The SIAF APRAS Model:

A paradigm shift in 21st century aquaculture

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Abstract

Sino Agro Food, Inc. (SIAF) is a USA incorporated, vertically integrated, primary protein producer with all operations located in the Peoples Republic of China (PRC). SIAF currently produces over 2,500 MT/yr of multiple aquatic species in both indoor and outdoor recirculating aquaculture systems (RAS). The Company is building what will be the world's largest indoor RAS facility in Zhongshan, PRC. Located south of Guangzhou and across the bay from Hong Kong on 250 ha of prime land, the "Megafarm" targets production of over 100,000 MT of multiple species by the end of 2024. The first phase of construction is and operating, with an estimated 10,000 MT by the end of 2018. SIAF's proprietary "A Power Re-circulating Aquaculture System" (APRAS) has been developed and adapted for multiple species (including the freshwater prawn, *Macrobrachium rosenbergii*) and strategies at the farm. APRAS uses a phased grow-out and partial harvest strategy for high product throughput, with focus on the high-margin, live seafood market in China to overcome the high capital cost (CapEx) of RAS culture. For *M. rosenbergii,* APRAS yields 7 times more cycles/yr, 3 times more harvests/cycle, and greater than 10 times more production (MT/yr) and 100 times more yield (MT/ha/yr) than conventional pond culture systems used for commodity shrimp. Returns on initial capex are over 150%, several times higher than conventional pond systems or RAS culture used for shrimp. The APRAS design and production strategy for *M. rosenbergii* in the system will be presented, including adapted approaches in APRAS to address low survival, differential (or HIG = heterogenous individual growth) growth, and low yield typically encountered in the culture of this species in ponds. Future plans for the Megafarm include Best Aquaculture Practices (BAP) certification, a sophisticated disease surveillance and prevention program, and a robust, four-pronged research and development agenda, including a pedigreed selective breeding program for *M. rosenbergii.*

Biography

Dr. Ostrowski is Chief Scientific Officer (CSO) at Sino Agro Food, Inc., a specialized investment company focused on protein food that operates in the People's Republic of China and is incorporated in the United States of America. He has over 30 years' experience as a researcher and top executive in the field of aquaculture. He was lead scientist on multi-million-dollar research projects in the United States, director and executive committee chairman of a national, multi-state, multi-institutional shrimp research consortium, and led the internationally recognized aquaculture research and development organization, Oceanic Institute in Hawaii, USA, as president and CEO from 2009-2012. Dr. Ostrowski began working in China in 2013 as CEO of a Chinese subsidiary located in Yangjiang, PRC, focused on selective breeding of marine shrimp. He has contributed over 100 publications and presentations in all aspects of marine fish and shrimp aquaculture, and has served on several boards and technical committees within the aquaculture community providing both scientific and strategic directions that helped establish domestic and international standards for the field. He is passionate about the sustainable development of aquaculture to supply the protein needs of a growing world population. Dr. Ostrowski obtained his Bachelor's degree from the Pennsylvania State University and Master's and Ph.D. from Michigan State University, with an emphasis on aquaculture nutrition. His home is on Oahu, Hawaii, USA, and is currently stationed with SIAF in Zhongshan, PRC.