



# 2014 Update on Water Mold found on *Aanaaktiq* near Nuiqsut



Todd Sformo/NSB-DWM

A NSB-DWM Task Force has been formed to develop a monitoring plan with Nuiqsut.

## What is Water Mold?

*Saprolegnia* is a water mold that has been found on *Aanaaktiq* by Nuiqsut fishermen during the fall of 2013 and 2014. It is common in freshwater around the world and grows on live and dead matter (fish eggs, insects, etc.). It can infect fish through wounds on their skin.

## Where was it found?

It was found on fish caught from the Colville main channel and the Nigliq channel. *Saprolegnia* has not been reported from Nuiqsut before, but one case was reported on the Inaru River in 1980. *Saprolegnia* has not been reported on any other species of fish to date.



*Saprolegnia* filaments

## What does *Saprolegnia* do to fish?

*Saprolegnia* can cause a disease in fish called Saprolegniosis

- Healthy mucous coating on fish skin is a natural barrier to infection
- If fish injured or stressed, mucous coating can be reduced which can lead to infection

Fish can become stressed due to:

- Crowding, also leading to injuries
- Changes in environment (as in water temperature, salinity, water flow)
- Reproduction (spawning), especially males

Water mold penetrates through injured skin, causing fluid loss, can lead to death

- See *Saprolegnia* handout for more information on this organism

The cause of Saprolegniosis in fish found near Nuiqsut is not yet known. Baseline data will continue to be collected.

## Is *Saprolegnia* harmful to humans?

No, according to State of Alaska, it will not harm humans. However, NSB-DWM recommends maintaining traditional and customary practices when handling unusual fish.

## What to look for?

Moldy patches on the outside of fish, as seen in the picture above.

**For more information,  
or to report a sighting,  
please call NSB-DWM  
at 907-852-0350.**



Todd Sformo and Billy Adams/NSB-DWM

This map shows where fish with water mold were caught in 2013.

# Saprolegniosis on the North Slope

## What is it?

Saprolegniosis is a fish disease caused by *Saprolegnia*, a water mold related to brown algae. Saprolegniosis is indicated by a tangled mass of fuzzy white filaments (like cotton) found in patches on the outer skin of fish. Out of the water, the filaments clump into a mat, and sometimes the patches turn gray or green (especially if other debris or bacteria are caught in the filaments). In severe cases, the filaments can penetrate into the underlying muscle which can lead to death of the fish. *Saprolegnia* species are the main cause of infections in freshwater fish and their eggs, especially during spawning times or other times of stress. Infected fish are not always seen, but those that have been seen are sometimes noticed to be lethargic and not swimming properly.

## Where is it found?

*Saprolegnia* is widespread and commonly found in freshwater ecosystems around the world. It was found in the Nuiqsut broad whitefish fishery in October of 2013. While it is fairly common in rivers south of the Brooks Range, this the first documented case in the Colville River. Only one other case on the North Slope is documented that we are aware of and occurred in the Meade River in 1980.

## How is it transmitted?

*Saprolegnia* spores are released from the filaments. The spores are free-floating, encapsulated in cysts to protect them in the water until they come in contact with the correct substrate, like damaged fish skin. If a fish is stressed and has previous damage on the body or fins, the spore can attach to the damaged area and spread quickly. The *Saprolegnia* filaments grow and produce more spores which are released in the water, completing their life cycle.

## How do fish get infected?

Fish have built-in defenses against infection, the first being their slimy, mucous coating. *Saprolegnia* infect fish through skin or gills that have been previously damaged, removing this protective coating. If the fish is stressed, as with a weakened immune system or during spawning, the fish's natural defenses cannot kill the *Saprolegnia* that attach to these damaged areas. Handling of fish can also lead to increased chance of infection, likely due to removal of mucous coating. Other causes of increased susceptibility to infection are crowding, parasites, water quality and sudden temperature changes. The water mold can attack fish eggs as well, especially in fish hatcheries, but less successfully in the wild.

## Why is it found more often in spawning fish?

In wild fish, especially salmonids, infected fish are often spawning. Fishermen in Alberta, Canada, reported this finding. Studies there also found it to be more common in males and older fish, which could be due to the territorial behavior of these fish leading to increased risk of injury or stress. They also documented some infected fish (brown trout) surviving and found not infected in the next spawning season (see reference below for more information).

## Is it a health threat to humans?

*Saprolegnia* causes no human health threat. Humans cannot be infected. However, the mold does kill larval mosquitoes which is good for human health.

## How can it be prevented or controlled?

There is really not much that can be done to get rid of the naturally-occurring *Saprolegnia* in the water. However, damage to fish can be minimized by proper human handling and release of fish (as in catch-and-release fisheries).

**Reference:** Saprolegniosis in Alberta, Fact sheet #29 (ISBN Online: 0-7785-9013-2)

<http://esrd.alberta.ca/fish-wildlife/wildlife-diseases/documents/SaprolegniosisFactSheet-MAR-2010.pdf>