

Water Quality Improvement in Shrimp Ponds © 2009

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ECOPROBIOTICS®, of the Bacta-Pur® System, are beneficial communities of natural bacteria, which have been on earth for millions of years and have been selected for their synergistic ability to biodegrade pollutants and to improve water quality. *ECOPROBIOTICS®* increase biodiversity. Just as people take probiotic yogurt for its' ability to assure the presence of the optimal community for digestion and immunity, *ECOPROBIOTICS®* improve ecosystem health. **EVERY PRODUCTION** of Bacta-Pur® products is analyzed and cleared for shipment **ONLY** after passing all performance tests and being **CERTIFIED PATHOGEN FREE** using techniques from the food industry. *ECOPROBIOTICS®* are purely natural and beneficial; they **NEVER** contain added chemicals such as surfactants, emulsifiers or enzymes..., nor do they contain genetically modified (GMO) or deliberately mutated organisms. *ECOPROBIOTICS®* are safe and beneficial. Disease causing organisms are never used, as others do or permit. All bacterial cultures in the Bacta-Pur® product are listed on the Canadian DSL.

Summary	
SYMPTOMS	TREATMENT BENEFITS
• high ammonia and/or nitrite	• reduce ammonia and nitrite
• low oxygen levels	• facilitate oxygenation
• excessive sludge	• biodegrade sludge
• poor flavour of shrimp due to poor water quality	• improve flavour by improving water quality and biodegrading geosmine and other causes of off-flavour
• shrimp stressed, many diseases	• reduce stress and disease susceptibility
• poor conversion efficiency	• improve conversion efficiency, transform pollutants into natural and beneficial food
• excessive nitrogen and phosphorus in effluent	• reduce nitrogen and phosphorus in effluent

Background

Poor water quality is a major stress to all aquatic animals including shrimp and fishes. Stresses are additive and increase the susceptibility of the animals to disease while decreasing their growth rate and feed conversion efficiency. To say that antibiotics and bactericidal products are essential is to admit that adequate water quality is not being maintained. It is much easier to prevent diseases than to try to cure them. Disinfectants may help avoid some diseases, but they treat only symptoms and not the cause of the problems. The Bacta-Pur® System can help improve water quality, reduce stress to the animals, improve growth and feed conversion and reduce the need for and expenses of drugs.

The beneficial microorganisms in ECOPROBIOTICS® by Bacta-Pur® convert wastes in ponds into bacterial biomass, producing food for higher life forms including shrimp and fish. Experimental work with fish has shown that use of Bacta-Pur® increased production by over 37% (Ehrlich *et al.* 1991; A diagnostic and ecological approach to the purification of sewage, toxic substances and water bodies; IN: Ecological Engineering for Waste Water Treatment, Proceedings (C. Etnier & B. Guterstam eds) Bokskogen, Box 7048, S-402-31, Gothenburg, Sweden. pp. 95-109). Similar benefits have been found for growth and survival of prawn and crab larvae (Maeda & Nogami; 1989, Some aspects of the biocontrolling method in aquaculture. IN: Current Topics in Marine Biotechnology (S. Miyachi, I. Karube & Y. Ishida, eds), Japan. Soc. Mar. Biotechnol., Tokyo, pp. 395-398). These authors also showed that regular additions of beneficial bacteria reduced



pathogens (e.g. *Vibrio* spp.) in the culture water. Drugs cannot be used indefinitely to compensate for declining water quality. If proper attention is not paid to the maintenance of good water quality, decreasing returns from shrimp ponds are inevitable.

The Bacta-Pur® XLSW was designed expressly for use in salt water to improve water quality and to convert wastes into natural food.

Application

One liter each of Bacta-Pur® XLSW and N3000 are applied weekly to each hectare of shrimp pond. Extremely polluted ponds will give best performance if the above dose is applied twice weekly.

The application technique consists of preactivating Bacta-Pur® XLSW for 24 hours; Bacta-Pur® ACTIVATOR 1 & 2 with precise instructions are attached to each bottle; an equal amount of Bacta-Pur® N3000 is then added. The mixture is stirred for 30 minutes and then is ready to be applied to the pond.

It is important that the Bacta-Pur® mixture be diluted, at least 20-100 times, with pond water before application onto the surface of the pond to assure an even distribution. The Bacta-Pur® mixture can be applied near the pond aerators, or by boat with a sprayer assembly or even by airplane in very large water bodies.

A minimum dose rate of 1 liter of each product is recommended for ponds slightly smaller than 10,000 m².

The dose rates assume a depth of 1 m; for ponds that are 2 m in depth, the dose rate should be doubled.

For freshwater shrimp ponds, use Bacta-Pur® XLG instead of Bacta-Pur® XLSW.

