SIF TECHNOLOGIES
Chemical-free Water Treatment

Case Study

Reduce the Risks of High Ammonia Buildup with DPA System

Eco-friendly Solutions to Meet the Demands in Intensive Fish Feeding

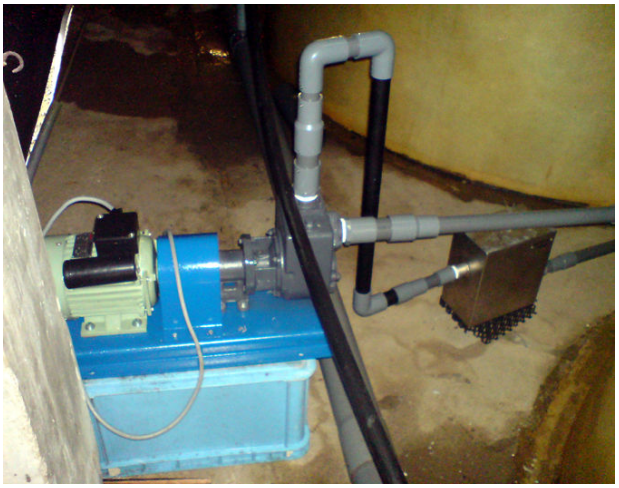
Challenges in Intensive Fish Production

One of Singapore's largest land-based aquaculture farm was faced with problems of ammonia buildup and high mortality in cultivating fish fingerlings. The level of nutrients, such as nitrogen and phosphorus builds up as they dissolve from feed, fecal wastes and fish excretes. As they accumulate and reach concentrated levels, there are risks of nitrogen compound poisoning occurring.

Culture tanks of one of the largest land-based Aquaculture farms in Singapore

Totally Eco-friendly Solutions

The rearing of fish was carried out under intensive production conditions. It is only possible to achieve high yields when all the proper conditions for intensive fish rearing are met. This will require setting up ponds or tanks equipped with filters capable of removing the waste products in an efficient manner. There should also be means of raising oxygen supply for the fish and ability to keep track of water quality and fish health during the production cycle.



Implementing SIF's customized suite of solutions.

In a key collaboration with the land-based aquaculture farm, SIF Technologies was responsible for developing and setting up the optimum infrastructure.

A skimmer was used to induce the formation of foam on the water surface of the culture tanks. This is to allow impurities, sediments and other form of wastes to accumulate and be channeled away through a foam catcher. The bio-filter and bacteria chamber were also developed to encourage the formation of aerobic

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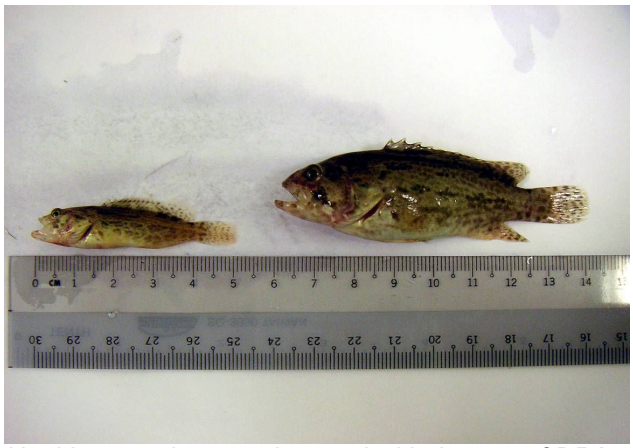
bacteria which would be essential for maintaining the balance of nitrogen compounds at optimum levels.

SIF also deployed DPA system in the suite of solutions. DPA system is our proprietary water management technology that is based on the principles of Cavitation. It does not require the use of chemicals, biocides nor addictives which could potentially pose harm to the livestock. Through increasing the level of Total Dissolved Oxygen (TDO), DPA helps to create the optimum conditions for maintaining the Nitrogen Cycle. DPA Super Mineral formulation was also utilized to remove ammonia by converting it to a non toxic cyclic amine. Our solutions are totally natural and eco-friendly.

Results Achieved

Healthy Growth Rates

About 2200 fingerlings (1 ½ " length) were placed in the culture tanks which contained 8 tons of sea water. Fish grew from 1.5" to 2.24" in 2 weeks and to approximately 3.5" in a period of 3 weeks.



Healthy growth rates observed with the use of DPA Technology solutions. Fingerlings shown here grew from ~1.5" to ~3.5" in a span of 3 weeks.

Close to Zero Ammonia Levels and Lower Mortality

With SIF's suite of solutions, the harmful ammonia levels were found to be near zero, despite under the conditions of heavy feeding by fingerlings.

Interviews with the stakeholders of the aquaculture farm also revealed that fish mortality rate of fishes have dropped from a previous high of 50% to less than 20%, which is considered to be a low percentage in the industry.

Fingerlings in lively state and excellent feeding condition

Note:

- *Statistics and facts cited in this case study are supported by testimonials and documentation from actual programmes that were implemented.*
- *Individual results are subjected to variation depending on other extraneous variables such as temperature, pH and other entities present.*
- *It should also be understood that for yield to be optimum, key conditions: availability of healthy, selected juvenile fish for stocking and provision of nutritious food suitable for the different stages of growth should also be fulfilled.*

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