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# Nutritional, toxic, and environmental diseases of prawns

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## NUTRITIONAL, TOXIC, AND ENVIRONMENTAL DISEASES OF PRAWNS

Pond-grown prawns are more often subject to nutritional, toxic, and environmental diseases than are the younger stages in hatchery-nursery systems.

The chronic soft-shell syndrome may be due to nutritional deficiency (inadequate amounts of food or nutrient, e.g., Ca and P), pesticide contamination (e.g., with Aquatin and Gusathion A), and poor pond water soil conditions (e.g., when soil pH > 6, water phosphate < 1 ppm and organic matter content of the soil < 7% occur **together**). The disease could be controlled through environmental and dietary manipulation.

The red disease (prawns become reddish) affects juveniles to adults and is believed to be due to microbial toxins (mycotoxins) in rancid or spoiled diets or in detritus of ponds rich in organic matter.

The blue disease (prawns become bluish) is possibly due to nutritional deficiency (e.g., low levels of the carotenoid astaxanthin in the diet) or an environmental factor (poor soil-water quality). It may be controlled by reducing the stocking density, giving high quality food, and changing pond water more frequently.

Cramped tails or body cramp, the rigid flexure of the abdomen, is due to temperature shock, e.g., handling of prawns in air warmer than the culture water. Muscle necrosis is also closely associated with poor environmental conditions like overcrowding, low oxygen levels, severe gill fouling, and salinity or temperature shock. It is characterized by white opaque areas in the abdomen. The distal portion of the abdomen may become infected and turn into the more commonly observed "tail rot."

Heavy metal poisoning, e.g., by cadmium and copper, could result in morphological deformities, damage in gill tissues, and mortalities. The adverse effects of the poisoning may be minimized by immediate water change.

The black gill disease is actually a condition that accompanies many disease syndromes in pond-grown prawns, e.g., microbial infections nutritional deficiency, exposure to toxic substances, and heavy siltation. The gills become reddish, brownish to black, and mortalities may occur due to respiratory difficulties.

**Source:** Lecture Notes of Ma. Cecilia L. Baticados, Head, Fish Health Section, SEAFDEC AQD, 1988.