooyam, Ram C. Bhujel

Viet Nam: Thu Van Pham, Nhu Tiep Nguyen, Dung Tu Thanh, Thi Tuong Vi Nguyen

USA: Susmita Patnaik

Member News. We wish everyone all the best in their new posts and to our retirees, many thanks to your support and contribution and we wish you well and hope that you enjoy your retirement!

- **SE McGladdery:** Sharon had assumed a new post as Director, Aquatic Animal Health Division, Canadian Food Inspection Agency based in Ottawa
- **FCJ Berthe:** Franck is now based in Parma, Italy with his new post as Senior Scientific Officer of the European Food Safety Authority
- **Z Tan:** Zilong has assumed a new assignment as Director for Technical Affairs, Intervet China, based in Guangzhou
- **Susan Gibson-Kueh:** Susan is pursuing her PhD studies at Murdoch University, Western Australia



and also serving as part-time lecturer at the university

- **Ramesh Perera:** Ramesh assumed a new post as General Manager, Aquatic Resources, Aquaculture Division, South Australia

Department of Primary Industries and Resources based in Adelaide

- Three FHS members **FM Hine**, **T Aoki** and **S Chinabut** have recently retired but still continuing work on aquatic animal health

Recent Meetings/Activities



OIE Global Conference on Aquatic Animal Health: Defining Roles and Responsibilities, Bergen, Norway, 9-12 October 2006. Members of the FHS/AFS participated in the OIE Global Conference on Aquatic Animal Health: defining roles and responsibilities held in Bergen, Norway from 9-12 October 2006. The objective of the conference was to provide an opportunity to assist the OIE and its Member Countries in exchanging the latest information on developing science-based approach to the management of aquatic animal health and welfare and to present the valuable experiences gained during the last few years. More than 150 delegates representing both fisheries and veterinary (Chief Veterinary Officers - CVOs) authorities, regional (NACA, SEAFDEC, EU) and international organizations (FAO), professional societies (AVMA, FHS/AFS), other research institutes/universities and OIE Collaborating Centres or Reference Laboratories and private sector representatives - participated in this Conference. The proceedings of the conference will be published as Dodet B, the OIE Scientific & Technical Department (eds): The OIE Global Conference on Aquatic Animal Health, Dev Biol (Basel). Basel, Karger, 2007, Vol 129.



FAO/NACA Workshop on Information Requirements for Maintaining Aquatic Animal Biosecurity, February 2007, Cebu City, Philippines. The objective of the workshop was to increase awareness and build capacity on general principles of biosecurity and to deliberate on key information required for maintaining aquatic animal bio-security focussing on aspects of risk analysis; diagnostics, health certification and quarantine; and epidemiological surveillance and reporting. A total of 37 delegates attended the workshop. Participants included representatives from the Association of Southeast Asian Nations (ASEAN) countries (Brunei Darussalam, Cambodia, Indonesia, Malaysia, Myanmar, the Philippines and Thailand), South Asian countries (Bangladesh, India, Nepal), China and representatives from organizing and partner organizations (FAO, Network of Aquaculture Centres in the Asia-Pacific (NACA), AusVet). Four plenary technical papers on General Principles of Biosecurity, General Principles of Diagnostics, Health Certification and Quarantine, General Principles of Risk Analysis, General Principles on Epidemiological Surveillance and Reporting were presented by MB Reantaso (FAO), CV Mohan (NACA), JR Arthur (Consultant) and J Hutchinson (AusVet).



FAO/NACA Expert Workshop on Understanding and Applying Risk Analysis in Aquaculture Production, 7-11 June 2007, Rayong, Thailand. The workshop brought together 42 policy makers/risk analysis practitioners/technical experts with a broad range of specialization in the field of fish disease, food safety and public health, genetics, environment, aquaculture, fisheries, genetics, including social and economic aspects of aquaculture. Fourteen plenary presentations were followed by three Working Group (WG) discussions on the following aspects: (i) WG 1 tackled the outline of the 'Manual on Understanding and Applying Risk Analysis in Aquaculture', (ii) WG 2 deliberated on the following risks from aquaculture (pathogen, food safety and public health, ecological/environmental, genetics) and (iii) WG 3 discussed socio-economic risks. WG 2 and WG 3 elaborated on the four principal steps of the risk analysis process, i.e. hazard identification, risk assessment, risk management and risk communication. One day was spent on plenary presentations and two days were spent on WG discussions and presentations. Expected documentation products include: (i) Report of the Workshop as an FAO Fisheries Proceedings which will contain 10 peer-reviewed technical papers, (ii) A Manual on Understanding and Applying Risk Analysis in Aquaculture Production as an FAO Fisheries Technical Paper.



FAO/AAHRI/NACA Molluscan Health Management Phase III Training/Workshop, 12-17 June 2007, Aquatic Animal Health Research Institute, Bangkok, Thailand. The Regional Programme on Molluscan Health Management was initiated by FAO and NACA in 1999 as part of the Asia Regional Programme on Aquatic Animal Health Management funded by FAO through a regional TCP TCP/RAS/6714 "Assistance for the Responsible Movement of Live Aquatic Animals in Asia". This programme was implemented in three phases of which Phases I (1999 Iloilo, Philippines) and II (Queensland, Australia) have been completed. Resource person/s and country participants involved in Phases I and II were involved in Phase III to ensure continuity and achieve sustainability. The regional training/workshop was aimed to (a) build the capacity and awareness of participants from 7 countries in Level III molluscan disease diagnostics and (b) finalize the Molluscan Health Programme Report which will include country case studies. A total of 24 consisting of representatives from China (1), Indonesia (2), Philippines (2), Malaysia (2), Sri Lanka (2), Thailand (4), Viet Nam (3), trainers/resource speakers (3 from Canada, Thailand and Italy) and laboratory technicians (5) participated in this regional training/workshop. The training/workshop consisted of seven country presentations, more than five hrs of lectures and at least 15 hrs of laboratory work and final discussion on the way forward.



Molluscan Health Phase III training/Workshop, participants doing microscopy work and preparing for PCR



Aquatic Animal Health Projects in ASEAN

1. Strengthening Aquatic Animal Health Capacity and Biosecurity in ASEAN:

To make progress towards the *ASEAN Vision 2020*, the Vientiane Action Program (VAP) identified the need for greater economic integration including enhancement of food security and global competitiveness of ASEAN's food, agriculture and forestry products. ASEAN countries are committed to building national capacities to improve their abilities to combat transboundary pathogens. The ASEAN-Australia Development Cooperation Program's Regional Partnership Scheme (AADCP-RPS) project "**Strengthening Aquatic Animal Health Capacity and Biosecurity in ASEAN**" responded to the VAP and it also supported the ASEAN Cooperation Plan goal of assisting ASEAN in addressing trans-national issues, as well as the ASEAN 2020 Vision of enhancing "food security and international competitiveness of food, agricultural and forest products and to make ASEAN a leading producer of these products...". This project aimed to bridge the development gaps and build capacity across ASEAN countries and contribute significantly towards implementation of Asia Regional Technical Guidelines for responsible movement of live aquatic animals in ASEAN member countries. NACA and AusVet Animal Health Services, in collaboration with other partners, i.e. ASEAN Secretariat, Aquatic Animal Health Research Institute (AAHRI), Thailand and Department of Agriculture, Fisheries and Forestry (DAFF), Australia, implemented the project. This project was managed by Cardno-ACIL Australia Pty Ltd on behalf of AusAID and ASEC.

The project goal was to enhance the capability of ASEAN member countries to implement ASEAN harmonized national aquatic animal health strategies to manage risks to the biosecurity of fisheries industries particularly those related to trade and impacting on the poor. The project had the following objectives: (i) Development of harmonized approaches to aquatic animal health management and biosecurity in ASEAN and (ii) Improving capacity to implement ASEAN harmonized national aquatic animal health and biosecurity strategies.

In order to accomplish the project objectives, a series of activities were conducted over 18 months. It consisted of two policy workshops (April 2006 and May 2007), two training courses (May 2006 and February 2007) and technical mission to four countries (Cambodia, Lao PDR, Myanmar and Vietnam).

The final report of the project "Strengthening Aquatic Animal Health Capacity and Biosecurity in ASEAN" (AADCP:RPS 370-021) contains two parts: (i) Recommended Minimum Operational Requirements for Implementing National Aquatic Animal Health Strategies within ASEAN and (ii) (B) ASEAN progress in the implementation of National Aquatic Animal Health Strategies. Part A of this document is the result of the working group discussions during the Second Policy Workshop of the project held in Bali-Indonesia from 7-10 May 2007. This section identifies the minimum operational requirements for implementing national aquatic animal health strategies within ASEAN. Part B of this document is a compilation of the information on the status of implementation of various elements contained in national aquatic animal health strategies within ASEAN. As a part of the project activity, information was submitted by project participants and collated by NACA Secretariat. The purpose of this document is twofold. Firstly, it provides guidance for countries in ASEAN to implement key elements of national aquatic animal health strategies. Secondly, the compiled status report can be used as a basis for monitoring the progress of national strategy implementation in ASEAN member countries. Full report can be downloaded from www.enaca.org/modules/wfdownloads/singlefile.php?cid=5&lid=840

2. Operationalise Guidelines on Responsible Movement of Live Food Finfish:

Various global and regional instruments and standards provide guidance to trading partners to minimize the risk of introduction and spread of dangerous aquatic animal pathogens. Developing operational strategies to effectively implement the guidelines is very important. In this direction, ASEAN has taken a small step forward. In order to enhance the biosecurity of food finfish industries, ASEAN Member Countries have come together under an AusAid supported project to develop standard operating procedures (SOPs) for health certification and quarantine measures for responsible movement of live food finfish (LFF) within ASEAN. These SOPs have been developed under the AADCP:RPS project 370-018, *Operationalise Guidelines on Responsible Movement of Live Food Finfish*. This project is coordinated by ASEC, NACA and AusVet for Cardno ACIL who manage the AADCP:RPS program for ASEC and AusAID.

The first step in developing the SOPs was to develop an inventory of countries' current practices



in early 2006 and to hold a First Policy Workshop in Bangkok, Thailand in April 2006 at which all 10 ASEAN countries were represented. The workshop developed a draft Table of Contents for the SOPs and allocated tasks and selected the leaders and members of four working groups. ASEC and NACA briefed ASWGFi on progress at its meeting in Manila, the Philippines in June 2006. The leaders communicated with their group members to prepare for a leaders' workshop in Johor Bahru in September 2006 at which the first draft of the SOPs were developed. This draft was circulated to members of the work groups for consideration and comment and members of ASWGFi for information before a second policy workshop which was held in the Philippines in February 2007 and agreed on the Final Draft SOPs. It is expected that the ASEC will place it before the ASWGFi for formal review and endorsement.

They also are consistent with the Asia regional technical guidelines on health management for the responsible movement of live aquatic animals and the Beijing consensus and implementation strategy, 2000 (TG) and the Manual of procedures

for the implementation of the TG (2001). The OIE Aquatic Animal Health Code (Ninth Edition, 2006) and Manual of Diagnostic Tests for Aquatic Animals (Fifth Edition, 2006) have been used in the development of the SOPs. The SOPs complement national responsibilities under existing international standards for management of food safety and residues (for instance, *Codex Alimentarius*) and other environmental considerations (for instance, *CITES*).

These SOPs are a set of documents for health certification and quarantine measures to be used by CA for the responsible movement of LFF by land, sea and air among ASEAN Member Countries. The SOPs recognize the existing variation in capacity among ASEAN Member Countries but the SOPs have been designed so that they can be adopted and implemented within the specific policy and legal framework of each country. These SOPs have been written to help manage the movement of LFF for immediate consumption as human food. The SOPs can be downloaded from www.enaca.org/modules/wfdownloads/singlefile.php?cid=5&lid=830

Aquatic Animal Health Regional and International Developments: Emerging Diseases

FAO/AAHRI/NACA investigates EUS in the Chobe-Zambezi River affecting several countries in Africa. The FAO/AAHRI/NACA/Botswana Department of Wildlife and Natural Parks Emergency Disease Investigation Task Force was organized by FAO in April 2007 at the request of the Government of Botswana for technical assistance in dealing with a serious outbreak of fish disease in the Chobe-Zambezi River system. The Task Force members included experts from FAO (Rome, Italy), Thailand Department of Fisheries Inland Aquatic Animal Health Research Institute (AAHRI - also the OIE Reference Laboratory for Epizootic Ulcerative Syndrome - based in Bangkok, Thailand) and the Network of Aquaculture Centres in Asia-Pacific (NACA). The overall objective of the Emergency Task Force was to undertake an emergency assessment of the fish disease outbreak through: (a) field observations (e.g. field visit to affected river system, interviews with local/district officials and local fishermen, collection of epidemiological data), (b) laboratory examination (i.e., parasitology, bacteriology, histopathology, mycology, virology) of available affected fish samples, and (c) examination of available reports and other laboratory findings - to

identify as far as possible the causative agent of the outbreak, to provide recommendations to prevent further spread of the disease, recommend control measures if applicable and develop an emergency response and contingency plan for future outbreaks to concerned governments. Three members of the Emergency Disease Investigation Task Force (MB Reantaso of FAO, S Kanchanakhon of AAHRI and CV Mohan of NACA) traveled to Botswana from 18-26 May 2007 to conduct an emergency investigation. AAHRI conducted the laboratory analysis from field samples collected by the Task Force. EUS in the Chobe-Zambezi River system was confirmed as an outcome of the Task Force investigation based on internationally accepted diagnostic procedures for EUS. As far as is known, this is the first confirmed case of this serious disease in the African region. Official notification was submitted to OIE by Botswana CVO in July 2007. An FAO Regional Technical Cooperation Programme (TCP/RAF/3111 [E]) Emergency assistance to combat EUS in the Chobe/Zambezi River has been approved for implementation from October 2007 to September 2008 involving 7 countries (Angola, Botswana, Malawi, Mozambique, Namibia, Zambia



and Zimbabwe). The emergency assistance consist of training key staff in the 7 countries on basic aquatic animal health management, EUS diagnosis, targeted surveillance for EUS, preparation of an educational and extension manual, a regional strategy and a regional proposal aimed at establishing medium-

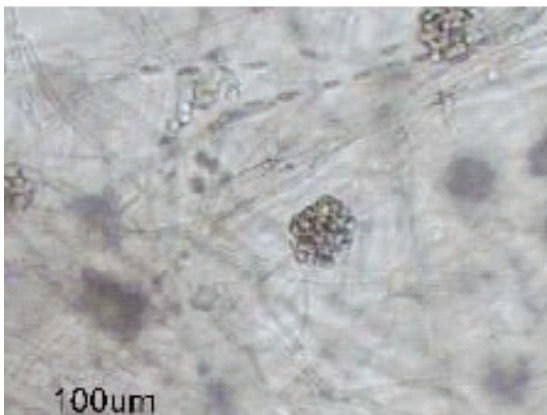
to long-term aquatic biosecurity to include as a priority an emergency preparedness response to aquatic disease epizootics and over-all strengthening of human and institutional capacities for fish health management that will be submitted for donor funding.



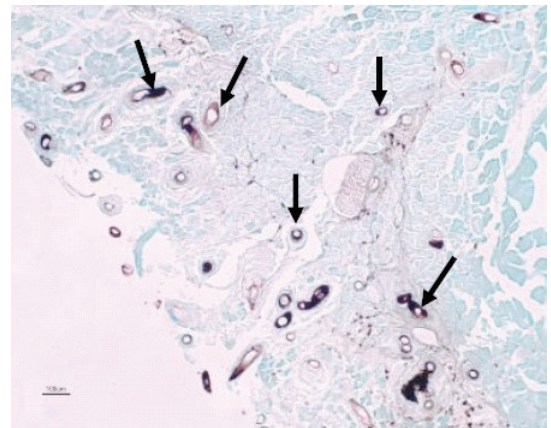
Dashtail barb (*Barbus poechii*) exhibiting haemorrhagic dermatitis in the area posterior to the anus and towards the caudal peduncle (FAO/AAHRI/NACA/Government of Botswana DWNP Emergency Disease Investigation Task Force, May 2007)



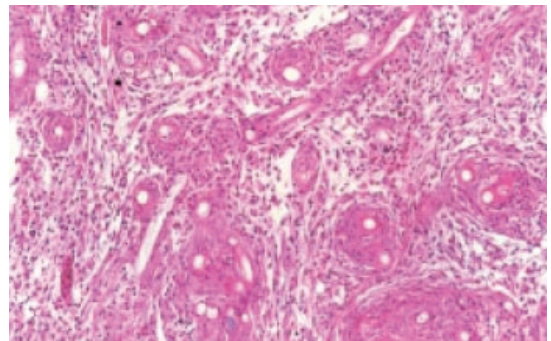
Snakehead (*Channa striata*) in the Philippines (1985) showing typical EUS lesions (dermal ulcers).



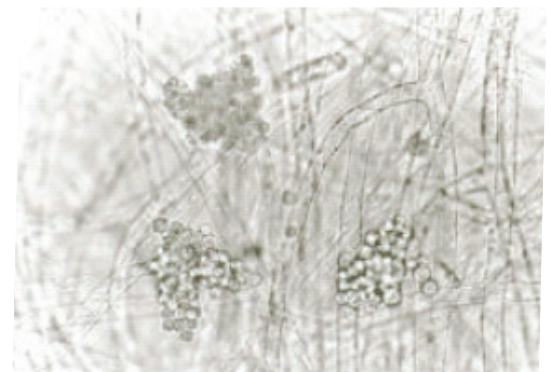
Sporulation of the Botswana oomycete isolate identified as *Aphanomyces* successfully done by AAHRI (June 2007). Source: S Kanchanakhan (June 2007)



Histopathology of EUS-suspected barb showing typical mycotic granulomas surrounding the invasive fungal hyphae (stained black, black arrows) in the skin layer (Grocott's silver stain). (AAHRI, June 2007)



Typical severe mycotic granulomas from muscle section of EUS infected snakehead in the Philippines (1985) (Haematoxylin and Eosin stain).



Aphanomyces sporangia, Philippine isolates
Source: MB Reantaso (1999)



Disease Investigation of Pearl Oysters in Australia.

The pearling industry forms the most valuable aquaculture industry in Western Australia and is a major rural employer. The pearling grounds are remote, extend from Exmouth Gulf in the west to the Northern Territory border in the east, a linear distance of some 1750 km. Exmouth is 1130 km from Perth, the capital and major population centre from Western Australia. The industry is regulated, and a complex series of legislative protocols cover hatchery biosecurity and health certification prior to translocation. Despite these controls, in October 2006 severe mortalities were reported from pearl oyster (*Pinctada maxima*) farms in the Exmouth Gulf. The gross signs included mantle retraction,

muscle weakness, mild oedema and mortality. Only *P. maxima* were affected, other bivalves including *P. margaritifera* (black pearl oysters) were healthy. Initial investigations ruled out algal blooms, starvation, environmental changes and bacterial infection. Epidemiology indicated that the mortality was due to an infectious process. Gross appearance of affected oysters showed mild oedema, retraction of the mantle, weakness and death. Histology revealed no inflammatory response, and a very subtle lesion involving tissue oedema and oedematous separation of epithelial tissues from underlying stroma. To date (August 2007) no disease agent has been identified, though research is continuing.

Upcoming Meetings/Events/Aquatic Animal Health Opportunities

2007

SEPTEMBER

- **European Association of Fish Pathologists (EAFP) 13th International Conference on Fish and Shellfish Pathology**, 17-23 September 2007, Grado, Italy. More details at <http://www.eafp.org/>
- **7th International Symposium on Fish Parasites (ISFP VII), Theme: Fish Parasitology in the 21st Century: From Biodiversity and Ecosystem to Global Warming**, 24-28 September 2007, Viterbo, Italy. Further information info@7isfp.com; secretariat@7isfp.com. More details at <http://www.7isfp.com/intro.html>
- **FAO TCP/BiH/3101 Training/Workshop on EU Legislation and Aquatic Animal Health Requirements and Risk Analysis for Aquatic Animal Movement**, 2-5 October 2007, Sarajevo, Bosnia and Herzegovina

OCTOBER/NOVEMBER

- **Secretariat of the Pacific Community (SPC), Regional Workshop on Implementing the Ecosystem Approach to Coastal Fisheries and Aquaculture and Aquatic Biosecurity**, 28 October to 2 November, 2007. To be participated by representatives from 26 Pacific Island and Metropolitan Member Countries; expected outcome is to come up with direction for a future regional programme for aquatic biosecurity in the Pacific.
- **Master Class in Aquatic Animal Pathology, AAHRI, Bangkok, Thailand, 12-23 November 2007 jointly being organized by** Murdoch University and Department of Fisheries Western Australia, AAHRI and NACA. The objective of the master class is to train participants on reading and interpreting slides to understand normal histology, pathological process, tissue pathology, disease case studies, artifacts, etc. Further details from mohan@enaca.org. More information

at <http://www.enaca.org/modules/news/article.php?storyid=971>.

- **8th Asian Fisheries Forum, Theme: Fisheries and Aquaculture: Strategic Outlook for Asia**, 20-23 November 2007, Le Meridien, Kochi, India. More details at <http://www.asianfisheriessociety.org/> One day session on Special Technical Fish Health, further information: Brian.Sheehan@Intervet.com

DECEMBER

- **SEAFDEC International Workshop on Emerging Fish Disease in Asia**, Bangkok, Thailand, 6-7 December 2007. More details at: <http://rfdp.seafdec.org.ph/workshop2007>.
- **Sixth Meeting of NACA's Regional Advisory Group on Aquatic Animal Health (AGM-6)**, 14-16 December 2007, NACA Headquarters, Bangkok, Thailand. Further information from mohan@enaca.org

2008

FEBRUARY

- **Two-day International Workshop on CyHV-3 (KHV)**, 17-18 February 2008, Caesaria, Israel. Further information from mkotler@cc.huji.ac.il

MARCH

- **FAO TCP/BiH/3101 Training/Workshop on Diagnostics and Surveillance**, first week of March 2008, Sarajevo, Bosnia and Herzegovina

MAY

- **FAO TCP/BiH/3101 Balkan States Regional Conference on Aquatic Animal Health/Project Terminal Workshop** first week of May 2008, Sarajevo, Bosnia and Herzegovina



JUNE

- **Seventh Symposium on Diseases in Asian Aquaculture (DAA VII), Theme: Communication, Co-operation and Co-ordination: Key Issues in Aquatic Animal Health Management and 8th Triennial General Meeting of the Fish Health Section of the Asian Fisheries Society**, Taipei, Taiwan, 22-26 June 2008. More details at:
<http://homepage.ntu.edu.tw/~daaseven/>

OCTOBER

- **5th International Symposium of the Japanese Society for Fish Pathology, Theme: The Role of Fish Pathology in Sustainable Aquaculture**, 18-19 October 2007, University of Tokyo, Tokyo, Japan. More details at:
<http://park.itc.u-tokyo.ac.jp/jsfp2008/program.html>
- **World Fisheries Congress 2008, Theme: Fisheries for Global Welfare and Environmental Conservation, 20-24 October 2008, Yokohama, Japan**. More details at:
http://www.5thwfc2008.com/Circular_final2.pdf
<http://www.5thwfc2008.com/index.html>

Publications

RECENTLY PUBLISHED

Diseases of Tilapia: Web-based publication from Intervet

Diseases of Tilapia: http://aqua.intervet.com/news/2005-11-16_-_Disease_Tilapia.asp
Streptococcosis in Tilapia: http://aqua.intervet.com/news/2006-06-20_-_Streptococcosis_in_Tilapia.asp
Columnaris in Tilapia: http://aqua.intervet.com/news/2006-12-01_-_Columnaris_in_tilapia.asp
Parasitic Diseases of Tilapia: <http://aqua.intervet.com/news/2007-06-01.asp>

Color Atlas of Fish Histopathology, Volume 2

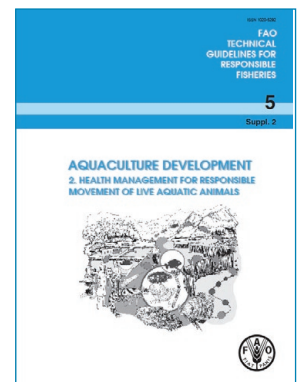
(2007) by Teruo Miyazaki. The only book on fish histopathology. Highly recommended for private library, institutional libraries, laboratories for studies and education on fish disease. The volume contains 13 RNA viruses, 16 DNA viruses, 7 fungal diseases and 50 parasitic diseases. Downloadable at URL <http://briefcase.yahoo.co.jp/yappon1978>. Further details from miyazaki@bio.mie-u.ac.jp

Aquatic Animal Diseases Significant to Asia-Pacific: Identification Field Guide. NACA and the Australian Government Department of Agriculture, Fisheries and Forestry (DAFF) joint publication,; outcome of a collaborative activity among a number of fish health experts from various organizations in the



Asia-Pacific region, it is aimed at improving the ability to diagnose diseases of significance to aquaculture and fisheries in the region. Drew extensively from the experiences and previous and ongoing research activities in health management in Australia and other countries in Asia and thus joins the growing body of practical knowledge published for Asia-Pacific aquaculture and fisheries. This field guide provides fisheries and aquaculture managers, recreational fishers, border protection staff, environmentalists, students of aquatic animal health, and fisheries management with a reference guide to support decisions on aquatic animal health. The regional field guide covers all diseases listed in the Quarterly Aquatic Animal Disease (QAAD) reporting system which includes all OIE listed diseases plus diseases of regional concern. Downloadable at <http://www.enaca.org/modules/news/article.php?storyid=1003>

FAO. 2007. Aquaculture development 2. **Health management for the responsible movement of live aquatic animals.** FAO Technical Guidelines for Responsible Fisheries. No. 5, Suppl. 2. Rome, FAO. 2007. 31p. Further information: Rohana.Subasinghe@fao.org

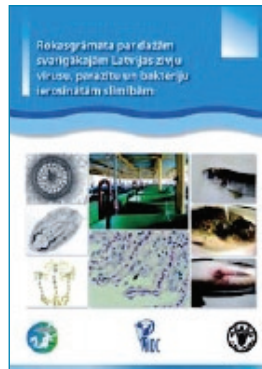


Extension Manual on Some Important Viruses, Parasites and Bacteria of Aquatic Animals in Latvia, FAO TCP/LAT/3001 Improving Aquatic Animal Health and Quality and Safety of Aquatic Products. The aim of the manual if to provide useful guide for use by farmers, extension officers, researchers



and students to identify some important viruses, parasites and bacteria of fishes in Latvia. This is part of FAO's continuing efforts to address the need for information on diseases and pathogens of aquatic animals. Further information

Melba.Reantaso@fao.org



Arthur, J.R. & Te, B.Q. 2006. **Checklist of the parasites of fishes of Viet Nam**. FAO Fisheries Technical Paper No. 369/2. Rome, FAO. 133 pp.

Checklist of the parasites of fishes of Latvia. FAO Fisheries Technical Paper No. 369/3. Rome, FAO. Further information from Melba.Reantaso@fao.org



Upcoming Publications

FAO Diagnostic Guide to Aquatic Animal Diseases.

This publication is currently being updated to have a global scope. At least 25 global experts (from Australia, Canada, China, France, India, Italy, Philippines, New Zealand, Norway, Thailand, UK, USA) on finfish, molluscan and crustacean diseases have agreed to participate as contributing and reviewing experts have confirmed contribution. Publication is expected before end of the year. Further information:

Melba.Reantaso@fao.org

Manual of Procedures for Quarantine of Live Aquatic Animals.

This manual outlines the technical requirements for setting up quarantine facilities at three levels, based on the general level of risk (as determined by risk analysis) represented by the specific consignment of aquatic animals being moved: (i) the quarantine of "high risk" species (e.g. aquatic animals being moved either internationally (introductions and transfers) or domestically between regions of different health status that are destined for use in aquaculture, capture fishery development or other applications where release or escape of animals or any pathogens they may be carrying into the natural environment is likely to occur; (ii) the quarantine of "lower risk" species (e.g. aquatic animals destined for the ornamental trade) to improve biosecurity for aquatic animals whose trade is an established practice and (iii) the routine quarantine of aquatic animals at production facilities (e.g. new, domestically produced or locally captured broodstock or juveniles or animals whose movement has been contingent upon additional, more stringent, risk management measures, such as the use of Specific Pathogen Free (SPF) stocks,

international health certification, pre-border and/or border quarantine, etc.). Published as FAO Fisheries Technical Paper No. 502 and is expected before end of the year. Further information:

Melba.Reantaso@fao.org

Manual on Pearl Oyster Health Management. This publication contains three parts. Part I consists of Pearl Oyster Health and Industry, Part 2 consists of four sections, namely: (a) General section which provides information on husbandry and handling, hatchery production, introductions and transfers; (b) Disease Diagnostic Protocols deals with field collections of samples, gross external examination, gross internal examination and laboratory protocols; (c) Health Zonation and (d) Disease Outbreak Protocols. Certain countries in the pearl oyster producing regions have acquired a great deal of experience in health management of cultured species. Such experiences from the Australia, Cook Islands, Japan, the French Polynesia as well as experiences from the Philippines, China, the Persian Gulf and the Red Sea are presented as Part 3 of the document. Part 3 also provides a general review of pearl oyster mortalities and disease problems. Published as FAO Fisheries Technical Paper No. 503 and is expected before end of the year. Further information:

Melba.Reantaso@fao.org

Proceedings of the Sixth Symposium on Diseases in Asian Aquaculture (DAAV VI). The proceedings is in the final stages of editing and the publication is targetted to be out of press in January 2008.



Seventh Symposium on Diseases in Asian Aquaculture (DAA VII)
Sessions, Keynote and Invited Presentations

Session Themes

Opening Session with 3 Keynote Presentations

Session 01: Epidemiology, detection and diagnosis of pathogens in fish, shellfish, molluscs and their environment

Session 02: Biosecurity, risk assessment and containment in aquaculture systems

Session 03: Using genomics, proteomics and bioinformatics to understand aquatic animal diseases

Session 04: Immunology/Disease resistance/Host-pathogen interaction

Session 05: Diseases of aquatic invertebrates -Shrimp health (I)

Session 06: Diseases of aquatic invertebrates -Shrimp health (II)

Session 07: Emerging issues and emerging aquatic animal diseases

Session 08: Diseases of aquatic vertebrates - Finfish health (I)

Session 09: Diseases of aquatic vertebrates - Finfish health (II)

Session 10: Vaccination technologies, farm level health management, better management practices

Session 11: Diseases of aquatic invertebrates - Molluscan health (I)

Session 12: Diseases of aquatic invertebrates - Molluscan health (II)

Session 13: The way forward

Keynote Presentations

Can aquaculture meet future global aquatic food demand?

Emerging issues and developments in aquatic animal health

Status of shrimp diseases and advances in shrimp health management

Strain variation – diagnosis, pathology and epidemiology

Pathogen risk analysis: experiences from nine case studies – applications and limitations

What have we learned from the genomics and transcriptomics of white spot syndrome virus?

Molecular immunity in fish pathogen interaction

Recent advances in crustacean immunity and practical implications/applications

Progress with work on antimicrobial peptides in shrimp

First outbreak of epizootic ulcerative syndrome in Africa: questions and uncertainties

Recent developments in the study and surveillance of koi herpes virus (KHV) in Asia

Significant and emerging parasitic diseases of finfish

Recent advances in vaccine technologies

Current trends in the study of molluscan diseases

Fungal diseases of abalone

Standardization, harmonization and validation of non-culture based detection techniques – are we heading in the right direction?

Disease transmission risks from prawn products exported for human consumption

Global perspectives in managing aquatic animal health



Invited Papers

- Aquatic epidemiology and surveillance: is it useful to aquatic animal disease emergencies?
- Evolution and lessons learned: Asia-Pacific surveillance and reporting of aquatic animal diseases – can researchers contribute to the process?
- Prediction and modulation of disease
- Genes in response to infection in shrimp through cDNA microarray
- The use of double-stranded RNA knock-out technology to study shrimp viral responses
- Success in capacity building – the shrimp industry in western Indian Ocean – a vertically integrated model
- Emerging aquatic animal diseases in China
- Aquatic animal diseases in Viet Nam
- Bacterial diseases of major economic importance in the Asia-Pacific region
- Improving farm level health management: lessons learned from Indian shrimp aquaculture
- Biodefense of mollusca
- Molluscan diseases: outcome of a health survey in 8 countries in Asia-Pacific

IMPORTANT DATES:

- | | |
|---------------------------------------|-----------------------------------|
| Call for submission of abstracts: | September 1, 2007 |
| Deadline for submission of abstracts: | December 10, 2007 |
| Early bird registration: | January 1, 2008 to March 31, 2008 |
| Normal registration: | April 1, 2008 onwards |

Registration is also open during the 8th AFF, Cochin, India, 20-23 November 2007





**Farewell to
Dr Darnas Dana**
4 January 1947 to
23 August 2007

Dr Darnas Dana passed away last 23 August 2007 due to heart failure.

Dr Darnas Dana will be sorely missed by Indonesian colleagues, the FHS/AFS community and international colleagues who had the opportunity to interact with him. Dr Dana earned his BSc degree at the Institute Pertanian Bogor in 1976, his MSc in Biological Science in 1982 from Simon Fraser University (supervised by Dr John Webster; research conducted at Pacific Biological Station, Nanimo under Dr Bob Kabata), and his PhD in Biological Science in 1992 from the University of Calgary in Canada (supervised by Prof Hisao Arai). Dr Dana was a Professor at the Faculty of Fisheries, Bogor Agricultural University; from 2004-2006, he was Director of Fish Health and Environment, Directorate General of Aquaculture, Indonesia Ministry of Marine Affairs and Fisheries; from 1999 to 2003, he was Assistant to the Rector of the Bogor Agricultural University and from 1993 to 1999, he was Dean of the Faculty of Fisheries of the BAU. Aside from his long list of projects, research, publications and students under his supervision, Dr Dana was a pioneering and active member of the FHS. He was instrumental in the local organization of DAA 1 in Bali, Indonesia and was in active attendance to DAA VI in Colombo, Sri Lanka. On behalf of the FHS family, we sadly bid farewell to Dr Darnas Dana and send our prayers and deepest sympathies to his loved ones.

Below are some expressions of sympathy.

Richard Arthur: A shock to learn of Darnas' death. Carpe diem! Darnas will be sorely missed - he was such a nice unassuming fellow with a great sense of humor and a sharp scientific mind.

Darnas will be sorely missed - he was such a nice unassuming fellow with a great sense of humor and a sharp scientific mind.

Takashi Aoki: I deeply regret to inform you that Prof. Darnas Dana, Bogor Agricultural University, Indonesia passed away due to heart disorder on 23rd August. He was actively working on parasitic diseases of fish and produced brilliant scientific achievements in this area of research. Please pray for his soul and for his family and friends.

Siti Abdullab: Thank you for the info, and hope the beloved family is ok..

Mangalika Hettiriarchi: It was a shock to hear the sad news of passing away of Dr. Darnas. Your suggestion on declaration of pages in the FHS News Letter is a very good idea to respect him & remind his valuable contribution in disseminating the knowledge on fish health. I would like to convey my condolence to his family.

Suprane Chinabut: Thanks for the excellence suggestion regarding the dedication pages in the FHS Newsletter. It

is a big shock for me to receive this sadness news on the pass away of Darnas who was one of the fish parasitologist in the region. Please convey my condolence to his family.

Mohammed Shariff: Sorry to hear that we have lost another good friend

Mohammed Zafar: We are family member of Institute of Marine Sciences and Fisheries, University of Chittagong-Bangladesh, really mournful for Dr. Darnas Dana's dead, pray for him to God.

Rajeev Raj: its really a great loss to asian fish health team.

Robana Subasinghe: This indeed is unexpected news and a very sad one. I remember my last discussions with Darnas a few months ago! I can only imagine how much his family will suffer with his dismissal. May the noble triple gem bless his loved ones and give them the courage to face the realities in life.

Absan Habib: The demise of Dr. Darnas Dana, one of the founding members, famous scientist in Aquatic Animal Health in Indonesia very sad news for me. I spent one minute to pray for peace of his departed soul.

CV Moban: Very surprised and saddened to hear about the sudden demise of Dr Darnas Dana. He was very supportive of the regional program and showed keen interest and involvement. My prayers to god to give courage and strength to his family and friends to bear this untimely loss.

Agus Sunarto: It is with a great sadness to inform you that Dr Darnas Dana passed away on Thursday 23 August 2007. His dedication and love for aquatic animal health in Indonesia will be sadly missed.

With wife while visiting son and family in Japan in 2007



Dr Darnas Dana during DAA VI in Colombo, Sri Lanka, Novembre 2006

Dr Darnas Dana with Indonesia colleagues during a project (FAO/TCP/INS) meeting in Jogjakarta (2005)



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