

All About Shrimp



Large extensive shrimp ponds on Puna Island in the Gulf of Guayaquil, Ecuador. Ecuador is predicting a 600000 MT year in 2019.

Will demand for shrimp keep up with supply?

Farming of shrimp is all too often a challenge regardless of where one is doing it. Estimates are that global farmed shrimp production will reach 5 million MTs or more in 2019. We are currently in a glut and this excess supply is keeping prices to the farmers too low for many to make a profit.

This is a serious problem that is not being addressed and the end result will likely be a significant correction. See [Perspectives in Aquaculture #1](#) for our comments.

Large numbers of farmers cannot make money unless the prices are high. Consolidation and the development of less costly approaches to production will be the inevitable result of this. There are too many people in the middle between the farmers and the consumers. *Increased demand is the only thing that will drive prices to increase.*

FRAUD IN INDIA

A former distributor, from all reports that we have, (Kanishk Kaushuk VB Aquaculture in cahoots with Amrita) of ours, whom we fired, is selling his product claiming that it is ours, using our name and even our corporate details. In fact Amrita registered our product and it appears that they are selling someone else's in conjunction with VB. These are the acts of individuals who belong in a jail cell and I ask all of you in India to consider that someone who would willfully do this to gain a business advantage is someone you are foolish to trust. Contact us on how you can contact our distributor or [click here](#).

This is not what farmers like to see. Dead shrimp from a biosecurity failure. Buying fraudulent products is part of the risk.

Aquaintech is short for:

Aquaculture Information Technology

We are entering our 24th year and we wanted to reach out to our many clients with a big "Thank You".

Each edition of the this newsletter will deal with a different topic. We are starting with a once a quarter edition which we hope to increase as resources and interest dictate. Your feedback will decide if we continue. Depending on the topic, there will be a variety of links that are intended to educate. The goal is to help you, the readers, to better appreciate the role of science in your activities.

Sustainable production depends on the use of science based production methods.

Founded in May of 1996, Aquaintech Inc. developed the first commercially available parabiotic for use in shrimp farming. Extensive lab, short terms and long term field studies demonstrated a cost effective benefit. We understood early on that this was a tool and not a solution. The effect was real and many farmers saw a huge return on their investment. For more information click on this link:

[A parabiotic positively impacts shrimp production in the lab and the field.](#)



Vibriosis

To date 147 species of vibrio have been identified (<http://www.bacterio.net/vibrio.html>) likely with many hundreds more to come. Fortunately for shrimp farmers, most are not capable of causing disease. However a few of them are very nasty obligate pathogens of farmed shrimp. I did my Ph.D thesis on a strain of Vibrio that kills farmed salmonids (warm water strains happily kill shrimp as well) and found that this strain had to have the ability to bind

iron in order to kill fish. Many vibrios need iron for growth and the ability to produce disease.

This [article from Infofish](#) contains a lot of useful information about vibrios and vibriosis. This [link](#) takes you to a presentation on controlling vibrios in the hatchery and on the farm.

In all likelihood, *Vibrio* strains are the largest single cause of mortality in farmed shrimp. More often than not strains that are opportunistic infect animals weakened by stress and a wide variety of viral and parasitic pathogens. However there are a few that are obligate pathogens. They can kill healthy strong animals quickly. Fortunately these are rare.

Controlling vibrio loads in aquatic environments is challenging. In systems where there are many open inputs the task can be very difficult. In closed systems it is plausible to control them. In the real world properly designed small ponds lined with plastic liners with sumps that collect accumulated organic material have been useful in mitigating the impact of AHPNS or EMS. However the means by which these bacterial strains produce disease is such that this can readily be moved to other bacteria. Additionally, improper treatment of these ponds where the organic matter accumulates can result in environmental issues.

Our microbial products have been used to control vibrio loads in both shrimp hatcheries and on shrimp and fish farms via competitive inhibition.



External lesions heavily melanized (the shrimps immune reaction) from vibriosis.



*Muscle opacity (death) in a shrimp infected with a highly virulent obligate pathogenic strain of *Vibrio alginolyticus* (for those of you who still think TCBS yellow strains are harmless this one killed shrimp very quickly-TCBS yellow does not mean harmless)*

A Huge Breakthrough in PCR Screening technology Introducing Shrimp Multipath™.

There has been a breakthrough in PCR screening technology for shrimp pathogens. The presence of 13 pathogens is tested simultaneously from a single sample. Click [here](#) for a list and some additional information on the protocols, etc.

Shrimp Multipath™ powered by CSIRO (Australia) science has the ability to test for a wide variety of potential shrimp pathogens and is available now at Genics. This is a powerful tool, that when used properly, can greatly increase the biosecurity of broodstock.

Shrimp MultiPath™ has unrivaled test performance, sensitivity and accuracy. Shrimp MultiPath™ is all about surveillance in apparently healthy animals and confirmation of clinical disease. It is moving farmers towards meaningful and cost effective risk mitigation on their farms, identifying problems early and putting interventions in place to stop pathogens from ever becoming a problem. On the farm level its ability to quickly identify what may be causing problems, coupled with a board certified veterinary pathologist reading histological tissue sections make proactive management strategies a reality. You can map how the levels of these pathogens change in your population.

The cost of the testing depends on the amount of tissue pooling. The tests run less than \$10 per pathogen when done on a single animal. If you pool the pleopods from a few animals, your costs drop proportionally. Pooling three animals in a single tube means

Shallow ponds are bad news for the farms with them and any neighbors that are impacted by the presence of birds that readily move ill animals between ponds.



A very clever way to produce shrimp at high densities and controlling what enters the ponds from the environment.

that you are paying a little more than \$3 per each pathogen for these test results. There are some small additional costs that relate to the sample preparation (in 70% ethanol) and the cost of shipping the samples to the labs in Australia that are currently the only labs equipped to run the samples. Within 72 hours you will be sent a report that details the relative amounts of each of the pathogens in your animals.



There are minimum sample requirements. If the brochure above left you wanting more information, click [here](#).

Shrimp MultiPath™ works great for any species of farmed shrimp including Litopenaeus vannamei and Penaeus monodon among others.



Broodstock farm in Vietnam. Broodstock producers operating with no biosecurity almost always ensure disease problems on clients farms.

Aquaintech Inc. sells a variety of microbial products for the degradation of organic matter. Clients have noted many benefits, including:

Reduced vibrio loads in hatchery tanks and farm ponds

Reduced blue green algae loads

Reduced ammonia levels

Reduced hydrogen sulfide levels

Much cleaner pond bottoms throughout the cycle and at harvest

Cleaner shrimp at harvest

Less fouling issues

In some cases, higher survivals*

* Note that claims of increased survivals must be accompanied by statistics. There is so much variability between ponds that it is easy to claim that products increase survivals based on cherry picking data.



We sell our products in many forms. [Click here for more information.](#)

A PRIMER on probiotics for shrimp.

Probiotics are defined (by consensus and the FAO) as living organisms (typically bacteria although fungi and others are included) that are fed to an animal. They colonize the animals intestinal tract, change the microbiome and impact the animals health.

These do not exist for shrimp despite claims to the contrary. Production environments are not controlled and the literature clearly shows that what is in the shrimps (or fish) microbiome is consistent with what it is in their environment and that it is constantly evolving. This link takes you to a relevant paper.

[Microbiome manipulation in shrimp: fact or fiction?](#)

The link at the bottom of the newsletter will take you to our web site outlining our products for bioremediation.



High density production in the desert in Mexico utilizing

- Tablets of many different sizes, 1, 2, 3, 5, 10, 16, 50 grams.
- In biodegradable bags-a Power Pack (Aquapro EZ) for those who want the ease of throwing product into bodies of water. Widely used in lakes.
- As a powder for incorporation into feeds (Aquapro F) or for grow-out (Aquapro B).

Aquaintech Inc. sells its product lines at considerably lower prices compared to competitive products.

We do this to allow the end user to explore the best use of the product.

We are committed to helping farmers become more productive, not to making money off of them by selling products that cannot be used in the best possible manner.

We private label and manufacture custom products for many companies. It is an efficient way to save money and you can be ensured of consistent quality with high levels of quality control monitored by a third party (ISO).



A lined pond along the coast in the South of Vietnam. This was brand new and constructed in response to EMS (AHPNS).

a small pond with diffusion tubing on the pond bottom to ensure high levels of aeration and a constant mixing of the water column.

Some of what we have learned over the years

The Myth: Many of our competitors would have you believe that very high spore counts are what you need.

The Reality: There is no relationship between spore counts and how well the product works. Most of the spores never germinate. How many do and how well they grow depends on nutrient loads.

The Myth: The more strains the better.

The Reality: Various strains germinate at different times. Those strains that germinate the earliest dominate. Those that germinate later are entering a nutrient limited environment. Blending spores with vegetative cells (such as Lactobacillus strains, yeast, fungi, etc.) results in products with short shelf lives as the vegetative cells die off with no nutrients.

The Myth: There is one best way to use these products.

The Reality: Each environment is different and the optimum approach towards using these products and getting the best benefit is to use them frequently. Dosages need to be increased as the biomass and feeding rates increase. In very high density environments **no bacteria** can degrade all of the organic matter as it accumulates.