

FISH PATHOGENS AND TREATMENT

Understand the cause. Choose the right response.

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HOW INFECTIONS DEVELOP

Pathogens are disease-causing agents, including viruses, bacteria, fungi and parasites. Disease risk depends on the pathogen, the susceptibility of the fish and environmental conditions. Good husbandry and biosecurity reduce exposure; prompt diagnosis helps determine an appropriate response.

HOW PATHOGENS REACH FISH

Infectious agents can move with live fish and eggs, water, equipment, personnel and wildlife. Entry may occur through the gills, skin, digestive tract or wounds, depending on the agent. Infected fish may carry and shed pathogens without obvious signs of disease.

VIRUSES

Viruses reproduce inside susceptible host cells using cellular machinery. Infection can damage tissues and disrupt normal function; its severity varies by virus, fish species, life stage and conditions. Antibiotics do not treat viral infections. Prevention relies on stock health, movement controls, hygiene and vaccination where available and appropriate.

BACTERIA

Bacteria can cause disease by damaging tissues, producing toxins or spreading through the body. Some exploit stress, injury or poor water quality. Correct underlying husbandry problems and obtain a diagnosis before choosing treatment. Where appropriate, bacterial culture and susceptibility testing help guide antibiotic selection.

FUNGI AND WATER MOLDS

Fungi and fungus-like organisms can affect fish and eggs. Water molds such as Saprolegnia are oomycetes, not true fungi. External growth may follow injury, stress or damage to eggs. Control may require changes in handling and environmental conditions as well as a treatment authorized for the intended use.

PARASITES

Parasites may affect the skin, gills or internal organs. Some pass directly between fish; others require intermediate hosts. Heavy infections can impair breathing, feeding and growth or cause mortality. Identifying the parasite and its life cycle helps determine treatment timing and measures to reduce reinfection.

FROM DIAGNOSIS TO CONTROL

Treat affected fish. Reduce the next exposure.

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DIAGNOSE BEFORE TREATING

Changes in appetite, swimming, breathing, appearance or mortality warrant investigation. Check water quality promptly and contact an aquatic animal health professional. Collect suitable samples before treatment when feasible. Similar signs may have infectious or noninfectious causes, and more than one problem may be present.

MATCH THE TREATMENT TO THE CAUSE

Antibiotics target susceptible bacteria. Bacteriostatic drugs inhibit growth; bactericidal drugs kill bacteria. Neither category treats viruses or all other pathogens. Treatment success also depends on timely use, delivery, fish condition and correction of contributing factors.

Antifungal or water-mold treatments and parasiticides have specific uses and limitations. Select them for the identified organism, fish species and life stage. Some parasite stages are less susceptible than others, so a single treatment may not interrupt the life cycle.

Use legally authorized products under applicable veterinary oversight. Follow the current label and local requirements for dose, duration, delivery, withdrawal periods and environmental protection. Record treatments and assess the response; avoid repeated empirical treatment without reassessment.

DISINFECTION BREAKS TRANSMISSION

Disinfection reduces or inactivates pathogens on equipment, surfaces or in water under defined conditions. It does not replace diagnosis or treatment of infected fish. Pathogen survival outside a host varies widely; some agents persist in water, sediments, biofilms or resistant life stages. Do not assume they will quickly die without a host.

1. Remove organic debris and clean surfaces, using mechanical action where appropriate.
2. Rinse away residues as required; prevent incompatible cleaners and disinfectants from mixing.
3. Select a product effective against the target agent and suitable for the intended application.
4. Follow label directions for concentration, coverage, contact time, temperature and water conditions.
5. Complete required rinsing, neutralization or drying; manage effluent and prevent recontamination.

Equipment disinfectants may be harmful to fish. Only use products with fish or eggs when specifically authorized for that application.

PREVENT THE NEXT OUTBREAK

Review stock introductions, equipment sharing and movement between production groups. Maintain water quality, reduce avoidable handling stress and train staff to recognize early changes. Keep health, cleaning and treatment records, then update the biosecurity plan after an incident.

IMPORTANT: General educational guidance only. Consult an aquatic animal health professional and follow current product labels, safety data sheets and local requirements.

REFERENCES: WOAHA Aquatic Animal Health Code, Disinfection of aquaculture establishments and equipment; FDA, Approved Aquaculture Drugs; Merck Veterinary Manual, Mycotic Diseases in Aquaculture. Updated October 2026.