Major fish diseases in Coldwater fishes

A disease is an abnormal condition affecting the body of an organism, and associated with specific signs. It may be defined as a condition that causes pain, dysfunction, distress, and finally death.

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Broadly, we can classify the fish diseases as infectious disease, invasive disease and diseases due to nutrition and environment.

Infectious Diseases

Infectious diseases are mainly caused by viruses, bacteria, fungi, or unicellular algae ("ichthyomicrobial diseases"); e.g. bacterial enteritis, bacterial gill rot, and bacterial erythema. Infectious diseases account for 60 per cent of the production loss. There are three stages in the course of infectious diseases: a latent period, a symptomatic period, and an attacking period. There are two types of infections: pure (one causative agent) and mixed (two or more pathogens on a single fish). Likewise, there can be two sources of infection: primary and secondary. A primary infection originates within the pond. The pathogen may infect the fish directly or through the discharge of pathogenic agents into the water. Occasionally, "healthy" fish may act as disease carrier and an outbreak of disease may occur under certain conditions. A secondary infection originates outside the pond.

Invasive Diseases

Invasive diseases are caused by animal parasites such as trichodinasis, ichthyphthiriasis, lernaesis, argulusis, etc. Fish carrying parasites or, the carcasses of diseased fish is a primary source of invasive disease. Contaminated feeds, gears, pond water, silt, etc., are secondary sources.

Other Diseases

Physical and chemical factors or the influence of pond environment may retard growth or even kill the fish. For example, gasping and suffocation may upset the physiological balance of the fish and if serious, cause mass mortality. These diseases are known as environmental, nutritional and genetic diseases.

Viral diseases

Some of the important viral diseases of fish from the perspective of cold water aquaculture are Infectious Pancreatic Necrosis (IPN), Infectious Hematopoietic Necrosis (IHN) Viral Hemorrhagic Septicaemia (VHS), Spring Viremia of Carp (SVC) and Epizootic Hematopoietic Necrosis (EHN).

Bacterial diseases

These are the some of the important bacterial diseases that are major threat to coldwater fishes-

Cold Water Disease (CWD), Bacterial Kidney Disease (BKD), Enteric Red Mouth disease (ERM), Furunculosis

Bacterial Gill Disease, Mycobacteriosis (Fish tuberculosis)

Rainbow trout gastroenteritis (RTGE), Red mark syndrome (RMS) or Cold water strawberry disease.

Fungal diseases

In general, the diseases caused by fungi are known as "MYCOSIS" and those in fishes are called as "FISH MYCOSIS". Common fungal fish diseases are Saprolegniosis, Branchiomycosis and Achlyaeosis etc.

Parasitic diseases

Following are the few major parasitic diseases.

White spot (Ich) Disease, Costiasis, Trichodinasis, Myxosporadian parasites, Whirling diseases, Dactylogyrosis, Gyrodactylosis, Black Spot Disease, Eye Disease of Rainbow Trout.

Non-infectious fish diseases

Nutritional Deficiency diseases- Lipodosis, Vitaminosis and mineral deficiency, Nutritional Gill Disease, Sun Burn, Aflatoxicosis, Fatty Infiltration of the Liver, Lordosis and Scoliosis, Cataracts and Whirling disease.

Types	Pathogens /causes	Mode	Source	Losses (%)	Control
Infectious Diseases	viruses	acute	Diseased fish or seed, polluted water, contaminated feed & equipments	60-110	Prevention, Disease free seed & feed, disinfection, treatment
	bacteria	acute, subacute			
	fungi	chronic			
Invasive Disease	parasites	chronic	Diseased fish, polluted water, contaminated feed, gear & silt.	10-60	Prevention, disinfection, treatment
Other diseases	Nutritional Environmental Genetic	chronic	Nutritional deficiency, polluted water, genetic abnormality	0-100	Balanced feeding, water quality monitoring, quality seed

For the maintenance of a healthy stock of fish, "prevention is better than cure" must be followed. The diagnosis and treatment of disease in fish is difficult as fish are schooling animals and it is hard to observe them individually. In addition, some fish diseases are still essentially incurable. Therefore, preventive measures are essential for the control of disease.

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