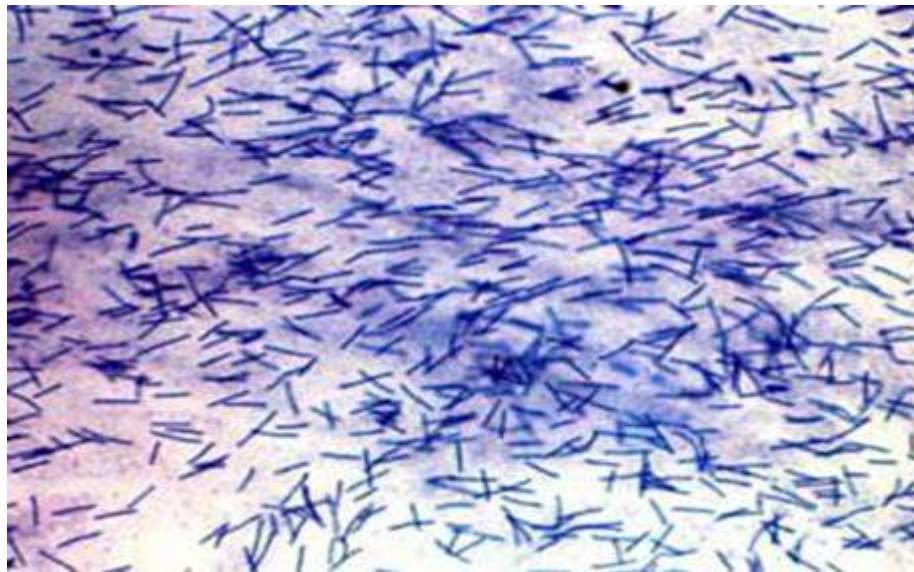


Columnaris Disease in Susquehanna Smallmouths

Columnaris

- Bacterial infection caused by *Flavobacterium columnare*
- It is a long Gram-negative rod in the family Flavobacteraceae



Causes

- This disease is brought on by stressful situations such as unfavorable pH, warm water temperatures, nutrient loading, low flow, low dissolved oxygen or not enough food
- In the Susquehanna the smallmouths effected by the disease are young of the year
- Investigations by the USGS and Pennsylvania Water Science Center have confirmed that stressful water quality occurred in the YOY smallmouth habitat

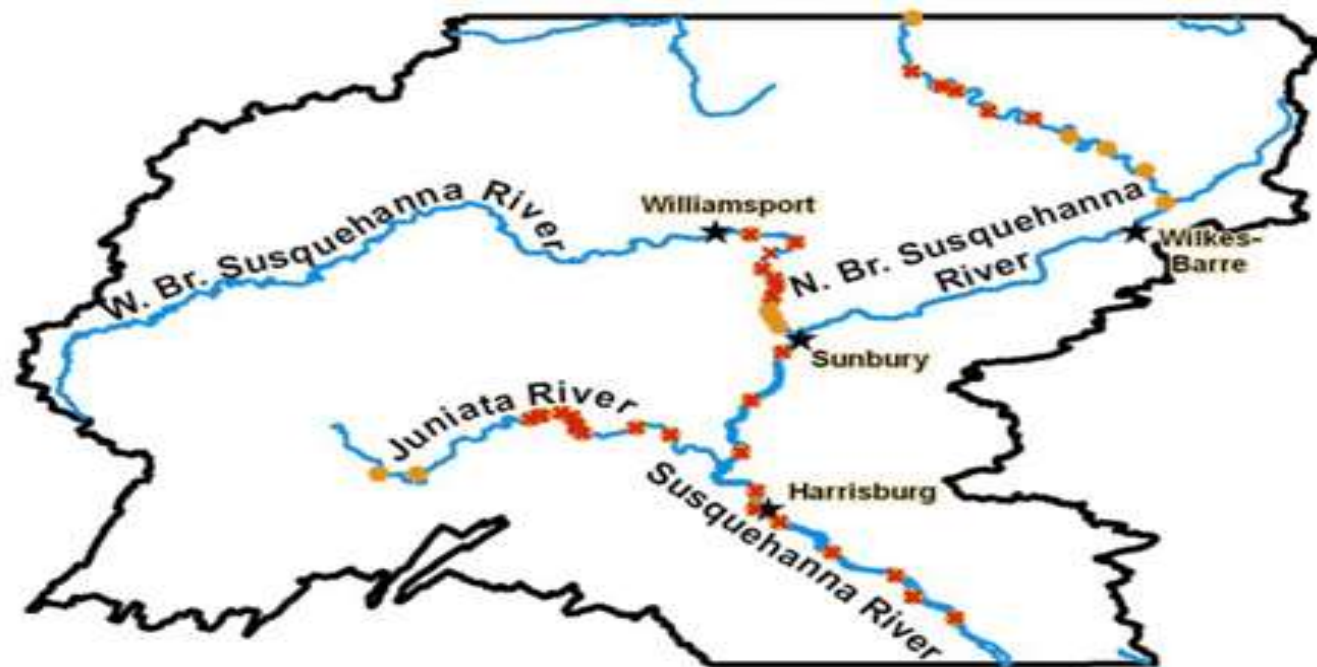
Symptoms

- White spots on mouth, fins and gills
- White growth eats away mouth
- Infected fins begin to disintegrate
- Lesions growing near dorsal fins



Results from disease

- This disease is usually fatal
- It kills the YOY smallmouths in a few days after they are infected
- Outbreaks of this disease happened in the Susquehanna in 2005, 2007 and 2008



Juvenile smallmouth bass sampling sites (●) and mortality sites (×)

Comparison

- The Susquehanna was compared to The Delaware and Alleghany Rivers
- It was shown that The Susquehanna usually had lower dissolved oxygen then the Delaware and Alleghany
- This is not the only factor that went into Columnaris, but it is the only one the PA Fish Commission identified as a contributor so far

Sources

- <http://fishandboat.com/susquehannabass.htm>
- <http://www.fishvet.com/columnaris.htm>
- <http://en.wikipedia.org/wiki/Columnaris>
- http://www.fish.state.pa.us/pafish/bass_black/workshop/smb2009/dep_columnaris.pdf