



# Ontario Animal Health Network (OAHN)

## Aquatic Animal Health

July to December 2019, Report #8

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 July to December 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 decrease heading into the colder months. The majority of the concerns observed on fish farms in Ontario have been non-infectious and related to environmental conditions.

### Disease Spotlight: Infectious Hypodermal and Haematopoietic Necrosis (IHHN)

IHHN is an infectious disease that affects crustaceans. It is caused by the Infectious Hypodermal and Haematopoietic Necrosis Virus (IHHNV), which belongs to the family *Parvoviridae* and Genus *Penstyldensovirus*.

#### Which species and ages are susceptible to IHHNV ?

IHHNV causes disease in 6 species of penaeid shrimp, and some additional species may be capable of being infected without clinical disease. The white leg shrimp (*Litopenaeus vannamei*) is currently the only species of shrimp cultured in land-based facilities in Canada. This species does not naturally exist in Canada's aquatic environment. None of the other susceptible species naturally exists in Canada.

#### How is the disease spread?

IHHNV can be transmitted by all life stages of penaeid shrimp, from eggs to adults. Movement of contaminated water is also important in extending the range of the disease. Dead shrimp release virus into the environment or to other shrimp who scavenge them. Infected broodstock will pass the virus to their offspring, who may or may not show clinical disease.

### Disease Spotlight: IHHN (*continued*)

#### What signs should I look for in my shrimp

IHHNV causes a variety of clinic signs and varies in severity in different shrimp species. In the white leg shrimp grown in Ontario, IHHNV may result in chronic infections with no or very little mortality observed over long periods of time. Infected animals may exhibit any of the following signs: poor feed conversion ratio, stunted growth, large variation in sizes of shrimps in population, appearance of shrimps with deformed shell, rostrum, appendages, abdomen and tail and soft and mottled shell. Not all infected crustaceans will show clinical signs or visible symptoms of disease. Your veterinarian may suspect IHHN based on clinical signs but diagnosis of the disease must be confirmed by laboratory testing.



**Left: White leg shrimp** displaying signs typical of IHHNV, including deformed shell.

Photo from:  
<http://vienloci.org.vn/emsihhnvwssv-multiplex-pcr-kit/>

Watch our quick video to learn more about IHHN in white leg shrimp:

[www.youtube.com/watch?v=RpHp-d5ITSE](http://www.youtube.com/watch?v=RpHp-d5ITSE)

#### How can the disease be treated?

There are no treatment options currently available for IHHN. However, measures can be taken to prevent the introduction and spread of IHHN:

- Implement biosecurity measures
- If you frequently handle or work with crustaceans, be aware of the clinical signs of IHHN
- Ensure that all imports of susceptible species are from countries approved for import
- Do not introduce live crustaceans from another country or province into the natural waters of Canada without authorization from the appropriate authorities
- People releasing crustaceans into the natural waters or into rearing facilities within Canada should check if federal/territorial/provincial /municipal permits are required
- Live aquatic animals, aquatic animal carcasses, parts of a carcass or offal and things suspected of IHHNV contamination should be disposed in a bio-secure manner
- Do not use crustaceans that were bought in a grocery store as bait for catching fish or other aquatic animals
- If you have travelled to another country and visited a shrimp aquaculture site, or had contact with wild crustaceans, the following biosecurity measures should be taken before visiting any premises with susceptible crustaceans in Canada:
  - wear separate footwear or thoroughly wash and disinfect the footwear you wore to the site or when you were in contact with wild crustaceans.
  - wash your clothing thoroughly and dry it at a high temperature.

### Provincial Update

#### Aquaculture and Aquaponics Specialist

The Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA) has hired a new Aquaculture and Aquaponics Specialist as a resource for the aquaculture industry. Michael McQuire has taken over the role in OMAFRA's Agriculture Development Branch and is located in the Guelph office.



#### Your OAHN Aquatics Team:

##### Co-leads:

Dr. Alex Reid  
(OMAFRA), Dr. Marcia  
Chiasson (University  
of Guelph) and Dr.  
Veronique LePage  
(Private Practice)

##### Members:

Steve Naylor (DFO)

Dr. Tim Pasma and  
Michael McQuire  
(OMAFRA)

Kerry Hobden (MNR)

Dr. Ed Creighton and  
Dr. Nathalie Bruneau  
(CFIA)

Dr. Hugh Cai and  
Dr. Roz Stevenson  
(University of Guelph)

Dr. Mykolas Kamaitis  
and Dr. Foster Scott  
(Veterinarians)

Gord Cole, Kana  
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Taylor (Industry  
Representatives)

##### Coordinators:

Dr. Kate Todd,  
Suzanne Conquer

### National Update

#### Federally Reportable Aquatic Animal Diseases

From July to December 2019, the Canadian Food Inspection Agency (CFIA) have confirmed cases of infectious pancreatic necrosis in brook trout in New Brunswick, infectious salmon anemia in Atlantic salmon in New Brunswick and Newfoundland in addition to koi herpesvirus disease in common carp from Ontario. 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](https://tiny.cc/CFIA_Disease).

#### IHHN detected in the United States and Canada

The CFIA was notified of detections of Infectious Hypodermal and Haematopoietic Necrosis virus (IHHNV) in white leg shrimp populations in Texas, Florida and California. Import permits for live white leg shrimp originating from these states have been cancelled. CFIA is committed to working with the United States aquatic animal health authorities to ensure that Canada's aquatic animal resources are protected and that impacts on trade are minimized. In August 2019, IHHN was identified in four shrimp facilities in Canada (Alberta, British Columbia and Ontario).

#### Tilapia Lake Virus (TiLV) Update

Following the detection of TiLV in the United States in May of 2019, Ontario producers are unable to ship live tilapia to the USA unless a competent authority is involved. At present, exports of Canadian tilapia to the USA are not possible.

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[www.oahn.ca](http://www.oahn.ca)

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### OAHN Project Update

#### Can probiotics be used to reduce coldwater disease in rainbow trout?

Bacterial coldwater disease (BCWD) is the single biggest production limiting infectious disease in Ontario salmonid aquaculture. BCWD is caused by *Flavobacterium psychrophilum* and causes disease in water temperatures between 4 and 12°C. This bacterium is established around the world, with outbreaks reported in all countries that raise freshwater salmonids, as well as other important commercially species.

In Ontario, treatment for BCWD is limited to two antibiotics, oxytetracycline and florfenicol. Oxytetracycline has a long withdrawal time at cold water temperatures (at least 80 days) and antibiotic resistance has been detected at commercial farms. Florfenicol can't be used in fish when water temperatures are below 5°C. There are no standalone commercial non-antibiotic treatments.

The Cain laboratory at the University of Idaho has developed a promising probiotic treatment designed to be administered orally in feed. Laboratory data has shown some evidence that the probiotic can reduce natural infection of BCWD. This pilot project being run at the Alma Aquaculture Research Station aims to test this probiotic in Ontario to see if the laboratory data can be replicated in a farm-environment.

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