Fish Health Section
Asian Fisheries Society

Message from the Chair

Dear FHS Colleagues,

Greetings and Happy New Year 2021!

It's time to reflect on 2020, a year like no other. A year with unprecedented challenges - the historic global pandemic never seen before in our lifetime. Our thoughts and prayers are with those who have lost loved ones and those affected by the pandemic in one way or another. SARS-CoV-2 that causes COVID-19 has not only changed the way we live and work, but also showed the world how science works – from identifying the virus, to flattening the epidemiological curve and finally to develop vaccines against it.

In response to the need for clear communication regarding the risk of transmission of the novel virus and the general societal concern of potential contamination of aquatic animals or their products with the virus, our Society led by Dr. Melba Bondad-Reantaso quickly published a paper addressing these concerns. The paper appeared in the Asian Fisheries Journal published by our parent organisation, the AFS, https://doi.org/10.33997/j.afs.2020.33.1.009.

The pandemic is also affecting the FHS-AFS activities including our triennial events, the Symposium on Diseases in Asian Aquaculture (DAA) and Triennial General Meeting (TGM). The Bylaws of the Society adopted in 2002 http://www.fhs-afs.net/bylaws.htm state that the TGM shall be held in conjunction with the DAA. The DAA-11 and TGM-12 were scheduled to be held in Kuching, Malaysia in 2020. Due to the pandemic, however, the events have been postponed to 23-26 August 2021. Huge thanks to Dr. Kua Beng Chu and the Organising Committee for their hard work navigating the difficult processes of organising DAA11 in this challenging time. We are acutely aware with the risk of conducting a physical event in 2021 and are monitoring the situation closely. The ExeCom will meet again in early 2021 to see how things are progressing and what it means for us in terms of holding DAA-11 and TGM-12. ExeCom will also be looking into the need to amend the constitution to reflect special circumstances where physical DAA and TGM cannot be held as planned. We will keep the members informed with the developments.

Taking advantage of Skype technology, the ExeCom met twice this year on 9 March and 29 October to discuss various issues including the impacts of COVID-19 on DAA-11. As the triennial event has been postponed next year and to keep the FHS members connected, we decided to hold a webinar series with the first webinar entitled "Beauty and the Beast: Important Parasites of Fish," which was held on 9 December 2020. A total of 339 participants from at least 20 countries attended the webinar. We extend our appreciation to speakers, Drs. Andy Shin, Erlinda Cruz-Lacienda, Susan Gibson-Kueh and Kua Beng Chu for sharing their vast knowledge and experience of managing parasites in different aquaculture settings. Big thanks to Dr. Eduardo Leano, Secretary-Treasurer of FHS-AFS, for organising the webinar and Dr. Huang Jie, Director General of NACA, for supporting and facilitating the webinar. We also thank the participants for taking time to attend the webinar and for providing positive feedback.

On behalf of the ExeCom and members, we thank our fabulous eNewsletter Editorial Team for successfully publishing high quality eNewsletter annually since 2017.

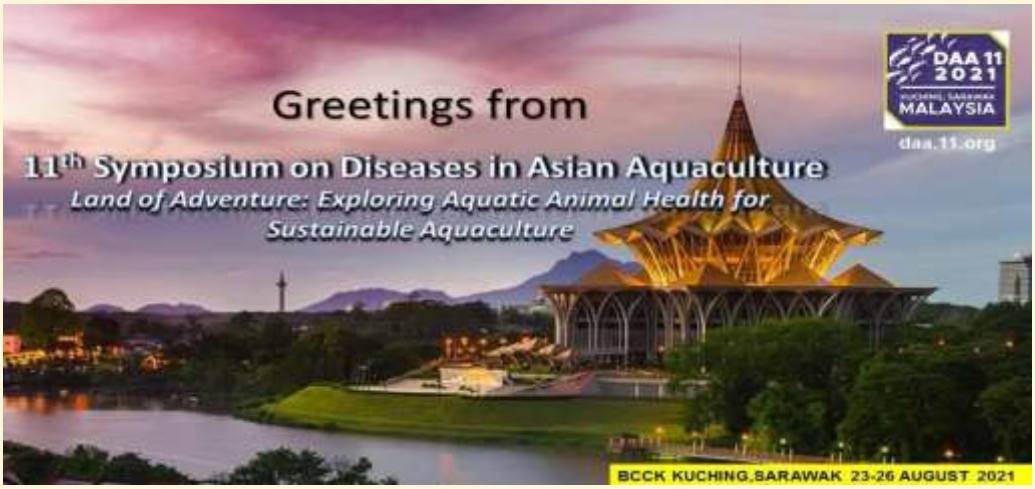
Have a safe, healthy and happy holiday!

Best wishes
Dr. Agus Sunarto
Chairperson FHS-AFS (2017-2020)
Email: Agus.Sunarto@csiro.au

Fish Health Section
Asian Fisheries Society

Postponement of the 11th Symposium on Diseases in Asian Aquaculture (DAA11)

23-26 August 2021



Due to COVID-19 pandemic and following extensive deliberations between the DAA11 Organizing Committee members including the Government of Malaysia; it is confirmed that the face-to-face 11th Symposium on Diseases in Asian Aquaculture (DAA11) could not take place as scheduled during 29 September- 2 October 2020.

After considering the concerns related to health and safety of participants, the Government of Malaysia and DAA11 Organizing Committee, therefore, agreed to postpone the 11th Symposium on Diseases in Asian Aquaculture until 2021. On behalf of the Committee, we apologize for any inconvenience caused.

We are pleased to inform that we have rescheduled DAA11 to 23 – 26 August 2021 in Kuching, Sarawak. All papers, panels, posters, roundtables that have been submitted to DAA11 2020 will be automatically accepted for the upcoming DAA11 2021. Keynote speakers, sponsors and exhibitors will be informed individually to discuss future involvement.

The latest development with be updated on our official website: daa11@dof.gov.my

The DAA11 marks 31 years of FHS-AFS establishment and it will be held in Malaysia. Local hosts, the Department of Fisheries, Malaysia under the Ministry of Agriculture and Food Industries together with the Ministry of Modernisation of Agriculture, Native Land and Regional Development Sarawak will be organizing the event in cooperation with the FHS-AFS.

With the theme of the symposium, "Land of Adventure: Exploring Aquatic Animal Health for Sustainable Aquaculture", it offers an exciting range of comprehensive and scientific programme covering a variety of industry-specific tropics, from epidemiology to the latest trend of management in shrimp and fish diseases. The DAA11 starts on Monday 23rd August 2021 and end on 26th August 2021. We look forward to see you all at DAA11.

Fish Health Section
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Fish Health Section Webinar "Beauty and the Beast: Important Parasites of Fish"

9 December 2020

The Fish Health Section (FHS) of the Asian Fisheries Society (AFS) organized a webinar on fish parasitology. This was held virtually on 9 December 2020 in Bangkok, Thailand, and attended by around 339 participants from at least 20 countries around the world. With the many aquatic animal disease problems affecting the aquaculture industry, fish parasites are often overlooked mainly because of their limited impacts on production compared to viral and bacterial diseases. However, some of these parasites, if left uncontrolled, can also cause significant production losses or affect the marketability of harvested fish. Thus, this webinar was undertaken to raise awareness on the importance of parasites on both farmed and wild fish populations, to understand their mechanisms of infestation (including their life cycle), as well as disease prevention and control.

Renowned fish parasitologists in the region and in the world were invited to talk on important parasites of freshwater and marine fishes. The different topics covered by the experts included 'Parasites of Freshwater Fish' by Prof. Andy Shinn, Director & Senior Scientist, Fish Vet Group Asia Ltd., Thailand; 'Sea Lice on Cultured and Wild-caught Fishes in the Philippines' by Prof. Erlinda R. Cruz-Lacierda , University of the Philippines Visayas (UPV), the Philippines; 'Neobenedenia: Can we Innovate to Successfully Manage this Parasite in Sea Cages?' by Dr. Susan Gibson-Kueh, James Cook University , Singapore and 'Marine Leech: From Life Cycle to Control Measures' by Dr. Kua Beng Chu, Director, Fish Health Research Division, Department of Fisheries, Malaysia. Video recordings of the webinar were prepared and have been posted at FHS website (www.fhs-afs.net).


Andy Shinn


Erlinda R. Cruz-Lacierda


Susan Gibson-Kueh


Kua Beng Chu

Expert Consultation on Status and Preparedness on Decapod Iridescent Virus-1 in India

17 April 2020

Under National Surveillance Programme for Aquatic Animal Diseases (NSPAAD), an expert consultation was held on April 17, 2020 to discuss the Status and Preparedness on Decapod Iridescent Virus-1 (DIV1) in India. The meeting was attended by selected subject experts from different ICAR Fisheries Research Institutes; Officials from Department of Fisheries, Govt. of India; NFDB, Scientists from Rajiv Gandhi Centre for Aquaculture, Marine Products Export Development Authority; and a few eminent experts from different organizations. The major objective of the Consultation was to bring a consensus approach on status, risks and preparedness needs regarding DIV1, and developing Advisory regarding the disease for communication to the stakeholders for following a precautionary approach. In addition, there was discussion for undertaking surveillance under NSPAAD, and also requirement for screening the shrimp broodstock and other inputs imported into the country for DIV1. It was felt that there is low risk of spread of DIV1 infection from wild *Penaeus monodon* to farmed *P. vannamei* and scampi culture, as polyculture of decapods is not a common practice in the country. However, screening of other decapods for DIV1 should also be undertaken, particularly where wild seed is cultured or broodstock is sourced from wild, as the virus is known to have wide host range. In addition, keeping in view the risks, there was emphasis on developing an informed cautious strategy and a contingency plan to deal with any emergency situation.

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OIE Regional virtual meeting on Decapod Iridescent Virus 1

20 August 2020

The shrimp industry has been beset by many devastating diseases in the last three decades, which has caused severe production and economic losses, and even caused the collapse of the industry in some countries. In recent times, a shrimp viral disease has been threatening the shrimp industry in Asia and the Pacific. The virus, now formally named Decapod iridescent virus 1 (DIV1), was first detected from China as early as 2014. Recently, the virus has been reported from wild *Penaeus monodon*, collected from Indian Ocean. In June 2020, Chinese Taipei reported the presence of the disease in crayfish and shrimp farms through OIE WAHIS. The disease meets the OIE definition of an 'emerging disease' and, as such, Members shall report it in accordance with Article 1.1.4 of the OIE Aquatic Animal Health Code (the Aquatic Code). Infection with DIV1 is listed in the OIE/Network of Aquaculture Centres in Asia-Pacific (NACA) quarterly aquatic animal disease report (QAAD report).

Considering the threat of spread of DIV1, the OIE Regional Representation for Asia and the Pacific (RRAP) organized the OIE Regional Virtual Meeting on DIV1 on 20th August to share information on the current DIV1 situation, covering the impacts, risk management measures and early detection methods. More than 100 participants attended this meeting. They comprised: OIE Delegates, OIE Focal Points for Aquatic Animals, interested representatives from Members, OIE designated experts from OIE Reference Laboratories, members of the OIE Aquatic Animals Health Standards Commission (AAHSC), as well as representatives from OIE headquarters, OIE RRAP, NACA and the Southeast Asian Fisheries Development Center (SEAFDEC).

The major objectives of the meeting were (i) sharing information on impacts, risk management measures, laboratory test method and DIV1 surveillance to increase awareness and understanding on DIV1, (ii) Sharing sanitary measures that are being implemented and their rationale to continue to facilitate trade while mitigating risk of disease spread, (iii) facilitating DIV1 disease control and information sharing within the region and (iv) identifying issues/areas requiring cooperation to assist emerging disease preparedness and response measures.

Following opening remarks by Dr. Hirofumi Kugita, OIE Regional Representative for Asia and the Pacific, there was a presentation by Dr. Stian Johnsen from the OIE Standards Department to introduce the OIE definition of emerging disease and the reason for reporting emerging disease outbreak information to the OIE as an Immediate Notification through the World Animal Health Information System (WAHIS). The meeting had three sessions, namely Update on the Members' Situation of DIV1; Standards for Safe Trade – what we know and what we need to know; and Diagnostic Technology and Surveillance for DIV1. In Session I, there were presentations by Dr. Chenxu Cai from the National Fisheries Technology Extension Center, Ministry of Agriculture and Rural Affairs, China (P.R.); Dr. Chun-Ming Yu, Sector Chief of the Animal Health Inspection Division, Bureau of Animal and Plant Health Inspection and Quarantine (BAPHIQ), Chinese Taipei; Dr. Jaree Polchana, Head of the Aquatic Animal Health Research and Development Division, Department of Fisheries, Thailand; Dr. Stéphanie Sourget, Animal Health and Quarantine Section, New Caledonia. During Session II, Dr. Ingo Ernst, President of the OIE AAHSC, gave a presentation on the progress of the OIE Aquatic Animals Commission work on emerging diseases. He also informed that infection with DIV1 has been proposed for listing in the OIE Aquatic Code in May 2021. In Session III, Dr. Jie Huang, the Director General of NACA, gave a presentation on DIV1 laboratory diagnostic methods and surveillance. In the end, Dr. Mark Schipp, the President of the OIE World Assembly of Delegates, closed the meeting and thanked all the participants for their active participation.

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Regional Webinar on Infection with Decapod Iridescent Virus 1 and Preparedness for Emerging Shrimp Diseases

10-11 September 2020

Recently, emerging shrimp viral diseases have threatened the shrimp industry. For example, the virus, formally named Decapod iridescent virus 1 (DIV1) by ICTV, has caused mortality in farmed Pacific white shrimp (*Penaeus vannamei*) and giant freshwater prawn (*Macrobrachium rosenbergii*). The virus infects all stages of shrimps and has also been observed to infect crayfish (*Cherax quadricarinatus*).

In order to provide updated knowledge, recommendations, and emergency preparedness for DIV1 and other emerging shrimp diseases, the Network of Aquaculture Centres in Asia-Pacific (NACA) organized a virtual public consultation on 10-11 September 2020. The regional consultation was undertaken with the primary objectives of discussing and planning actions for the prevention and management of the disease. Specific objectives were to:

- Provide updated technological information on DIV1
- Advocate the strengthening of diagnostic capacities as well as active surveillance of DIV1 (to detect presence or absence of the virus)
- Formulate recommendations on sanitary measures (including biosecurity) for disease prevention
- Promote emergency preparedness for emerging diseases

The regional consultation was attended by around 250 participants from around the world. Invited experts and panelists included: Dr. Ingo Ernst (OIE-Aquatic Animal Standards Commission); Dr. Fang Li (P.R. China); Dr. Kallaya Sritunyalucksana and Prof. Timothy Flegel (Biotec, Thailand); Dr. Celia Lavilla-Pitogo (Philippines); Dr. C.V. Mohan (WorldFish); Dr. Jing Wang (OIE-Regional Representation for Asia and the Pacific); and, Dr. Jie Huang and Dr. Eduardo Leaño (NACA).

Some of the key points from the discussion were:

- Virulence of DIV1 to penaeids is significantly lower than WSSV; however, it is highly virulent to freshwater prawn *M. rosenbergii*;
- Transparent reporting and information sharing among countries in the region should be encouraged, to allow assessment on how widespread the disease is in the region.
- Movement of live aquatic animals is the most likely means of transmission, therefore, it is necessary that those animals should be assured of their DIV1 free status from the point of origin, and should be properly quarantined (in case of broodstock) prior to use in any aquaculture facility.
- DIV1 remains viable in frozen condition (for about half year?), thus disease transmission is still likely through contamination from infected frozen products (can act as carriers).

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19th Meeting of the Asia Regional Advisory Group on Aquatic Animal Health

26-27 November 2020

The Network of Aquaculture Centres in Asia-Pacific (NACA) organized the 19th Meeting of the Asia Regional Advisory Group on Aquatic Animal Health (AGM-19) on 26-27 November 2020. Due to the current COVID-19 pandemic, this year's AGM was held virtually. The AGM is usually attended by limited number (10-15) of participants representing aquatic animal health experts in the region, representative of partner regional and national organizations (FAO, OIE, SEAFDEC), and the private sector. This year, however, NACA invited member country representatives as observers. Countries represented include Bangladesh, Cambodia, P.R. China, Hong Kong, India, Indonesia, Malaysia, Myanmar, Nepal, Pakistan, and Sri Lanka. Additional observers from R.O Korea (2), OIE-RRAP (2) and FAO HQ (3) also attended.

The following were presented and discussed during the virtual meeting:

- Progress since AGM 18 (Dr. Eduardo Leaño, NACA)
- Updates from OIE Aquatic Animal Health Standards Commission (Dr. Ingo Ernst, AAHSC, OIE)
- Updates on Progressive Management Pathway for Aquaculture Biosecurity (PMP/AB) (Dr. Melba Reantaso, FAO)
- Updates on OIE Regional Collaboration Framework on Aquatic Animal Health management in Asia and the Pacific (Dr. Jing Wang, OIE-RRAP)
- Emerging aquatic animal diseases in the region including DIV1 (Dr. Jie Huang, NACA)
- Updates on QAAD Reporting:
  - QAAD Report in the Future: Updates on the new function of the new WAHIS system (Dr. Jing Wang; OIE-RRAP)
  - Updates on reporting and disease list (Dr. Eduardo Leaño, NACA)

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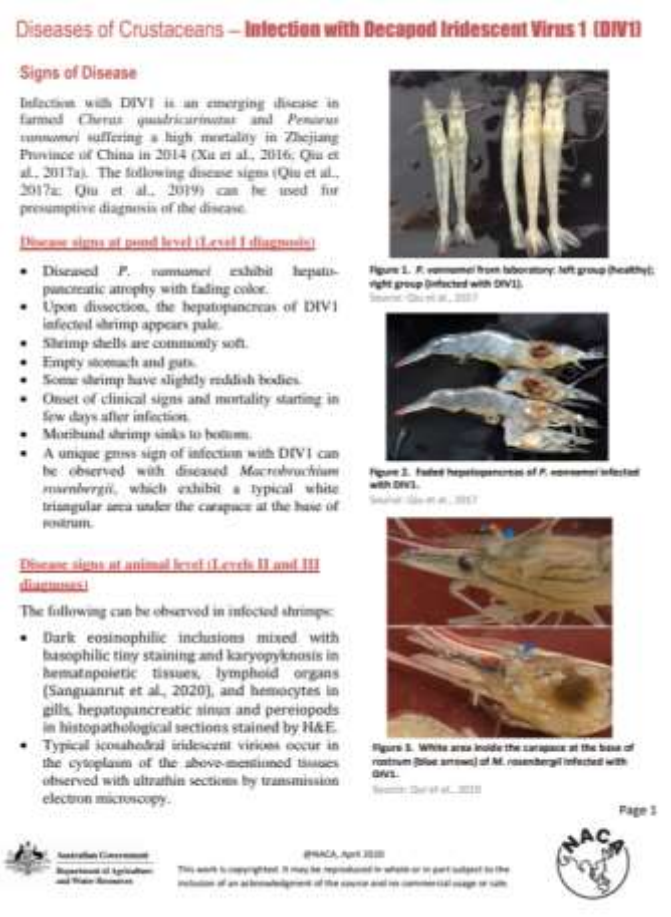
NACA Released Disease Advisory and Disease Cards on Emerging Crustacean Diseases



Diseases of Crustaceans – **Infection with Decapod Iridescent Virus 1 (DIV1)**

Signs of Disease

Infection with DIV1 is an emerging disease in farmed *Cherax quadricarinatus* and *Penaeus vannamei* suffering a high mortality in Zhejiang Province of China in 2014 (Xu et al., 2016; Qiu et al., 2017a). The following disease signs (Qiu et al., 2017a; Qiu et al., 2019) can be used for presumptive diagnosis of the disease.

Disease signs at pond level (Level I diagnosis)

- Diseased *P. vannamei* exhibit hepatopancreatic atrophy with fading color.
- Upon dissection, the hepatopancreas of DIV1 infected shrimp appears pale.
- Shrimp shells are commonly soft.
- Empty stomach and guts.
- Some shrimp have slightly reddish bodies.
- Onset of clinical signs and mortality starting in few days after infection.
- Moribund shrimp sinks to bottom.
- A unique gross sign of infection with DIV1 can be observed with diseased *Macrobrachium rosenbergii*, which exhibit a typical white triangular area under the carapace at the base of rostrum.

Figure 1. *P. vannamei* from laboratory: left group (healthy); right group (infected with DIV1).

Figure 2. Faded hepatopancreas of *P. vannamei* infected with DIV1.

Figure 3. White area inside the carapace at the base of rostrum (blue arrows) of *M. rosenbergii* infected with DIV1.

Disease signs at animal level (Levels II and III diagnoses)

The following can be observed in infected shrimps:

- Dark eosinophilic inclusions mixed with basophilic tiny staining and karyopyknosis in hematopoietic tissues, lymphoid organs (Sanguanrut et al., 2020), and hemocytes in gills, hepatopancreatic sinus and pereiopods in histopathological sections stained by H&E.
- Typical icosahedral iridescent virions occur in the cytoplasm of the above-mentioned tissues observed with ultrathin sections by transmission electron microscopy.

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The Network of Aquaculture Centres in Asia-Pacific (NACA) has released disease advisory and disease cards on two emerging diseases of crustaceans in the region: the Viral covert mortality disease (VCMD); and, the Decapod iridescent virus 1 (DIV1). VCMD is caused by covert mortality nodavirus (CMNV), a positive single strand RNA virus that has been classified in the family Nodaviridae. Crustaceans currently known to be susceptible to VCMD include *Penaeus vannamei*, *P. chinensis*, *P. japonicus*, *P. monodon*, *Macrobrachium rosenbergii*, *Procambarus clarkii*, *Exopalaemon carinicauda*, *Ocypode cordimanus*, *Diogenes edwardsii*, *Corophium sinense*, *Parathemisto gaudichaud* and *Tubuca arcuate*. Infected shrimps appear moribund, stay at the bottom, and die. Dead shrimps can be observed daily, with high mortality following a rapid change in water temperature, especially above 28°C. At the animal level, clinical signs of infected shrimp include: hepatopancreatic atrophy and necrosis; empty stomach and gut; soft shell; slow growth; and in many cases abdominal muscle whitening and necrosis. VCMD has been listed in the Quarterly Aquatic Animal Disease (QAAD) reporting for Asia-Pacific since 2017, and the disease card can be downloaded from NACA website for easy reference at this link: https://enaca.org/?id=1108&title=viral-covert-mortality-disease-card.

DIV1 is a more recent disease that has caused significant losses in the shrimp industry of P.R. China. It was previously identified as CQIV (*Cherax quadricarinatus* iridovirus) in 2014, and SHIV (Shrimp hemocyte iridescent virus) in 2017. Clinical signs of infected *P. vannamei* are not typical, including slightly reddish body, hepatopancreatic atrophy with colour fading, and empty stomach and guts. A unique gross sign of DIV1 can be observed in diseased *M. rosenbergii*, which exhibit a typical and whitish area under the carapace at the base of rostrum. Moribund individuals sink to the bottom in deep water and dead individuals can be found every day, with a cumulative mortality up to 80%. Currently known susceptible species of DIV1 include *P. vannamei, M. rosenbergii, E. carinicauda, M. nipponense, Pr. clarkii,* and *C. quadricarinatus*. DIV1 has been listed in QAAD reporting as Iridovirus in crayfish in 2018, as SHIV in 2019, and as DIV1 in 2020. The disease advisory is available at https://enaca.org/?id=1098&title=decapod-iridescent-virus-1-an-emerging-threat-to-the-shrimp-industry, while the disease card is available at https://enaca.org/?id=1104&title=infection-with-decapod-iridescent-virus-1-%28div1%29-disease-card.

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Webinar on Aquatic Animal Health

24 November 2020

The Aquatic Environment & Health Management Division of ICAR-Central Institute of Fisheries Education (ICAR-CIFE), Mumbai under the aegis of National Agricultural Higher Education Project (NAHEP), organized a one-day Webinar on 'Aquatic Animal Health' on 24th November, 2020. A total of 325 participants from India and overseas attended the Webinar. In opening remarks, Dr. Gopal Krishna, Director, ICAR-CIFE and Convenor of the Programme emphasized on the need for a holistic approach towards health management of aquatic animals. Prof. Iddyya Karunasagar, Rtd. Senior Fisheries Officer (FAO of UN) mentioned the need of antimicrobial resistance management in aquatic animals and stressed upon the importance of developing the risk assessment and bio-security measures at National, State, District and Farm-level. Dr. J. K. Jena, Deputy Director General (Fy.Sc.), ICAR, New Delhi, during his inaugural address highlighted the important points like microbial composition, disease management and micronutrient level management. He emphasized that in order to achieve the projected demand for fish seed in India, both the vertical and horizontal expansion is imperative and the risk level associated with such expansion should be assessed and addressed. Dr. K.V. Rajendran, Co-convenor of the programme and Head, Aquatic Environment & Health Management Division, ICAR-CIFE provided the brief background of the programme. There were keynote presentations on 'Expediting pathogen discovery in shrimp by combining histopathology and genomics' by Dr. Arun K. Dhar, Director, Aquaculture Pathology Laboratory, The University of Arizona, USA; 'Aquaculture vaccines: Path from Lab to Vial' by Dr. Sudheesh P.S., Project Leader (Aqua-USA), Merck Animal Health, USA; 'Aquatic animal health within the larger one health framework' by Dr. C.V. Mohan, Principal Scientist, WorldFish, Malaysia; 'Control of Acute Hepatopancreatic Necrosis Disease (AHPND) through the use of Biofilm Inhibitors' by Dr. Chumporn Soowannayan, Senior Researcher, Center of Excellence for Shrimp Molecular Biology and Biotechnology, Mahidol University, Bangkok, Thailand; and 'Indian shrimp aquaculture 2020: Caught between the pandemic and epidemics' by Y. Ravi Kumar Managing Director, Vaishaki Bio-Marine Pvt. Ltd., Visakhapatnam, Andhra Pradesh, India. The presentations were followed by panel discussion on the topic 'Aquatic animal health: Issues/challenges and way forward'. The panellists included Dr. Riji John, Dr. A. S. Sahul Hameed, Dr. P. K. Sahoo, Dr. T. J. Abraham, Dr. Gaurav Rathore; Dr. K. Pani Prasad, Dr. A. Uma, Dr. B. K. Behra and Dr. N. K. Sanil. Dr. S.V. Alavandi, Head, Aquatic Animal Health and Environment Division, ICAR-CIBA, Chennai stressed on the need of strengthening the diagnostic capability, in view of threat of emerging diseases in shrimp aquaculture. Dr. Gayatri Tripathi, Organising Secretary of the programme summarised the key takeaways from the presentations made during the Webinar.

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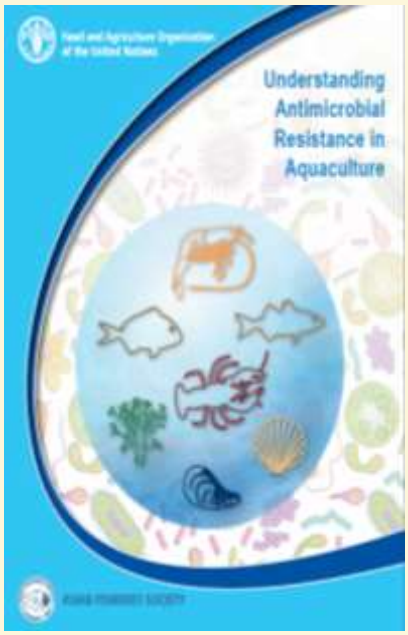
Understanding Antimicrobial Resistance in Aquaculture

The Project 'Strengthening capacities, policies, and national action plans on prudent and responsible use of antimicrobials in fisheries' has been developed and implemented by the Food and Agriculture Organization of the United Nations (FAO) to enhance the knowledge, skills and capacity of the participating Competent Authorities on fisheries and aquaculture as well as to assist them in the development and implementation of policies and national action plans (NAPs) on the prudent and responsible use of antimicrobials. In order to achieve this objective, three regional workshops have been held in 2017 (Mangalore/India on 10-12 April;



Putrajaya/Malaysia on 7-9 August; and Singapore on 12-14 December). A total of 92 participants from 14 countries representing governance authorities, intergovernmental organizations, academe, research institutions, and the private sector participated actively during the technical working discussions. Through an agreement between FAO and the Asian Fisheries Society (AFS), a special volume based on technical presentations delivered during the three workshops implemented under the auspices of the above-mentioned project has been published. This publication addresses a wide range of topics to assist in better understanding antimicrobial resistance (AMR) in aquaculture.

India to host 3rd International Conference on Aquatic Animal Epidemiology

The Third International Conference in Aquatic Animal Epidemiology will be organised at New Delhi in November 2022 by ICAR-National Bureau of Fish Genetic Resources, Lucknow in collaboration with The International Society of Aquatic Animal Epidemiology (ISAAE) and National Fisheries Development Board, Hyderabad, Department of Fisheries, Ministry of Fisheries, Animal Husbandry and Dairying, Government of India. The conference would provide an opportunity for dissemination, networking and developing contacts between researchers working in the area of aquatic animal epidemiology and stakeholders. The researchers working in the area of aquatic animal epidemiology are requested to plan well in advance for attending the Conference at New Delhi, India.

FHS/AFS EXECUTIVE COMMITTEE (2017-2020)

The editorial team expresses its sincere thanks to all the members who have contibuted to the eNewsletter. The next issue of eNewsletter is being planned in January 2022. All the members are requested to share important news or other information that would be useful for the members of FHS.

eNewsletter Editorial Team