

## Black Spot Disease



Photo Credit: CA-NV FHC, USFWS

## Black Spot Disease

External Symptoms:

- Numerous black raised bumps on the skin, fins, and gills.

Caused by *Neascus* species (Trematode)

- Host: Infects a wide variety of fish; fish are the intermediate host in the life cycle.
- Life cycle takes 4 months to complete. However, around 22 days black spots start to form around the cyst.
- Effects on fish: May cause blindness in mature fish when infections are heavy. Some evidence for physiological stress in juveniles when infections are heavy.
- Harmless to humans.

## Columnaris Disease



Photo Credit: CA-NV FHC, USFWS

## Columnaris Disease

External Symptoms:

- Grey-white to yellowish slime on skin, fins, or gills. Fins might be frayed.
- May also be accompanied with a fungal infection that will appear in white cloudy patches.

Caused by bacterial infection (*Flavobacterium columnare*)

- Effects on fish: Fish can become lethargic and will breath rapidly due to gill damage. Mucous accumulation on the gills is common.

## White Spot Disease or Ich



Photo Credit: LaCrosse FHC, USFWS

## White Spot Disease or Ich

External Symptoms:

- White nodules that look like grains of salt on the body, fins, or gills.

Caused by a encysted parasite (*Ichthyophthirius multifiliis*)

- High parasite reproductive rate at temperatures of 75-79F (23-26C) – life cycle completed within 48 hours. Therefore, highly contagious and spreads rapidly from fish to fish.
- Effects on fish: Encysted parasites cause skin lesions and gill damage. Fish will produce excess mucous due to irritation. When heavily infected, Ich causes considerable respiratory distress, loss of osmotic balance, and mortality.

## Gill Metacarcaria



Photo Credit: CA-NV FHC, USFWS

## Gill Metacarcaria

External Symptoms:

- Parasitic infection embedded in gill tissue

Caused by a flatworm (Trematodes)

- Fish are the intermediate host
- Effects on fish: Can cause flared or swollen gills, inflammation, and if infection is severe it can lead to compromised respiration.



## Swollen Abdomen

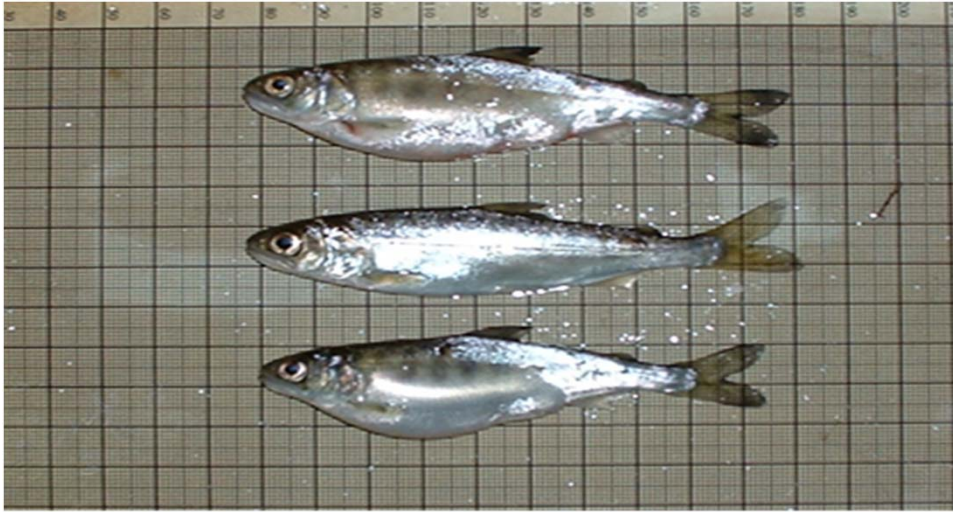


Photo Credit: CA-NV FHC, USFWS

## Swollen Abdomen

External Symptoms:

- Fluid retention in body cavity leading to swollen abdomen

Caused by the parasite *Ceratomyxa shasta*

- Target Tissue: Intestine
- Host: Most salmonid species
- Effects on fish: Can cause severe damage to the intestine resulting in loss of ions and osmotic balance of the blood and bodily fluids. Moderate to severe mortality occurs depending on the actinospore exposure/dose in infectious water.