



29th Governing Council Meeting held in Malé, Maldives



NACA's 29th Governing Council Meeting was held in the Maldives capital, Malé, from 26-27 June, with attendance by fifteen member governments, the Regional Lead Centres for China, India, Iran and Thailand, the Food and Agriculture Organization of the United Nations (FAO) and the Southeast Asian Fisheries Development Center (SEAFDEC).

The incoming Chair, Dr Shakeel Hassan, Senior Biologist for the Marine Research Centre, Ministry of Fisheries and Agriculture, welcomed participants to the Maldives. The outgoing Chair, Dr Md. Goljar Hossain, Director General of the Department of Fisheries, Bangladesh, made introductory remarks. China was elected as Vice Chair for the meeting.

The meeting was opened by Dr Mohamed Shiham Adam, Maldives. The Director General of NACA, Dr Cherdasak Virapat, presented a gift to the Government of the Maldives, which was received by the Hon. Shah Ismail, Deputy Minister. The Hon. Adam Haleem, Deputy Minister, presented delegates and partner organisations with a souvenir.

This was the first official NACA meeting in the Maldives, since it became a member in 2014, and also the first time that most of the delegates had visited the country, affording participants a fascinating glimpse of a very different lifestyle in the archipelago, and a very different development context.

Members discussed priority issues for the year ahead and opportunities to collaborate. As always, animal health issues continue to be a challenge, but the usage of anti-microbial substances in aquaculture and the consequent development of anti-microbial resistance were considered to be an issue of great concern, given the potential impacts on human health.

Many members are currently taking stock of practices in the aquaculture sector and ramping up awareness campaigns to encourage responsible usage of chemicals and alternatives such as better management practices, aimed at improving the health status of animals and reducing risk of disease naturally. This work is happening as part of a coordinated effort across all livestock sectors and the human health system as well.

Aquatic genetic resources were also a hot issue. There is increasing awareness of the need to improve management of genetic resources. There are massive unrealised gains to be had through the development of genetically improved varieties with superior production characteristics, or even simply through avoiding inbreeding depression. The conservation of wild aquatic genetic resources is also gaining attention, with increasing awareness of the potential impacts of stock enhancement programmes, particularly on threatened species. FAO informed the meeting that the first global report State of the World's Aquatic Genetic Resources for Food and Agriculture is being readied for publication, based on reports from 92 governments that collectively represent around 96% of global aquaculture production.

There was widespread support for continuing work on the development of culture-based fisheries; prior work undertaken years ago in Lao PDR under Prof. Sena De Silva's initiative continue to spread organically as neighbouring villages take up the practice after observing the benefits. Members have also made substantial progress in revising legal frameworks governing aquaculture, notably in Thailand, to improve the

basis for regulating the industry. There was renewed interest in strengthening cooperation in mariculture development, with the Maldives offering considerable opportunity for exchange.

A key recommendation from the meeting was to investigate the possibility of convening a global “Aquaculture +20” conference to take stock of the sector, building on the previous series of development-oriented conferences beginning with

the “Kyoto conference” in 1976, the “Millennium conference” held in Bangkok, 2000, and the “Aquaculture 2010” conference held in Phuket.

On behalf of the members, NACA wishes to thank the Government of Maldives and the staff of the Marine Research Centre and Ministry of Fisheries and Agriculture for their kind assistance in organising the meeting and excellent hospitality and hosting arrangements.

Proceedings of the Emergency Regional Consultation for Prevention and Management of Tilapia Lake Virus in the Asia-Pacific

Since 2009, tilapia aquaculture has been threatened by mass die-offs in Israel and Ecuador, caused by a novel Orthomyxo-like (RNA) virus named tilapia lake virus (TiLV). This has been reported as a newly emerging virus that causes syncytial hepatitis of tilapia (SHT). As of 2016, countries affected by this emerging disease included Israel, Ecuador, Colombia and Egypt. In 2017, Thailand and Taiwan, Province of China confirmed the presence of the virus among farmed tilapia, which was also causing mass mortalities. These were the first reports of the disease in Asia-Pacific Region. In response to this, NACA released a disease advisory as part of an awareness programme in the region. The advisory has been widely disseminated to all NACA member countries, partner institutes and other interested parties in the region and beyond. Moreover, FAO has circulated a special alert on TiLV, OIE published a technical disease card, while WorldFish prepared a TiLV Factsheet and CGIAR published a TiLV Literature Review (please see the link below to download these publications).

As tilapia is a highly important aquaculture species in the region, it is highly necessary to contain the disease in affected countries, and to prevent its spread to major tilapia-producing countries in the region. As such, countries in the region should be able to harmonise efforts in preventing the entry of the pathogen through stricter quarantine and biosecurity measures.

In this regard, an Emergency Regional Consultation for Prevention and Management of Tilapia Lake Virus in the Asia-Pacific was undertaken to discuss and plan actions on the overall prevention and management of the disease. The Consultation focused on the following:

- Implementation of proper quarantine and biosecurity measures, as well as responsible movement of live tilapias within the country and across the region.
- Strengthening of diagnostic capacities as well as active surveillance of the disease.
- Formulation of recommendations on the sanitary measures for disease prevention.
- Emergency preparedness for countries not yet affected by the disease, considering the capacity of each country.

As tilapia is a common food for many people in the region, especially among rural communities, emergency preparedness will make a big impact in the management of this emerging threat for tilapia aquaculture.

Keynote presentations covered the overall status of tilapia aquaculture in the region, major diseases affecting cultured tilapia, an overview and status of TiLV in the region (and the world), the role of trade in the spread of transboundary aquatic animal diseases, and risk assessment and biosecurity as preventive measures in the spread of the disease. Status of and plans of action for management of TiLV in eight countries in the region were also presented and discussed. These included China, India, Indonesia, Malaysia, Myanmar, Philippines, Thailand and Viet Nam. The panel discussion dealt with relevant issues on the management, prevention and control of TiLV including the formulation of a regional plan for prevention and control of TiLV; research gaps and priorities; surveillance and reporting; listing in OIE; and the way forward.

Based on the presentations and panel discussions, recommendations were made to further understand and manage TiLV in the region. For disease surveillance and diagnosis, a standard diagnostic test is still needed. There is also a need to set up two working groups to deal with TiLV investigations, one for national surveillance and another for the development of standard operating procedures for biosecurity. Understanding the genetic variations of the virus, carriers (sub-clinically infected fish) and susceptibility of other fish species to the virus are also important. Similarly, research studies should focus on validation of diagnostic tests (study of coinfection of virus and bacteria; survival of virus in frozen sample; abundance of virus in muscle tissue; the relationship between host and pathogen; phylogenetic analysis of different strains; and susceptibility of marine ornamental fishes). It is also necessary to know whether the virus is already present in the natural aquatic environment, and to identify the root cause of the disease. As the clinical signs appear to be non-specific which causes confusion, it might be worthwhile to pay attention to several areas including unbalanced “complete” feeds which might cause nutrient deficiencies, and environmental parameters that might trigger disease outbreak and proliferation of the virus.

The proceedings and other documents mentioned are available for download from:

<https://enaca.org/?id=986>

NACA signs MOU on cooperation with the Bangladesh Shrimp and Fish Foundation

An agreement on cooperation between NACA and Bangladesh Shrimp and Fish Foundation (BSFF) was signed in May. BSFF is a non-profit business support foundation dedicated to the growth of the fisheries and aquaculture sector of Bangladesh with regards to economically, socially and environmentally sustainable development. The ultimate objective of BSFF, in common with that of NACA, is to reduce poverty and improve economic development.

BSFF conducts research, studies and training in collaboration with public, private, regional and international organisations. In particular, BSFF provides support to improve and sustain the shrimp and fish based industry in Bangladesh, related export growth, food security and consumer needs, and environmental sustainability.

Through signing the MOU, both parties have agreed to collaborate on promoting better management practices, traceability, genetic improvement of shrimp, aquatic animal health and climate change issues. The organisations will facilitate technical exchange of information and personnel necessary to implement these activities.

Quarterly Aquatic Animal Disease Report, October-December 2017

The 76th edition of the Quarterly Aquatic Animal Disease Report contains information from 14 governments. The foreword discusses the outcomes of a Stakeholder Consultation on Progressive Management Pathway to Improve Aquaculture Biosecurity, organised by the Food and Agriculture Organization of the United Nations, Mississippi State University and the World Bank. The report is available for download from:

<https://enaca.org/?id=988>

Aquaculture in China: Success Stories and Modern Trends

Fish have been a major component of our diet and it has been suggested that fish/seafood consumption contributed to the development of the human brain, and this together with the acquisition of bipedalism, perhaps made us what we are. In the modern context global fish consumption is increasing. However, unlike our other staples, until a few years back the greater proportion of our fish supplies were of a hunted origin. This scenario is changing and a greater proportion of fish we consume now is of farmed origin.

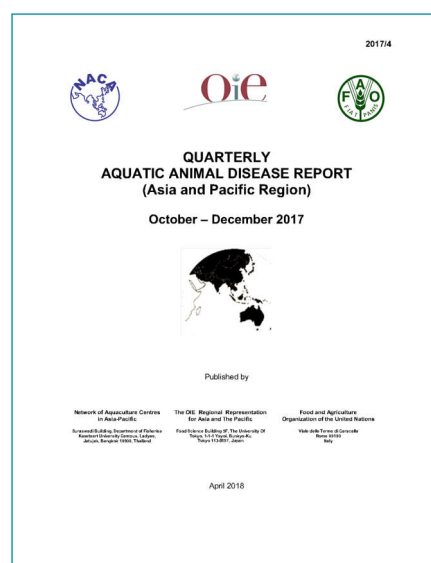
Aquaculture, the farming of waters, is thought to have originated in China, many millennia ago. Nevertheless, it transformed into a major food sector only since the second half of the last century, and continues to forge ahead, primarily in the developing world. China leads the global aquaculture production in volume, in the number of species that are farmed, and has contributed immensely to transforming the practices from an art to a science.

This book attempts to capture some of the key elements and practices that have contributed to the success of Chinese aquaculture. The book

entails contributions from over 100 leading experts in China, and provides insights into some aquaculture practices that are little known to the rest of the world. This book will be essential reading for aquaculturists, practitioners, researchers and students, and planners and developers.

To order the book please download an order form from:

<https://enaca.org/?id=987>



Gender in Aquaculture and Fisheries 2018: Early registration closing soon!

The 7th Global Symposium jointly organised by Gender in Aquaculture and Fisheries Section of the Asian Fisheries Society and Asian Institute of Technology (AIT) will be held at AIT, Bangkok during 18-20 October 2018. GAF conferences endeavour to explore the expanding horizons of gender dimensions in aquaculture and fisheries, while highlighting the need for expanding gender inclusiveness and equity.

Renowned researchers from around the world will present papers on various topics related to gender issues in aquaculture and fisheries policy and practice and will also deliver plenary and keynote addresses.

The conference provides a platform for the dissemination of current knowledge and exchange of information among all those involved in the fisheries and aquaculture industries.

We look forward to participation from everyone involved in fisheries and allied industries, including researchers, academics, students, entrepreneurs and fishers to make this event a great success.

All presenters are required to register in order to secure your presentation slots. We strongly advise you to take advantage of the early bird discount rate. Online registration can be made at the GAF website. Please note, there will be no further extension of the early bird registration deadline after 15 July 2018.

A few more rooms are available at the venue hotel. Please check the accommodation page and book early to avoid disappointment.

Should you need further information, kindly contact the Conference Secretariat: info@gafconference.org, or visit the conference website at:

<https://www.gafconference.org/register.htm>

International Training Course on the Biology and Pathology of Penaeid Shrimp

The Center for Excellence for Shrimp Molecular Biology and Biotechnology (Centex Shrimp) will organise this training course from 10-21 September, 2018.

Tailored to those involved in shrimp research, you will learn from the very best in the field about major and emerging shrimp diseases, shrimp farm management, gross inspection and molecular diagnosis of shrimp infectious diseases.

You will have opportunities to try your hand in a series of practical sessions, including anatomical inspection using digital slides, nucleic acid detection, and many more.

For those wanting to experience the "real" shrimp farming, the course will include an excursion to a local shrimp farm, so that you can see for yourself the nooks and crannies of farm operations and talk face-to-face with experienced farmers.

And if that leaves you wanting more, a two-day optional trip to Surat Thani is available to visit one of the most successful shrimp farms in Thailand.

Registration is open until 20 August. For more details, please email scentexshrimp@mahidol.ac.th, call on +66 2 201 5871 or visit:

<https://enaca.org/?id=991>

Apply now: ASEAN-India Research Training Fellowships

Fifty fellowships are available for young scientists and researchers under the ASEAN-India Research Training Fellowship Scheme (AIRTF), to study at Indian academic and R&D institutions. The fellowships are for a period of up to six months and include travel and financial support.

The fellowships are intended to build capacity among young ASEAN researchers in science and technology and to further strengthen the bond between India and ASEAN member states. Fellows will have the opportunity to conduct research under the guidance of a host scientist in India in order to advance their own research capabilities while fostering scientific and technological cooperation between ASEAN and India.

Applicants must be nationals of ASEAN member states, under 45 years in age and hold a Masters Degree in science, technology/engineering, medicine or allied disciplines. The area of research must be ASEAN-centric and aligned with the ASEAN Plan of Action on Science, Technology and Innovation, which includes the agricultural sciences. For more information, or to apply online, please visit the ASEAN-India website:

<http://www.aistic.gov.in/ASEAN/aistdfFellowship>

EURASTiP Exchange Programme Grants

The EURASTiP Exchange Programme provides opportunities for industry, researchers and educators from Europe and south-east Asia to connect and gain new perspectives while sharing innovative ideas to help develop long term partnerships. Bursaries of up to €3,000 per exchange are available (subject to eligibility criteria) to support international innovation and collaboration.

The deadline for applications is 20 September 2018. Eligible NACA member states include Bangladesh, Cambodia, Indonesia, Lao, Malaysia, Myanmar, Philippines, Thailand and Vietnam.

EURASTiP is an EU-funded H2020 project promoting multi-stakeholder contributions to international cooperation on sustainable solutions for aquaculture development in south-east Asia. For more information about the programme and how to apply please visit:

<http://www.eurastip.eu/exchanges>

Urgent action on risks to aquaculture workers needed, study finds

Health and safety within the global aquaculture industry is widely overlooked – despite the sector posing a great risk to workers, according to University of Stirling-led research.

The project found the world's estimated 18 million aquaculture workers regularly contend with "highly hazardous" conditions and workplace injury and disease risks are high.

While some aquaculture workers are highly trained and in secure jobs globally, most are from vulnerable populations in precarious work, including women, indigenous people, children, seasonal workers, migrant workers, rural and remote workers.

Unfortunately, occupational safety and health (OSH) hazards may at times also be associated with other labour exploitation issues, such as forced labour, child labour, debt bondage, discrimination, and denial of rights to association and collective bargaining negotiations and labour agreements.

However, it added that "many risks remain either neglected or unaddressed" due to gaps in knowledge, as well as limited independent analysis of prevention and risk reduction strategies.

Professor Andrew Watterson, of the Occupational and Environmental Health Research Group at Stirling, coordinated the project, involving a number of international partners. He presented the findings during a keynote speech at the International Fisheries Safety and Health Conference, in Canada, today.

Professor Watterson, of the Faculty of Health Sciences and Sport, said: "Our research found many gaps in our global knowledge of the working conditions of the world's 18 million aquaculture workers; the hazards they face; the injuries and diseases they suffer; and the risk management systems used to protect them.

"Independent analysis of prevention and risk reduction strategies adopted is limited. This emerges in all the national and regional profiles compiled for this report."

He added: "Aquaculture occupational health and safety is frequently marginalised or lost by government, industry and sometimes labour organisations. This contrasts with the wider importance and funding given to production, cost, food safety, sustainability and wider environmental issues within the sector."

The research also found that the human, social and economic toll of poor health and safety within the industry is either known to be or likely to be "considerable" for workers directly through occupational injuries and illnesses, and indirectly through low wages, long hours, job insecurity and poor welfare and social security.

Launched in December, the desk-based project looked at issues along the primary aquaculture supply chain, in marine and freshwater locations. The report includes discussion of the hazards of stock-holding units like ponds, racks and cages – as well as feeding, harvesting, processing, and transport of produce. It also explored workplace injuries in the sector relating to machinery, tools, boats, vehicles, drowning, falls, electrocution and bites.

Despite the gaps in knowledge, the team found that, in some parts of the world, practical solutions now exist to remove or reduce many sectoral risks.

"Policies and practices based on good regulations, monitoring and enforcement underpinned by effective industry, community, and labour engagement, research and knowledge transfer appear to have been successfully adopted in some countries and some production systems," Professor Watterson said.

The study found codes on occupational health, human rights, and "decent work" programmes from the International Labour Organisation and Food and Agriculture Organisation (FAO), of the United Nations, could be effective ways of addressing and raising weak standards.

Professor Watterson said: "These programmes, if linked to relevant ministries – such as labour, health and social security – may be able to contribute to progress."



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



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He added that successes identified included: (i) workforce OHS agreements with European aquaculture companies operate in developing countries such as Ghana; (ii) extension services work well in some US states; (iii) technological innovations and hazard assessment in Norway linked to regulation, (iv) Canadian technology innovations have succeeded in reducing hazardous exposures, (v) changed South African occupational health and safety management have improved practices, (vi) Scottish and UK tripartite body initiatives have improved knowledge exchange.

The team included Lissandra Cavalli, from Brazil; Mohammed Jeebhay, South Africa; Rebecca Mitchell, Australasia and New Zealand; and Barbara Neis, Canada.

The project was funded by the FAO of the United Nations, and administered by the International Union of Food, Workers.