

# 2022 Monitoring Update for BC

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December 6<sup>th</sup> 2022

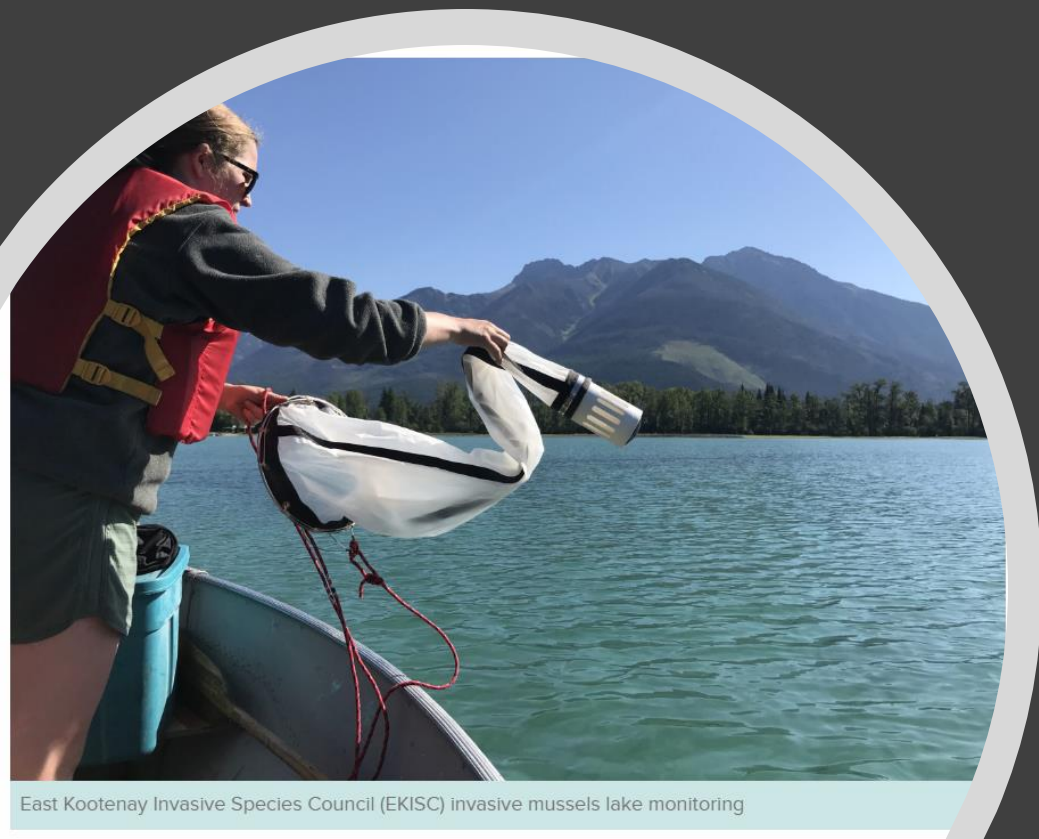
Columbia River Basin Meeting, Spokane WA

# Invasive Mussel

MONITORING GRANTS

## Invasive Mussel Grant Program:

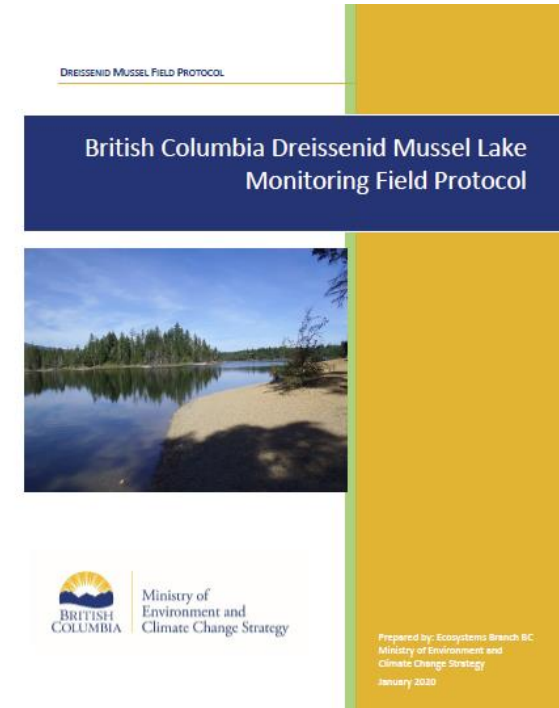
- Ongoing partnership with Habitat Conservation Trust Foundation (HCTF)
- Grants administered annually to community organizations to conduct plankton tow sampling
- Partially funded through federal funding from 2019-2023



East Kootenay Invasive Species Council (EKISC) invasive mussels lake monitoring

# Invasive Mussel Sampling Protocol

- ZQM plankton tow sampling, substrate samplers and shoreline surveys
- Sample preservation and equipment decontamination
- Reviewed annually and follows the WRP sampling guidelines



WESTERN REGIONAL PANEL  
On Aquatic Nuisance Species

## Zebra and Quagga Mussel Field Sampling and Monitoring Protocol



Zebra mussels (*Dreissena polymorpha*)

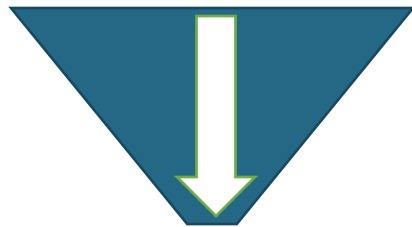


Quagga mussels (*Dreissena bugensis*)

# Waterbody Prioritization

## Challenge

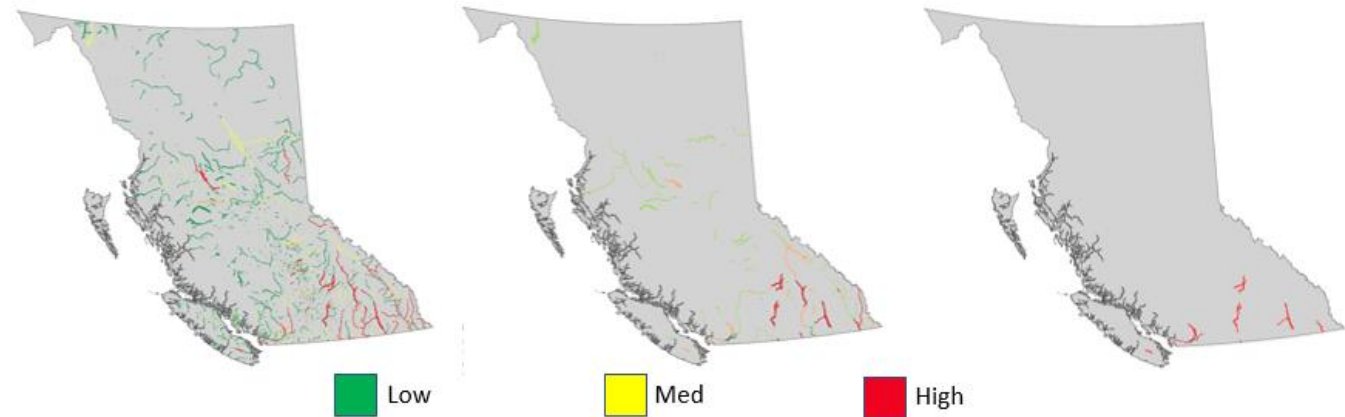
420,000+ lakes/ivers in BC...



-robust  
-reproducible

High-risk shortlist (100-200)

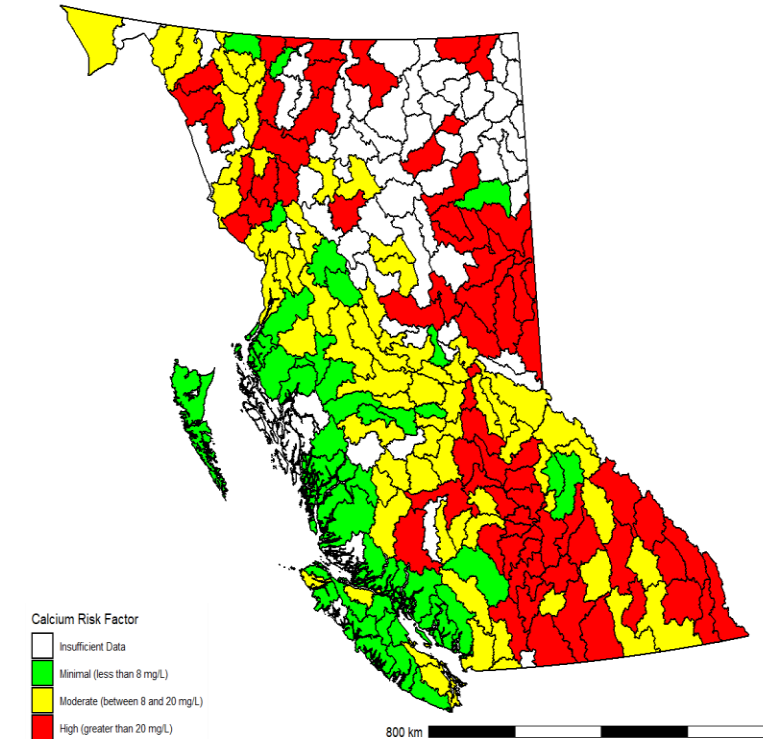
$$R_w = \left( \frac{\text{Use } T_w + A_w + M_w}{n_w} \right) + \left( \frac{\text{High-risk } H_w - O_w}{n_w} \right) + \left( \frac{\text{Mussel-fouled } M_w}{n_w} \right) + (\text{Calcium } C_w)$$



# Waterbody Prioritization

## Risk of introduction & establishment:

- Watercraft inspection data (2015-2022)
    - Total inspections
    - High risk
    - Mussel fouled
  - Angler effort (angler days)
  - Waterbody use restrictions (motorized vs. non-motorized)
  - Calcium data
- Other variables were assessed but not included due to data limitations at provincial scale





# Annual Plankton Tow Monitoring Efforts

Year	Total Samples	Total Waterbodies
2015	161	58
2016	233	98
2017	402	109
2018	800	90
2019	892	79
2020	954	89
2021	900	75

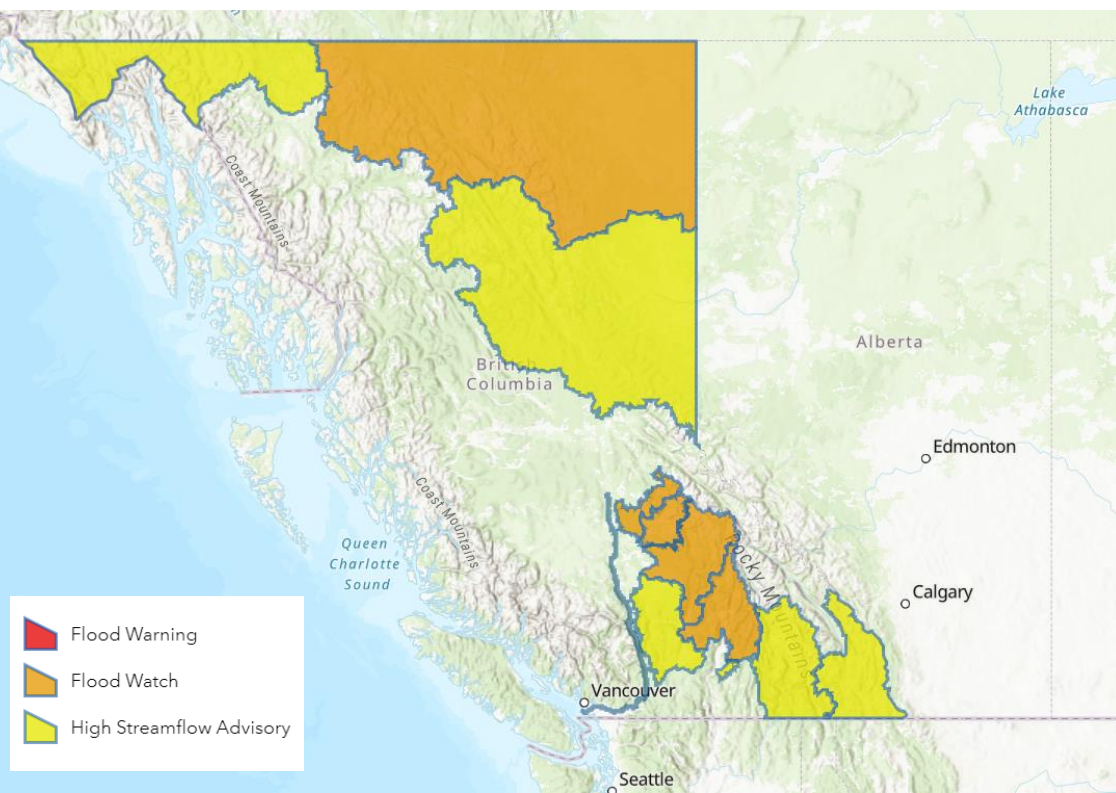
# Updates for 2022

# Challenges in 2022

<https://dailyhive.com/vancouver/turbulent-transition...>

## "Turbulent transition": Wet, cold spring forecast for BC | News

Mar 1, 2022 — Temperatures are expected to swing from warm to cold, as is normal for springtime, with averages falling to or below normal for BC. Compared to ...



Global News

## Heavy rain in parts of B.C. a concern for flood prone areas: River Forecast Centre

Heavy rain in parts of B.C. a concern for flood prone areas: River Forecast Centre. By Staff The Canadian Press. Posted June 19, 2022 6:34 pm.

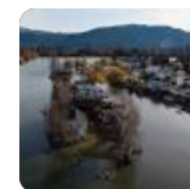
1 day ago

CTV News Vancouver

## BC flood concerns grow as peak of spring freshet arrives ...

Sandbagging efforts are underway in some areas of B.C.'s Fraser Valley amid new flooding 02:03...

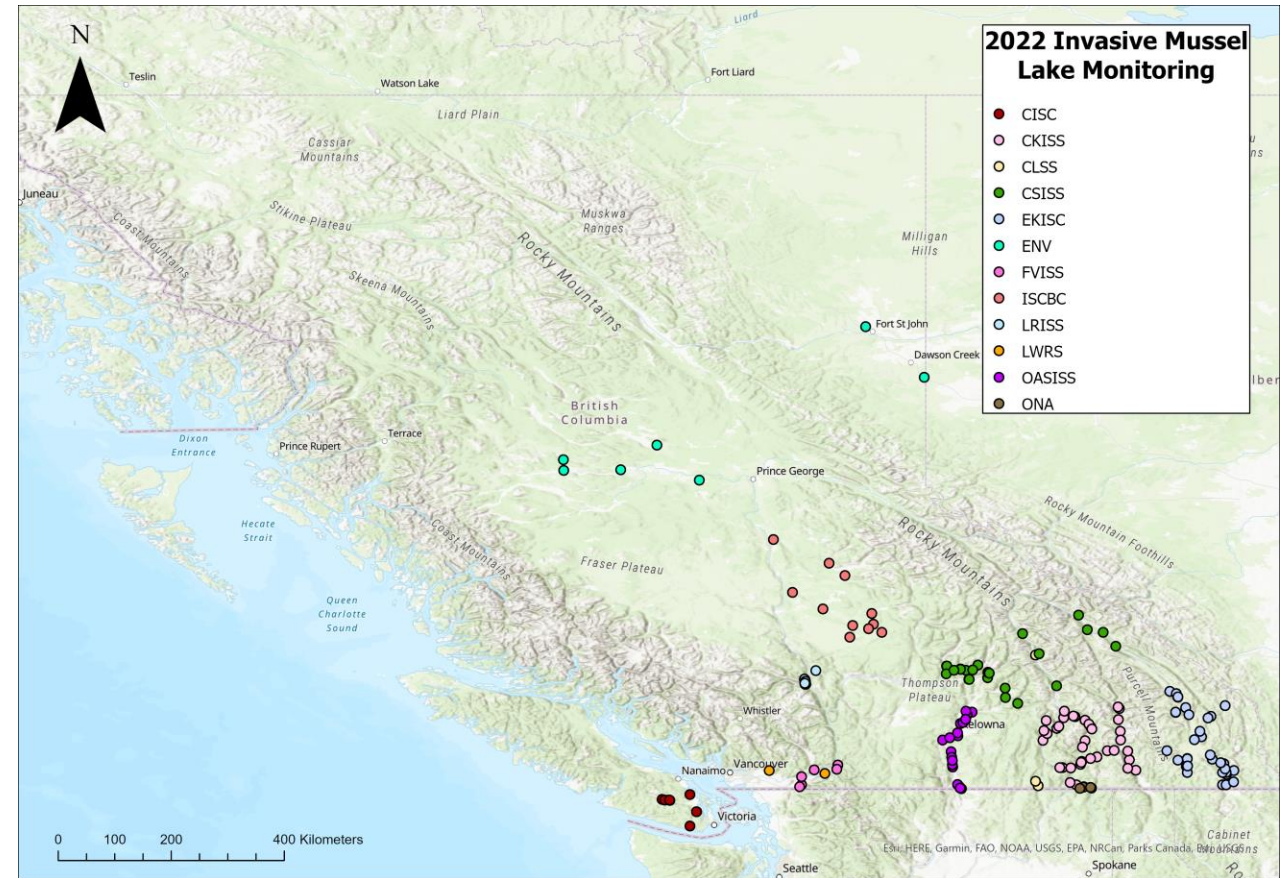
3 days ago





# 2022 ZQM Sampling Efforts

- 830 plankton tow samples collected from 78 priority waterbodies
- All samples tested negative for ZQM veligers
- 46 substrate samplers deployed across 26 priority waterbodies

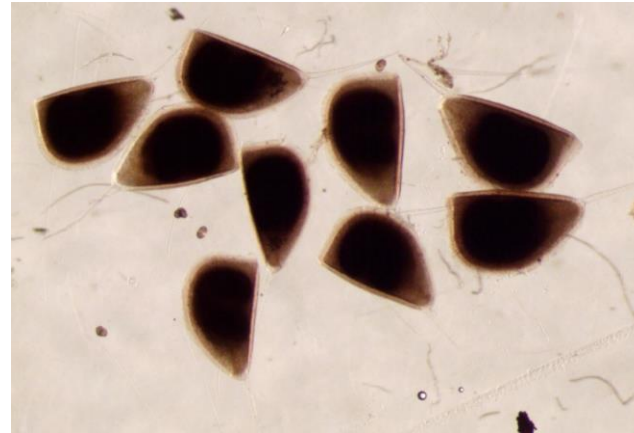
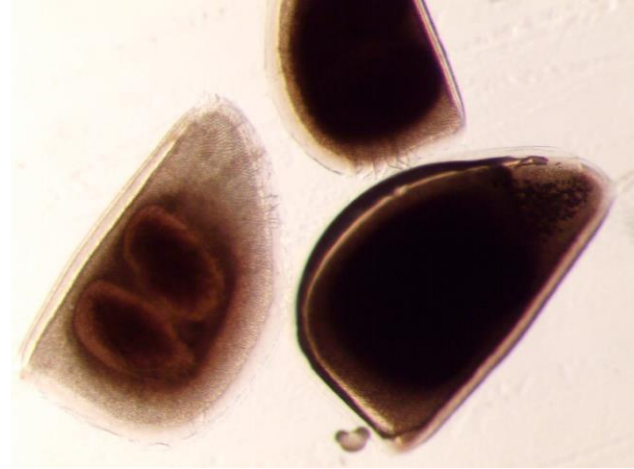






# Public Reports



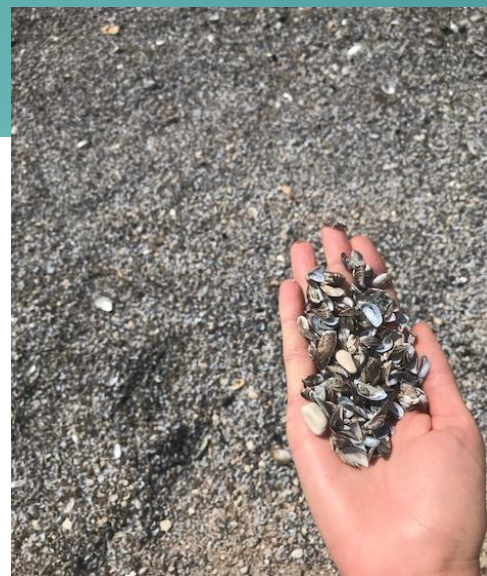


# Public Reports

- Multiple reports of black substance on Kootenay lake
- Similar reports received in 2018
- Samples identified as Daphnia resting eggs (ephippia)
- Common occurrence when environmental factors are not favorable, or food availability is lower or predation is high



# eDNA collaborations



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## iTrackDNA





# Questions?

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