

CULTIVATING A SUSTAINABLE FUTURE : Giant freshwater prawn's rise amidst Southeast Asia's shrimp crisis

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Abstract

Southeast Asia's shrimp farming industry faces challenges due to environmental factors and a recent downturn. The Giant Freshwater Prawn emerges as a sustainable alternative, fostering economic growth and environmental conservation. Transitioning to innovative practices like mono-sex farming empowers small-scale farmers, ensuring economic viability and sustaining seafood demand. GK Aqua leads in all-male prawn seed production, exporting disease-free seeds globally. Founder Giva Kuppusamy champions mono-sex prawn farming for its economic and environmental benefits, promoting responsible aquaculture.

Redefining Southeast Asia's shrimp farming. With a surging global seafood demand, Southeast Asia has risen as a key player in shrimp farming, driving economic growth, however impeded by environmental factors. The region's shrimp industry recently faced a notable downturn, prompting a re-evaluation of methods. Amidst this challenge, the Giant Freshwater Prawn (*Macrobrachium rosenbergii*) has emerged as a sustainable, high-density farming alternative, holding great promise for seafood production.

Giant freshwater prawns transforming Southeast Asia. Giant Freshwater Prawn is indigenous to Southeast Asia, offering diverse benefits through environmental impact and ensuring economic feasibility. Farmers can adopt innovative techniques like integrated multi-trophic aquaculture (IMTA), where species integration reduces water consumption pollution risks and boosts economic returns by cultivating them. Transitioning to this form of farming creates a dual advantage: conserving the environment and reviving economies. The crisis within shrimp production addresses the need for sustainable aquaculture practices, and freshwater prawns provide a practical solution. This transformation empowers small-scale farmers to enhance their earnings and escape unsustainable practices, one of the most crucial steps in meeting the ever-increasing seafood demand sustainably.

Moreover, one of the growing sustainable practices in freshwater prawns is monosex farming. This solution increases production yield and shorter harvest cycles, giving farmers higher economic value. Monosex farming reduces reliance on wild stocks and transfer of vertical disease transmission that affects prawn productivity.



Fig. 1. Adult giant freshwater prawn

GK Aqua's global expansion in all-male prawn seed production. Based in Malaysia, GK Aqua is one of the most promising mono-sex prawn producers, where they have successfully engineered the biotechnology approach to produce all-male seeds. This biotechnology company has successfully expanded their international presence by exporting all-male seeds to several regions, such as the Middle East, Southeast Asia, and Latin America.

GK Aqua offers farmers high-quality all-male seeds through specific-pathogen-free (SPF) broodstock production. With state-of-the-art in-house molecular laboratory facilities (Fig. 1-2), GK ensures that all the broodstock is maintained disease-free throughout the whole process of pre- and post-mating to produce highly resilient post-larvae.



Fig. 2. GK Aqua Sdn Bhd Molecular Biology Laboratory

Championing sustainability: Monosex freshwater prawn farming revolution Founder of GK Aqua (Fig. 6-9), Giva Kuppusamy, mentioned that it is essential to provide a solution for farmers who have worked hard to contribute to the production of food globally and contribute to continuing efforts in food security challenges nowadays. Monosex freshwater prawn farming offers significant advantages for sustainable aquaculture, such as controlled disease management and simplified feed management strategies, leading to higher survival rates and improved product quality. This approach boosts the economic viability of prawn farming and aligns with responsible and environmentally conscious aquaculture practices (Fig. 9).

