

DISEASES AND OTHER CAUSES OF MORTALITIES OF SUGPO
IN THE HATCHERY AND IN PONDS

by

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Sugpo, like any other living thing, get sick. They are subject to all kinds of diseases from the moment the eggs are spawned up to old age.

It is recognized fact that poor water quality and inadequate nutrition are the basic determinants of disease outbreaks and should be of primary concern in disease control. Disease is an expression of a complex interaction of host, disease causing organisms and environment, and the environment as well as the cultured organisms are highly abnormal in many intensive-high density culture situations. The infectious disease problems that have surfaced thus far, are microbial in origin - caused by bacteria, fungi and protozoa. Undoubtedly as sugpo culture in this country expands, new or presently unsuspected disease entities will emerge and assume positions of significance in the commercial production.

In the intensive rearing of fry in hatchery tanks, environmental factors are greatly altered and outbreaks of diseases occur. Water used in the hatchery is generally of high salinity, clear and relatively free from biological, organic and inorganic pollutants. Failure to attain such

water condition give way to infestation of the eggs by bacteria and fungi a few minutes after spawning, causing very low hatching rate. Minute one-celled animals called protozoans may also attack the egg membrane and kill the developing prawn larvae.

After hatching, the larvae are sometimes infested by fungi which gradually invade and replace all their tissues. The infected individuals turn milky white in appearance and become immobile. Mortality may reach 100%. At times, microscopic plants (benthic diatoms) and protozoans attach themselves to the eyes and appendages of the larvae, inhibiting their swimming action and forcing them to settle on the bottom of the hatchery tank. This prevents them from eating, thus causing mortality due to starvation. On some occasions, diatoms and protozoans form a mat on the gill surface and suffocate and larvae. The use of anti-biotics, drugs and other chemicals have been experimented on, but no effective control has yet been formulated.

On the over-crowded condition of the hatchery tank, the water quality gradually deteriorates. The larvae extrudes gases and substances such as NH_4 ; CO_2 , and feces which are continually building up in the rearing water, making the medium detrimental to the well being of the larvae. The larvae eventually die when toxic levels are reached.

Introduction of diatoms to utilize NH_4 and CO_2 in the environment and frequent changing of the rearing water to dilute the accumulated poisonous materials are instituted to prevent weakening and retardation of the larvae.

It has been observed that diatoms alone are not nutritionally sufficient for the zoea stage. Vitamins are also needed, such Thiamine or Vitamin B. complex which bread yeast can amply provide.

Sugpo, cultured in small numbers in ponds, grow vigorously healthy, while those cultivated intensively, easily get sick and growth is retarded, again the victims of unfavorable conditions and nutritional deficiencies. In a pond containing small numbers of sugpo, the environmental parameters needed for good health and speedy growth are well taken care of by nature and the favored food organisms are not exhausted until harvest, while the opposite occurs when they are cultured in large numbers within a limited space.

There are two possible solutions to these problems. One is to circulate the water in the pond with the use of aeration or water pump and furnish the prawn with artificial feeds such as amahong, trash fishes and other kinds of food rich in protein. The other solution is by rotating the sugpo in a number of ponds, that is, transferring them to a previously prepared pond every two months, the pond area progressively bigger every transfer.

The environmental factors in the fishpond are very hard to control. Heavy rains, for example, create a series of changes in the chemistry of the pond. Salinity on the surface becomes lower, resulting in the stratification of the pond water. This condition causes O₂ depletion on the lower layer of the pond water and since sugpo stay on the bottom of the pond, and as they are very sensitive to low oxygen level, mass mortality takes place.

Turbidity or too much suspended mud particles in the water, especially at high temperature is fatal to the prawns being cultured.

The juvenile sugpo in the fishpond may also be infested by bacteria, progressively destroying the exoskeleton of the prawn and providing routes of entry for secondary disease causing organisms. These bacteria are always present in the marine environment and live on the surface of the shell of sugpo. Prawns with this disease have brownish coloration at the back. The effects of this disease may be eliminated by moulting, but usually, the underlying tissues are already damaged by secondary invaders that they seldom recover. For preventive measures, it is best to practice the two methods described earlier.

Other sources of infestations of sugpo in ponds are the protozoans. Heavy infestations produce a mat on the gill

surface and occasionally on the eyes, appendages and carapace, causing heavy mortalities, particularly among young individuals when the oxygen concentration is low.

Prawns are not exempt from diseases involving reproductive organs caused by protozoans. The infected sugpo are rendered sterile, weakened or more vulnerable to other environmental stresses,

Many parasites of sugpo from natural waters have been observed, particularly worms and crustaceans, but these have not been observed of significance to aquafarm populations. Some of these may emerge a problem in the future, however. As we culture sugpo more and more intensively, diseases and parasites will transform into greater problems until adequate and defined diets, as well as effective control of water quality can be realized.