

6th Global Summit on

AQUACULTURE AND FISHERIES 2017

May 25-26, 2017 Osaka, Japan

Sustainable shrimp farming in Biosecure RAS and Biofloc technology: Commercial experience and approaches to disease control

Nyan Taw

Senior Technical Advisor/General Manager, Blue Archipelago Berhad

Biosecure Biofloc technology applied in shrimp farming is adapted from the basic minimum water exchange shrimp intensive culture system used in Indonesia since early late 1990s. The system then was to position aerators within culture ponds to concentrate waste (sludge) into centre of ponds which were then siphon out physically or through central drain system. The aerators were operated almost 24 hours to have optimum culture pond environmental condition. The system creates clean water column and bottom feeding area and separated the sludge area. Shrimp biofloc system is somewhat an upgraded system by introducing carbon such as molasses and wheat flour to develop a heterotrophic environment with zero water exchange which suspend biofloc colony within pond water column. The biofloc system is developed by developing algae first and later cross over to biofloc to have self-nitrification process sets in (Taw 2014). Main economic benefits of shrimp biofloc system are – better biosecurity, low FCR, higher production, higher energy efficiency and sustainable production. Biofloc system alone cannot prevent ever emerging shrimp diseases. However, biofloc and biosecure shrimp farm design, construction and operation system have shown to prevent diseases entering the farm facilities (Taw 2005; Taw et al 2008, & Taw & Setio 2014). In Malaysia biosecure modular RAS system with biofloc technology has been applied at Blue Archipelago shrimp farm since October 2011 and has been operating successfully without any incident of EMS/AHPND which was a major threat to China, Vietnam, Malaysia and Thailand (Taw, et al. 2013 & Taw 2014). According to In-Kwon (2012 & 2014) there were more than 2,000 bacterial species in well-developed biofloc water. This biofloc may enhance immune activity based on mRNA expression of six immune-related genes – ProPO1, ProPO2, PPAAE, ran, mas and SP1. A study at Bogor University, Indonesia and Ghent University, Belgium revealed that biofloc system contributes to the enhancement of immune response and survival after IMNV challenge regardless the carbon source. The application of BFT brings about beneficial effect in disease control and management in shrimp culture.

Biography

Nyan Taw received his PhD 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, he 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).

nyan.taw1@gmail.com

Notes: