



Ministry of
Land, Water and
Resource Stewardship

2023 Monitoring Update for British Columbia

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Columbia River Basin Meeting, Boise ID



Invasive Mussel

MONITORING GRANTS

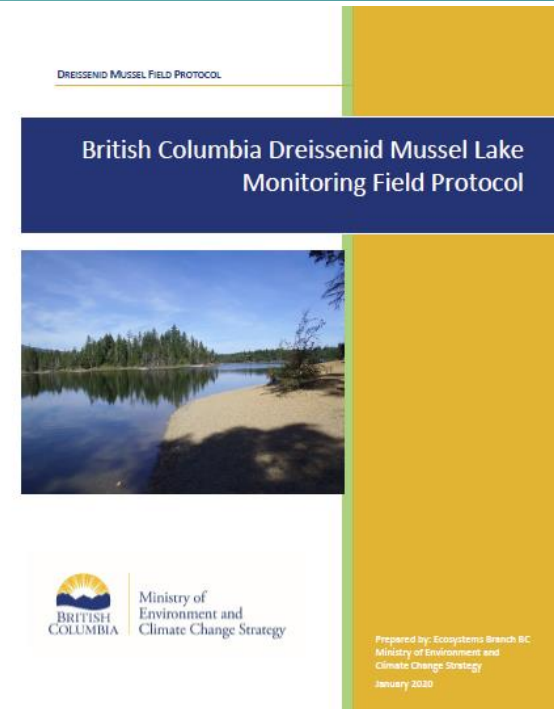
Invasive Mussel Grant Program:

- Ongoing partnership with Habitat Conservation Trust Foundation (HCTF)
- Grants administered annually to community organizations to conduct plankton tow sampling
- Jointly supported through Provincial and Federal funding since 2019



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
- Cross polarized microscopy analysis by Ministry contracted lab



WESTERN REGIONAL PANEL
On Aquatic Nuisance Species

Zebra and Quagga Mussel Field Sampling and Monitoring Protocol



Zebra mussels (*Dreissena polymorpha*)

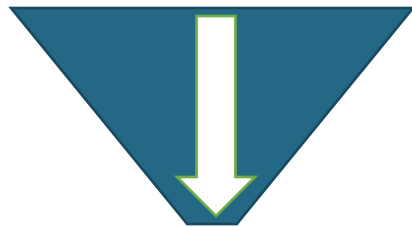


Quagga mussels (*Dreissena bugensis*)

Waterbody Prioritization

Challenge

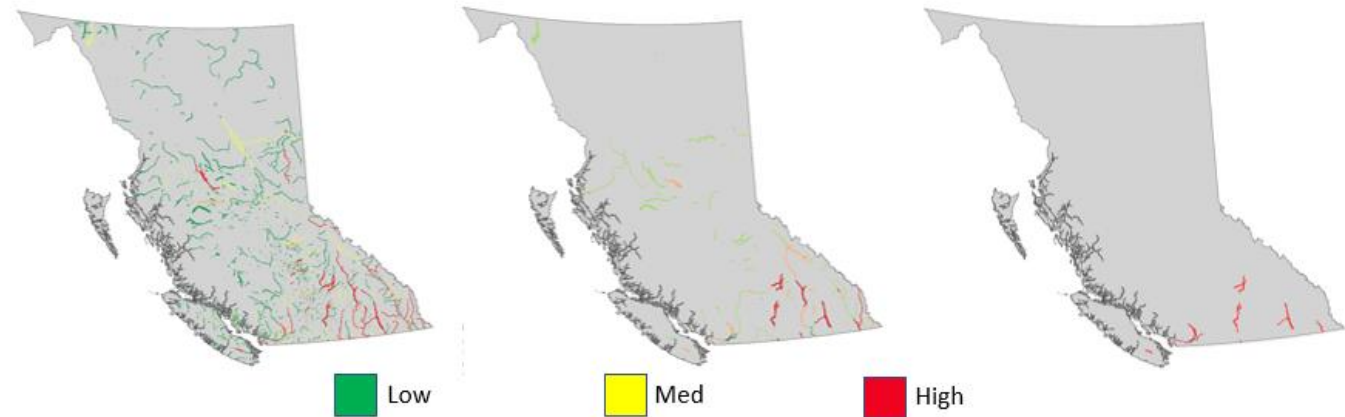
420,000+ lakes/ivers in BC...



-robust
-reproducible

High-risk shortlist (100-200)

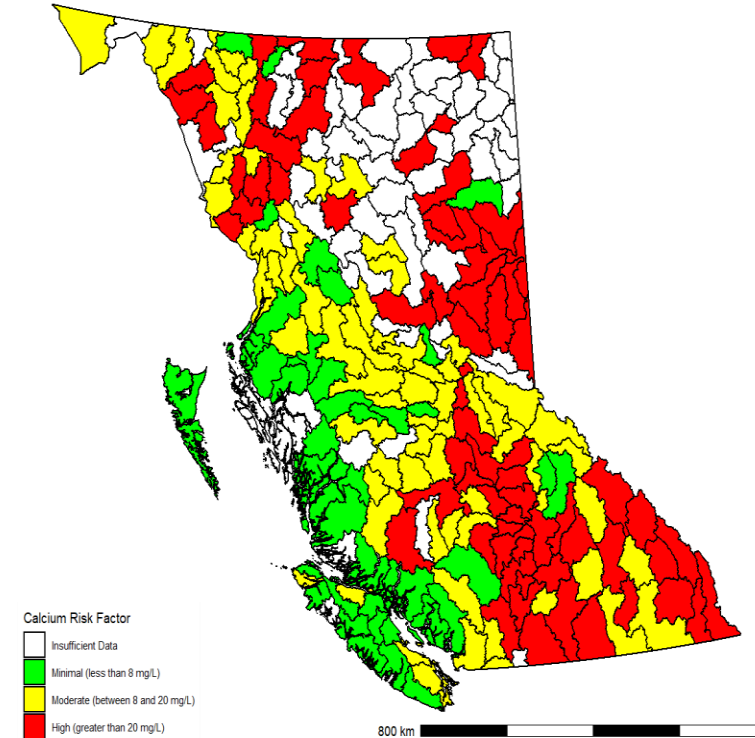
$$R_w = \left(\frac{\text{Use } T_w + A_w + M_w}{n_w} \right) + \left(\frac{\text{High-risk } H_w - O_w}{n_w} \right) + \left(\frac{\text{Mussel-fouled } M_w}{n_w} \right) + (\text{Calcium } C_w)$$



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

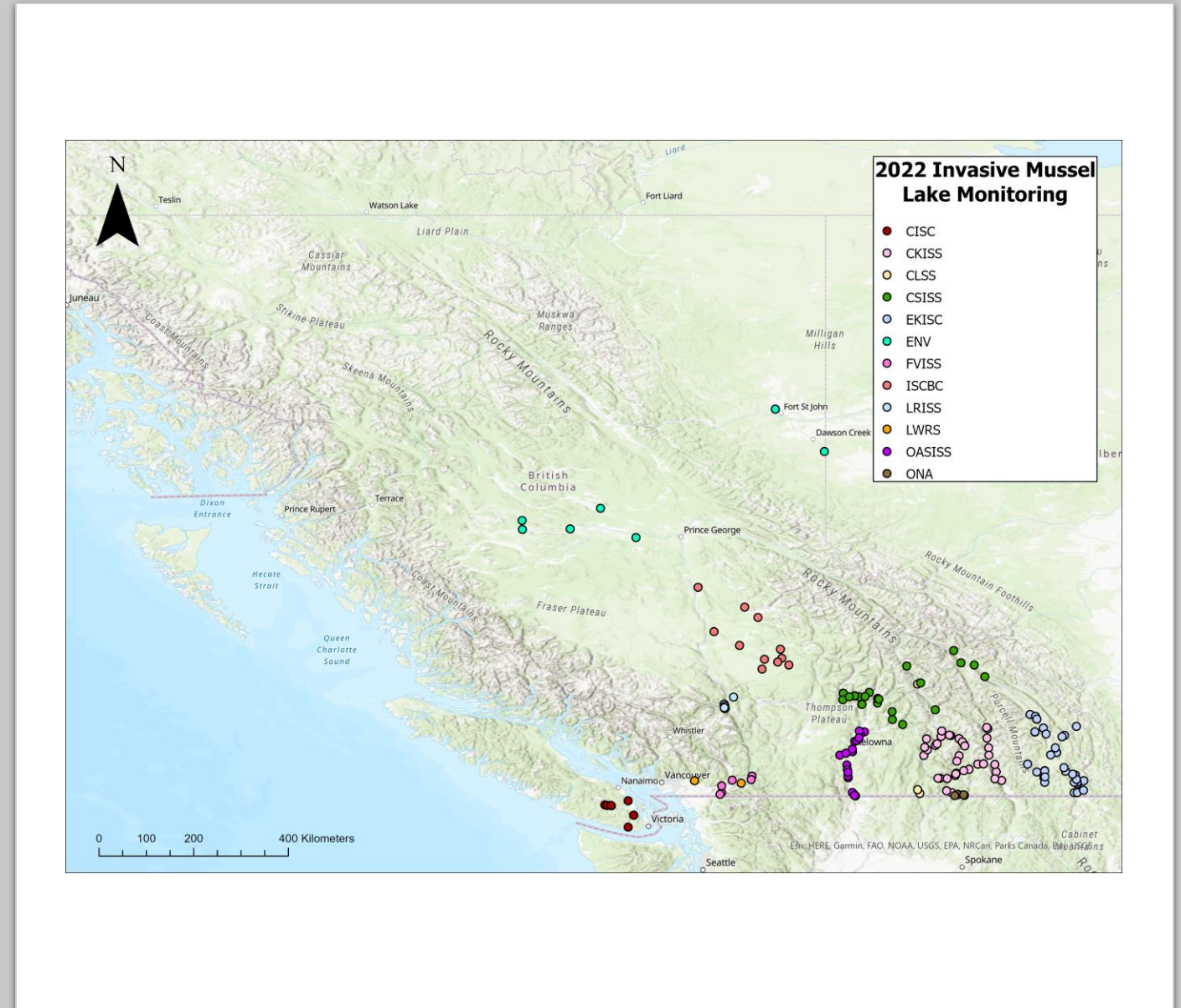


Annual Plankton Tow Monitoring Efforts

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
2022	830	78

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



Updates for 2023

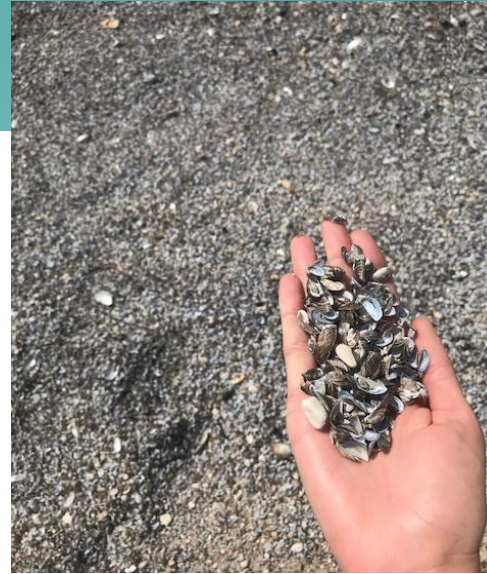
Invasive Mussel Lake Monitoring

- Grants have been issued by HCTF to 11 partner organizations for plankton tow sampling
- 2023 sampling protocol updated with minor adjustments to the waterbody prioritization list
- Continuing to monitor for other AIS during lab sample analysis (e.g. Corbicula)



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

eDNA collaborations



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ABOUT - RESEARCH - MEMBERS - EVENTS - MEDIA

iTrackDNA



Questions?

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