



# Ontario Animal Health Network (OAHN)

## Aquatic Animal Health

January to June 2019, Report #7

This report is a communication for aquaculture producers in the province of Ontario, compiled by the Ontario Animal Health Network (OAHN)

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### Aquatic Veterinary Services Summary

There were a number of diagnoses during the period of January to June 2019 in aquaculture production in Ontario. These diagnoses were primarily coldwater disease (*Flavobacterium psychrophilum*) and bacterial gill disease (*Flavobacterium branchiophilum*). Aquaculture veterinary case load is expected to increase heading into the warmer months. The majority of the concerns observed on fish farms in Ontario have been non-infectious and related to environmental conditions.

### Disease Spotlight: Columnaris Disease (*Flavobacterium columnare*)

*Flavobacterium columnare* is a bacterial pathogen causing columnaris disease. This disease occurs at water temperatures of 12°C and above.

#### Which species and ages are susceptible to Columnaris Disease?

*F. columnare* is distributed worldwide in fresh water and may infect many different wild and cultured freshwater fish species, such as (but not limited to) carp, channel catfish, goldfish, eel, perch, salmonids, and tilapia. Columnaris disease occurs in both cultured and wild populations, and may also affect aquarium fish.

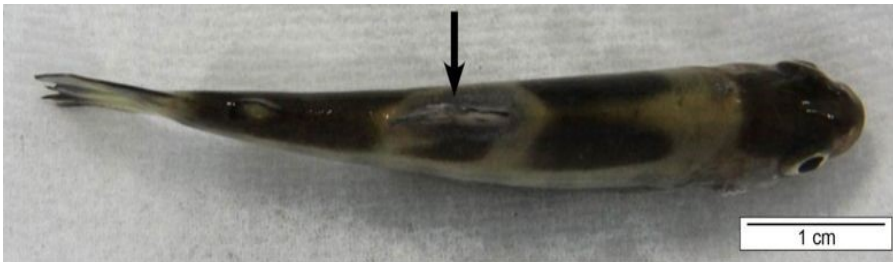
#### How is the disease spread?

Columnaris disease may be waterborne or transmitted from carrier fish. Fish may reside in a clinically healthy carrier status harbouring an isolate remaining from a previous outbreak of columnaris disease, and in this way act as an infection source for other fish. Fish can become infected at any stage of life. Prevention and control are essential to avoiding losses due to columnaris disease, because there are a limited number of antimicrobial treatment options available.

**Disease Spotlight: Columnaris Disease (continued)**

**What signs should I look for in my fish?**

*F. columnare* causes acute to chronic infections and typically affects the gills, the skin and fins. The first sign of the disease may be the appearance of discolored gray, patchy areas in the area of the dorsal fin. These characteristic “saddleback” lesions may progress until skin erosion exposes underlying muscle tissue. These lesions may become yellow and cratered and are often prominent in the mouth and head regions.



**Left:** Juvenile rainbow trout displaying signs typical of columnaris disease, including fin erosion and dorsal lesions.

Photo from:

[https://  
veterinaryresearch.biomedcentral.com/  
articles/10.1186/1297-9716-44-27](https://veterinaryresearch.biomedcentral.com/articles/10.1186/1297-9716-44-27)

**How can the disease be treated?**

Importation of eggs to a facility should be treated with a surface disinfectant like Ovadine®. External and systemic infections may be treated with antibiotics. Please contact your veterinarian if you suspect that you have columnaris disease.

**Right:** Juvenile rainbow trout displaying signs typical of columnaris disease, including gill lesions.

Photo from:

[https://  
veterinaryresearch.biomedcentral.com/  
articles/10.1186/1297-9716-44-27](https://veterinaryresearch.biomedcentral.com/articles/10.1186/1297-9716-44-27)



**Provincial Update**

**Antimicrobial Stewardship**

The widespread use of antimicrobials in humans and animals has led to antimicrobial resistance around the world. The Farmed Animal Antimicrobial Stewardship Initiative (FAAST) aims to tackle resistance head-on through education, collaboration, and engagement across the value chain.



**FAAST**  
FARMED ANIMAL ANTIMICROBIAL STEWARDSHIP

The Veterinary Drug Directorate/PHAC has consulted with industry, veterinarians and provincial jurisdictions to put together the species-specific veterinary prescription templates, including which are available online at [www.amstewardship.ca/reports-templates/](http://www.amstewardship.ca/reports-templates/). This includes a template for aquaculture! For more information about FAAST please visit <https://www.amstewardship.ca/>.

### National Update

#### Federally Reportable Aquatic Animal Diseases

From January to June 2019, the Canadian Food Inspection Agency (CFIA) have confirmed cases of infectious pancreatic necrosis in rainbow trout in Nova Scotia and infectious salmon anemia in Atlantic salmon in New Brunswick, Nova Scotia and Newfoundland. These cases represent both wild and farmed aquatic animals across the country. Since March 2018, there have been no additional confirmations of whirling disease in Canada.

For more information about federally reportable aquatic animal diseases, please visit CFIA's webpage [tiny.cc/CFIA\\_Disease](http://tiny.cc/CFIA_Disease).

#### Tilapia Lake Virus detected in the United States

On May 6th 2019, tilapia lake virus (TiLV), the causative agent of tilapia syncytial hepatitis, was identified at a tilapia facility in Idaho, and through tracing to facilities in Wyoming and Colorado as well.

TiLV is recognized to infect most tilapia fish, but especially has caused large epizootics in red, Nile, and hybrid tilapia. Disease has so far been most limited to Asia, South America, the Middle East, and Africa but given the relatively recent identification in 2014, much remains to be learned about this virus. The virus appears to spread rapidly from infected fish in water.

Tilapia lake virus is a newly emerging virus that is associated with significant mortalities in farmed tilapia. Mortality can be very high, often between 60-90% in natural and experimental infections, but in endemic areas may be more routinely around 10%. There is some early evidence that different tilapia strains may differ in mortality rate but this still needs further study. Polyculture seems to increase tilapia susceptibility, but freshwater mullet and carp have not shown evidence of infection. Fingerlings and tilapia up to 50 grams are involved in the majority of mortality events, but TiLV is implicated as part of the "summer mortality" phenomenon seen in some parts of the world in market-weight tilapia. Clinical outbreaks seem to occur during warmer months when water temperatures are between 22-32°C and stressors such as high stocking density or transfer to grow-out cages are also implicated.



#### Your OAHN Aquatics Team:

##### Co-leads:

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##### Members:

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Dr. Roz Stevenson (University of Guelph)

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##### Coordinators:

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### National Update

#### Tilapia Lake Virus detected in the United States continued

Clinical signs in infected fish are nonspecific and include exophthalmia, ascites, colour changes and/or skin lesions, loss of appetite, lethargy and abnormal swimming behaviour. It is very important to refer samples to a veterinary laboratory to rule out other diseases with similar clinical signs.



**Left:** Tilapia displaying signs typical of TiLV, including dermal lesions.

Photo from CGIAR TiLV Factsheet:  
<https://enaca.org/?id=871>

There is no treatment for TiLV, but published studies show that fish that survive TiLV become resistant to infection. Biosecurity is very important to prevent disease introduction, including purchasing of tested fry or fingerlings. The impact of TiLV has to be managed through farm-level management interventions, strict biosecurity controls, and restricted/regulated movement of animals from affected farms.

Currently, the Canadian Food Inspection Agency (CFIA) is in discussions with tilapia producers about what this detection means for the future of the industry in Canada. There is serious consideration being given to start requiring an import permit and export certification with attestations for TiLV disease freedom for the importation of tilapia for culture purposes.

Some additional references:

Johnson MD, Dong HT, Mohan CV. 2018. Tilapia lake virus: a threat to the global tilapia industry? Reviews in Aquaculture. 1-15. <https://onlinelibrary.wiley.com/doi/epdf/10.1111/raq.12254>

OIE. Tilapia Lake Virus, United States. [http://www.oie.int/wahis\\_2/public/wahid.php/Reviewreport/Review?page\\_refer=MapFullEventReport&reportid=30412](http://www.oie.int/wahis_2/public/wahid.php/Reviewreport/Review?page_refer=MapFullEventReport&reportid=30412)



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### Lab News

#### Concurrent infections of bacterial gill disease and nodular gill disease

During late February, a commercial aquaculture farm experienced increased daily mortality rates in a group of rainbow trout and submitted samples to the University of Guelph's Animal Health Laboratory (AHL) for testing.

Testing at AHL indicated that clinical signs were consistent with a diagnosis of both bacterial gill disease (BGD) and nodular gill disease (NGD). BGD is caused by *Flavobacterium branchiophilum* and is one of the most significant infectious diseases affecting freshwater salmonid aquaculture worldwide. NGD, commonly caused by *Cochliopodium* sp., represents the second most common gill disease affecting Ontario rainbow trout aquaculture.

Co-infected cases will respond poorly to standard BGD antibacterial treatments (e.g., chloramine-T) and given the similarities in clinical presentation, appropriate laboratory testing (including gill wet mounts and histopathology) is a necessity to ensure an accurate diagnosis.

### Contact OAHN

Check us out on the web:  
[www.oahn.ca](http://www.oahn.ca)

Follow us and receive disease updates and more!



@OntAnHealthNet



Ontario Animal Health Network



Email:  
[oahn.fish@uoguelph.ca](mailto:oahn.fish@uoguelph.ca)

### Lab News

#### Fish Pathology Laboratory is looking for fish to test

The Fish Pathology Laboratory at the University of Guelph is conducting a survey of Ontario rainbow trout for the bacterial agent that is the cause of **epitheliocystis**. At present, there is little information regarding how widespread or common this agent is in rainbow trout. The lab is asking for farmers that are willing to submit samples for this survey. A diagnosis will be provided for each farm/vet free of charge and only summary statistics will be reported publicly so that individual results are completely private.

Fish affected by this disease typically would appear as fish with a gill disease that doesn't resolve as expected with the usual treatments. Summer is the season when fish are affected to the greatest degree, however we wish to continue to receive samples into the fall and winter of the coming year. If you wish to participate in this survey, please send an email to [fpl@uoguelph.ca](mailto:fpl@uoguelph.ca).

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of GUELPH

