

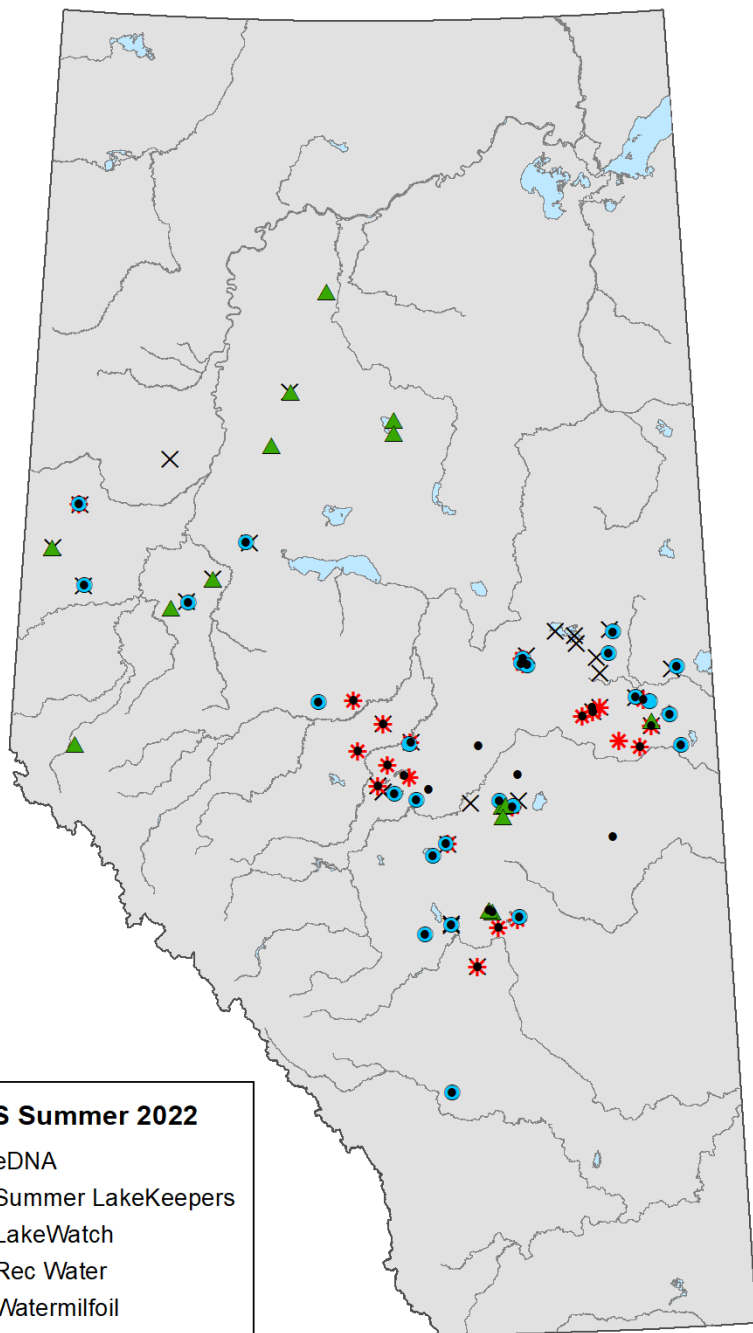


ALMS CONFERENCE 2022  
PROGRAM UPDATES  
SEPTEMBER 29, 2022



# Lakewatch

 LakeKeepers



## ALMS Summer 2022

- eDNA
- ▲ Summer LakeKeepers
- LakeWatch
- \* Rec Water
- × Watermilfoil



REC WATER SAMPLING

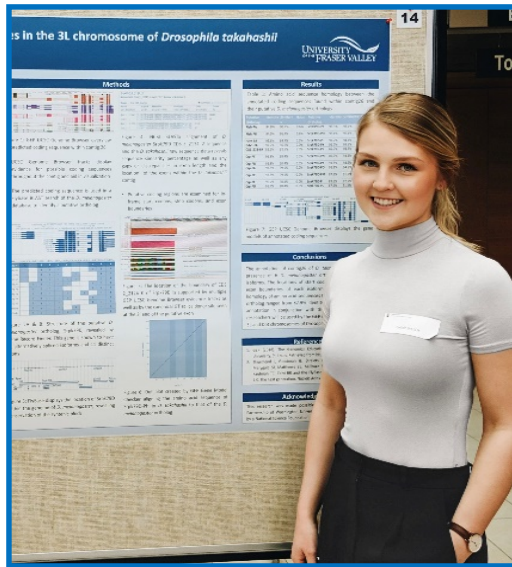


eDNA



EURASIAN WATERMILFOIL  
MONITORING





**SCHOLARSHIP**



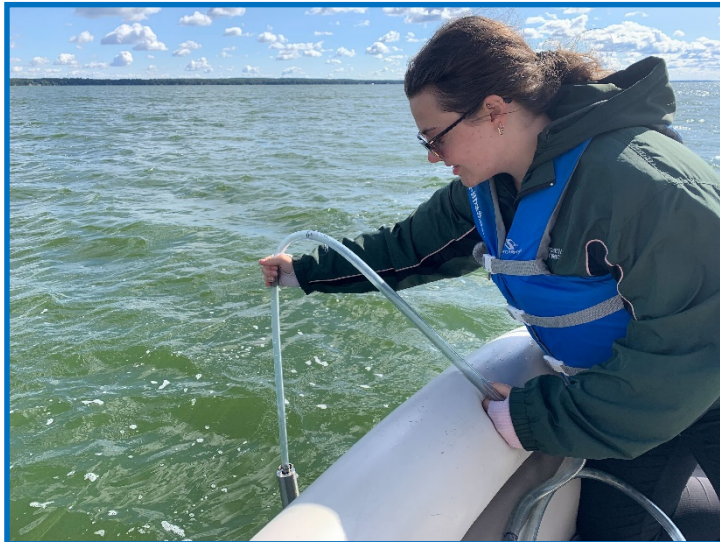
**ICBM IN OIL SANDS REGIONS**



**LOCSS VISIT TO ALBERTA**

# Lakewatch

LAKEWATCH



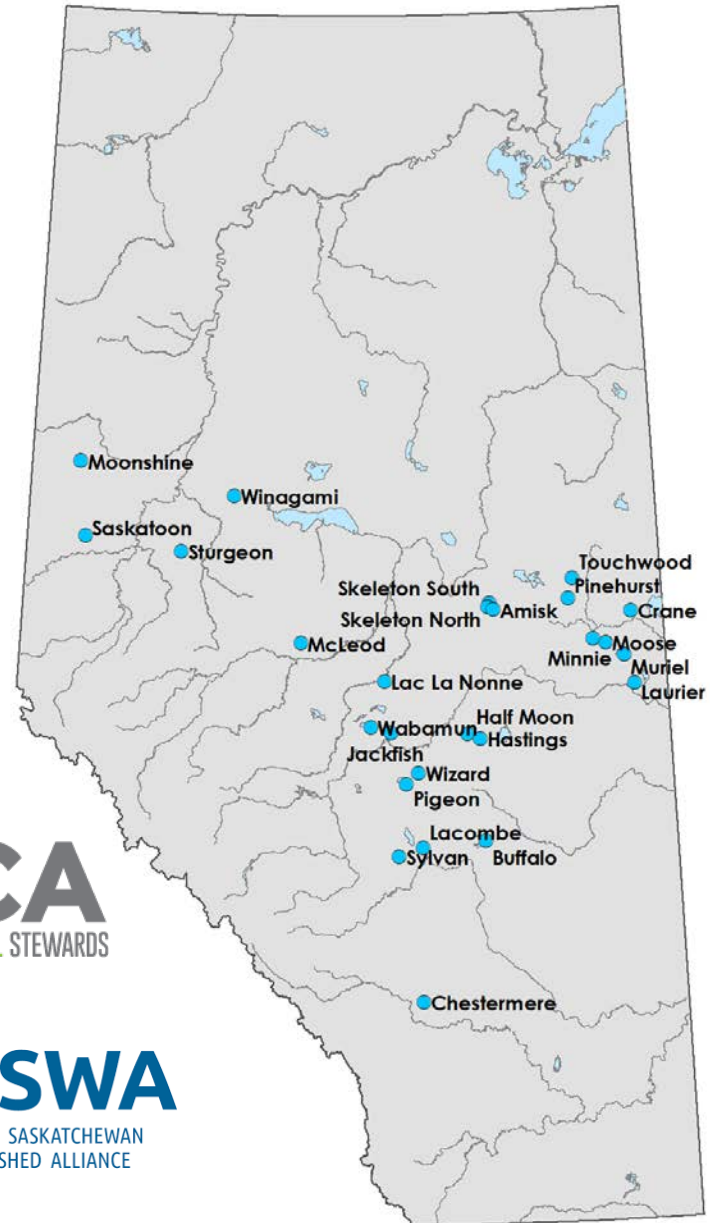


# Lakewatch

26 LAKEWATCH LAKE BASINS IN 2022

104 PLANNED TRIPS  
(SO FAR ONE MISSED TRIP)

WITH SUPPORT FROM:

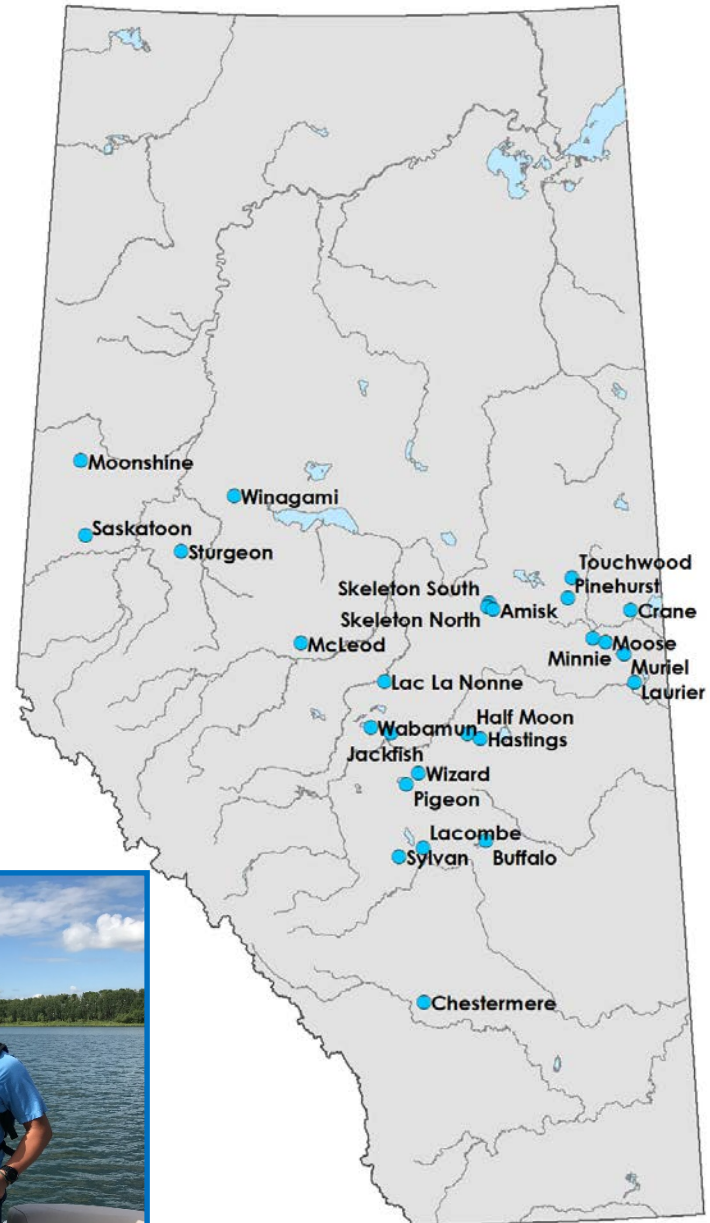


# Lakewatch

26 LAKEWATCH LAKE BASINS IN 2022

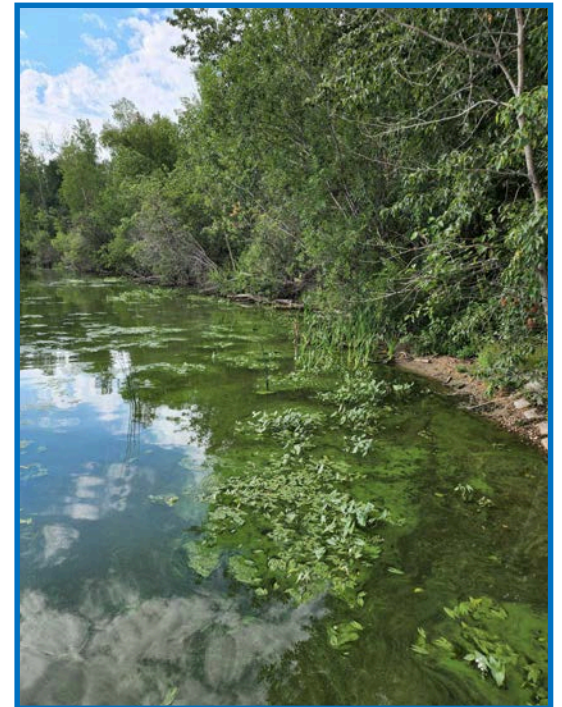
104 PLANNED TRIPS  
(SO FAR ONE MISSED TRIP)

TWO FIELD TECHNICIANS:  
KURSTYN, DOMINIC







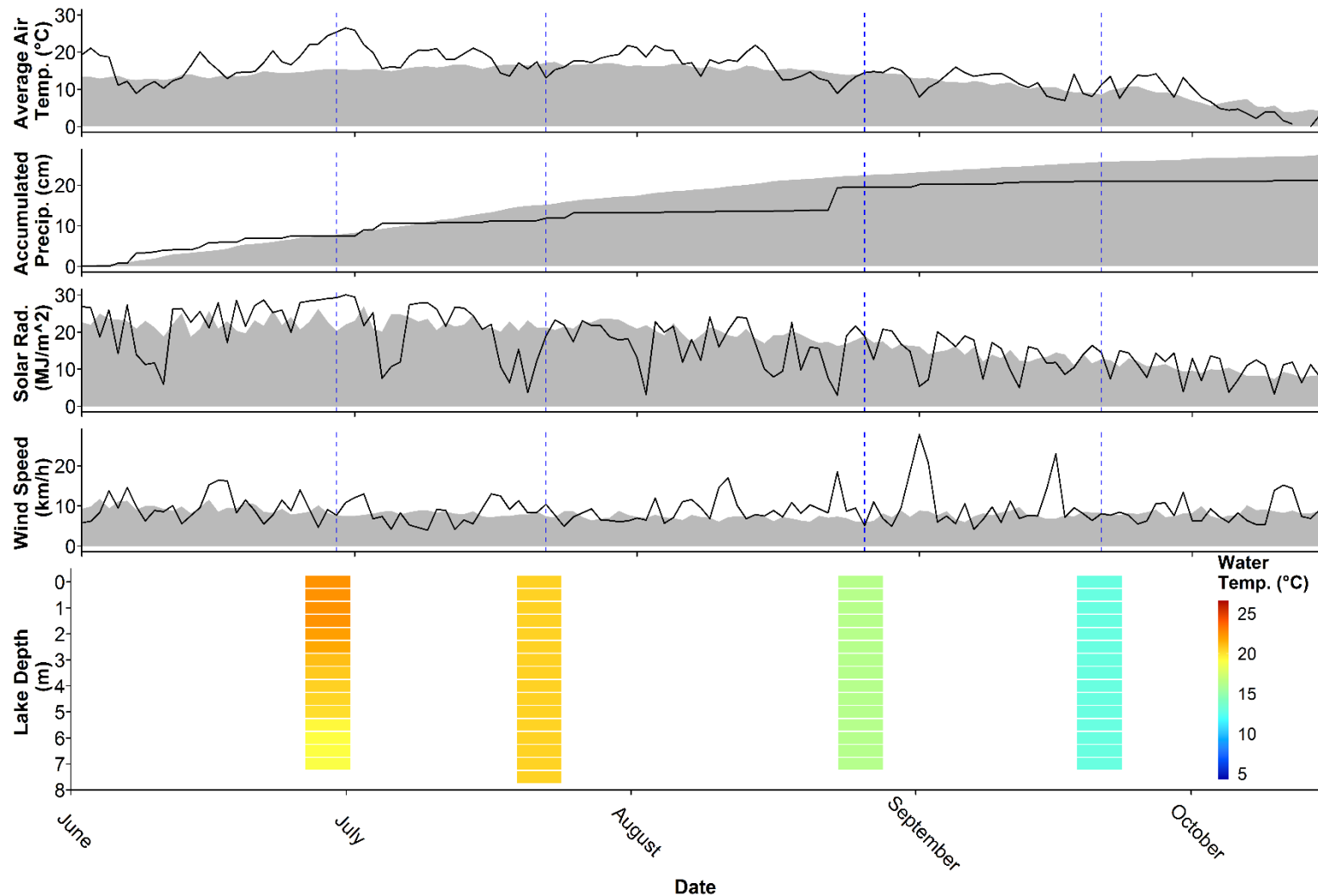






# CONNECTING LAKEWATCH DATA WITH WEATHER DATA

## GULL LAKE 2021



Weather data provided by Alberta Agriculture, Forestry and Rural Economic Development, Alberta Climate Information Service (ACIS)  
<https://acis.alberta.ca> (retrieved April 2022)



# Lakewatch

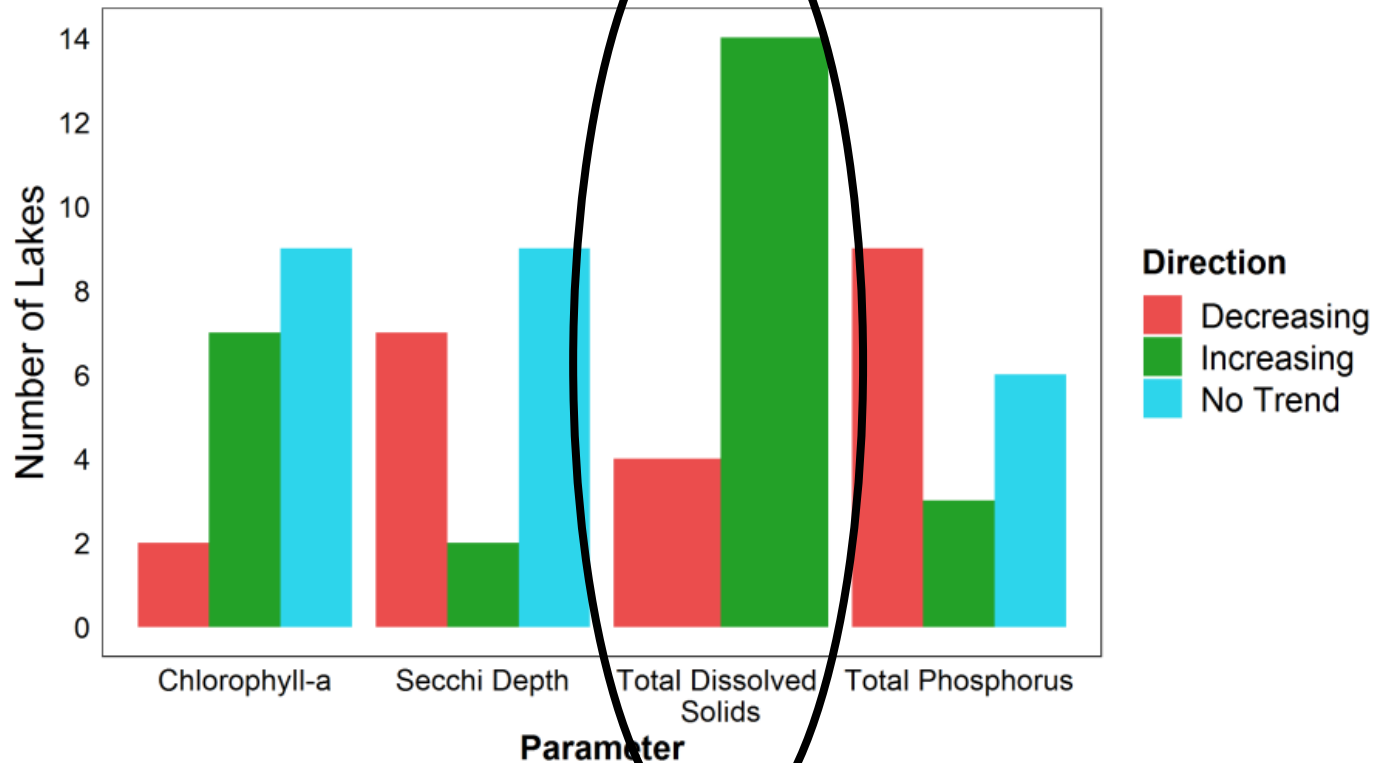
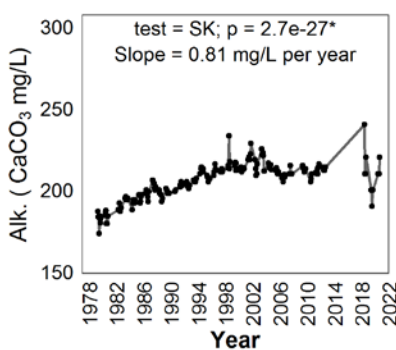
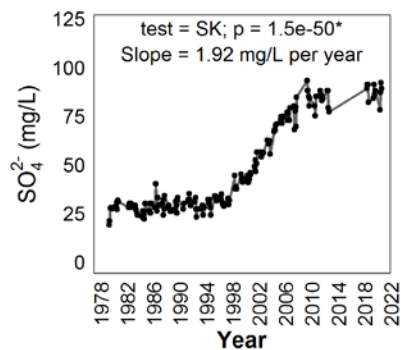
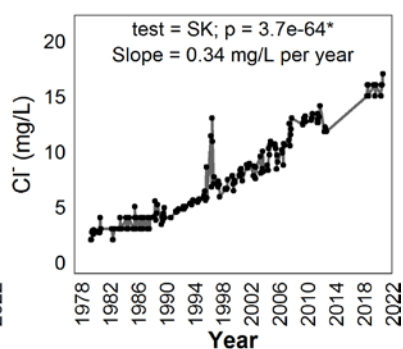
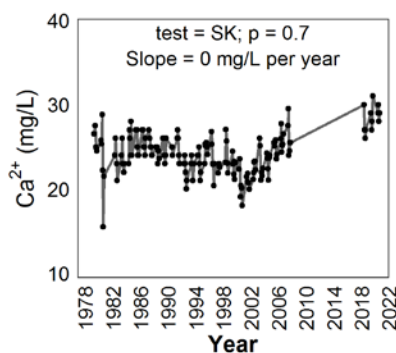
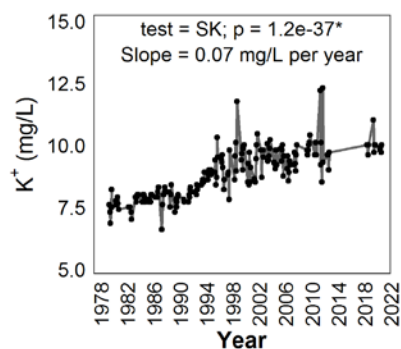
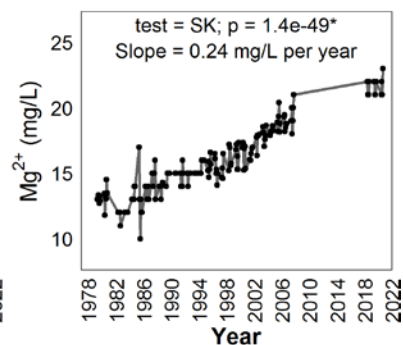
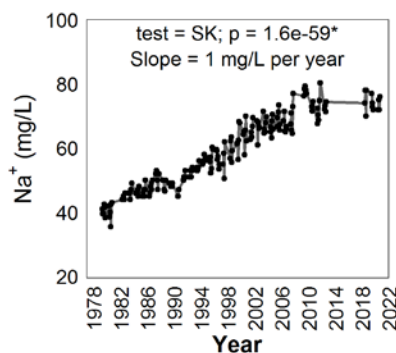
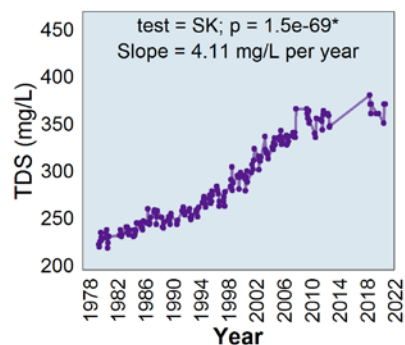


Figure 2. Number of lakes organized by lake water quality parameter (chlorophyll-*a*, Secchi depth, total dissolved solids, and total phosphorus), with statistically significant increasing, decreasing, or no significant trends through either Mann Kendall or Seasonal Kendall ALMS trend analysis.

# Lakewatch

## WABAMUN LAKE







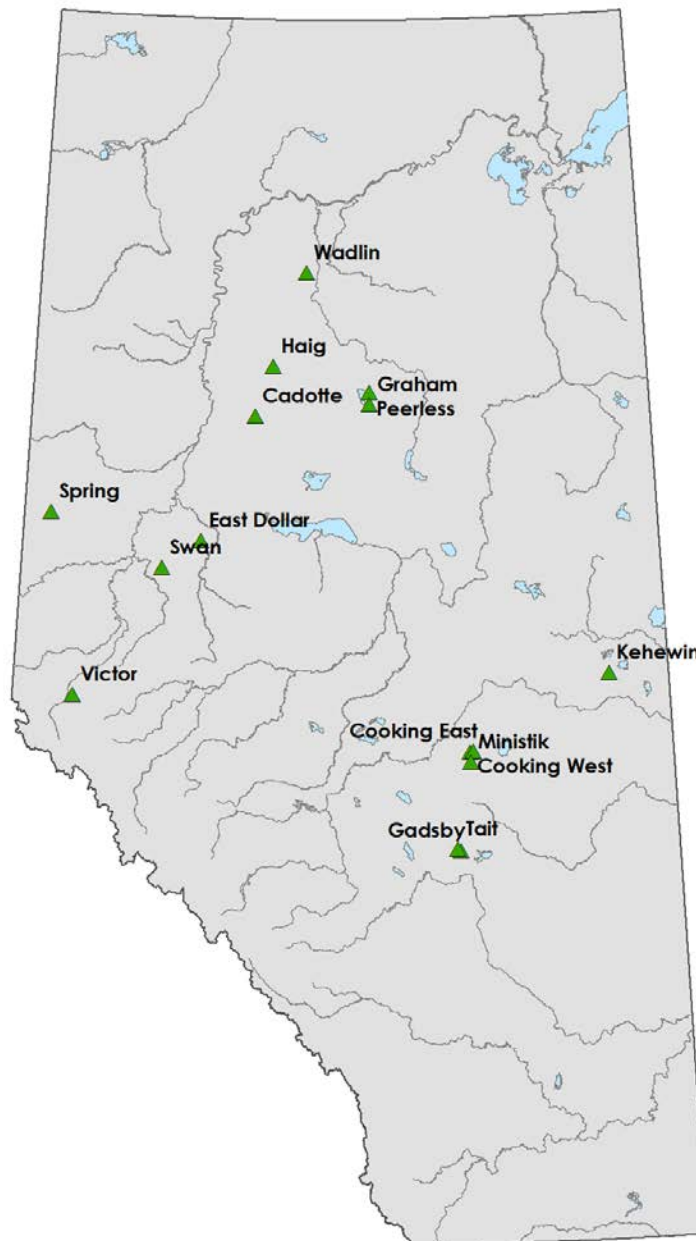
# LakeKeepers

## 13 LAKES

- THREE SAMPLING EVENTS
- SURFACE TP, TKN, CHLA, MICROCYSTIN
- TEMPERATURE & DO MEASUREMENTS
- ENVIRONMENTAL OBSERVATIONS

## \*PEACE RIVER TRIP\*

- SPRING & EAST DOLLAR  
SAMPLED WITH MPWA
- SAMPLED WITH VOLUNTEERS





# LakeKeepers

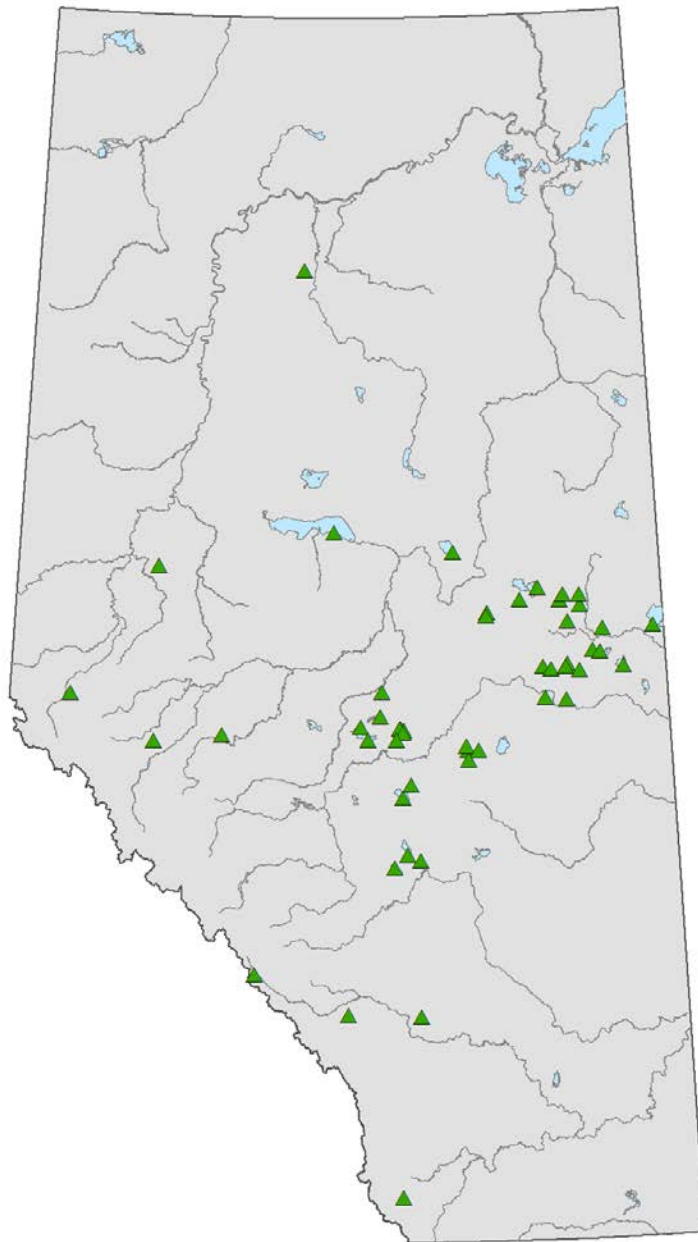
## STAY TUNED: WINTER LAKEKEEPERS REPORT 2021-2022

- 129 SAMPLING EVENTS FROM 66 LOCATIONS ON 52 LAKES
- ADDITIONAL NUTRIENT & OTHER WATER CHEMISTRY DATA
- SENSOR ARRAY DATA FROM PIGEON LAKE

**\*IF YOU WANT TO PARTICIPATE, CONTACT:**

**[PROGRAMS@ALMS.CA](mailto:PROGRAMS@ALMS.CA), AND PARTICIPATE IN**

**TRAINING WEBINAR IN NOV / DEC 2022\***

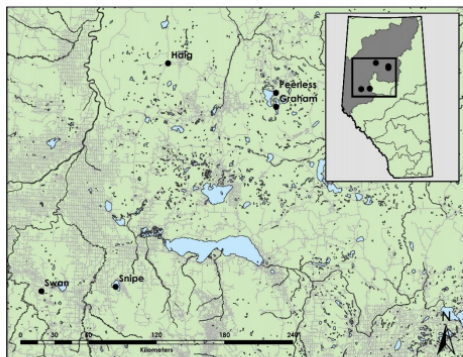




## Peace River Watershed



Five lakes were sampled within the Peace River watershed in Summer LakeKeepers 2020 (Map 2). All lakes appeared to be the coldest during the June sampling events. Swan, Snipe and Peerless Lakes were fairly well oxygenated and uniform in temperature throughout the water column, with the exception of Peerless Lake displaying weak temperature stratification during the early and mid-season sampling events (Figure 2, Figure 5). Graham and Haig Lakes had consistent temperatures during the mid and late-season sampling events, but displayed slight stratification during the early-season sampling event (Figure 6). Oxygen depletion was detected at Graham and Haig Lakes near the bottom of the lakes during the early and mid-season sampling events, but otherwise displayed high oxygen levels in the top half of the lakes in early and mid-season, and throughout the water column during the late sampling events.



Map 2. Lakes sampled in the Peace River watershed during Summer LakeKeepers 2020. Peace River watershed highlighted in Alberta inset map.

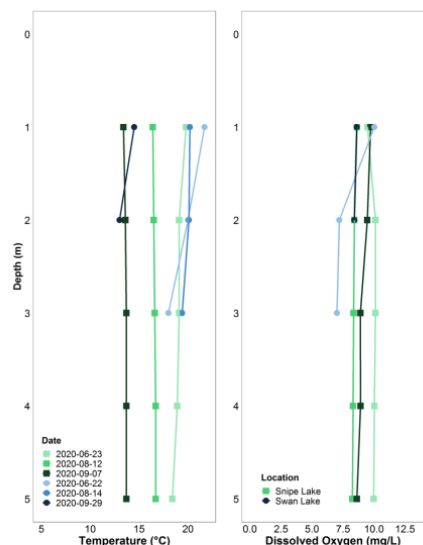


Figure 5. Temperature (°C) and dissolved oxygen (mg/L) measurements recorded at Snipe Lake and Swan Lake in Summer 2020. Measurements were taken every meter starting at 1 meter from water surface, until lake bottom. Note that dissolved oxygen data from the August 14<sup>th</sup> sampling event at Swan Lake is unavailable.

**LAKEKEEPERS REPORT AVAILABLE AT**  
**[WWW.ALMS.CA/REPORTS](http://WWW.ALMS.CA/REPORTS)**

**LAKEKEEPERS DATA AVAILABLE AT**  
**[HTTPS://MACKENZIEDATASTREAM.CA](https://MACKENZIEDATASTREAM.CA)**

# Mackenzie DataStream

An open access hub for sharing water data.

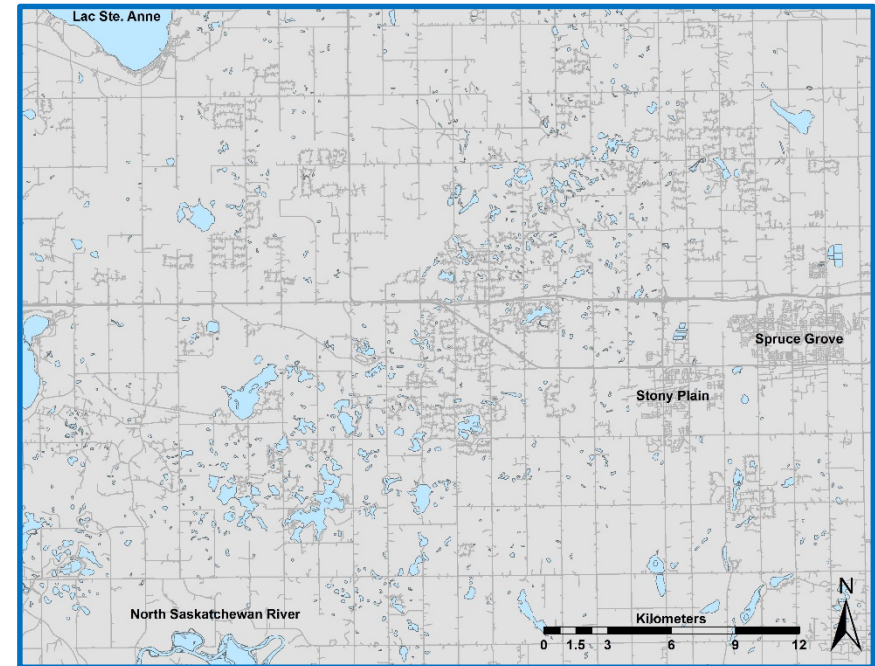
Our mission is to promote knowledge sharing and advance collaborative water stewardship.

**EXPLORE DATA**

# LAKES OF THE CARVEL PITTED DELTA

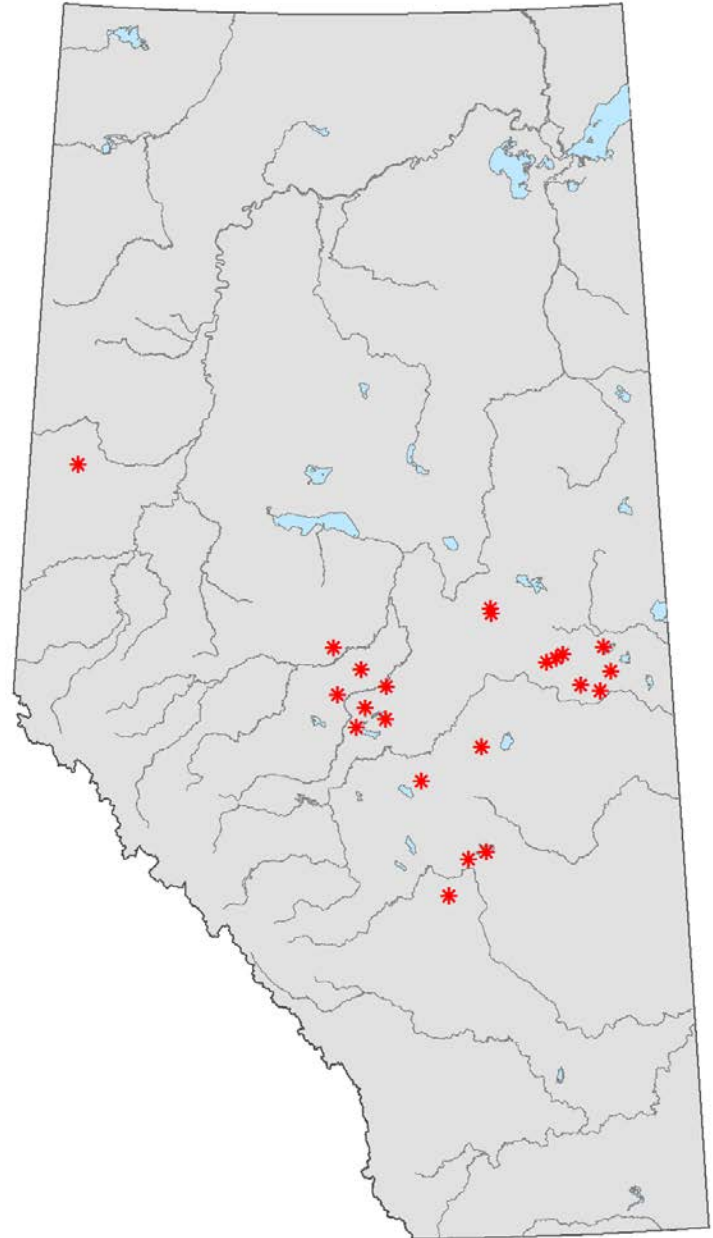
- MAINLY UNNAMED LAKES (FOSTERS “PRIVATE” LAKE STEWARDSHIP)
- WATER CHEMISTRY, BIOLOGICAL SAMPLES, PROFILE MEASUREMENTS
- DEPTH SOUNDING AT SOME LAKES
- INVASIVE SPECIES SAMPLING AT ALL LAKES

**\*2021 SURVEY REPORT AVAILABLE ON ALMS WEBSITE\***



# RECREATIONAL WATER MONITORING

- PARTICIPATION IN PROVINCIAL RECREATION WATER MONITORING PROGRAM IN COLLABORATION WITH ALBERTA HEALTH & AHS
- SAMPLING PRIORITY BEACH LOCATIONS FOR CYANOBACTERIA & ENTEROCOCCUS

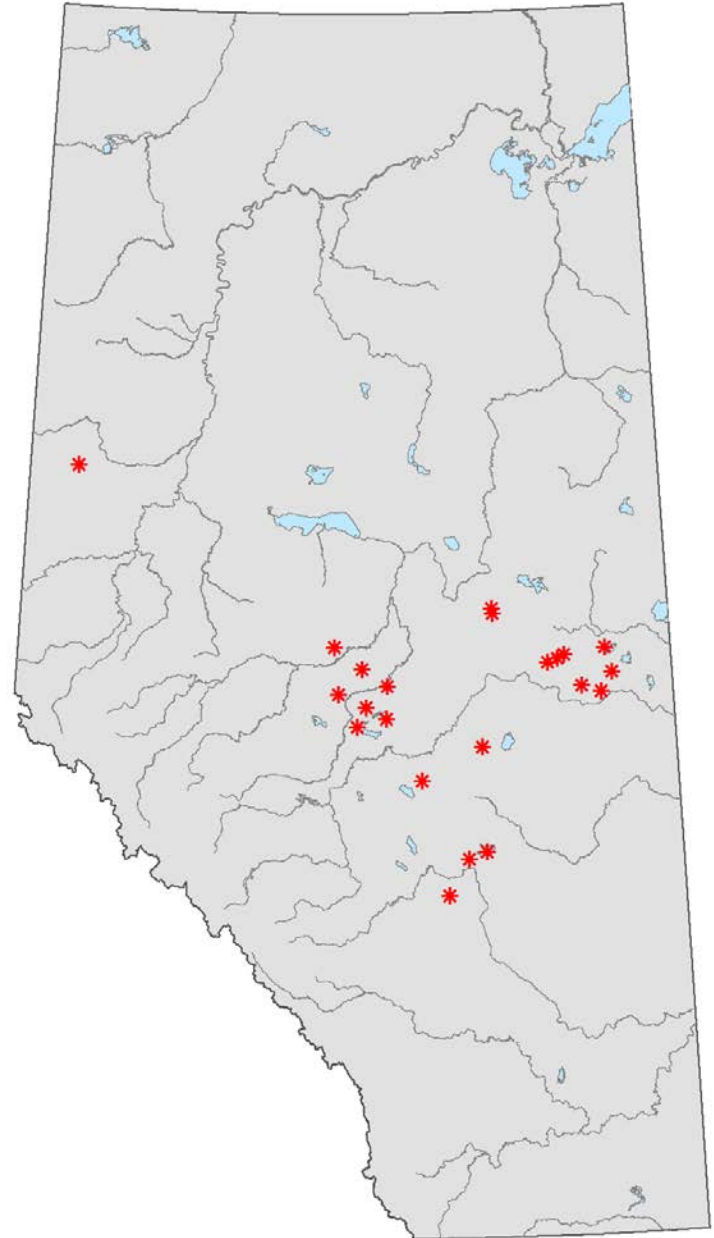




# RECREATIONAL WATER MONITORING

## ALMS REC WATER TECH – SARAH

- DEVELOPMENT OF SAMPLING TRAINING MATERIALS (TRAINING WEBINAR, VIDEOS)
- SAMPLING OF SITES, COORDINATION OF ALMS VOLUNTEER AND PARTNER NETWORK (THANKS NSWA!)

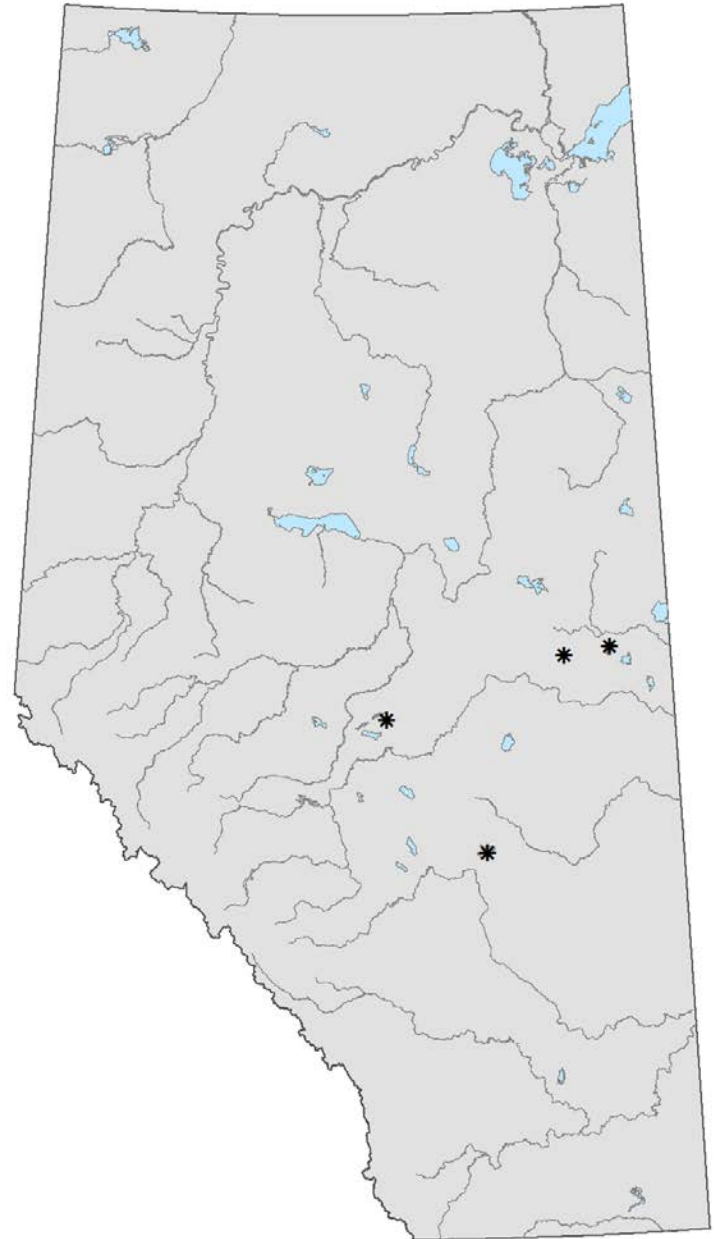


Alberta

# RECREATIONAL WATER MONITORING

## ENTEROCOCCUS

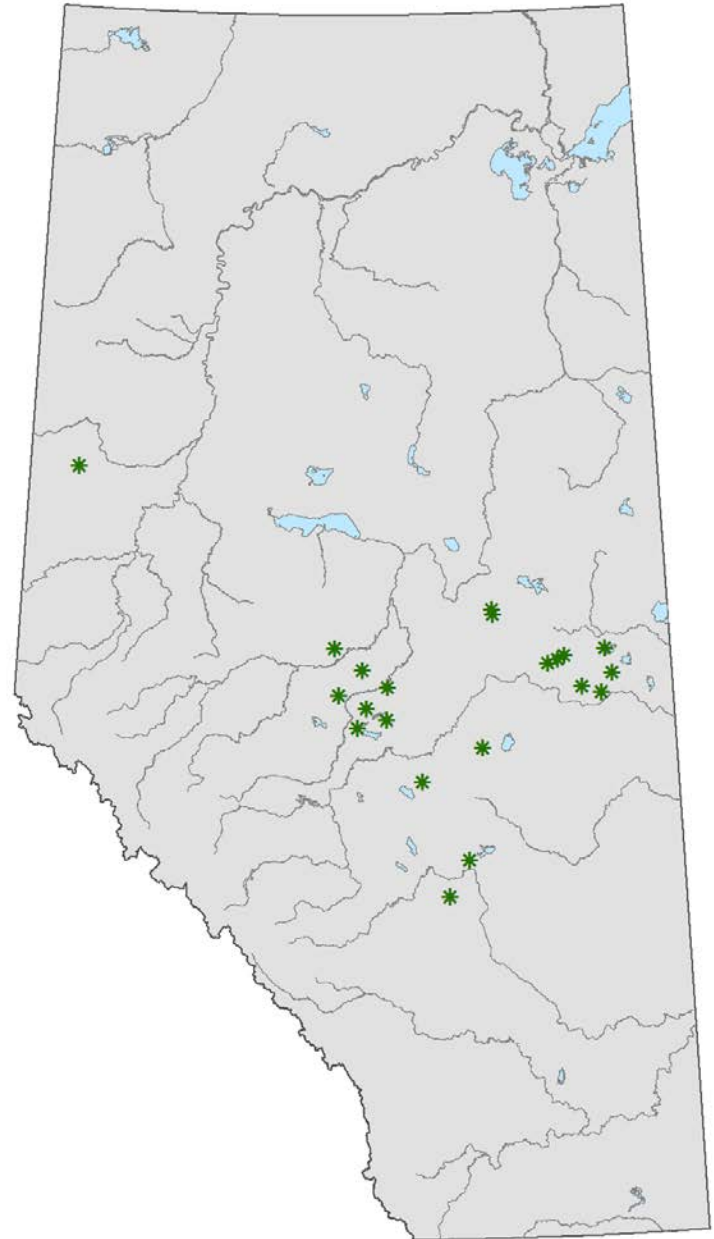
- FECAL INDICATOR, SOME SAMPLES FOR SOURCE TRACKING
- 7 BEACH SITES FROM 4 LAKES
- 45 SAMPLING EVENTS



# RECREATIONAL WATER MONITORING

## CYANOBACTERIA

- CYANOBACTERIA CELL COUNT AND SPECIES COMPOSITION, AND TOXIN (MICROCYSTIN) LEVELS
- 21 BEACH SITES ACROSS 21 LAKES
- 137 SAMPLING EVENTS





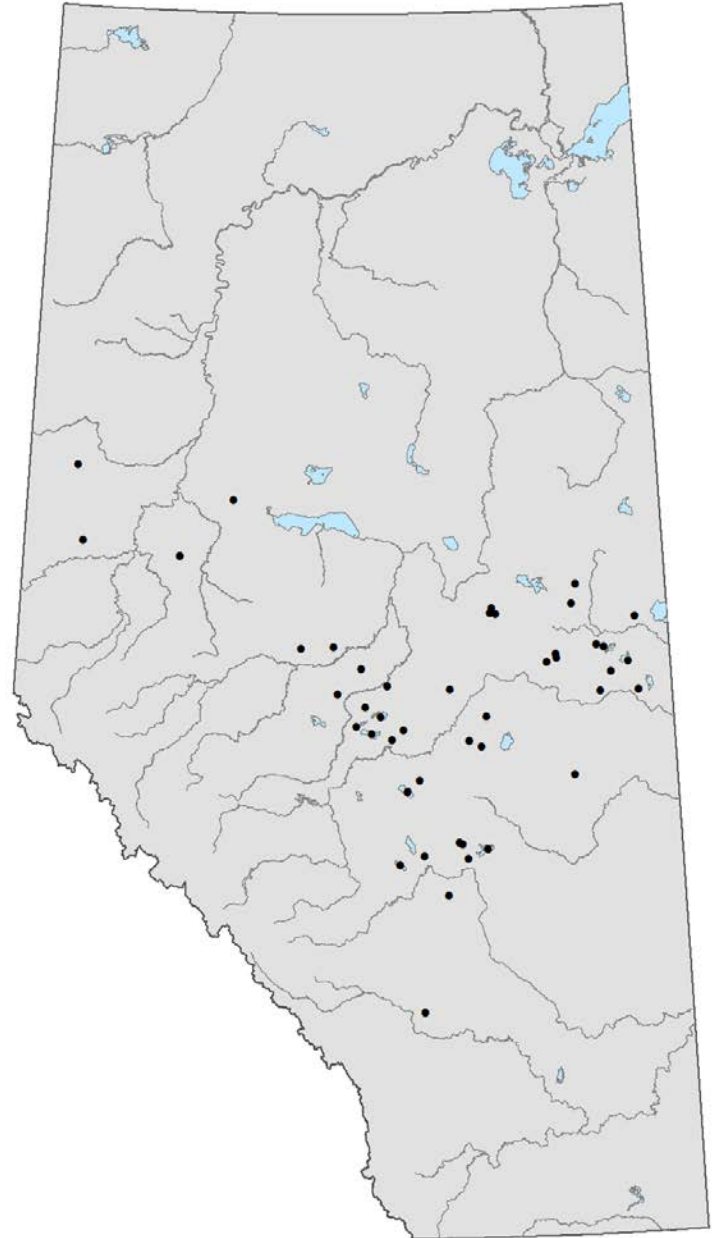
# eDNA RESEARCH FOR PUBLIC HEALTH TARGETS

## SUPPORTS RESEARCH AT HANINGTON LAB

- VALIDATE FIELD & COMMUNITY BASED QPCR TECHNIQUES OF ENTEROCOCCUS SAMPLING & ANALYSIS
- SUPPORTS ONGOING eDNA PROJECTS

## SITE LOCATIONS

- BEACH, LAKE SEDIMENT AND LAKE COMPOSITE SAMPLES
- SAMPLED THROUGH REC WATER & LAKEWATCH



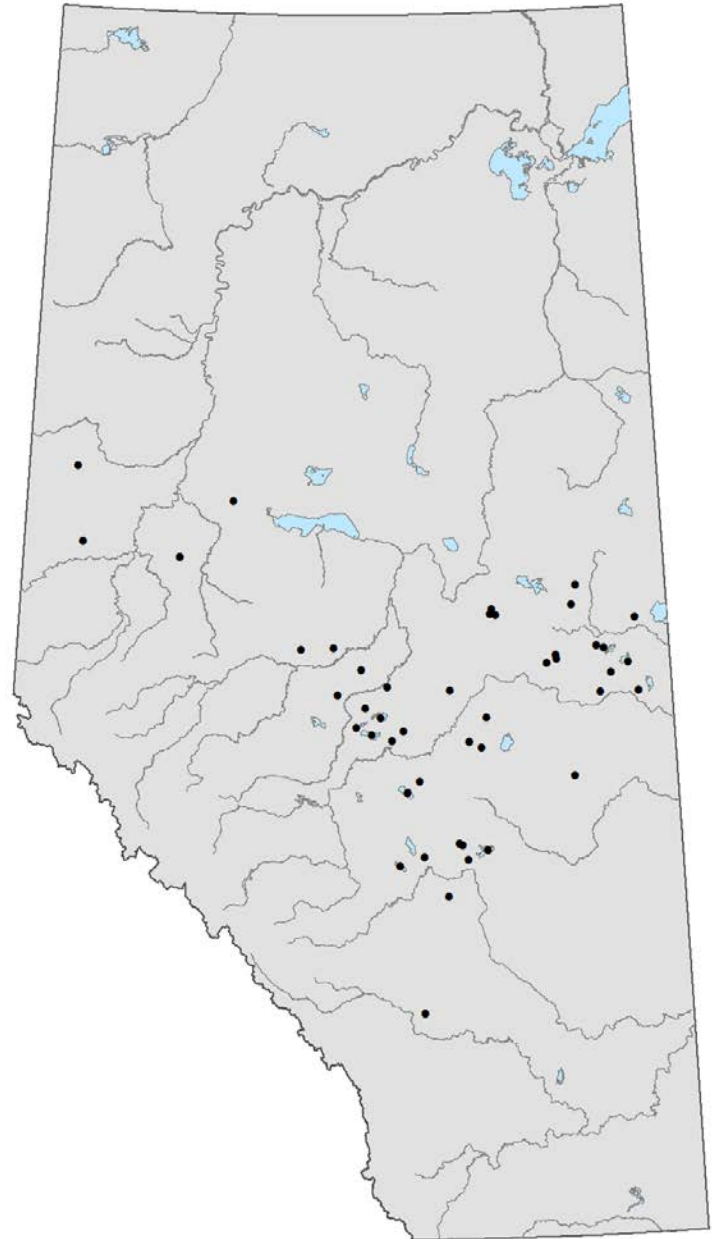
# eDNA RESEARCH FOR PUBLIC HEALTH TARGETS

## QPCR STUDENT - KAZ

- HANDLED SAMPLE ANALYSIS USING  
ALMS QPCR SET-UP

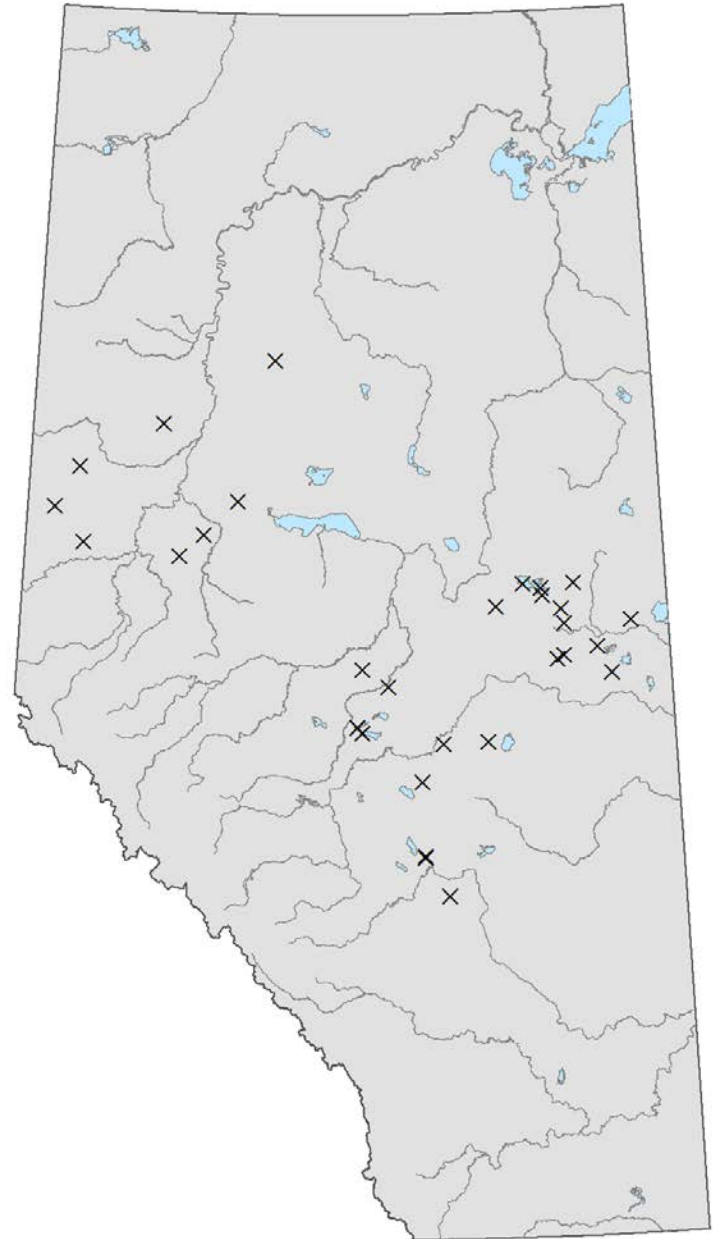
THANKS AGAIN TO NSWA FOR TAKING  
EDNA SAMPLES!

**\*252 SAMPLES TAKEN FROM 69 LAKES\***



# EURASIAN WATERMILFOIL MONITORING

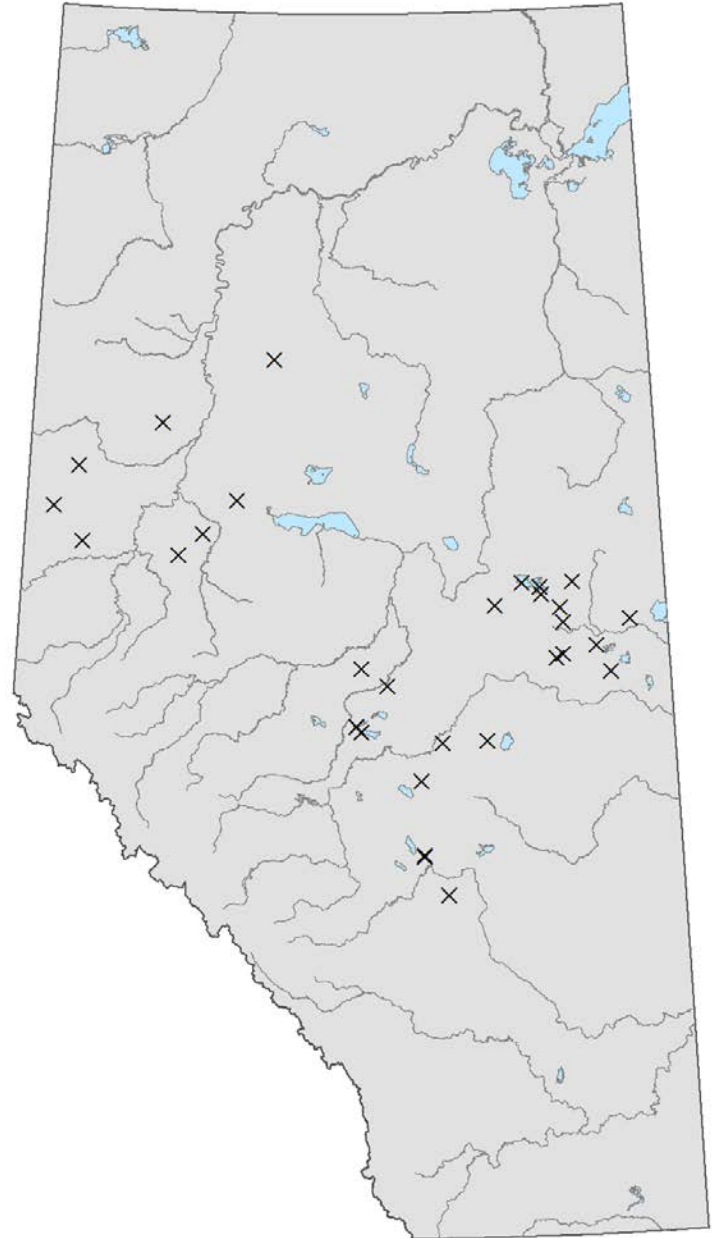
- 32 SPECIMENS COLLECTED FROM 29 LAKES
- NO EURASIAN WATERMILFOIL DETECTED





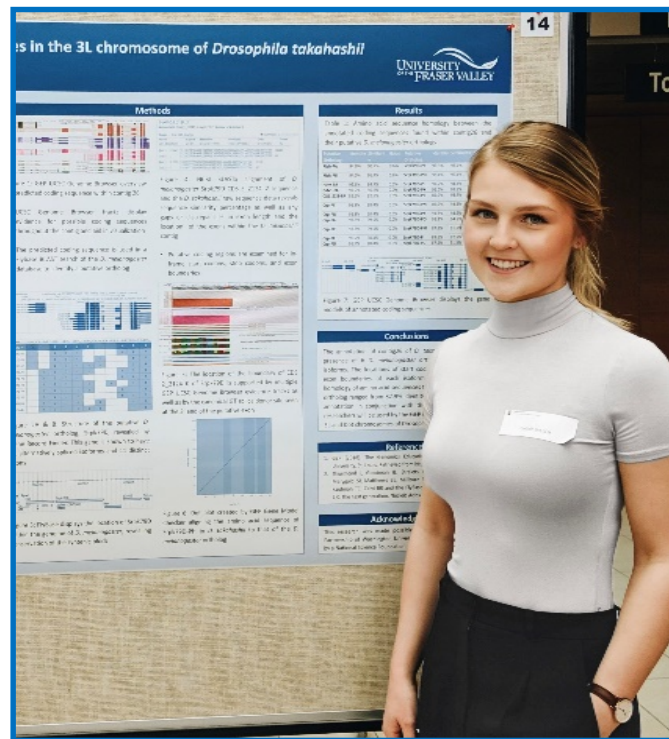
# EURASIAN WATERMILFOIL MONITORING

## COLLECTION PARTNERS:



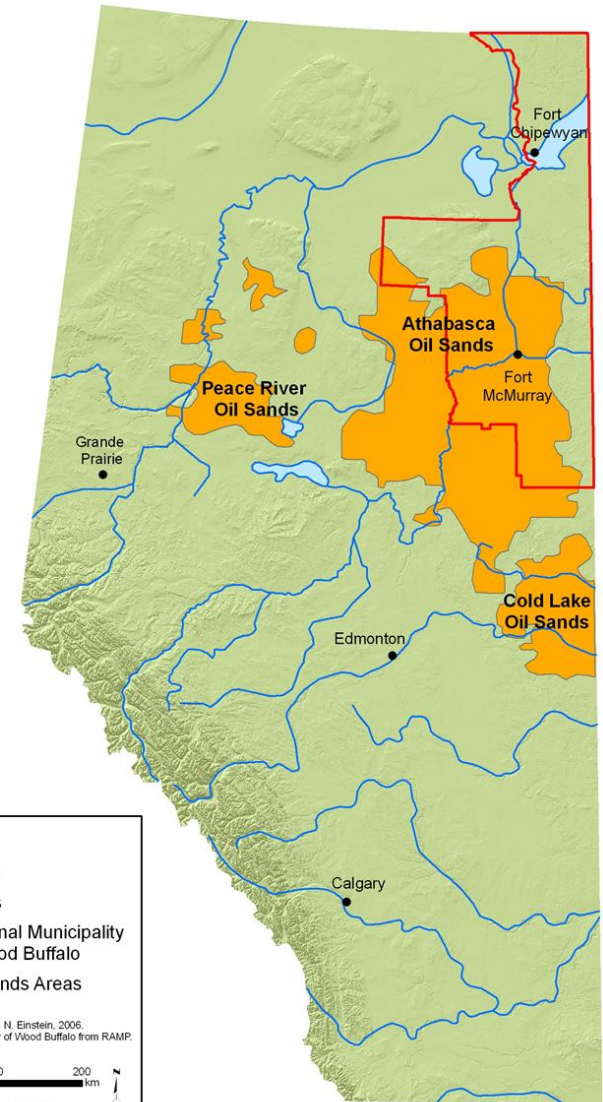
# ALMS SCHOLARSHIP RECIPIENT: CEILIDH WELCH

- “ASSESSING THE RELIABILITY OF A COMMUNITY-BASED APPROACH TO QPCR WATER MONITORING”
- AWARDED \$2000 AND THE OPPORTUNITY TO SPEAK AT ALMS CONFERENCE



# ICBM IN OIL SANDS REGIONS

- **WORKING WITH FIRST NATIONS AND METIS IN ALBERTA'S OIL SANDS REGIONS TO COLLECT WATER QUALITY DATA AT PRIORITY LAKES**
- **FUNDED THROUGH OIL SANDS MONITORING PROGRAM, AND IS A COLLABORATIVE EFFORT BETWEEN AEP, AU, ECCC, PARTNER NATIONS, ALMS**
- **SAMPLING YEAR-ROUND, BEGINNING IN WINTER 2022-2023**
- **PROGRAM COORDINATOR: KURSTYN CAPPIS**





# LOCSS VISIT TO ALBERTA

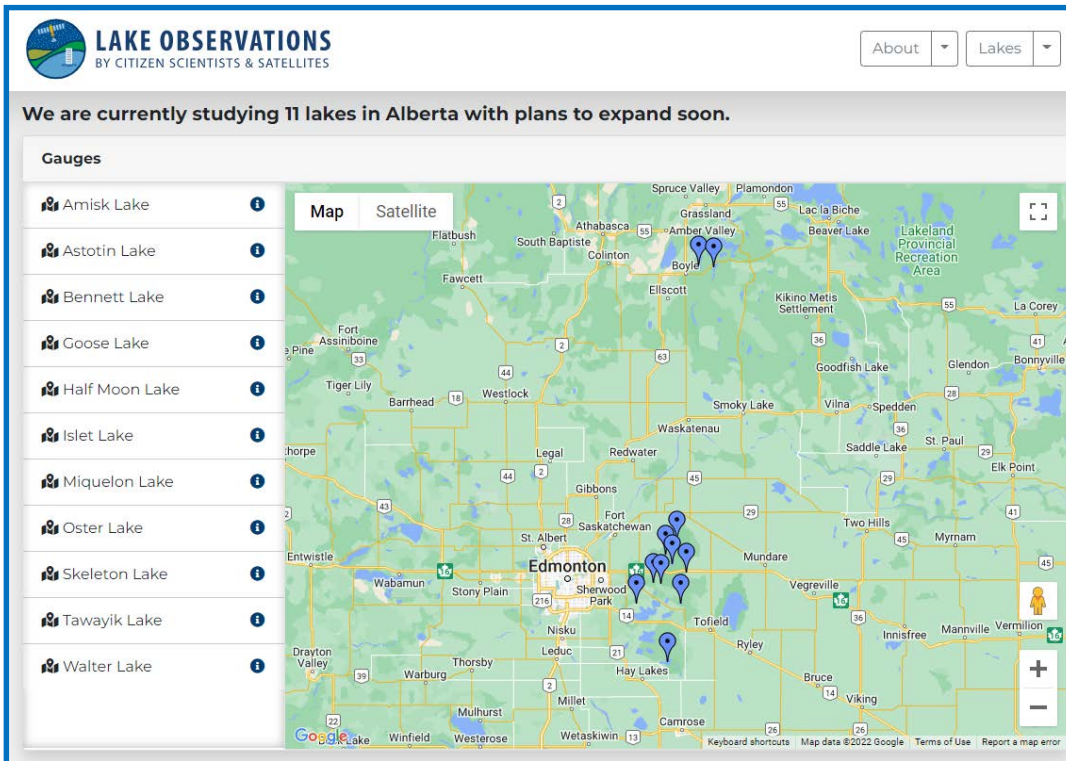
- TEAM FROM NORTH CAROLINA VISITED IN AUGUST, INSTALLED OR VISITED GAUGES IN 11 LAKES
- PROJECT USES LAKE LEVEL READINGS BY CITIZEN SCIENTISTS (SPECIFIC VOLUNTEERS OR THE PUBLIC) AND SATELLITE IMAGERY TO EXPLORE HOW LAKE VOLUME CHANGES OVER TIME



# LOCSS VISIT TO ALBERTA

- LEARN MORE ABOUT THE PROGRAM ON THEIR WEBSITE:

[HTTPS://WWW.LOCSS.ORG/REGION/ALBERTA-CA](https://www.locss.org/region/alberta-ca)



The screenshot shows the 'LAKE OBSERVATIONS' website, which is 'BY CITIZEN SCIENTISTS & SATELLITES'. It features a navigation bar with 'About' and 'Lakes' dropdown menus. A banner states, 'We are currently studying 11 lakes in Alberta with plans to expand soon.' Below this is a 'Gauges' section listing 11 lakes: Amisk Lake, Astotin Lake, Bennett Lake, Goose Lake, Half Moon Lake, Islet Lake, Miquelon Lake, Oster Lake, Skeleton Lake, Tawayik Lake, and Walter Lake. Each lake name is accompanied by a small icon and a blue circular button with a white 'i'. To the right of the list is a map of Alberta with several blue location pins indicating the study sites. The map includes a 'Map' and 'Satellite' toggle, a scale bar, and a 'Keyboard shortcuts' link at the bottom.





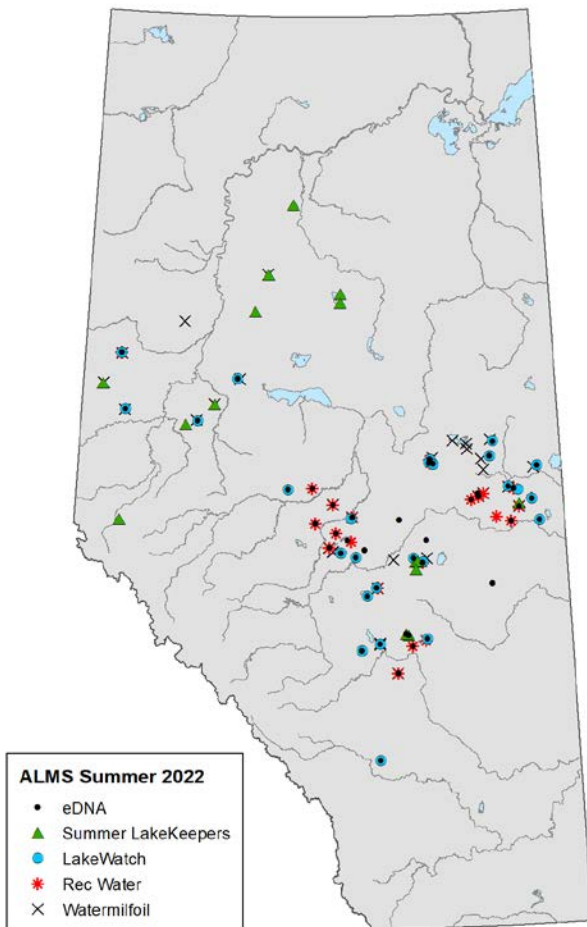
## **WHAT'S NEXT:**

- **AGM ON NOVEMBER 24, 2022 (WATCH YOUR EMAIL)**
- **WINTER LAKEKEEPERS 2021-2022 REPORT (FALL 2022)**
- **WINTER LAKEKEEPERS 2022-2023 SAMPLING (VOLUNTEERS NEEDED!)**
- **LAKEWATCH, LAKEKEEPERS, CARVEL SURVEY REPORTING OVER WINTER**
- **ICBM IN OSR STARTING WINTER 2022-2023**





WE COULDN'T HAVE DONE THIS WITHOUT YOUR HELP!!





# QUESTIONS?

THANK YOU:

STAFF!  
VOLUNTEERS!  
BOARD!  
SUPPORTERS!  
PARTNERS!

The logo for the province of Alberta, featuring the word "Alberta" in a dark blue, cursive script font. To the right of the word is a small blue square with a white stylized 'A' inside it.

EMAIL: [PROGRAMS@ALMS.CA](mailto:PROGRAMS@ALMS.CA)