NACA Newsletter

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30th NACA Governing Council, China

Participants in the 30th Governing Council Meeting.

The 30th Governing Council was held in Guangzhou, China, 26-27 March. 74 participants attended the Governing Council Meeting representing:

- Fifteen member governments, and the Kingdom of Saudi Arabia.
- The Regional Lead Centres from China, India, the Philippines and Thailand.
- The Food and Agriculture Organization of the United Nations.
- The Southeast Asian Fisheries Development Centre.
- The Network of Aquaculture Centres in Central and Eastern Europe.
- The Hungarian Research Institute for Fisheries and Aquaculture.

The opening ceremony featured speeches from the Chinese Government and academia. Mr Liu Xin Zhong, Deputy Director General, Fisheries Administration Bureau, Ministry of Rural Affairs, gave the opening speech. Mr Gu XingWei, Director General, Guandong Department of Agriculture and Rural Affairs, gave a welcoming address. Dr Liu YingJie, Vice President of the Chinese Academy of Fisheries Sciences, gave remarks on the role international collaboration had played in regional aquaculture development.

The outgoing Chair of the Governing Council, Dr Shakeel Hassan, welcomed delegates and thanked the Government of China for hosting the meeting. The Director General of NACA, Dr Cherdsak Virapat, reflected on the role of networking, sharing and learning for food production, economic growth and livelihoods.

The host Government, China, was elected as Chair of the 30th Governing Council. Hong Kong SAR was elected as Vice Chair. Highlights of the meeting included:

- The election of Dr Huang Jie as the next Director General of NACA.
- The Kingdom of Saudi Arabia attended the Governing Council for the first time, as an observer. Saudi Arabia wishes to strengthen cooperation with the network in aquaculture development. The Kingdom presented an overview of the status of national aquaculture development.
- Presentations on recent activities undertaken by the NACA regional lead centres. Aquatic animal genetic resources, health and biosecurity featured as issues of common interest. Of particular concern, the use of antimicrobial substances in aquaculture and antimicrobial resistance.
- Preparations for convening the next Global Conference on Aquaculture Development. The conference will be held in China, in late 2020.

Dr Huang Jie elected as next Director General of NACA

NACA welcomes Dr Huang Jie as the incoming Director General of NACA. He will serve a five year term beginning in May 2019. Dr Huang succeeds Dr Cherdsak Virapat, who will complete his own five-year term in April. Dr Huang was elected at the 30th Governing Council Meeting held 26-27 March in Guangzhou, China.

Dr Huang, a Chinese national, obtained his BSc on virology in Wuhan University in 1987, an MSc in the Wuhan Virology Institute, Chinese Academy of Science (CAS) in 1990, and his PhD on marine biology in the Ocean Institute, CAS, in 2010.

He is a Senior Researcher of the Maricultural Disease Control and Molecular Pathology Laboratory, Yellow Sea Fisheries Research Institute, Chinese Academy of Fishery Sciences (CAFS); the Chief Scientist of CAFS on aquatic animal disease control; an OIE Designated Expert for White spot disease (WSD) and Infectious and haematopoietic necrosis (IHHN); and a doctorial tutor for Shanghai Ocean University.

Dr Huang has been conducting research projects on the diagnostics, epidemiology, molecular mechanism of virus infection and control technology for WSD and other aquatic animal diseases for 26 years. He identified a new virus, HHNBV (previous named WSSV), as the pathogen of WSD in China in 1993 and reported the transmission route of the virus. His research group has discovered several new viruses, new genotypes, or new emerging diseases in marine farming industries of China, including turbot reddish body iridovirus; acute viral necrotic virus in scallop; covert mortality nodavirus in shrimp; a new genotype of yellow head virus (YHV-8) in shrimp; an earliest identified virulent strain of *Vibrio parahaemolyticus* in shrimp causing acute hepatopancreatic necrosis disease (AHPND) in 2010; shrimp hemocyte iridescent virus (SHIV), and a virulent strain of *V. campbellii* causing AHPND.

His laboratory has established a series of detection techniques, including gene probes, PCR, LAMP, and gene chips, for different aquatic animal pathogens and national standards for shrimp diseases diagnosis. They have also developed rapid detection kits for more than 20 aquatic animal pathogens, non-specific immunoenhanceants and probiotic bacteria for shrimp disease prevention, microorganism-enhanced biofloc technology for aquaculture, and marine fish vaccines for *V. anguillarum* and *Edwardsiella tarda*. Dr Huang proposes the concept of microbiological control technology to prevent aquatic animal disease and actively promotes the concept of biosecurity systems for the aquaculture industry.

Dr Huang has more than 330 publications of which 80 were published on international journals, has obtained 48 patents, published 30 national or professional standards, won 13 national and provincial awards, and trained 94 doctoral and masters level students. He won the Distinguished Expert for TAISHAN scholars of Shandong Province, the Excellence Talent and Innovation Team for Agriculture Research, and holds other national, provincial and ministerial honor titles.

Expert Consultation on Genetically Responsible Aquaculture

Participants in the Expert Consultation on Genetically Responsible Aquaculture.

A Regional Expert Consultation on Genetically Responsible Aquaculture was convened by the ICAR National Bureau of Fish Genetic Resources, India, from 26-27 February. The consultation was co-organised with NACA. 36 experts attended from throughout the region.

The consultation discussed the role of:

- Certification and standards for quality seed production.
- The development of field-validated protocols for testing the origin, genetic composition and inbreeding of seed.

- Intellectual property rights.
- Materials transfer agreements.
- Verification of origin though the use of molecular markers.
- Safeguarding farmed stocks from genetic erosion.

The immediate objective of the consultation was to discuss mechanisms for establishing quality seed production systems to improve hatchery and on-farm genetic diversity. Such systems are envisaged to include verified seed and brood-stock, biosecure procedures for germplasm exchange, and quantifiable standards to empower farmers and regulators.

A long-range objective is to establish networks of registered, small broodstock holdings. Linked via IT systems, the networks will form a virtual global aquaculture gene pool that can, collectively, sustain high genetic diversity, environmental resilience and long-term capacity for adaptation, while checking inbreeding depression.

There is a widespread perception that inbreeding and genetic erosion is leading to a decline in productivity in aquaculture. However, it is difficult to separate the impact of genetic erosion from that of other factors such as poor husbandry, disease and environmental issues. To date, the evidence has largely remained anecdotal.

The use of genetically improved or specific pathogen free varieties in aquaculture is relatively uncommon, compared to terrestrial livestock industries. Animal breeders have few rights, compared to plant breeders. There are presently no convenient and validated assays or standards available for testing genetic composition and inbreeding.

The issue is complicated by the unauthorised practice of “copying” or multiplying improved seed by third parties, without technical supervision. This may not only reduce performance but may also increase susceptibility to disease, particularly in shrimp.

The development of standards and certification processes, protocols for assessing inbreeding and origin of seed, and improved frameworks for managing intellectual property rights are expected to help bring aquaculture up to speed with other livestock sectors.

Patrons of the consultation were Dr Trilochan Mahapatra, Director General, ICAR and Secretary, DARE; Dr J.K. Jena, Deputy Director General, ICAR; and Dr Cherdsak Virapat, DG, NACA. The consultation was convened by Dr Kuldeep Lal, Director, NBFGR and Dr Roger Doyle, President of Genetic Computation Ltd. FAO was represented by Dr Graham Mair.

www.enaca.org

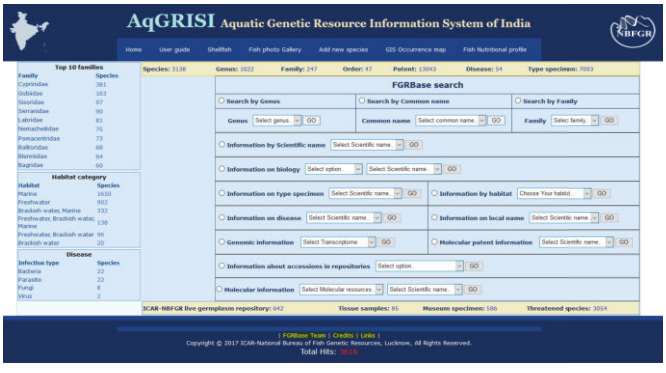
Launch of AGRISI: Aquatic Genetic Resource Information System of India

AGRISI, a new information system on aquatic genetic resources of India, has been launched by the National Bureau of Fish Genetic Resources (NBFGR).

AGRISI is a unique platform presently covering 3,138 native fish species of India. The system provides information on systematics, biology, distribution, nutrition, nutrition, and other characteristics.

AGRISI includes information on museum specimens including type specimens, and accessions from different NBFGR repositories including data on germplasm and cell lines. AGRISI links to other molecular resources developed under the National Agricultural Bioinformatics Grid. These include:

- FBIS, the Fish Barcode Information System.
- HRGFish, a database of hypoxia responsive genes.
- FishKaryome, a chromosome database of fishes and other aquatic organisms.
- FishMicrosat, a fish and shellfish microsatellite database.
- FMiR, fish mitogenome resources.



AGRISI was developed under the Digital India Initiative Programme. It provides country-specific information on fish genetic resources as required by the BDA Act, 2002. It also supports FAO’s Report on the State of the World’s Aquatic Genetic Resources for Food and Agriculture.

The database is accessible at: http://mail.nbfgr.res.in/agrisi/

Aquatic animal epidemiology training course held at NBFGR

The ICAR-NACA School on Aquatic Epidemiology and Disease Surveillance was held at the ICAR National Bureau of Fish Genetic Resources (NBFGR) from 1-6 March. The school was a collaboration between the Indian Council of Agricultural Research and NACA.

Participants were welcomed by Dr Kuldeep K. Lal, Director of NBFGR. Dr Gaurav Rathore, Head of the Fish Health Management and Exotics Division introduced the programme.

The course was lead by Professor Kenton Morgan, Ex-Chair of Epidemiology at the University of Liverpool. Dr Eduardo Leano, Coordinator, Aquatic Animal Health Programme, NACA and Dr I. Karunasagar, ex-FAO, gave invited lectures.

The school covered:

- Concepts and principles of epidemiology.
- Use of epidemiological principles in design and implementation of surveillance programmes.
- Sampling considerations for surveillance programmes.
- Population surveys.
- Estimation of sensitivity and specificity of diagnostic tests.
- Questionnaire design.

NACA would like to thank the ICAR-National Bureau of Fish Genetic Resources, its staff and Professor Morgan for their initiative and collaboration.

Asia-Pacific Laboratory Proficiency Testing Workshop

Participants in the Asia-Pacific Laboratory Proficiency Testing Workshop.

The Australian Government is conducting a new aquatic animal disease proficiency testing programme. The programme provides laboratories with the opportunity to assess their own diagnostic performance. This allows them to identify technical issues with their practices and improve their performance.

34 laboratories from thirteen countries in the region are participating in the programme. The programme involves eight rounds of proficiency testing carried out over four years. Diagnostic performance is assessed against ten priority fish and crustacean diseases. The first two rounds of samples were distributed for analysis in 2018.

The programme convened a proficiency testing workshop from 13-14 March in Bangkok, Thailand. The aim was to improve the performance of laboratories and technical personnel, by:

- Providing an opportunity to discuss experience with the first two rounds of testing.
- Improving personnel's understanding of diagnostic standards, proficiency testing procedures and laboratory accreditation.
- Identifying current capability and future training needs to meet international trade requirements.

The workshop was convened by the Department of Agriculture and Water Resources and CSIRO's Australian Animal Health Laboratory (AAHL), in collaboration with NACA.

The programme builds on previous laboratory proficiency testing exercises held in 2012. These exercises, also supported by the Australian Government, significantly improved diagnostic performance in participating laboratories.

The workshop included presentations and discussions on:

- The importance of accurate diagnostics for aquatic animal disease to facilitate trade.
- Quality assurance management systems and assay validation.
- Australia's laboratory network and aquatic animal disease surveillance and diagnostic activities.
- PCR laboratory design and laboratory workflows.
- Sample preparation and extraction.
- Trouble shooting and discussion on test performance.
- Method validation.
- OIE Aquatic Manual update.

- Method implementation and equivalence testing.
- Quality assurance and laboratory accreditation.
- Presentations on WSSV, YHV1 and MCV testing.
- An overview of the WSSV outbreak and national surveillance in Australia.

NACA would like to thank the Australian Department of Agriculture and Water Resources and CSIRO/AAHL and for their generous support.

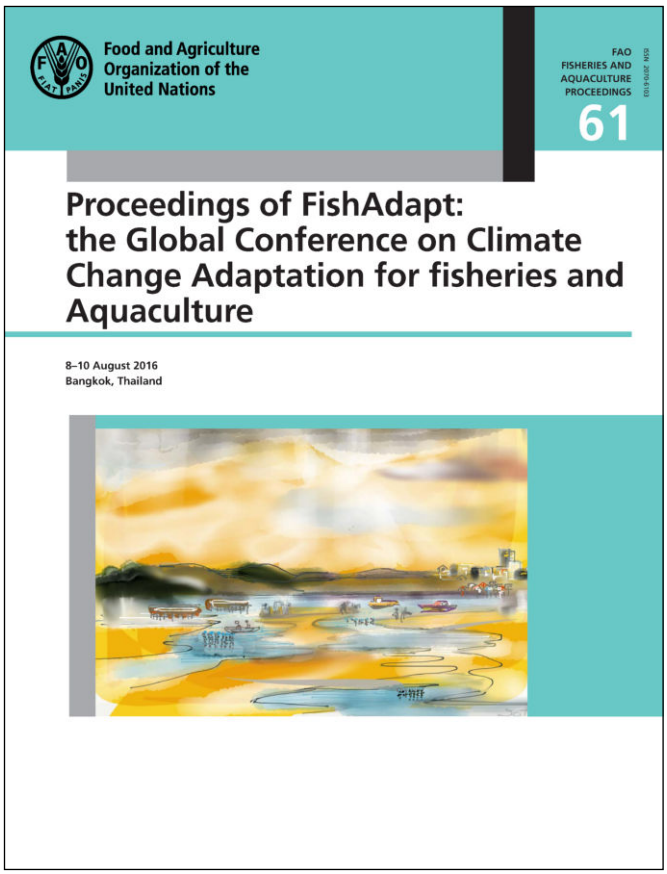
Proceedings of the FishAdapt Conference

Climate variability and change are affecting hydro-meteorological cycles and altering aquatic ecosystems, driving shifts in physical and chemical processes, ecological communities and the distribution and abundance of species. These changes have implications for fisheries management, food security and the livelihoods of more than 600 million people worldwide that are employed in fisheries and aquaculture, their value chains and related industries.

The FishAdapt conference was held in Bangkok from 8 to 10 August, 2016. It provided a forum for scientists, development professionals and natural resource managers working in the context of fisheries, aquaculture, rural development and related fields to share practical experiences in understanding the vulnerabilities associated with climate change and ocean acidification and the development of risk management and adaptation strategies. The conference bridged interdisciplinary gaps and provide a wider, shared perspective on the issues and the current state of knowledge.

The proceedings of the conference share the experiences of the 110 participants from 27 countries and show that much can be done at the household, community and sector levels to support the resilience of the sector and its dependent communities in a changing climate. Download from:

https://enaca.org/enclosure.php?id=1039



Quarterly Aquatic Animal Disease Report, July-September 2018

The 79th edition of the Quarterly Aquatic Animal Disease report contains information from eleven governments.

The foreword discusses the outcomes of the 17th Meeting of the Asia Regional Advisory Group on Aquatic Animal Health, held in Bangkok, 13-14 November 2018. Free download from:

https://enaca.org/?id=1036

Centex Shrimp: International Training Course on Biology and Pathology of Penaeid Shrimp

This year's course will take place from 1-12 July, Thailand. Tailored to those interested in doing shrimp research or learning about shrimp diseases, you will get to 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 hands in a series of practical sessions, including anatomical inspection using digital slides, nucleic acid detection, EHP spore purification and detection, and many more.

For more details, please email sccentexshrimp@mahidol.ac.th.

INFOFISH World Shrimp Trade Conference and Exposition

The theme for Shrimp 2019 is “modelling for sustainability”. The conference will be held from 12-14 November in Bangkok, Thailand.

Global production of farmed shrimp is estimated at between 2.9 million MT and 3.5 million MT, with Asian producers – China, India, Indonesia, Philippines, Thailand and Vietnam – sharing 75-85% of the total volume.

Following a moderate recovery in the sector in Thailand and Mexico, and expanded vannamei farming focused in China, India, Indonesia and Vietnam, overall production is expected to be positive in 2018.

Driven by environmental and social factors, as well as the recurrent disease outbreaks in shrimp farming, the focus now is towards sustainability.

With the various challenges faced by the shrimp industry, there is a need to properly identify and promote systems that will lead to sustainable development. Knowledge of credible standards and regulations of different importing/exporting countries is of paramount importance to facilitate compliance and harmonious trade.

Further, opportunities to strengthen international co-operation on technical, policy and trade issues on global shrimp industry must be highlighted.

The conference

The international conference on shrimp will consider at length the present and future of the industry, focusing on moving towards sustainability.

A large part of the sessions will be devoted to production and trade at the domestic and international levels, as well as the latest developments in the shrimp industry.

Some 250 delegates, both international and local, representing various segments of the seafood industry, are expected to participate.

The exhibition

In conjunction with the conference, an exhibition will be organised at the same venue.

The event will showcase and promote products, supplies and equipment from regional and international players.

A total of 20 exhibition booths have been allocated for seafood exporters/importers, processors, equipment suppliers and manufacturers around the Asia-Pacific region and worldwide.

For more information please visit the Shrimp 2019 website:

http://shrimp.infofish.org/

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