



10th Meeting of the Asia Regional Advisory Group on Aquatic Animal Health

The two-day meeting was held in the Board Room of Hotel Motimahal, Mangalore, India on 19-20 November 2011. The meeting was attended by all the AG members including representatives from:

- OIE-AAHSC (Dr Barry Hill, President).
- OIE Regional Representation for Asia and the Pacific (Dr Hnin Thidar Myint).
- FAO (Dr Rohana Subasinghe).
- DAFF Australia (Drs Ingo Ernst and Brett Herbert).
- SEAFDEC AQD (Dr Edgar Amar).
- NACA (R&D Manager Dr CV Mohan and Aquatic Animal Health Programme Coordinator Dr Eduardo Leaño).
- Private sector (Dr Siow Foong Chang, Merck Animal Health).
- Aquatic animal health expert from the region (Prof. Timothy Flegel, Thailand).

Also in attendance are the Director General of NACA, Dr Ambekar Eknath, two co-opted members from Mangalore College of Fisheries Drs Indrani Karunasagar and Kalkuli Shankar, and guest participants from EU-ASEM platform project Drs John Bostock, Sandra Adams and Kim Thompson.

The meeting managed to accomplish the TOR set for the AG which includes reviewing the disease situation in Asia, considering the recent changes made to OIE global standards, revising the list of diseases for listing in the regional QAAD reporting system, assessing the progress made against the various elements contained in the Asia Regional Technical Guidelines on responsible movement of live aquatic animals, updating the regional resource centers, and developing recommendations and action points for the consideration of NACA and NACA Member Governments.

The report of the meeting, always of interest to the aquaculture industry, can be downloaded from the NACA website at the link below. The report will be tabled with member governments, regional and international organisations, including the OIE Aquatic Animal Health Sub-committee, the Food and Agriculture Organisation, the Southeast Asian Fisheries Development Center and ASEAN.



Flood

If you are wondering why NACA seemed to go a bit quiet for a while, it was largely due to the fact that our office was one of the casualties of the massive floods that affected central Thailand, including much of Bangkok, in the last quarter. The Secretariat was cut off by flood waters up to a metre deep for more than a month, and all of our staff (with the exception of the Editor) were forced out of their homes by the water, more than two metres deep in some cases, and had to find alternative accommodation elsewhere.

From time to time we get minor localised flooding for a few hours after heavy rains, but this time it was a solid wall of water trickling in from the north that just wouldn't go away. Roads and public transport shut down, power was out in many places and supermarkets were essentially emptied with no way to resupply. Boats (and the occasional crocodile) began to appear on the highways.

Finally the water was low enough to get back to the office and the clean-up began. Fortunately we had moved nearly everything upstairs in advance of the flooding, so damage to the Secretariat was minimal (if only we could say the same about houses). It will take a while longer to clear the backlog of email and to get things back to normal, but we are getting there and hope you will bear with us a bit longer.



Floodwaters inundate the Department of Fisheries compound.



The first floodwaters arriving outside the NACA Secretariat.



Shrimp Price Study, Phase III: Case studies in Vietnam, Indonesia and Bangladesh

The Phase III report of the Shrimp Price Study is available for download. This study is a continuation of "Evaluation of the impact of the Indian Ocean tsunami and US anti-dumping duties on the shrimp farming sector of South and South-East Asia", a study conducted by NACA in 2006, with the aim of assessing the impact of the 2004 Indian Ocean tsunami and of the introduction of anti-dumping duties on the shrimp farming sectors of countries in the Asian region, with special focus on the effect that these unforeseen events had on shrimp prices and livelihoods of the stakeholders. The project was conducted in three countries selected as representatives for countries affected by the anti-dumping duties, the tsunami, and neither event respectively.

The first-round study, while giving an insight on the impact of the Indian Ocean tsunami and US anti-dumping, also highlighted the need for continuous collection of price data

from a wider range of stakeholders in the supply chain in order to do a thorough evaluation of the health of the industry and to identify the interventions to be made to increase the sustainability of the sector. Phase II (January 2008 to June 2009) and Phase III (Current study) are follow-up studies based on the recommendations derived from the initial study. The present study is the 3rd phase of this extended study and aims to update the social and economic trends in the shrimp farming sector investigated during the previous phases.

This report is based on the data collected from the 3 representative countries, Vietnam, Indonesia and Bangladesh from July 2009 - November 2010. The report can be downloaded from the NACA website at:

<http://www.enaca.org/modules/wfdonloads/singlefile.php?cid=71&lid=1044>

The Sultanate of Oman Embarks on Aquaculture Development

The Sultanate of Oman, with a coast line of 2092 km, pristine at that, and a large extent of land area is embarking on an ambitious aquaculture development program, primarily coastal, for food security and generation of employment opportunities as well as earning export income, targeting the adjacent countries in the region. The government has already taken many preliminary steps towards this development strategy and is determined to make it sustainable and environmentally friendly and most of all not repeat the mistakes that had occurred, too often elsewhere.

Among the steps taken to meet its strategic plans it has already identified coastal sites in eight regions, having taken into consideration all relevant climatic, topographical, water quality characteristics and social issues, to be allocated for aquaculture development in each, and made this information available in the Atlas of Suitable Sites for Aquaculture Projects, Sultanate of Oman. In addition, the government has custom built a state of the art Aquaculture Center, which will coordinate the envisaged activities and act as the main research provider, including demonstration units, and proceeded to formulate guidelines for prospective investors to bid for the proposed sites, spelt out in the Investment Guidelines. The aquaculture centre has proceeded to prepare and distribute information profile booklets on species suitable for the designated areas.

As a prelude the Sultanate of Oman convened the first ever conference on aquaculture, "International Conference on Sustainable Aquaculture Development in the Sultanate of Oman- Investment Opportunities", which brought together specialists in various sectors from all over the globe (Australia, Italy-FAO, Norway, US, UK, New Zealand, Vietnam etc.), prospective local and foreign investors on 10/11th of December in Muscat. The aquaculture development strategy was floated at this Conference. The Conference was presided by His Excellency the Minister for Agriculture and Fisheries Wealth, Dr Fuad Jaffer Al-Sajwani, and the government's commitment to the proposed development was most evident by the fact that his Excellency was in attendance throughout the two days of the conference and led the final discussions sessions. The keynote speaker at the conference was the former Director General of NACA, Professor Sena S De Silva, who spoke on "Current trends in commercial aquaculture in Asia & relevance to emerging aquaculture nations".

Downloads

The Atlas of Suitable Sites for Aquaculture Projects, Sultanate of Oman: <http://bit.ly/Nulmxo>

Investment Guidelines:

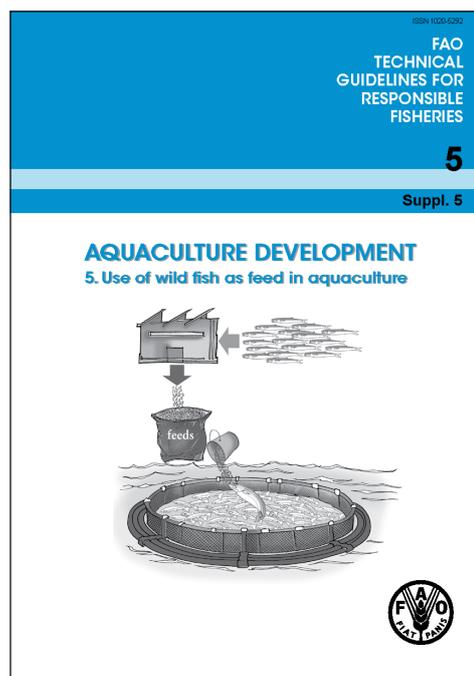
<http://www.enaca.org/uploads/temporary/oman-aquaculture-investment-guidelines.pdf>

FAO Technical Guidelines on Use of Wild Fish as Feed in Aquaculture

FAO has published technical guidelines on the use of wild fish as feed in aquaculture to support sections of FAO Code of Conduct for Responsible Fisheries (CCRF) addressing responsible fisheries management and aquaculture development. The objective of these guidelines is to assist those concerned to ensure both aquaculture growth and equitable and sustained use of available fish stocks. The guidelines are available for free download.

The guidelines cover a number of issues relevant to the use of wild fish in feeds in aquaculture, ranging from ecosystem and environmental impacts, ethical issues and responsible use of fish as feed, aquaculture technology and development, and statistics and information needs for management. However, issues relating fisheries management are not covered, as these have been considered within separate sets of guidelines related to fisheries management and there exist several sets of technical guidelines on the sustainable management of fisheries and several continuing initiatives to improve sustainable management of fisheries which inter alia would also apply to feed-fish fisheries.

These guidelines are intended to be flexible and capable of evolving as circumstances change or as new information becomes available. Please feel free to send your comments/



observations to Muhammad.Hasan@fao.org for consideration in preparation of the next edition. The guidelines can be downloaded from:

<http://www.fao.org/docrep/014/i1917e/i1917e00.pdf>

FAO. Aquaculture development. 5. Use of wild fish as feed in aquaculture. FAO Technical Guidelines for Responsible Fisheries. No. 5, Suppl. 5. Rome, FAO. 2011. 79p.

New issue of Asian Fisheries Science and Asian Fisheries Society on Facebook

If you use Facebook, you may like to visit the Asian Fisheries Society Facebook Page. There is also an AFS Indian Branch page, and an AFS Gender in Fisheries and Aquaculture page.

A new issue of Asian Fisheries Science is also available for download from the AFS website (www.asianfisheries-society.org). The journal is free to all AFS members. Contents of Volume 24 (4) are:

Standardising stocking density for freshwater prawn *Macrobrachium rosenbergii* (De Man, 1879) farming in coconut garden channels

K. Ranjeet and B. Madhusoo-Dana Kurup

The effect of stocking density on the population structure, growth characteristics and production of *Macrobrachium rosenbergii* in coconut garden channels was studied. Final marketable yield structure and economics revealed that the stocking density of 15,000 ha⁻¹ was optimum for coconut garden channels in Kuttanad, India.

The Lethal Impacts of Roundup (glyphosate) on the Fingerlings of Guppy, *Poecilia reticulata* Peters, 1859

W. U. Chandrasekera and N. P. Weeratunga

Investigation showed that the 24-hr and 96-hr LC₅₀ for Roundup were 15.1 mg.L⁻¹ and 9.76 mg.L⁻¹ respectively well below the recommended field concentration of 2,592 mg.L⁻¹. Guppy (*Poecilia reticulata*) fingerlings exposed to all Roundup concentrations developed gill hyperplasia with severity dependent on the concentration used.

The Ontogeny of the Digestive Tract and Associated Organs of Humpback Grouper (*Cromileptes altivelis*) Larvae

A.B. Abol-Munafi, W. Andriyanto, S. Ismi, A. Y. Nirmala, I. Mastuti, A. Muzaki and A.W.M. Effendy

The ontogeny of the digestive tract and associated organs in humpback grouper (*Cromileptes altivelis*) larvae was observed until 40 days after hatching (DAH). The formation of the fundic stomach at 16 DAH signalled the starting point of weaning humpback grouper onto commercial pellets.

“Trash Fish” in a Small Scale Fishery: a Case Study of Nha Trang Based Trawl Fishery in Vietnam

Hai P. Nguyen, Roger B. Larsen, Hong H. Hoang

Trash fish (catch not used for human consumption) caught in the bottom pair trawling and the otter trawling fleets in Nha Trang, Vietnam accounted for 23% and 22% of the total catch respectively. Some potential measures to reduce the catch of trash fish in the fishery were discussed.

Some Approaches to Reducing Non-commercial Bycatch of Bottom Trawl Fisheries in the Western Bering Sea

A.M. Orlov

Trawl bycatch between 1995 and 1998 in the western Bering Sea was studied. The utilisation of bycatch of the commercial species into human and animal food, and the non-commercial species into fish powder was discussed.

Changes in Sperm Quality of Silver (*Hypophthalmichthys molitrix*) and Bighead Carps (*Hypophthalmichthys nobilis*) during the Spawning Season

MD. Mofizur Rahman, Mohammad Shgamsur Rahman and Mahmud Hasan

This study investigated the changes in spermatological parameters and biochemical composition of the seminal plasma of silver and bighead carps. The results of this study have implications in improving the quality of fish seed by improving the quality of fish sperm.

Otolith Mass Asymmetry in the Adult Indian Mackerel *Rastrelliger kanagurta* (Cuvier, 1816), Collected from the Sea of Oman

Aisha Ambuali, Laith A. Jawad and Juma Al-Mamry

As in other symmetrical fish species, the absolute value of the otolith mass asymmetry in *Rastrelliger kanagurta* does not depend on fish length and otolith growth rate, and has a value between -0.2 and +0.2.

Detection of *Listeria monocytogenes* from freshwater fish, prawn and chicken meat by direct nested PCR

Sanjoy Das, V.P. Singh, Keduzol Itu, S. Kathiresan, Bhaskar Sharma and K.N. Bhilegaonkar

Three different methods of processing samples from freshwater fish, prawn and chicken meat with nested PCR for the detection of *Listeria monocytogenes* were compared. The boiling lysis method could not detect the organisms from the various meat samples. The phenol extraction with enrichment method gave better sensitivity than the phenol extraction without enrichment method.

Larval Settlement and Spat Growth of the Tropical Oyster *Crassostrea belcheri* (Sowerby, 1871) in Response to Substrate Preparations

S. Tanyaros and I.D. Kitt

Effects of substrate preparations on larval settlement and growth of spat of the tropical oyster *Crassostrea belcheri* were evaluated. The number of larvae that settled on substrate pre-soaked in adult tissue extracts or which has a biofilm were significantly higher than the number that settled on substrates immersed in sea-water for 2 hr.



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First Estimate of the Length–Weight Relationship of *Diaphus watasei* Jordan and Starks, 1904 Caught off the Southwest Coast of India

P. M. Vipin, K. Pradeep, Renuju Ravi, T. Jose Fernandez, M. P. Remesan, V.R. Madhu and M.R. Boopen-Dranath

The length-weight relationship of the myctophid fish species, *Diaphus watasei*, caught from waters off the southwest coast of India in the depth range of 300-400 m was estimated as males: $W=0.0026L^{3.39}$ and females: $W=0.0063L^{3.06}$.