

## Water Quality Improvement In Warm Water Fish 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.

<b>Summary</b>	
<b>SYMPTOMS</b>	<b>TREATMENT BENEFITS</b>
• high ammonia and/or nitrite	• reduce ammonia and nitrite
• low oxygen levels	• facilitate oxygenation
• excessive sludge	• biodegrade sludge
• poor flavor of fish due to poor water quality	• improve flavor by improving water quality and biodegrading geosmine and other causes of off-flavor
• fish 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 fishes and shrimp. 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 a symptom and not the cause of the problem. 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 Bacta-Pur® products 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. Etner & B. Guterstam eds) Bokskogen, Box 7048, S-402-31, Gothenburg, Sweden. pp. 95-109). Similar benefits of bacterial augmentation 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 fish production are inevitable. The Bacta-Pur® System improves water quality in fish ponds while converting wastes into natural food.

### **Application**

Bacta-Pur® cultures are highly concentrated; two liters each of Bacta-Pur® XLG and Bacta-Pur® N3000 are applied weekly to each hectare (1 ha = 2.47 acres) of a warm water fish pond.

The application technique consists of preactivating Bacta-Pur® XLG for 24 hours; with Bacta-Pur® ACTIVATORS 1&2 or GS, then adding an equal amount of Bacta-Pur® N3000. 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.

