

ABOUT THE CONCEPT OF CROWDING DISEASE AND SANITARY  
LOT IN MODERN INTENSIVE AQUACULTURE: A SHORT NOTE

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ABSTRACT

Most of the diseases that occurred in modern intensive aquaculture are due to opportunistic pathogens and can be considered as crowding diseases. The application of the sanitary lot technique would greatly reduce the spread of such diseases.

CROWDING DISEASE

The healthy or diseased state of an animal has been defined as a dynamic balance between host defenses and pathogen, both being stimulated or inhibited by the immediate environment (Mayr and Rojan, 1968). In aquaculture most pathogens are ubiquitous and do not seem true but opportunistic or potential pathogens. By intensifying rearing techniques man creates conditions that can lower the defenses of the host and/or enhance the pathogen virulence. That is why Mayr (1976) uses the term of crowding disease to cover the disease problems met in intensively reared terrestrial populations. The crowding disease seems mainly due to opportunistic pathogens which have gained virulence inside the rearing unit by successive passages from host to host. From our experience at the Centre Océanologique du Pacifique (Aquacop, 1977) and from the literature concerning the epidemiology and the symptomatology of diseases in aquaculture, crowding disease is a very appropriate term for the pathological problems encountered in modern intensive aquaculture.

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#### THE SANITARY LOT TECHNIQUE

To prevent or curb the adaptation and selection of virulent strains, measures must be taken inside the rearing unit to restrict the circulation of potential pathogens (Aycardi and Shellenberg, 1970). The animal population must be divided in time and space in sanitary lots that are groups of animals of the same age, isolated from other animals during their lifetime. The practical realization of sanitary lots can be a problem if the pathological risk has not been taken into account when planning the facilities. The main vectors of contamination are the water, the workers, the materials, the animals themselves and predators. Thus, fighting vertical and horizontal transmission of pathogens is a continuous task. Sanitation regulations have to be part of the rearing techniques. Any temporary or partial measures are a waste of time and effort.

#### DISCUSSION AND CONCLUSION

Herman (1970) and Bullock et al. (1971) listed preliminary sanitation as the most effective way to reduce the appearance of disease in fish rearing. Klontz (1972) cites bacterial and viral diseases that have been controlled and eliminated through application of sanitation methods that he said have been recommended for decades, but he adds that these methods are not always put into practice. Herman (1970) notes that it is often considered to be more economical to use chemicals than to remodel existing facilities. In marine aquaculture, Dupuy et al. (1977) attribute much of the success in mollusc rearing to the sanitary care taken with rearing tanks and algae cultures.

Up to now, a farm was built, animals were raised and often diseases seemed to appear "from nowhere." However, laws governing the appearance and propagation of diseases do exist but they have to be adapted to each species, each water, each environment and each rearing technique. When planning a future farm, questions should be raised: Will this implantation, this design favor the development of diseases and, if so, how can they be limited?

By putting into practice as soon as possible the concept of sanitary lots, a concept that has proven its effectiveness in terrestrial animals, the development of known and yet unknown pathogens will be limited and an important step will be made toward true control of marine animal rearing.

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