

# Williams Lake Watershed



Watershed Mapping - Patricia Manuel

# Water Monitoring Activity in the Williams Lake Watershed 2021-2022

1. Study of the hydrology of the Williams Lake Watershed (Sept 2021-Apr 2022)

by Evan Cahill, Marion Baptiste, Fawzi Ayoub, and Sarah van den Heuvel,  
Senior Year Undergraduate Project  
under the supervision of Dr. Rob Jamieson & Dr. Margaret Walsh,  
Department of Civil and Resource Engineering at Dalhousie University

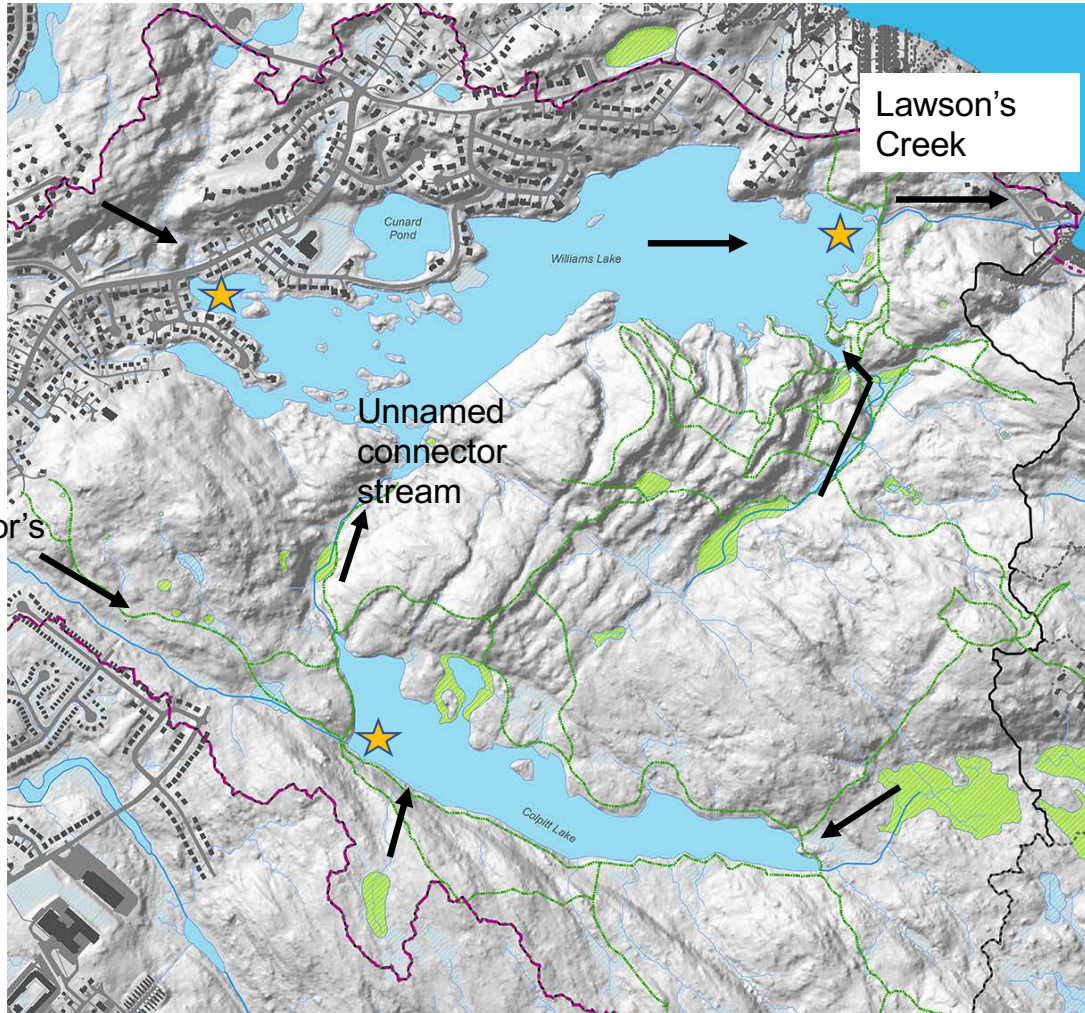
2. Water conductivity (salinity) and pH monitoring of Governor's Brook and inflow to Williams Lake from Colpitt Lake Connector Stream (Apr 4-Oct 2022)

by WLCC member Charles Bull

3. Annual water quality tests of Williams Lake and Colpitt Lake (Jul 27, 2022)



by the WLCC

# WLCC Water Quality Sampling Sites in the Williams Lake Watershed ★



## Williams Lake & Purcell's Cove Wildlands Landscape Inventory

Map Design and Data Management by Maxime Lapierre  
 Project Management by Prof. John Zuck and Dr. Patricia Manuel  
 School of Planning, Dalhousie University, Halifax NS

-  Watershed Boundary
-  Study Area
-  Ocean
-  Lake; Pond
-  Wetland
-  Floodplain & Possible Wetland
-  Possible Flood Plain
-  Permanent stream
-  Intermittent stream or gully
-  Building
-  Trail
-  Road

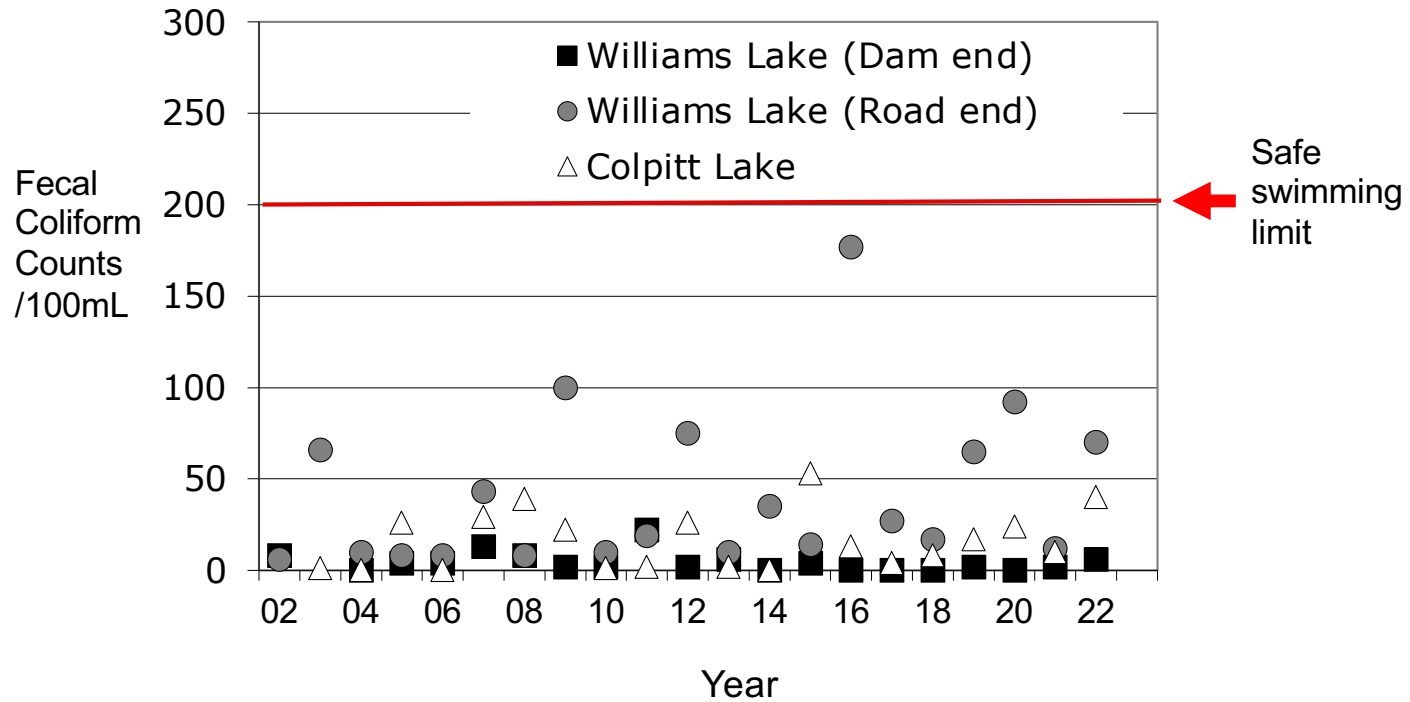
Governor's Brook

Unnamed connector stream

Lawson's Creek

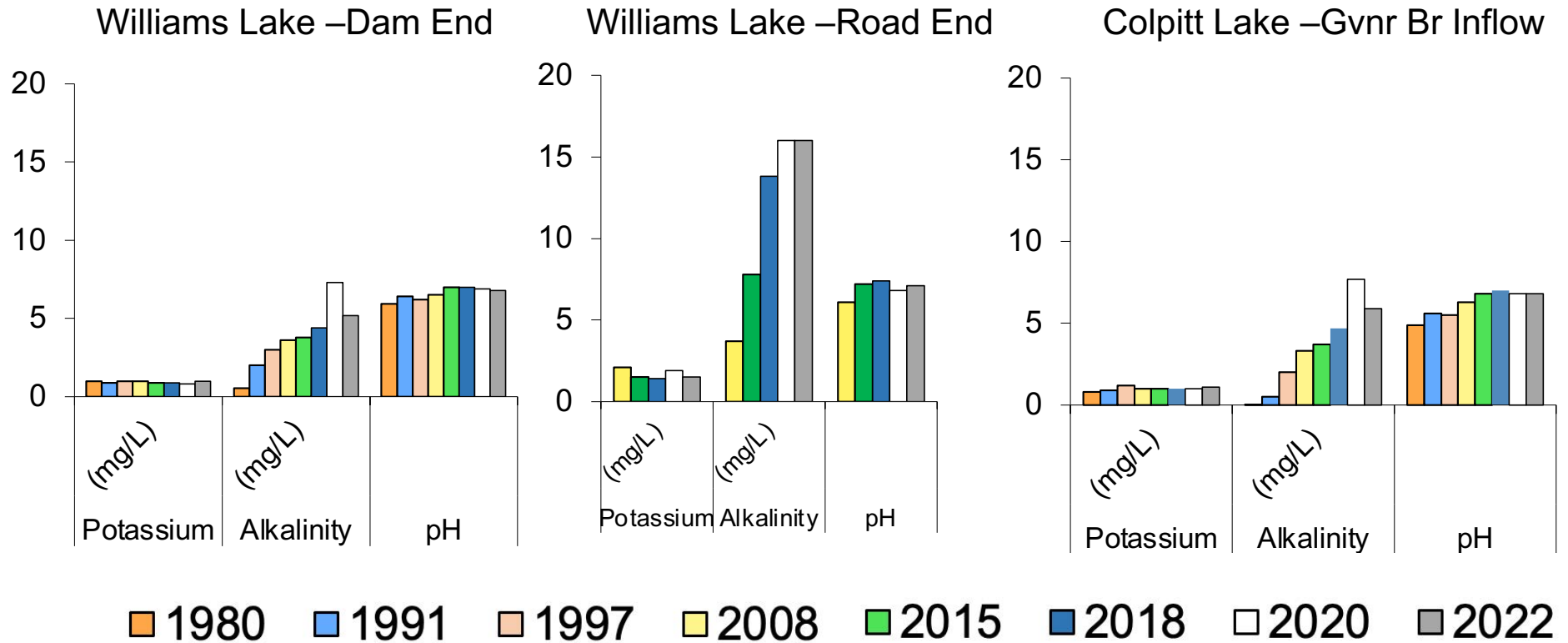
**The good news:** Fecal coliform counts in Williams and Colpitt Lakes remained low again this summer

WLCC Lake Water Testing 2002-2022

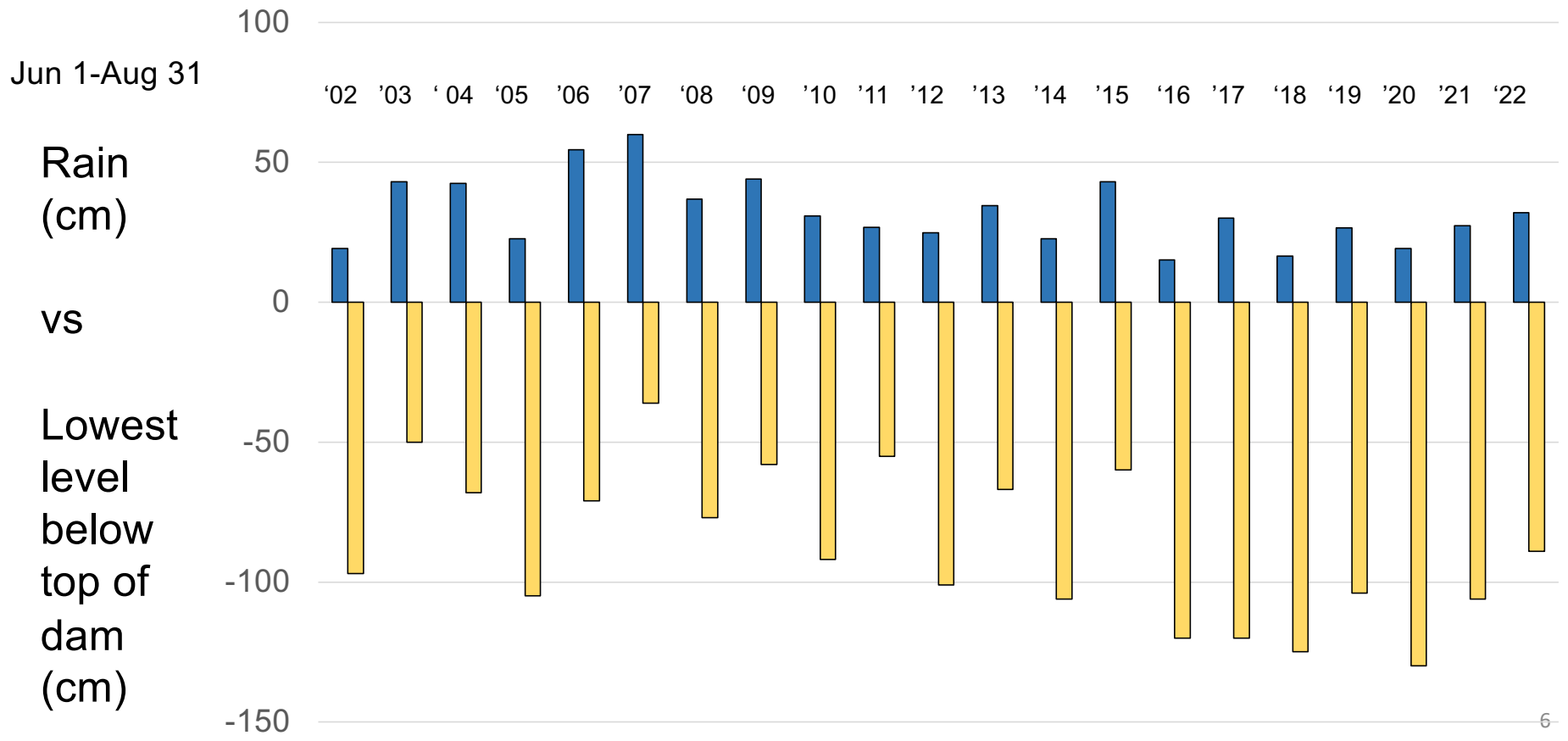


# WLCC Water Quality Testing Results 1980-2022

Many parameters unchanged but alkalinity and pH have increased

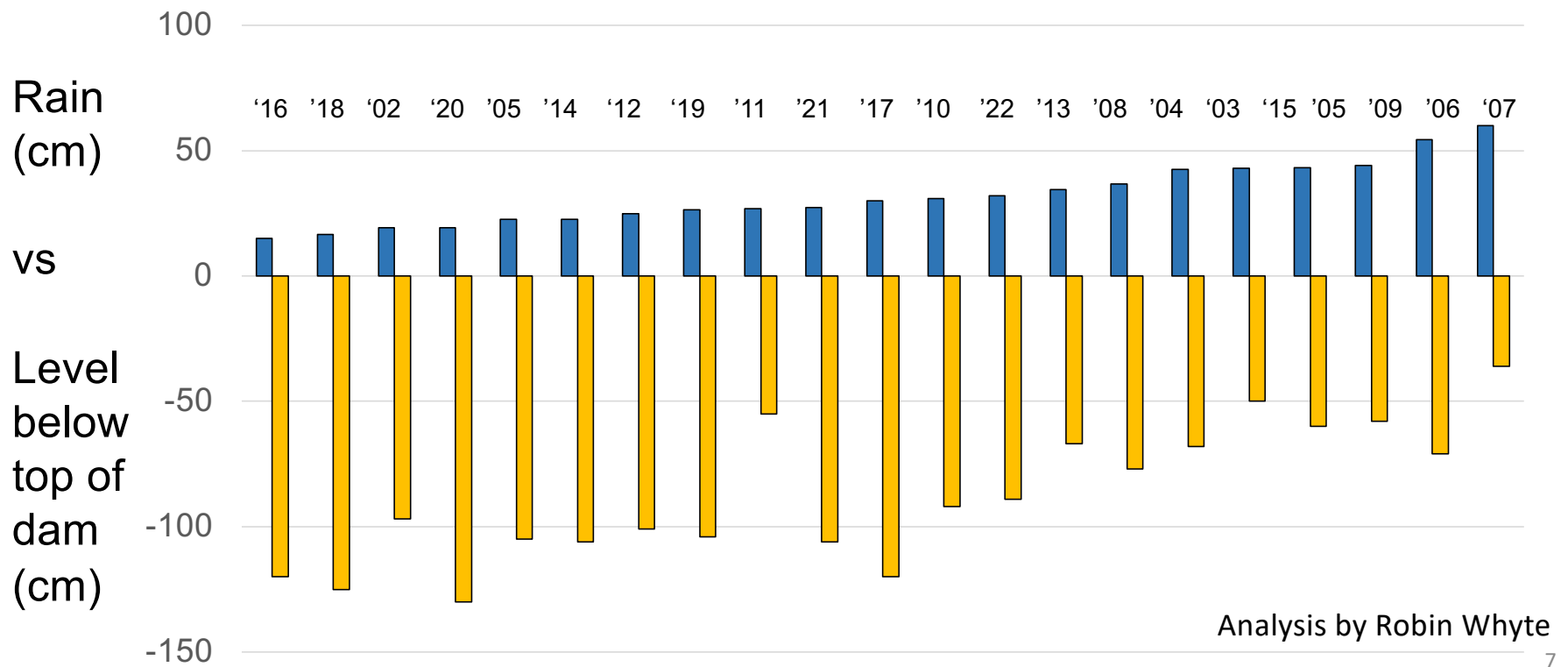


Annual records 2002-2022 show Williams Lake falling to low levels in past seven summers (~2 cm drop per day without rain)



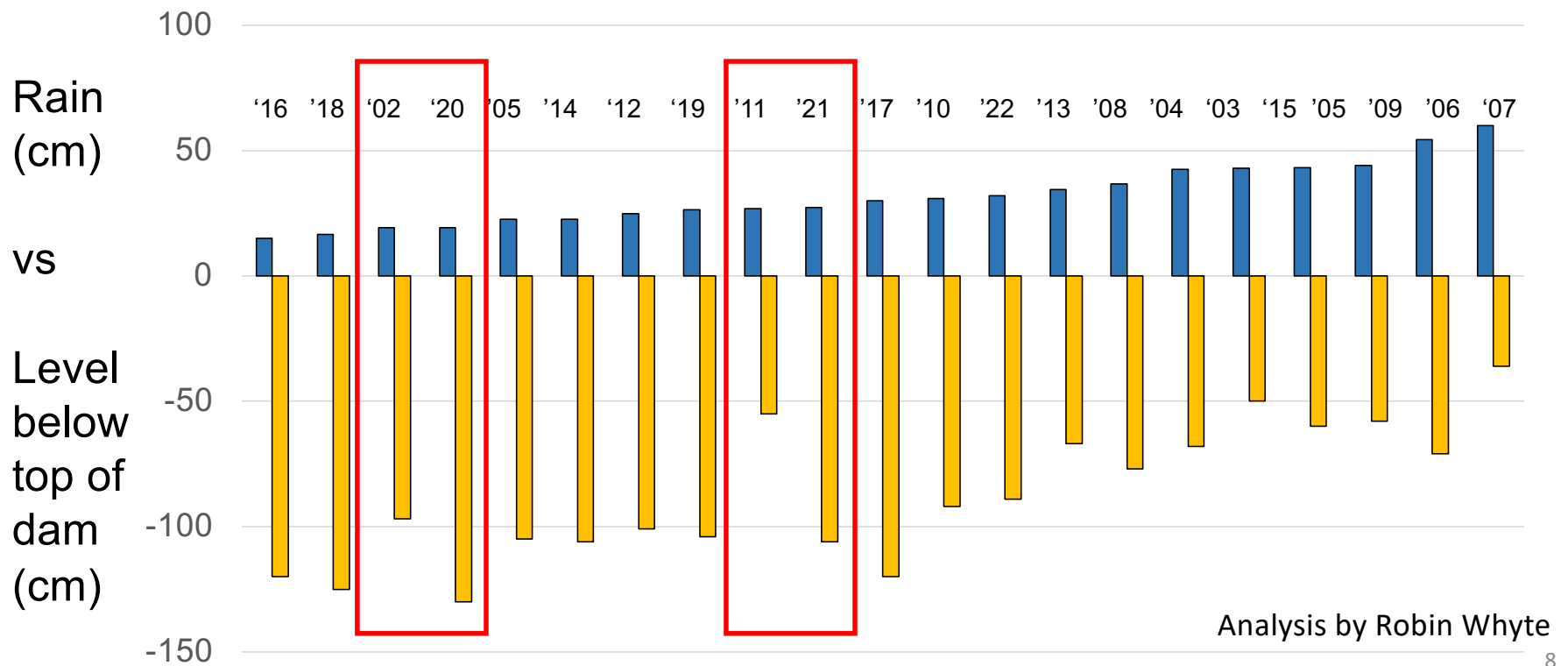
## Annual records 2002-2022 show Williams Lake relies on Summer Rain Average 2 cm higher per 1 cm of rain

Total Summer Rain vs Lowest Lake Level (Jun1-Aug 31)– Ordered by Amount of Rain



## Williams Lake relies on Summer Rain - But in some recent summers, level lower than expected from rainfall

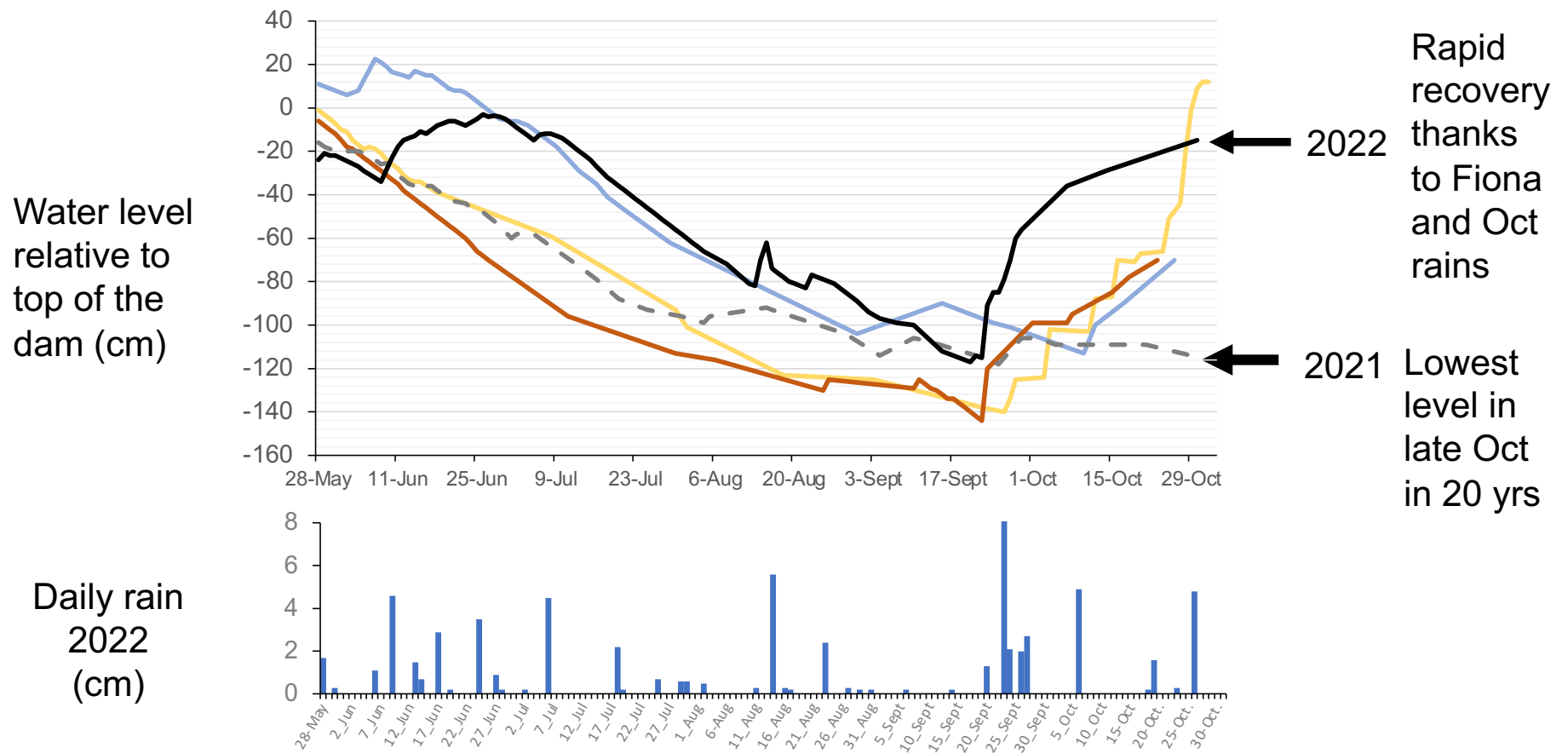
Total Summer Rain vs Lowest Lake Level (Jun1-Aug 31)– Ordered by Amount of Rain





# Williams Lake level rebounds in the fall but after recent hot dry summers, this has taken longer (unless there is a Hurricane)

— Lake '18    — Lake '19    — Lake '20    - - Lake '21    — Lake '22



## The bad news: Blue-green algae blooms in Williams Lake again this summer

Mid-August – bloom sighted in Cunard Pond, beach closed for the rest of summer



More  
blooms  
in Oct

Oct. 13,  
Bloom on  
sighted in  
main lake  
along  
Grandstand  
(off  
Wyndrock)



Oct 2 - Williams Lake , shore along Litchfield

Oct 25 - Cunard Pond beach

Nov 10 - Bloom in Cunard Pond along shore opposite beach

## Factors that promote blue-green algae (cyanobacteria) blooms

- Shallow, warm, slow-moving water,
- Water high in nutrients such as phosphorous and nitrogen,
- Sufficient light penetration.



**X**  
Sites where  
blooms were  
observed