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Biosecurity in Aquaculture Systems with Special Emphasis on Shrimp Farming

According Lightner (2003) biosecurity is excluding pathogens from stock (i.e. post larvae and brood stock), especially through the use of quarantine and specific pathogen (SPF) certified stocks, and restricting imports of live and frozen shrimps. Excluding vectors and external sources of contamination and preventing internal cross contamination from hatcheries and farms. The first major outbreaks of shrimp disease (WSSV) was from late 1994 in Asia which was controlled until recently crossover to Mexico, Brazil and to Australia in early 2017. Another outbreak of shrimp disease EMS started from China in 2009 and spread to Vietnam, Malaysia and Thailand. In 2013 crossed over to Mexico. The revenue lost estimated by FAO due this EMS outbreak was around USD 1.2 Billion in one year. The outbreaks were believed to be due to lack in biosecurity. Recently due to major loses of shrimp farms at Gold Coast due to viral (WSSV) outbreaks (McElroy, 2017), Australian Government is aware of the potential biosecurity risk that could damage market access for their fisheries and aquaculture industry and significantly increase production costs for farmers (Oz Fisheries, 2017). Most locations in Asia are not viral free. One must be able to operate amid viral threats. One important factor is to understand the character of virus you are trying to protect from. Biosecurity starts with quality of farm design. This is followed by biosecure operation system using SPF Post Larvae. With quality farm design, operation system and biosecurity awareness training, the viral (WSSV) issue can be minimized. Farm biosecurity begins with design and construction of farm. Development of shrimp farm layouts from simple pond base flow through system during 1980s. At present with modular system by using reservoirs to treat incoming water provide biosecurity required to control the emerging viral issues (Nyan Taw, 2005, 2008 & 2011). The success or failure in shrimp aquaculture is how successful one can prevent and control the viral (mainly WSSV) out breaks. Biosecurity had been applied in Indonesia since introduction of *L. vannamei* from 2002 (Nyan Taw et al, 2002, 2007, 2008 & 2009; Nyan Taw, 2005 & 2010). Present lecture covered mainly on shrimp aquaculture biosecurity for sustainable production.

Biography

Nyan Taw received his Ph.D. from the University of Tasmania, Australia. He served as short term consultant for FAO and World Bank funded projects in Saudi Arabia and Vietnam. He was a technical counter-part for ADB and JICA projects to develop the fisheries sector in Myanmar from 1976 to 1987. In 1988, he joined the FAO of the UN and served in aquaculture projects in Indonesia, Vietnam and the Philippines culminating the position of CTA. From 1995, Dr Nyan served as Production Director at a number of locations in Indonesia. In 2002, he joined CP Indonesia, as VP where he initiated biofloc technology. Later he served as SVP for Dipasena Group, Indonesia. He served Blue Archipelago as GM and developed a biosecure, modular RAS system shrimp farm from 2009 to 2015 in Malaysia. He has provided consultancy for shrimp farming companies in South & Central America, Middle East and Asia He conducted Shrimp Biofloc Technology workshops for shrimp farmers in Malaysia, Australia, India, Saudi Arabia, Indonesia, Thailand & Myanmar. He co-authored a chapter in the book by Avnimelech on Biofloc Technology (2012 & 14).

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