IMPORTANCE OF FISH HEALTH

Fish diseases are one of the major constraints in aquaculture production. Poor water quality, overcrowding, stress, and the presence of pathogens can lead to disease outbreaks. These outbreaks may result in high fish mortality, reduced growth, and heavy economic losses to farmers. Therefore, proper fish health management and regular monitoring of pond conditions are essential for sustainable aquaculture

Disease causing agents include:

- Bacteria
- Parasites
- Virus
- Fungus
- Nutritional deficiencies
- Environmental stress

Fish Health & Water Quality

Good water quality prevents most fish diseases

Maintain:

- Dissolved Oxygen above 5 mg/L
- pH 7- 8
- Proper feeding practices and avoid excess feed
- Proper water depth (1.5–2 m for carp ponds)
- Avoid overstocking
- Regular liming
- Use good quality seed
- Remove dead or diseased fish immediately
- Regular health monitoring of fish for early disease detection
- Periodic water exchange if water quality deteriorates
- Disinfect nets and equipment before using in different ponds

Proper pond management and early disease diagnosis play a very important role in reducing fish mortality in aquaculture systems. Maintaining good water quality, proper stocking density, and balanced feeding practices helps to keep fish healthy and resistant to diseases. Regular pond management practices such as liming, proper fertilization, removal of excess organic matter, and maintaining adequate dissolved oxygen levels help create a favourable environment for fish growth

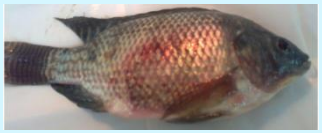
BACTERIAL DISEASES

1. Motile Aeromonas Septicemia (MAS)

Causative agent: *Aeromonas* spp.

Clinical signs:

- Red haemorrhagic patches on body and fins
- Ulcers on skin
- Swollen abdomen
- Lethargic fish and reduced feeding



Source – Aboyadak et al., 2015

Control measures

- Maintain good water quality
- Apply lime (200–300 kg/ha)
- Avoid overfeeding
- Use medicated feed with antibiotics only under expert advice

2.Columnaris Disease

Causative agent*: Flavobacterium columnare*

Clinical signs:

- White or grey patches on gills, skin, or mouth
- Cotton-like growth around mouth
- Frayed fins
- Rapid breathing

Source - Nguyen et al., 2025

Control measures

- Reduce stocking density
- Improve water circulation and aeration
- Avoid handling stress to fish
- Apply $KMnO_4$ (2–3 ppm)

3.Bacterial Gill Disease

Causative agent*: Flavobacterium branchiophilum*

Clinical signs:

- Excess mucus on gills
- Swollen and Pale gills

Source -Annelies et al., 2023

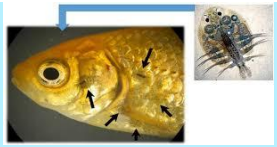
Control measures

- Partial water exchange if water quality deteriorates
- Reduce organic waste and excess feed in pond

PARASITIC DISEASES

1.Argulosis (Fish Lice)

Causative agent: *Argulus* spp.



Source-Ali Reza et al., 2022

Clinical signs:

- Red spots on body
- Reduced growth and poor feeding
- Fish scratching against pond bottom

Control measures

- Salt dip treatment: 2–3% salt solution for 5–10 minutes helps remove attached parasites
- Remove aquatic weeds: Argulus lays eggs on submerged objects and weeds, so removal helps break the life cycle

2.Lernaeasis (Anchor Worm)

Causative agent: *Lernaea cyprinacea*

Source- Byron et al., 2014

Clinical signs:

- Thread-like parasites attached to body
- Inflammation and ulcers
- Loss of appetite and poor growth

Control measures

- Salt treatment: 2–3% salt dip for 5–10 minutes
- Manual removal: In case of heavy infestation in brood or large fish, remove parasites carefully with forceps and apply antiseptic ($KMnO_4$ or iodine) on wounds
- $KMnO_4$ treatment (2–3 ppm)

3. White Spot Disease (Ich)

Causative agent: *Ichthyophthirius multifiliis*

Source- CABI digital library

Clinical signs:

- White spots on skin and gills
- Fish rubbing against objects
- Respiratory distress
- Reduced feeding and sluggish movement

Control measures

- Salt treatment: 2–3% salt dip for 5–10 minutes
- Formalin bath: 100–150 ppm for 30–60 minutes with proper aeration

VIRAL DISEASES

1. Tilapia Lake Virus (TiLV) Disease

Source- CABI digital library

Causative agent: *Tilapinevirus tilapiae*

Clinical signs:

- Loss of appetite and lethargy
- Skin discoloration and darkened body
- Scale protrusion and skin erosion
- Eye lesions and abdominal swelling

Control measures

- ➢ Stock certified TiLV-free tilapia seed from reliable hatcheries
- ➢ Quarantine new fish before introducing into ponds
- ➢ Disinfect nets, equipment, and pond facilities regularly

2. Koi Herpesvirus Disease (KHVD)

Source - Grant et al., 2014

Causative agent: *Cyprinid herpesvirus-3* (CyHV-3)

Clinical signs:

- Severe gill damage
- White patches on gills
- Respiratory distress
- Sudden mass mortality

Control measures

- ➢ Disinfect equipment and ponds regularly
- ➢ Remove infected fish immediately
- ➢ Maintain optimum stocking density

3. Spring Viremia of Carp (SVC)

Source- CABI digital library

Causative agent: *Sprivivirus cyprinus*

Clinical signs:

- Dark body coloration
- Swollen abdomen
- Haemorrhages on skin and gills
- Lethargic swimming and high mortality

Control measures

- ➢ Stock certified disease-free seed
- ➢ Maintain good water quality and avoid stress

FUNGAL DISEASES

1. Epizootic Ulcerative Syndrome (EUS)

Source- CABI digital library

Causative agent: *Aphanomyces invadans*

Clinical signs:

- Red spots on body surface
- Deep ulcers on skin and muscles
- Loss of scales
- Lethargy and reduced feeding

Control measures

- ➢ Apply lime (CaO) @ 200–300 kg/ha to improve pond condition
- ➢ Maintain good water quality and proper sanitation
- ➢ Avoid overcrowding and stress

2. Saprolegniasis

Source- Aquarium Science

Causative agent: *Saprolegnia* spp.

Clinical signs:

- Cotton-like white or grey patches on skin, fins, or gills
- Damaged skin and scale loss
- Fish become weak and inactive

Control measures

- ➢ Salt dip treatment (2–3%) for 5–10 minutes
- ➢ $KMnO_4$ treatment @ 2–3 mg/L
- ➢ Remove dead and infected fish from pond

3.Branchiomycosis (Gill Rot Disease)

Source- Fishelp.io

Causative agent: *Branchiomyces sanguinis* and *Branchiomyces demigrans*

Clinical signs:

- Gills become brown and necrotic
- Respiratory distress and gasping at water surface
- Reduced feeding and weak swimming

Control measures

- ➢ Improve water quality and increase aeration
- ➢ Reduce organic matter in pond water
- ➢ $KMnO_4$ treatment @ 2–3 mg/L

MGIFRI/Ext.Fol./09(E)-2026
Extension Leaflet

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MAJOR FRESHWATER FISH DISEASES AND THEIR MANAGEMENT

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