Advancing our Understanding of Myxozoan Parasites in Alberta Waters

Alberta Lake Management Society Annual Meeting

Oct 1, 2026

Hannah Veinot

hveinot@ualberta.ca

Exploring Whirling Disease in North America

Colorado Trout Dying of Whirling Disease

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By The Associated Press

Dec. 29, 1998

WORLD & NATION

Parasite Blamed in Rainbow Trout Decline : Montana: Fish population in fabled river has declined dramatically in recent years. Officials think they've discovered the cause, and it's incurable.

By TOM KENWORTHY

Jan. 29, 1995 12 AM PT

Subscribers are Reading

Whirling Disease Killing In Ever-Widening Circles

Sun., Oct. 5, 1997

The whirling disease threat to American trout has been raised to a possible "biological Chernobyl," leading Alberta, a huge province of Canada, to shut its border to live trout from the United States, effective Oct. 1, to protect its own streams.

"Recent studies implicate whirling disease in the significant decline of wild trout populations in Montana, Utah and Colorado," Alberta's environmental protection department said in a statement announcing the decision in April.

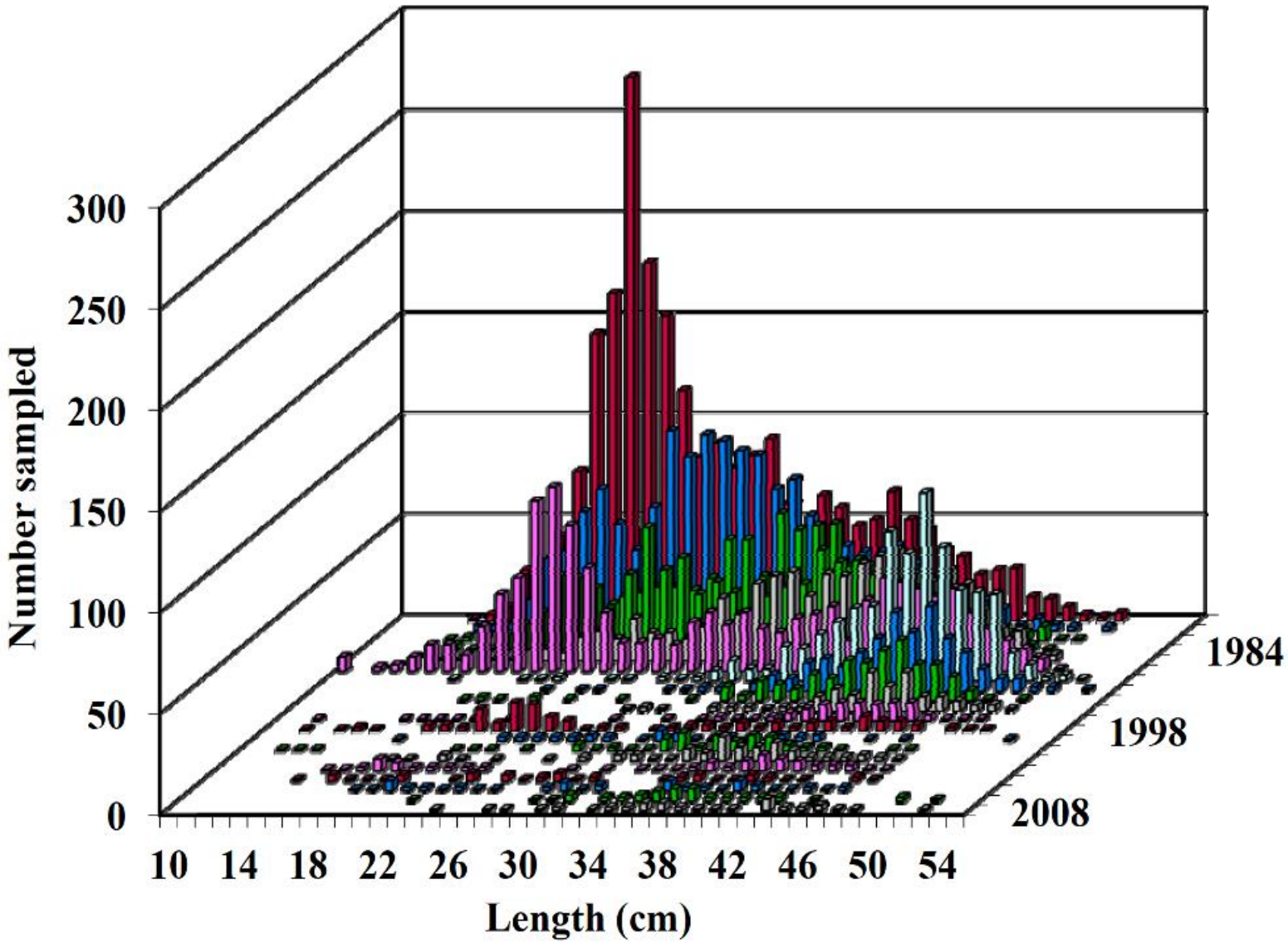

Figure 4.2. Upper Colorado River historic rainbow trout length-frequencies at Kemp-Breeze State Wildlife Area.

Fetherman and Schisler, 2014

Whirling disease in fish found in Banff lake a 1st in Canada, officials say

Parasitic infection affects trout and salmon, but not humans or other mammals

CBC News · Posted: Aug 25, 2016 1:02 PM MDT | Last Updated: August 25, 2016

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ENVIRONMENT

Johnson Lake drained in effort to eliminate parasite

By Tiffany Lizée • Global News

Posted October 23, 2019 7:14 pm · Updated October 23, 2019 8:27 pm · **2 min read**

British Columbia

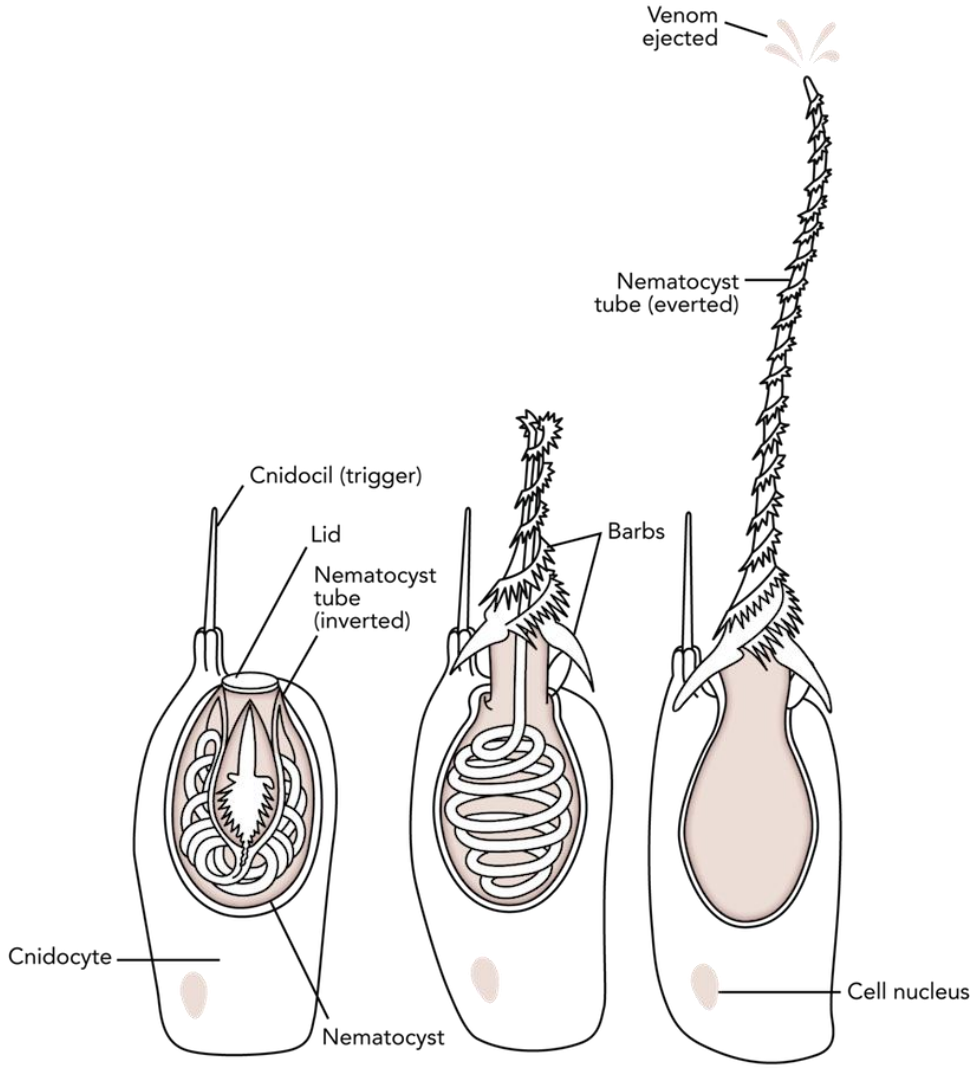
Whirling disease confirmed in B.C. for 1st time, sparking fears for fish populations

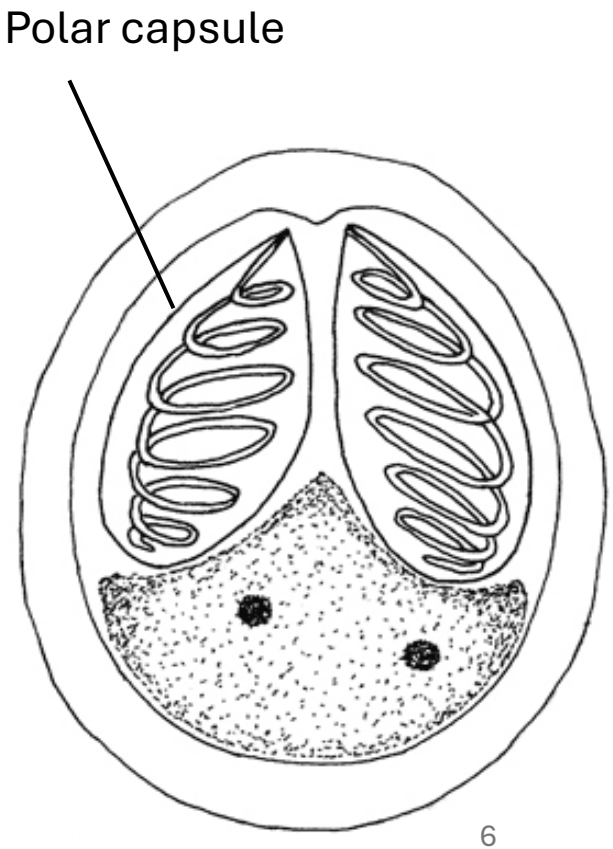
Parasite that decimates wild fish populations confirmed in Yoho National Park, shutting water bodies

Invasive species lead to access restrictions in B.C., Alberta national parks

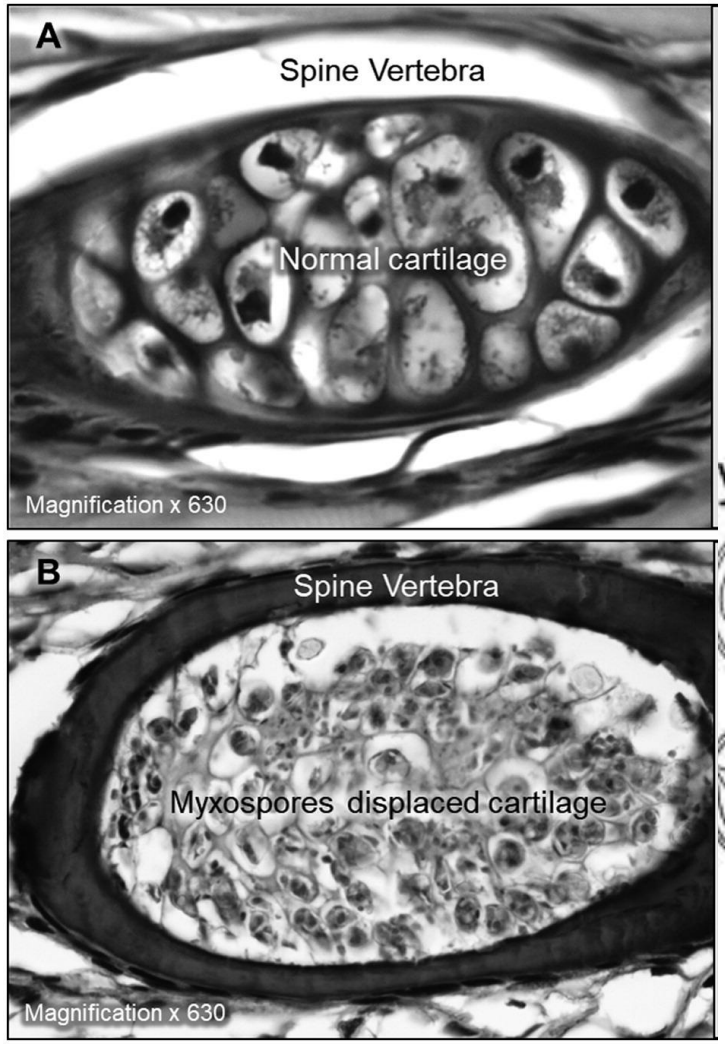
The lakes, creeks and tributaries in eastern B.C. will be closed until at least March next year in response to the deadly whirling disease parasite found in fish

Myxobolus cerebralis is a cnidarian (related to jellyfish)

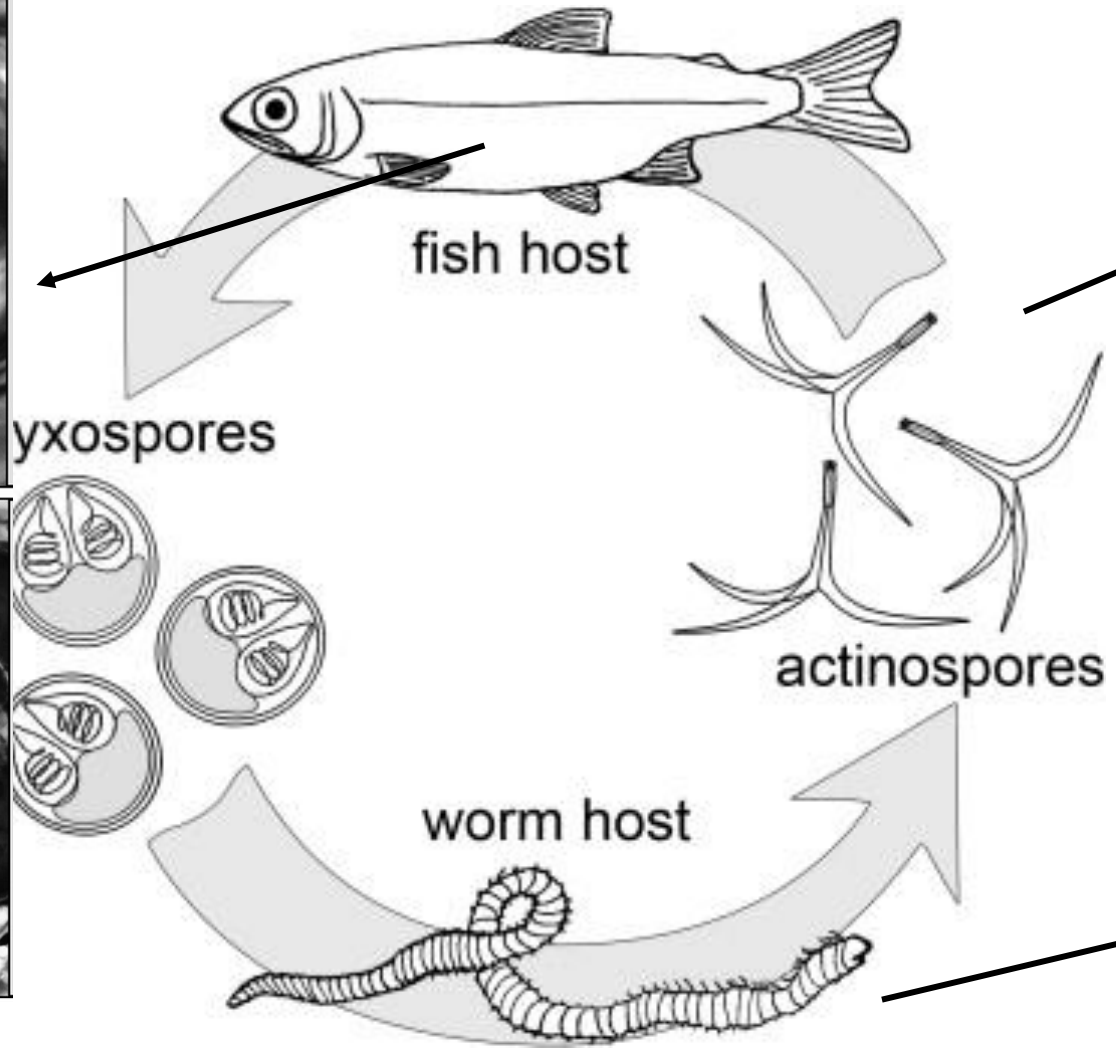


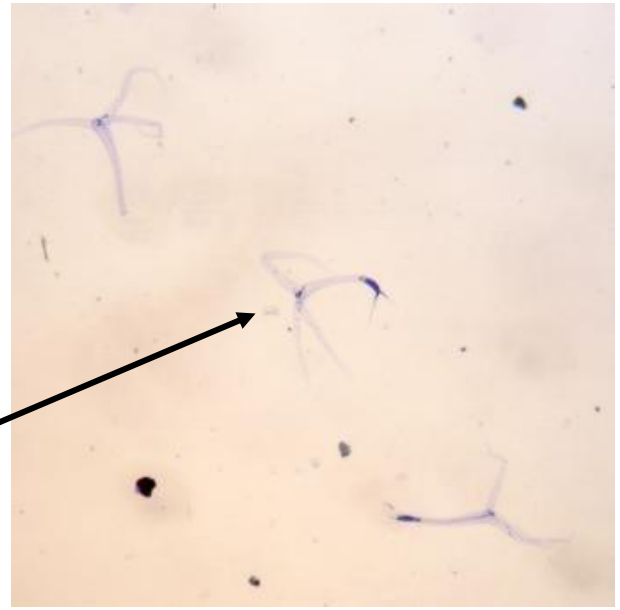


Myxobolus cerebralis lifecycle



James et al., 2021





Danielle Barry

Alberta Environment and Protected Areas

Clinical symptoms include:

- Blackened tail
- Sloped head
- Curved spine

https://fishpathogens.net

Rainbow trout

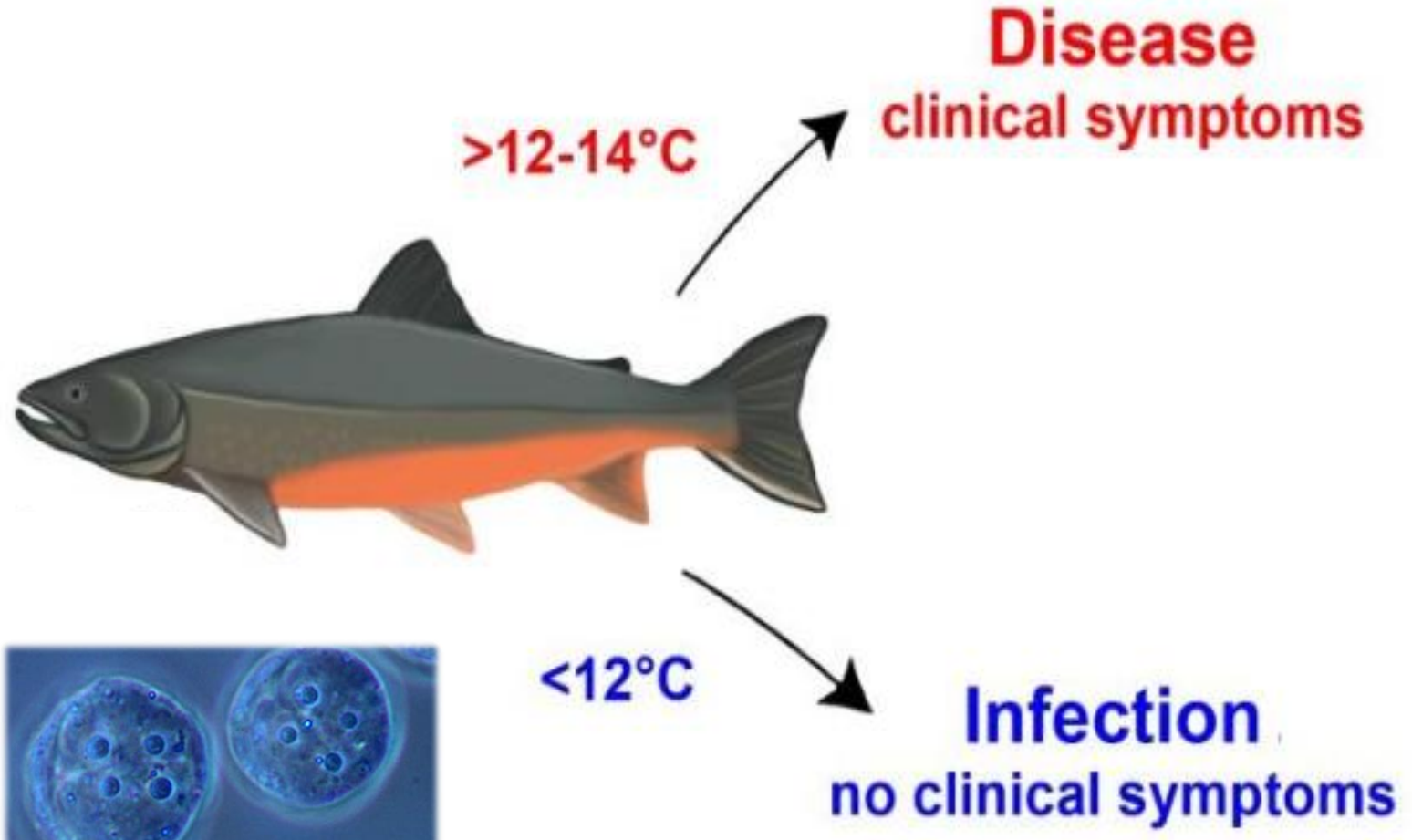
Brown trout

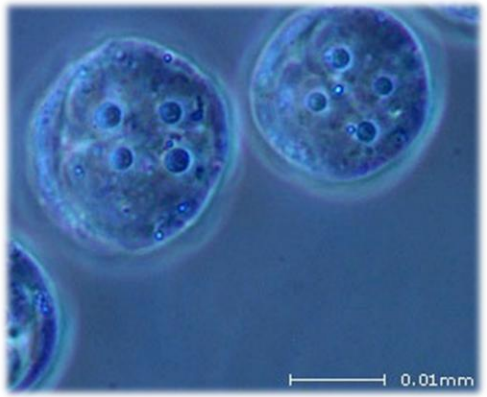
Whirling disease susceptibility varies with fish species

West slope Cutthroat trout

Bull trout

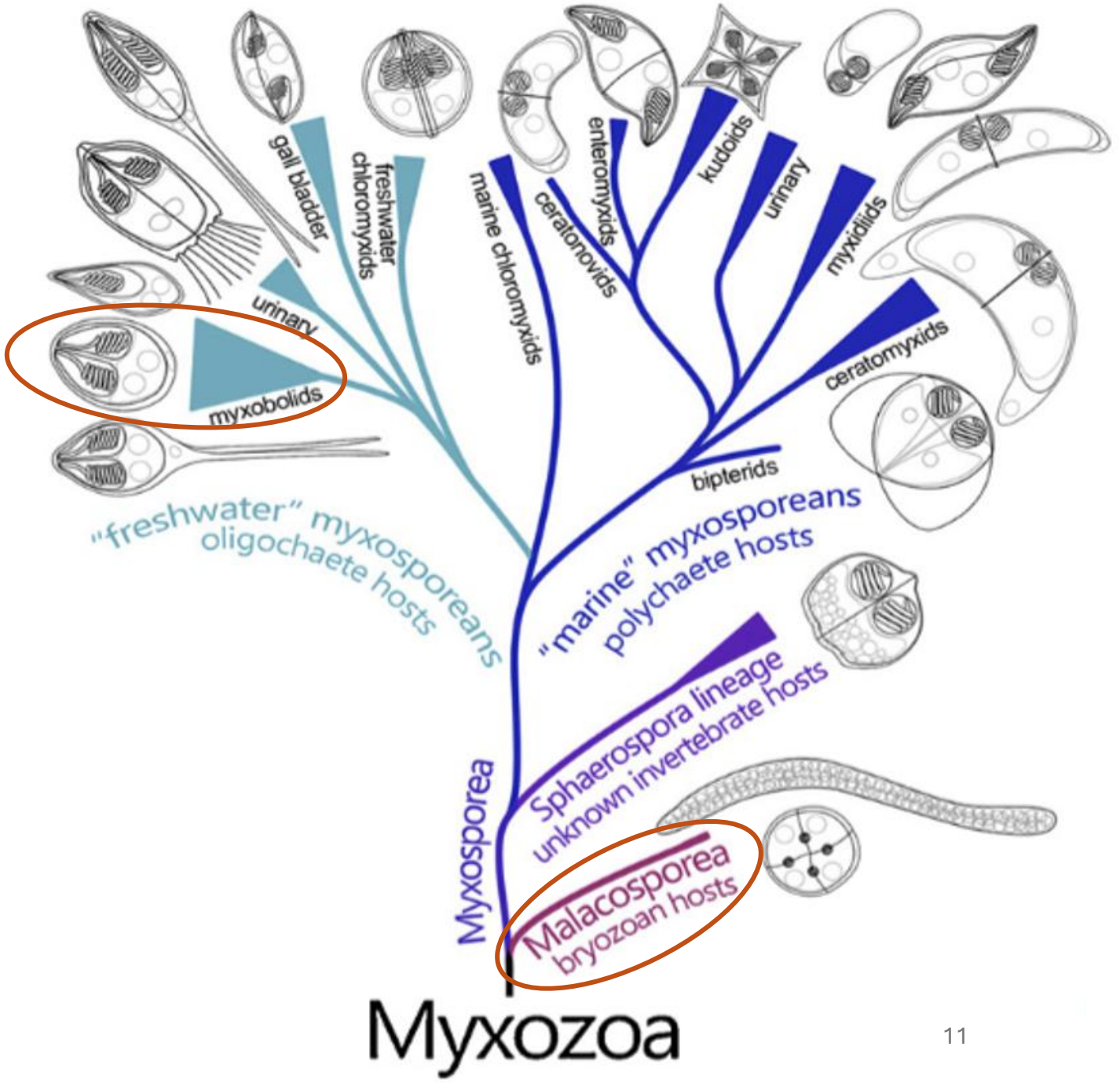
Proliferative Kidney Disease in Alberta



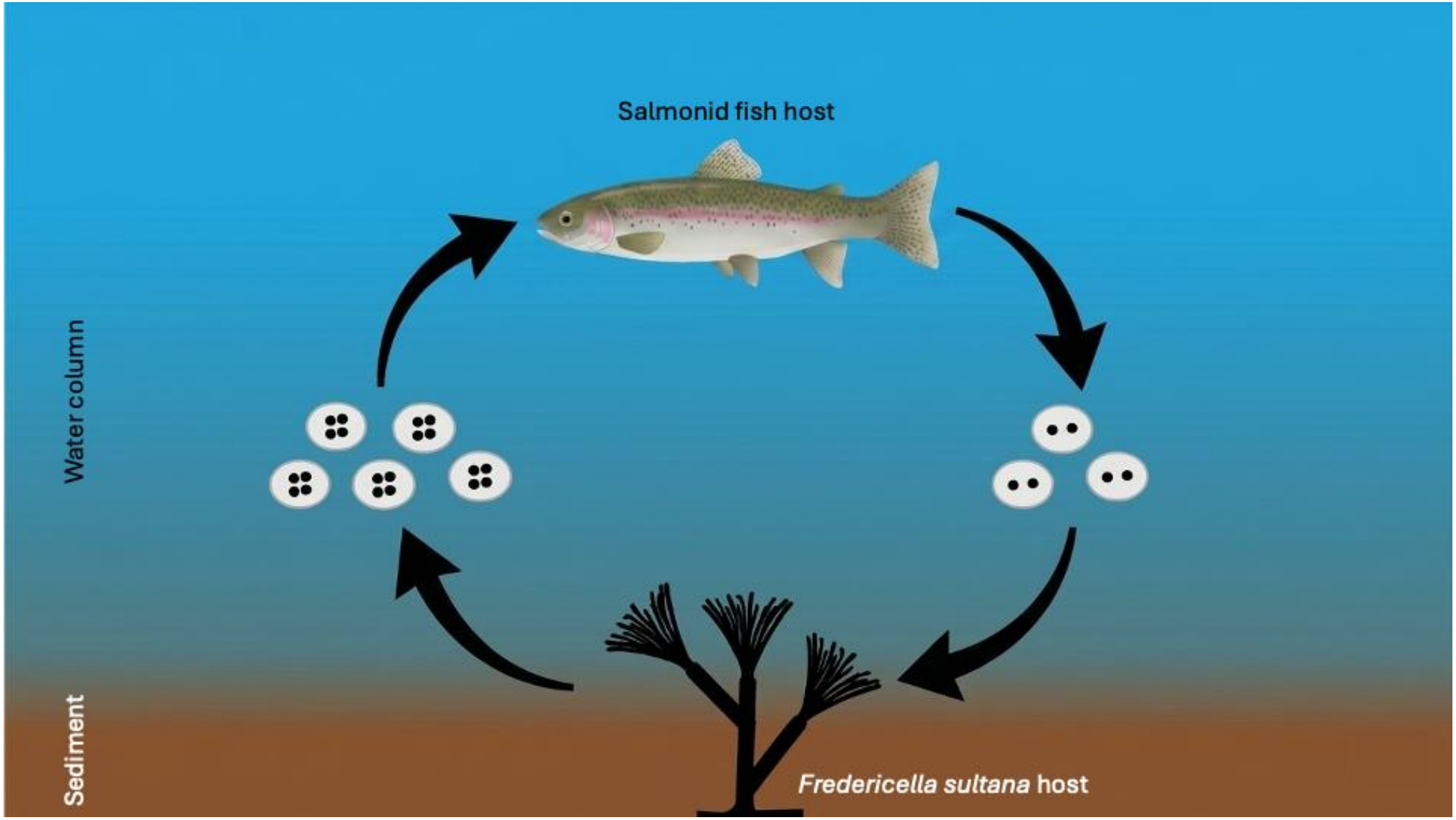


- Caused by *Tetracapsuloides bryosalmonae*
- Water temperature above 15°C exacerbates parasite proliferation and causes disease.

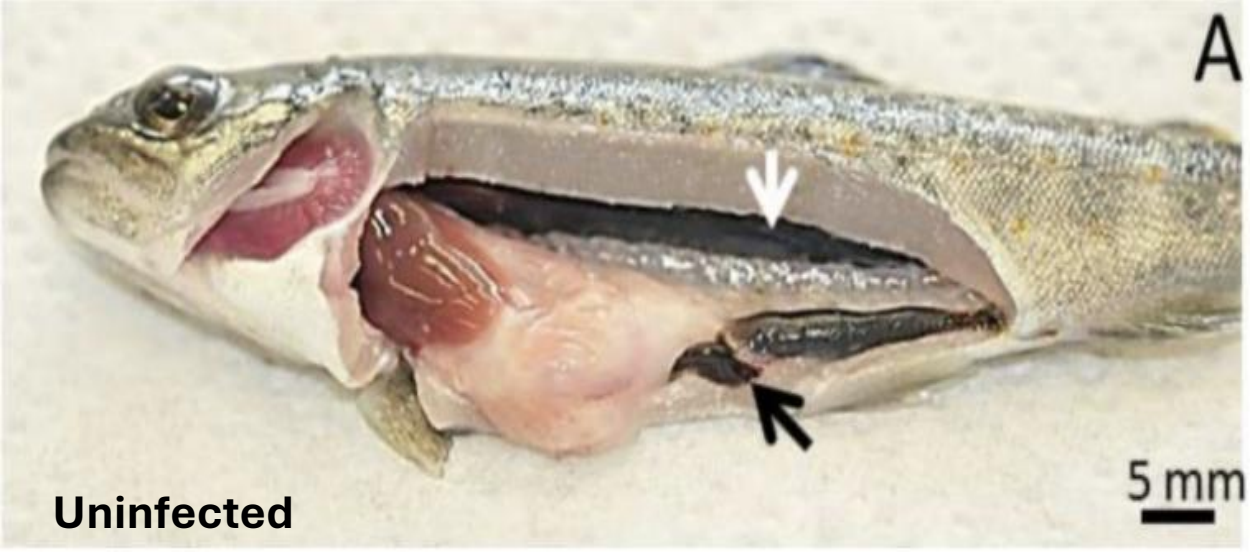
T. bryosalmonae is distantly related to *M. cerebralis*

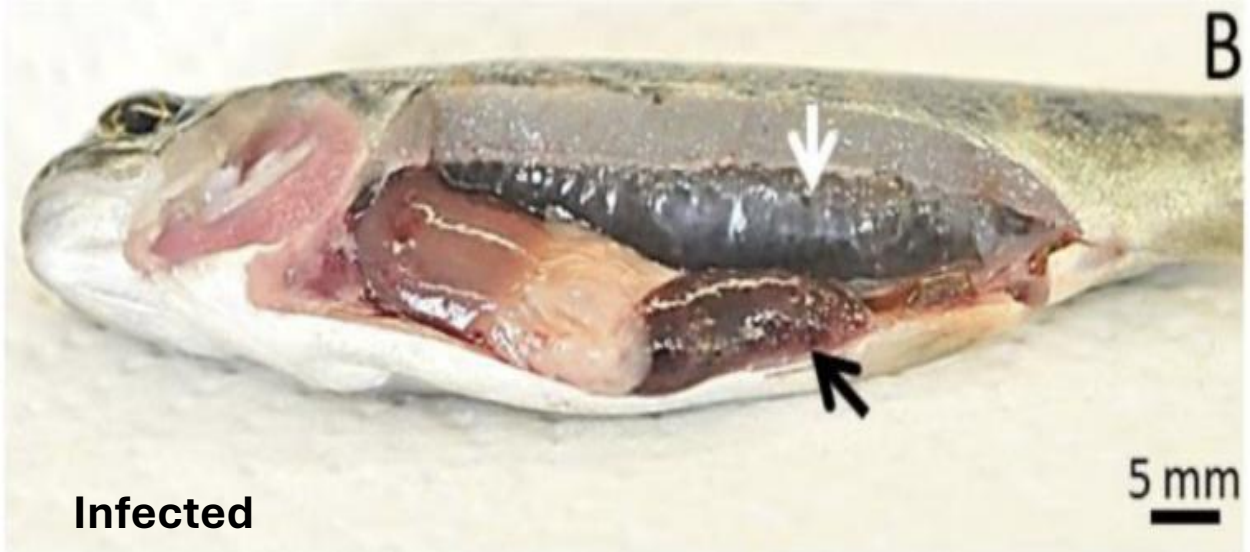


Tetracapsuloides bryosalmonae lifecycle



Tetracapsuloides bryosalmonae lifecycle





- Most common symptom is a distended abdomen due to an enlarged kidney and spleen.
- The disease affects salmonid fish, especially Rainbow trout and Mountain Whitefish
- Not all infected fish show symptoms
    - Some species may act as carriers of the parasite to further the spread

Is *T. bryosalmonae* invasive?

RESEARCH ARTICLE | 22 AUG 2004

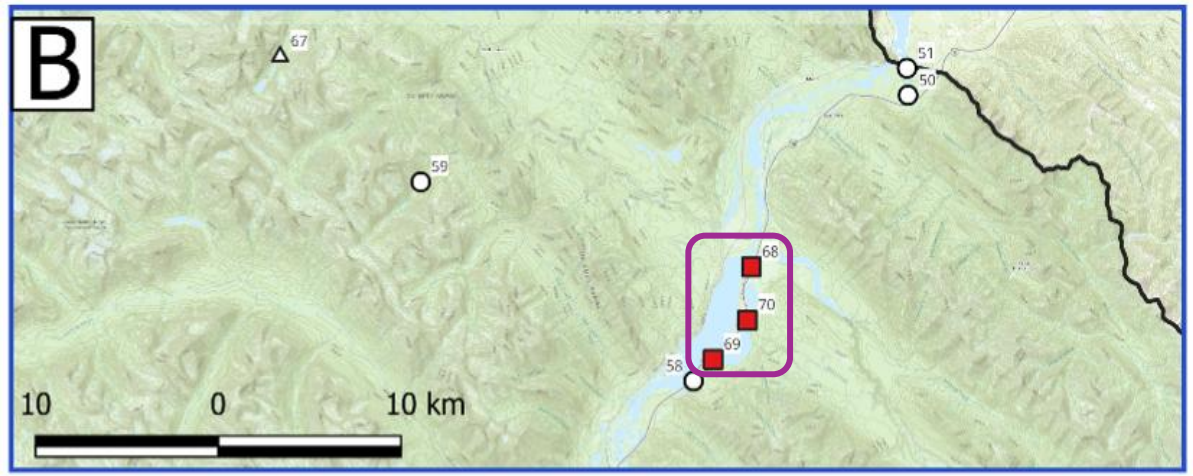
The phylogeography of salmonid proliferative kidney disease in Europe and North America

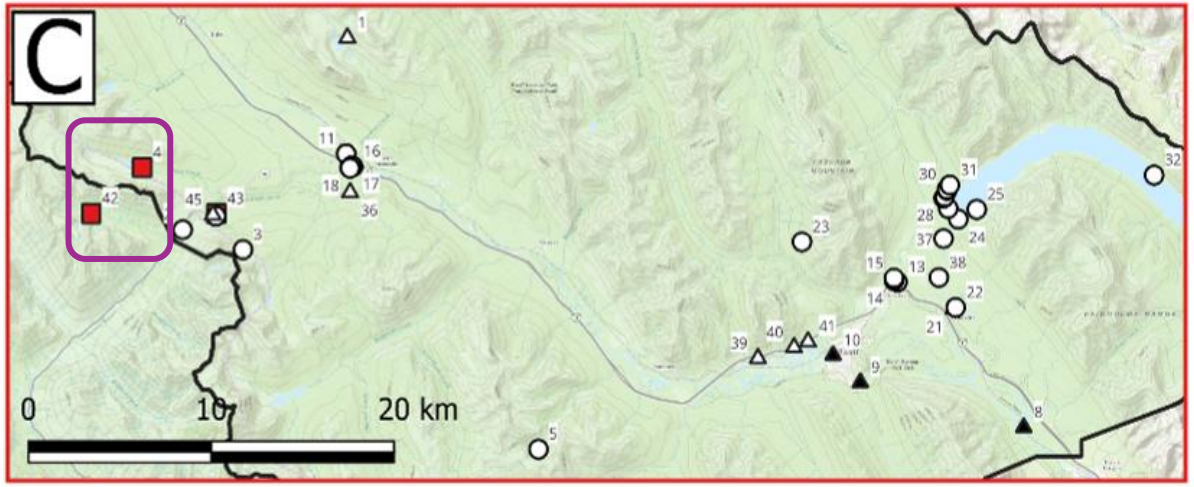
Matthew Henderson; Beth Okamura

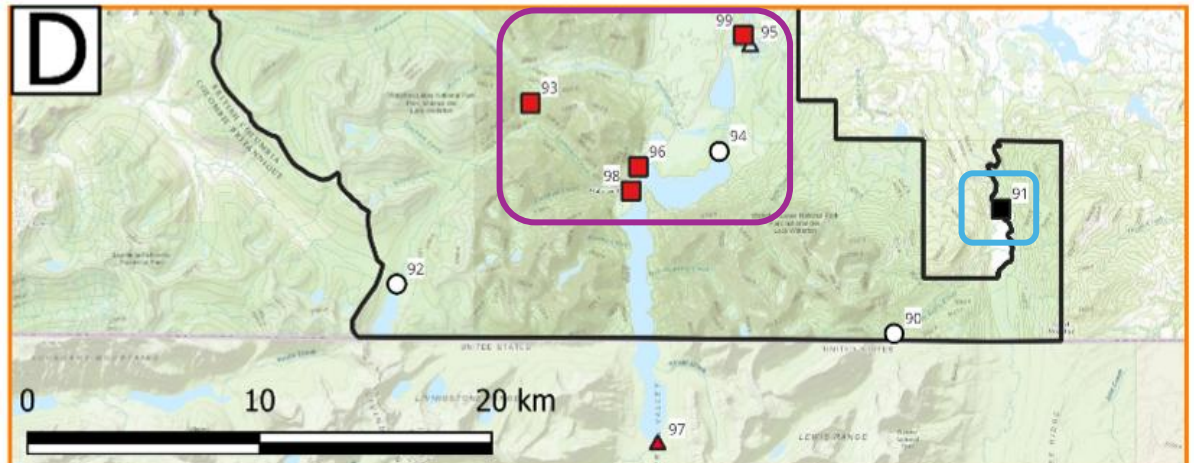
+ Author & article information

Proc Biol Sci (2004) 271 (1549): 1729–1736 .

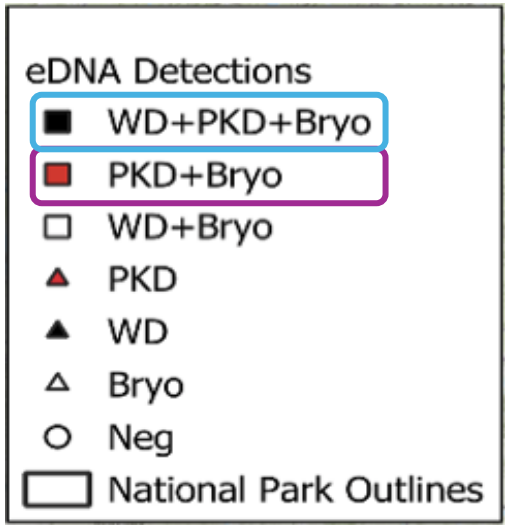
https://doi.org/10.1098/rspb.2004.2677







T. bryosalmonae and the bryozoan host is widespread



B: Jasper National Park
C: Banff National Park
D: Waterton Lakes National Park

Preliminary wild fish infection data from Parks Canada

	PKD	WD	Co-infected
Total Infected:	78/204	75/204	26/204
RNBT Infected:	3/3	2/3	2/3
Brook trout Infected:	68/194	66/194	17/194
MWF Infected:	7/7	7/7	7/7

Preliminary wild fish infection data from the Bow River

	PKD	WD	Co-infected
Total Infected:	58/70	10/70	9/70
RNBT Infected:	19/28	3/28	2/28
Brown trout Infected:	12/15	4/15	4/15
MWF Infected:	27/27	3/27	3/27

Plan for 2026

Fisheries and Oceans Canada

Pêches et Océans Canada

Environment and Climate Change Canada

Environnement et Changement climatique Canada

NSERC CRSNG

ALBERTA INNOVATES

ALBERTA invasive species COUNCIL

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Freshwater Conservation Canada

Parks Canada

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Questions?

hveinot@ualberta.ca