Prevention and control of parasites

**Physical, environmental, and chemical methods may be used to prevent and control parasitic diseases.**

**Physical methods may involve creating physical barriers to prevent contact between the parasite and the host; or removing the parasites of the host; or subjecting the parasite to adverse conditions like increased or low temperature.**

- Scrub the tank thoroughly with a brush and filter the meatwater with fine net.

**Environmental methods may include proper husbandry or pond design, good water quality, employing sanitary practices; and avoiding stocks from being mixed.**

- Install disinfection racks and trays at the entrances of hatchery facilities.

**Chemical methods may include the dissection of meatwater, feeds and other materials used for culture; and chemotherapy, which employs drugs or chemicals for treating parasitic infections.**

- When dipping infected fish in a chemical bath for a short period, add the chemical solution to the holding tank with the fish. Let the fish remain on the solution for the recommended soaking time for the chemical to work.

- After treatment, either replace the tank with clean meatwater or transfer fish into parasite-free tanks.
Aquaculture environments suitable for the growth and reproduction of fish could also be harbor diseases agents such as parasites. With more intensive aquaculture production comes more potential diseases. Parasites on fish could either be endoparasites or ectoparasites. Ectoparasites live on the external surfaces of the host fish, while endoparasites live inside the host. A variety of parasites have been identified to cause significant economic losses in marine fish culture. Most of these parasites are difficult to control effectively with a single measure. The control of parasites is dependent on cultures of marine fish, knowledge of the life cycle of the parasite, and availability of effective treatment methods.

The following are the major parasites of groupers:

**Proteozoa**

These are unicellular microorganisms with specialized structures for movement, feeding, and reproduction. Four types of protozoa cause diseases in marine fish:

1. Dinoflagellates - are unicellular, long, bar-like flagellates which they use for movement.
2. Ciliates - are ectoparasites equipped with short, fine outgrowths called cilia for movement.
3. Myxosporan - are composed of spore shell valves. They are obligate parasites, which means they cannot live outside the host.
4. Microsporidians - are intracellular parasites with one-cell-sized containing cysts and a cold polar filament.

**Monogeneans**

These are ectoparasites. Monogeneans are equipped with a haptor, which is an organ of attachment with hooks and/or suckers. They infect the skin and gills of fish.

**Dinoflagellates**

These parasitic protists measuring up to 80 cm form capsules or cysts on the gills of marine fish. These parasitic flatworms measuring up to 80 cm form capsules or cysts on the gills of marine fish. They are classified into several genera, including:

- *Pseudorhabdosynochus*
- *Benedenia*

**Ciliates**

These are small, single-celled organisms equipped with two suckers for feeding and movement. Examples include:

- *Amyloodinium ocellatum* (15-70 x 80-350 µm)

**Myxosporidians**

These are obligate parasites, which means they cannot live outside the host. They are classified into several genera, including:

- *Cryptocaryon irritans*
- *Trichodinella sp.*
- *Benedenia*
- *Megalocotyloides*

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