



# Ontario Animal Health Network (OAHN)

## Aquatic Animal Health

January to June 2018, Report #5

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

### IN THIS ISSUE:

- Aquatic Veterinary Services Summary
- Disease Spotlight: Weissellosis Disease
- Provincial Update
- National Update
- OAHN Research Project

### Aquatic Veterinary Services Summary

There were a number of diagnoses during the period of January to June 2018 in aquaculture production in Ontario. These diagnoses were primarily cold water disease (*Flavobacterium psychrophilum*) and columnaris disease (*Flavobacterium columnare*). Aquaculture veterinary case load increased 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: Weissellosis Disease (*Weissella ceti*)

*Weissella ceti* is an emerging bacterial pathogen that affects rainbow trout. The bacteria can cause outbreaks characterized by acute haemorrhagic septicaemia and high mortality rates. Weissellosis disease has been confirmed on trout farms in China, Brazil, United States and more recently, Saskatchewan, Canada.

Identification of *Weissella* is challenging and it is often misidentified because accurate identification is not possible by traditional or commercial identification methods that include bacterial morphological analysis or growth characteristics. The most effective diagnostic method is molecular DNA sequencing.

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

To date, *Weissella ceti* infections in fish species has only been identified in rainbow trout and appears to exclusively affect larger fish (0.25 to 1.0 kg). The susceptibility of other fish species remains unknown.

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

#### How is the disease spread and can you treat it?

Elevated temperature is the main predisposing factor for weissellosis outbreaks. The pathogen's route of infection and environmental reservoirs remain unknown but are the subject of ongoing research. *Weissella* spp. are inherently resistant to antibiotics. However, vaccines have been successfully utilized in the USA for the control of this disease.

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



Infected fish become lethargic and stop eating. Often, infected individuals will spend time at the surface of tanks or congregate at the end of raceways. Physically, adult rainbow trout will often have lesions and/or hemorrhaging around the eyes.

**Left:** Adult rainbow trout displaying signs typical of weissellosis, including the protrusion of the eyes (upper panel), intraocular hemorrhage (lower right panel) and corneal cloudiness (lower left panel). Photos by Tim Welch, US Dept. of Agriculture/ Agricultural Research Services.



#### Where can I find more information?

For further information about Weissellosis, please see Welch, TJ, Marancik, DP, & Good, CM. 2017. *Weissella ceti* IN: Fish viruses and bacteria: pathobiology and protection, Page: 334-338.

## Provincial Update

The Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA) continues to support Ontario farmers through education, awareness and facilitating meetings to better understand the steps that Health Canada is taking steps to limit access to antimicrobial drugs.

To align with the federal changes, the Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA) is proposing to make changes to Regulation 730 under the LMA, including no longer allowing the sale of medically-important antimicrobials from provincially licensed Livestock Medicines Outlets.

To review OMAFRA's evolving approach to complement federal changes to address antimicrobial resistance, please visit: [http://tiny.cc/OMAFRA\\_AMR](http://tiny.cc/OMAFRA_AMR)

### National Update

#### Federally Reportable Aquatic Animal Diseases

From January to June 2018, the Canadian Food Inspection Agency (CFIA) have confirmed cases of infectious haematopoietic necrosis, infectious salmon anaemia and whirling disease in both wild and farmed aquatic animals across the country.

Infectious haematopoietic necrosis was confirmed in chum salmon (*Oncorhynchus keta*) in the Pacific Ocean watershed of British Columbia. The virus is a cause of death in young finfish raised in freshwater hatcheries, young juveniles recently introduced into seawater (death rates reach 100 percent over a short period of time), and older finfish raised in seawater (death rates range from 20 percent to 100 percent over an extended period of time). For more information, please go to the CFIA webpage: [http://tiny.cc/CFIA\\_IHN](http://tiny.cc/CFIA_IHN)

Infectious salmon anaemia has been confirmed in Atlantic salmon (*Salmo salar*) in the Atlantic Ocean watershed of New Brunswick, Nova Scotia and Newfoundland. Outbreaks caused by this virus are most common in susceptible farmed finfish reared in seawater and can affect the fish at any life stage after hatching. Mortality rates are often low initially and increase over time (weeks to months). Depending on the strain of virus, outbreaks of ISA cause death rates of up to 90 per cent in affected populations of finfish. On average, mortality on any given farm is 30 per cent. For more information, please go to the CFIA webpage: [http://tiny.cc/CFIA\\_ISA](http://tiny.cc/CFIA_ISA)

The CFIA confirmed the presence of Whirling Disease, a federally reportable disease under the Health of Animals Act, in brown trout and brook trout in Banff National Park in August of 2016. Whirling disease is an infectious disease of finfish that affects trout and salmon that caused by a microscopic parasite, *Myxobolus cerebralis*. This was the first outbreak of whirling disease in Canada.

Affected finfish may exhibit unusual behaviour such as swimming in a whirling pattern and skeletal deformities of the body or head. However, not all infected finfish show signs of disease therefore the diagnosis of whirling disease requires laboratory testing. Whirling disease is a cause of death in the younger life stages of susceptible freshwater finfish and overall deaths of infected fry and fingerlings can reach 90 percent.

The CFIA have declared the Bow River, Oldman River, Red Deer River and North Saskatchewan River watersheds infected with whirling disease. The rest of Alberta has been declared as a buffer area for this disease until surveillance by the CFIA and the Government of Alberta determines that the buffer area or parts of the buffer area are either free or infected with whirling disease through diagnostic testing. For more information, please go to the CFIA webpage: [http://tiny.cc/CFIA\\_WD](http://tiny.cc/CFIA_WD)



#### Your OAHN Fish Team:

##### Co-leads:

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### Contact OAHN

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### Update on the OAHN Research Project Antimicrobial Resistance in Ontario Aquaculture

This project surveyed fish from fish hatcheries and farms in Ontario to determine the prevalence of bacterial pathogens and antibiotic resistant strains of bacteria.

Bacterial pathogens were cultured on agar and then identified. Those bacteria considered primary fish pathogens were further tested for minimum inhibitory concentrations (MICs) which is the lowest concentration of an antimicrobial that will inhibit the visible growth of a microorganism after overnight incubation. MICs are used by diagnostic laboratories mainly to confirm resistance. Many of the submissions were positive for more than one pathogen.

A total of 55 fish specimens and 34 bacterial isolates were tested. *Flavobacterium* spp. was isolated from 54.5% of the fish specimens and *Aeromonas* spp. was isolated from 29.1% of the samples.

Most of the isolates tested were susceptible to some degree to the antibiotic florefenicol (Aquaflor). The antibiotic oxytetracycline showed variable results where some isolates were susceptible and others were resistant.

Because Ontario fish farmers only have access to four antibiotic treatments options and two of those options are being phased out, it is imperative to better understand the occurrence of antibiotic resistance in this industry. A better understanding of bacterial pathogens and antimicrobial resistance may result in diverse treatment options to minimize economic losses due to fish health issues.

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