



Lake Trout in Nova Scotia: Habitat Suitability and Genetic Analysis

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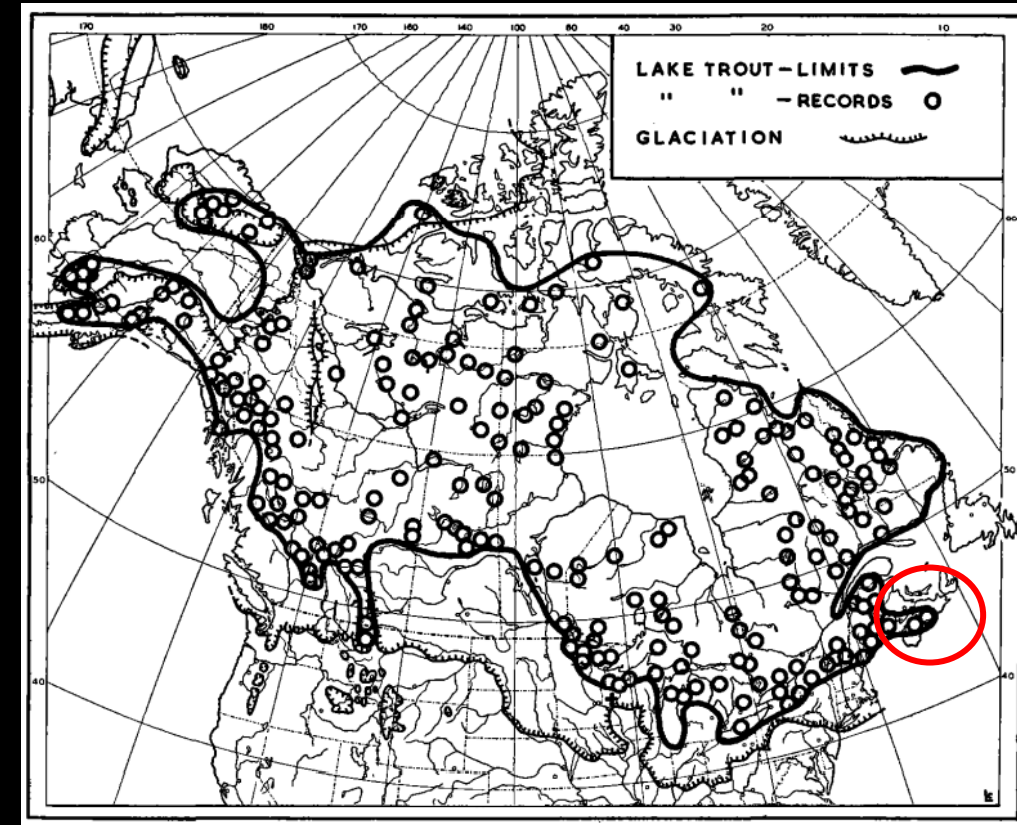


Lake Trout

(*Salvelinus namaycush*)



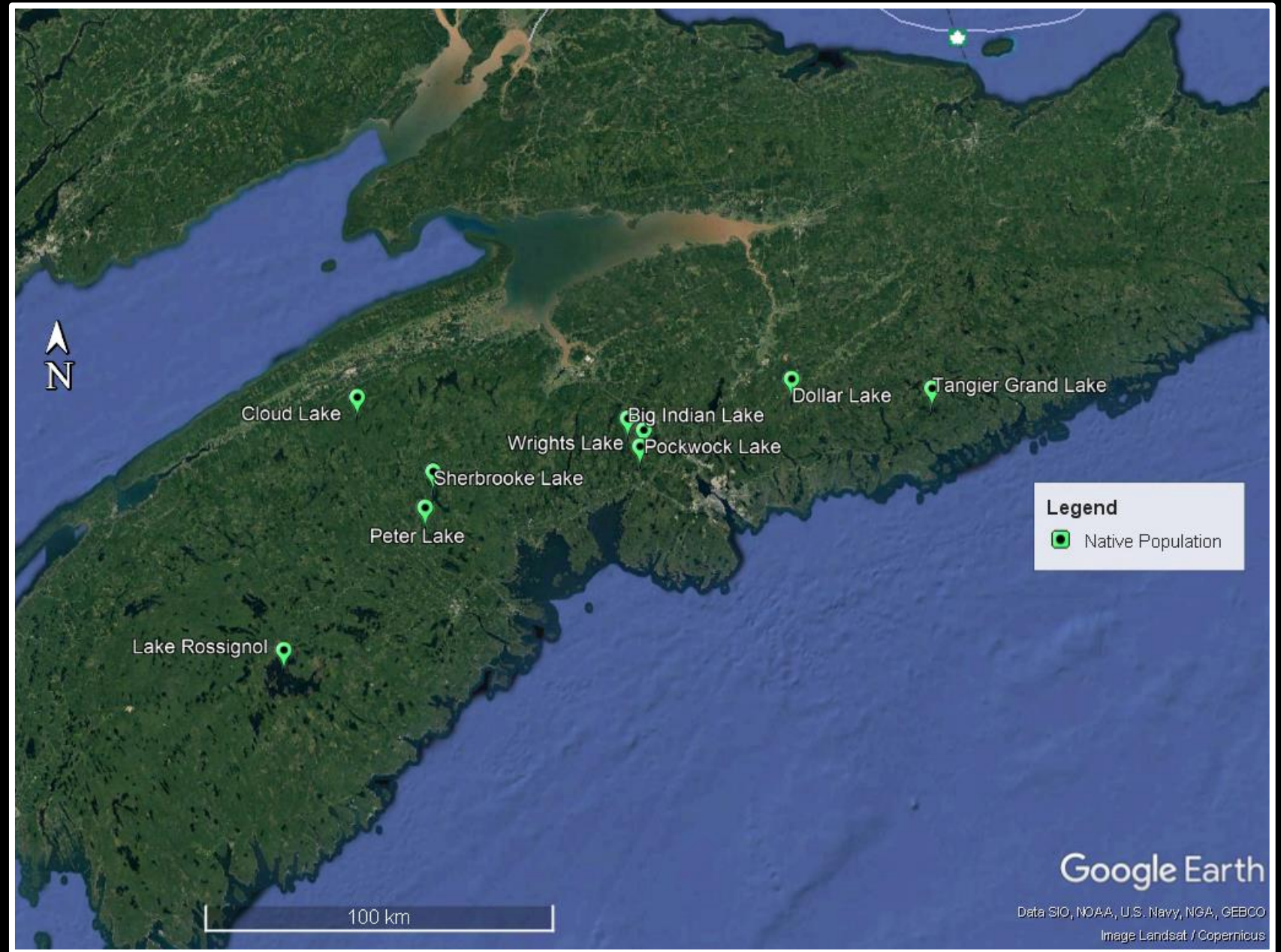
- Biggest species of Char, related to brook trout
- Native throughout North America
- Generally non-anadromous
- Cold water species: Deep Lakes
- **Nova Scotia: Not well understood**



Lindsey, C. C. (1964). Problems in Zoogeography of the Lake Trout, *Salvelinus namaycush*. Journal of the Fisheries Research Board of Canada, 21(5), 977-994. doi:10.1139/f64-091

Pre-Stocking (Native) Lake Trout Populations:

Big Indian Lake:	1951
Dollar Lake:	1908
Pockwock Lake:	1866
Tangier Grand Lake:	1949
Wrights Lake:	1936
Cloud Lake:	1949
Peter Lake:	1962
Sherbrooke Lake:	1879
Lake Rossignol:	1849



Suspected Post-Stocking Lake Trout Populations:

Big Indian Lake:

Dollar Lake:

Pockwock Lake:

Tangier Grand Lake:

Wrights Lake:

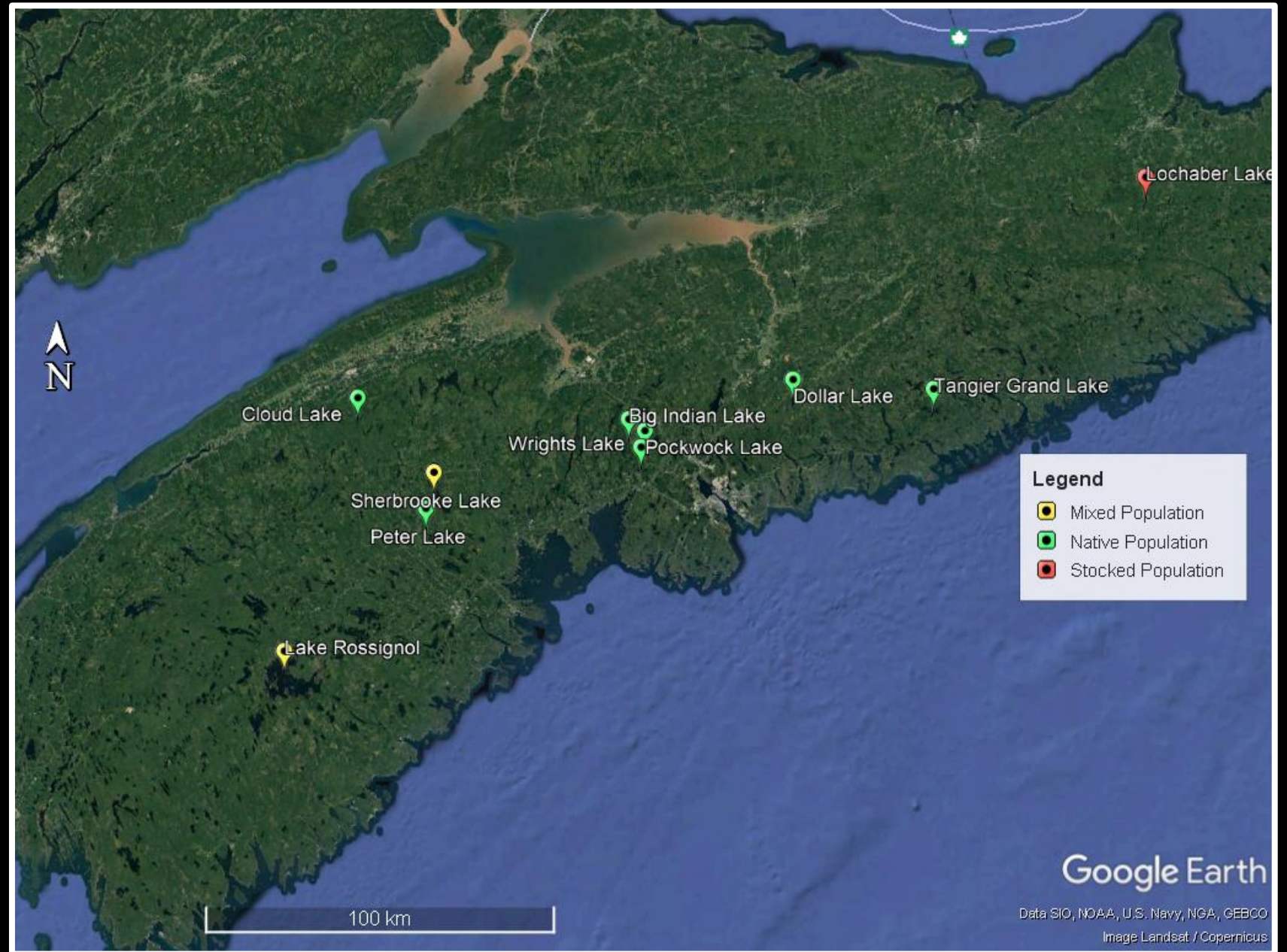
Cloud Lake:

Peter Lake:

Sherbrooke Lake: 1932 - 1963

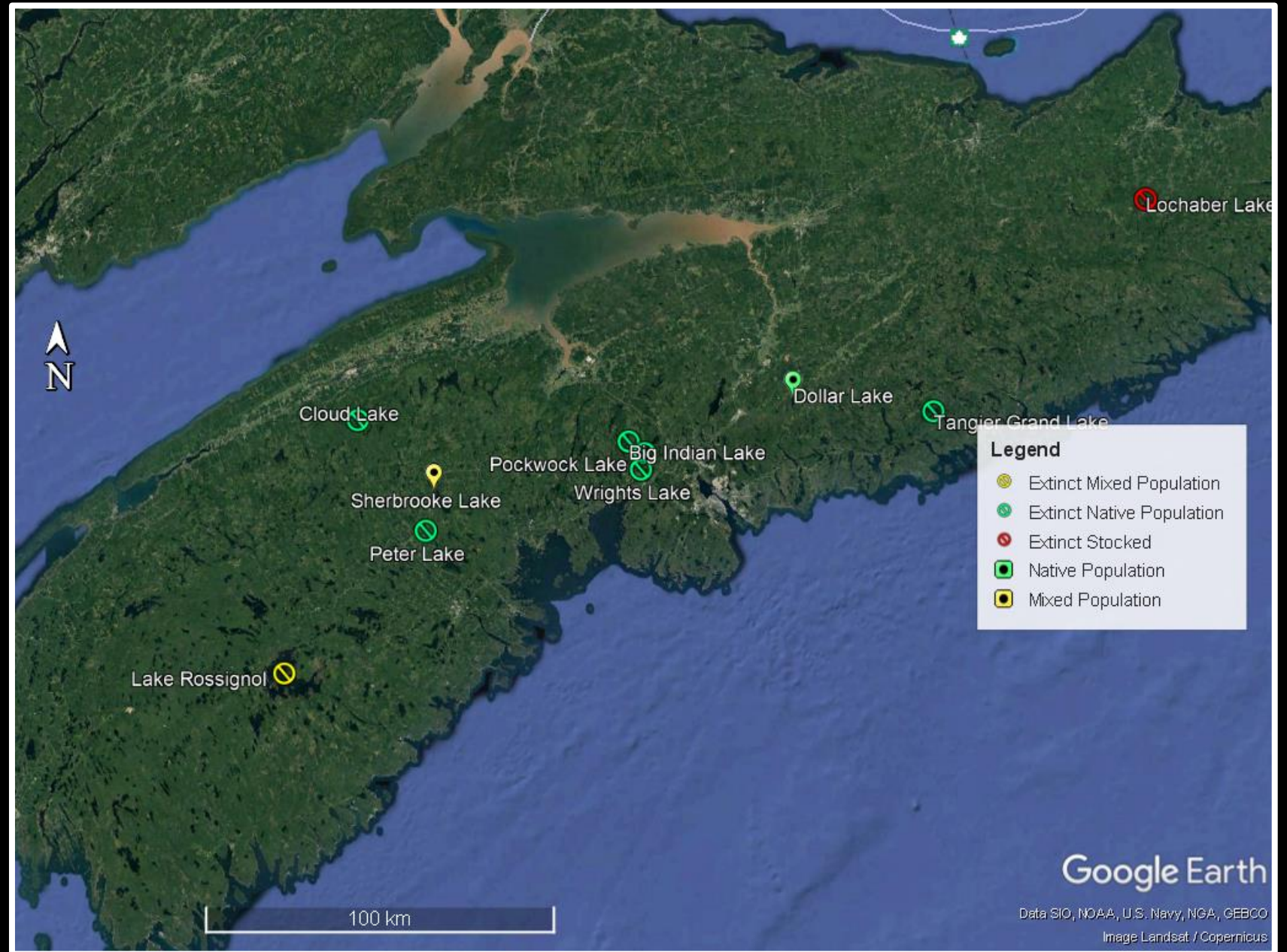
Lake Rossignol: 1889 - 1889

Lochaber Lake: 1887 - 1958



Current Lake Trout Populations:

Big Indian Lake:
Dollar Lake: Confirmed
Pockwock Lake:
Tangier Grand Lake:
Wrights Lake:
Cloud Lake:
Peter Lake:
Sherbrooke Lake: Confirmed
Lake Rossignol:
Lochaber Lake:



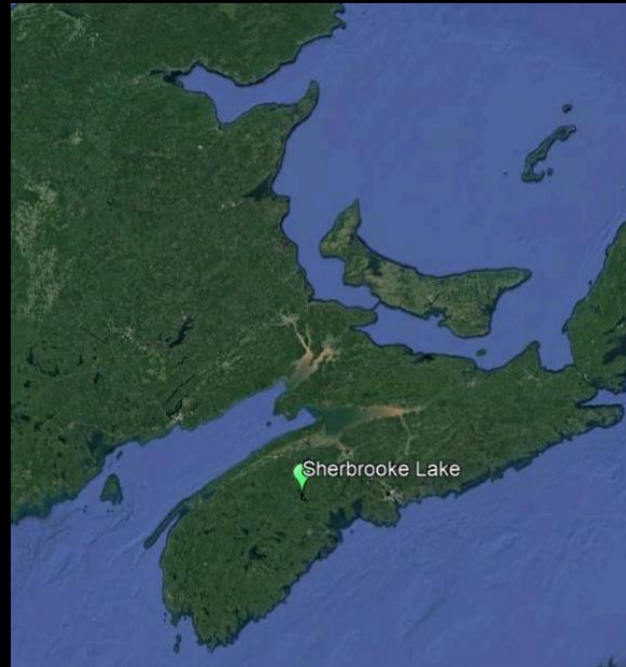
Field Study: Lake Trout Tracking in Sherbrooke Lake

Measure Habitat Suitability:

- Map Sherbrooke Lake Bathymetry
- Measure Annual Water Temperature
- Track Annual Lake Trout Depth

Confirm as Native

- Analyze DNA



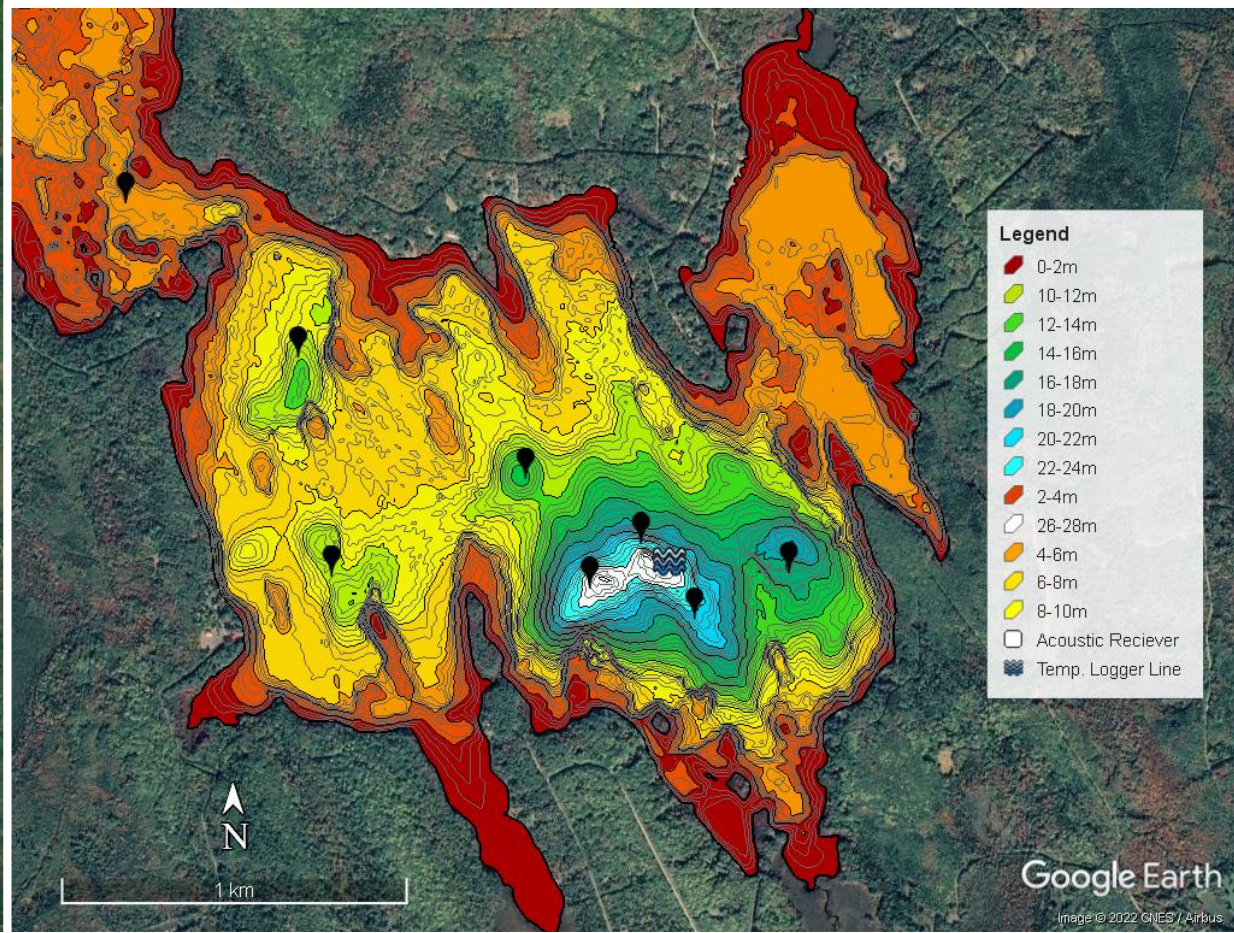
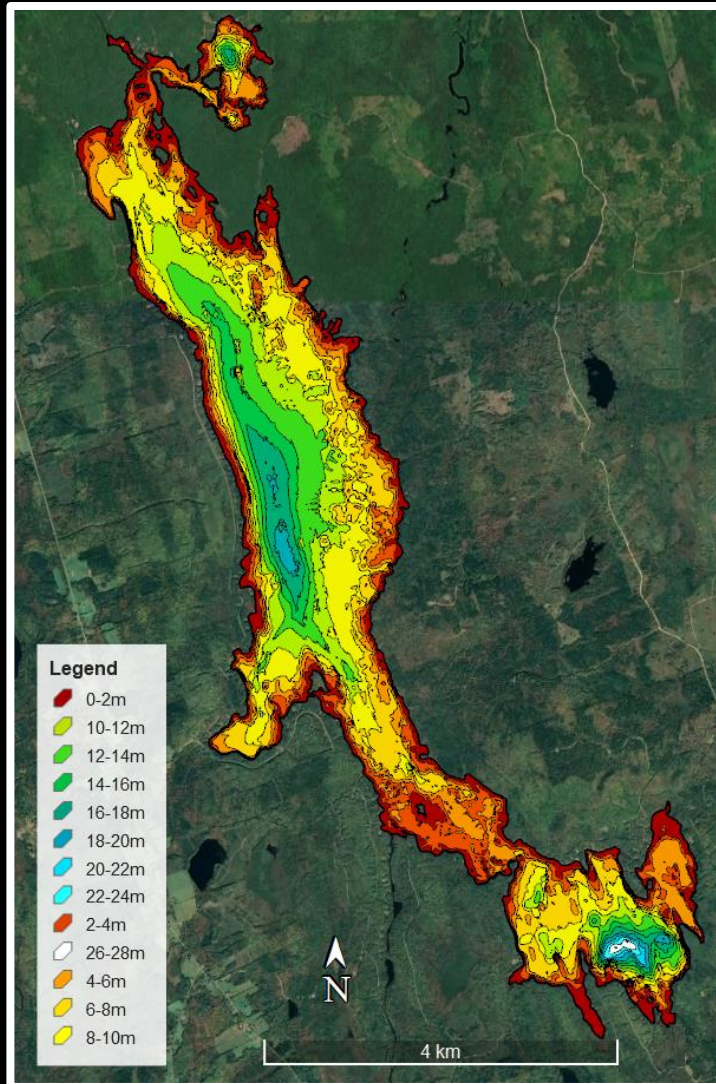
Sherbrooke Lake, Lunenburg County, NS:

~12km Long, 1630ha, ~26m max. depth

Lake Trout Population: Mixed

Earliest capture record: 1879; Stocked from 1932 – 1963

Study Site: South Basin



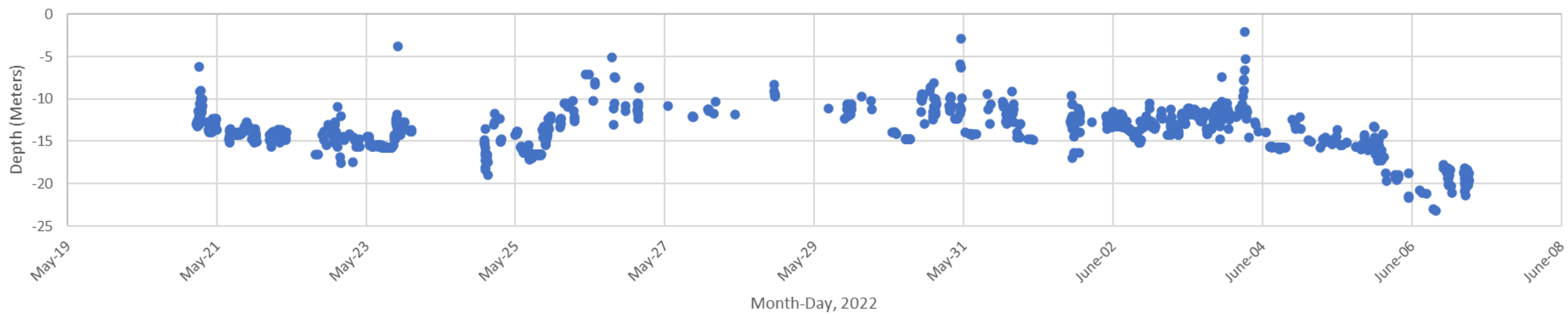
Fish Capture:

Angling + Volunteer

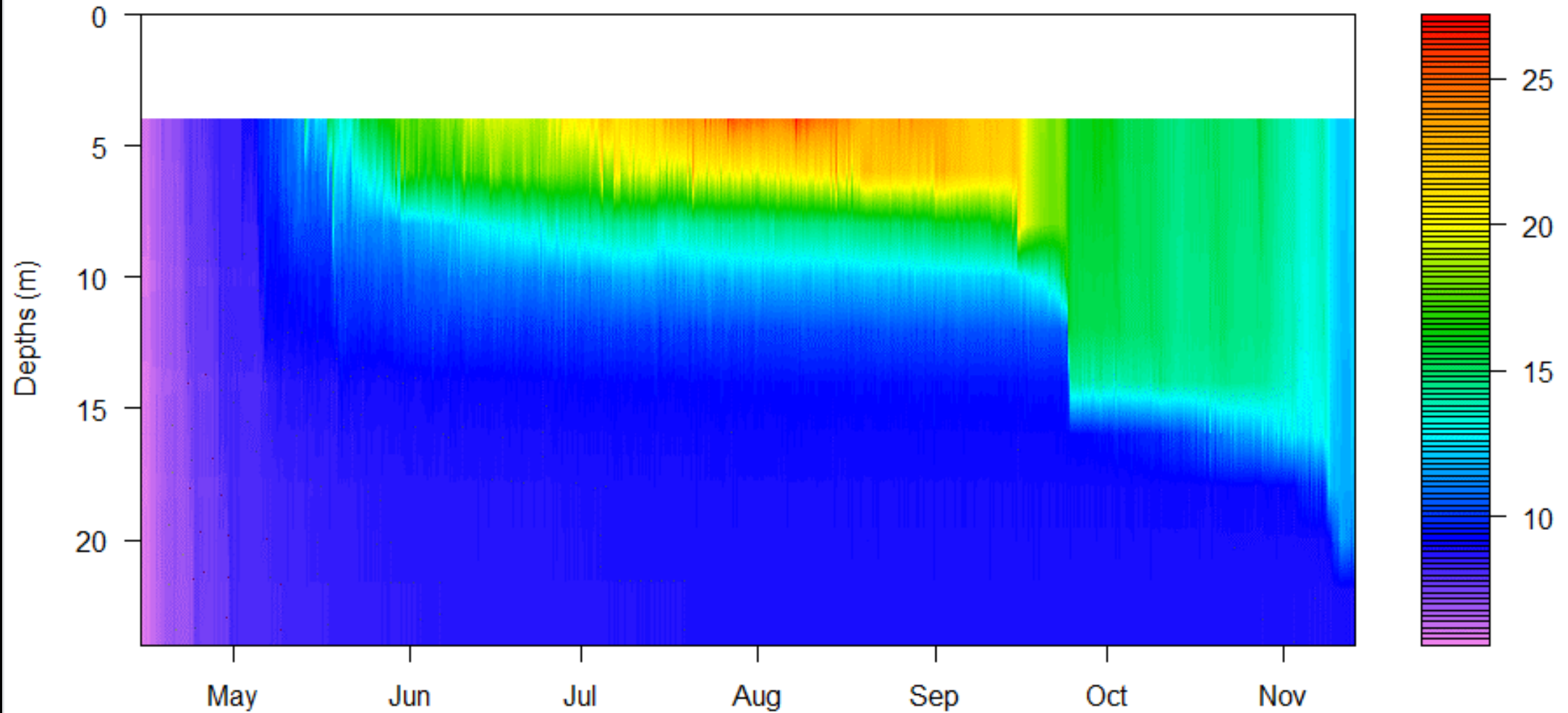


Lake Trout Tagging and Surgery:

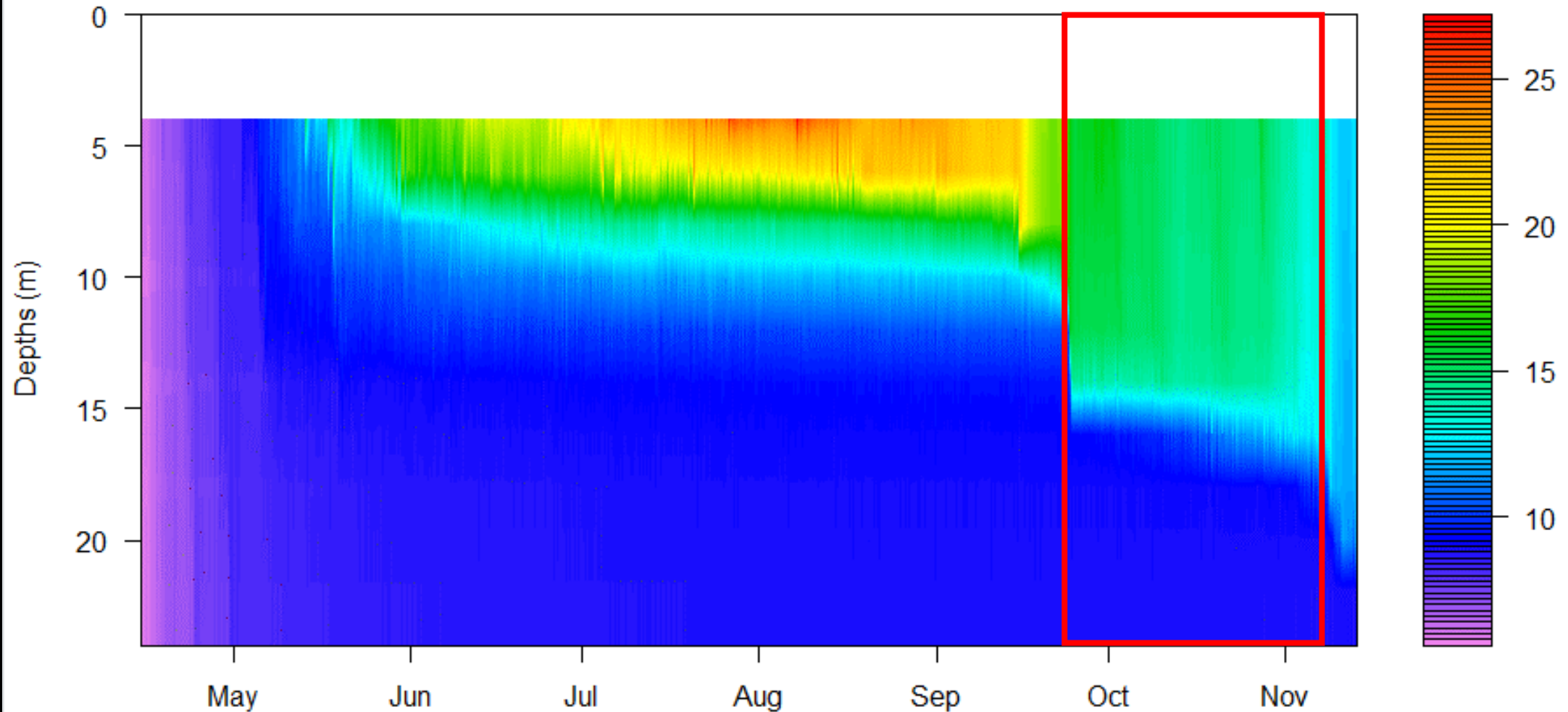




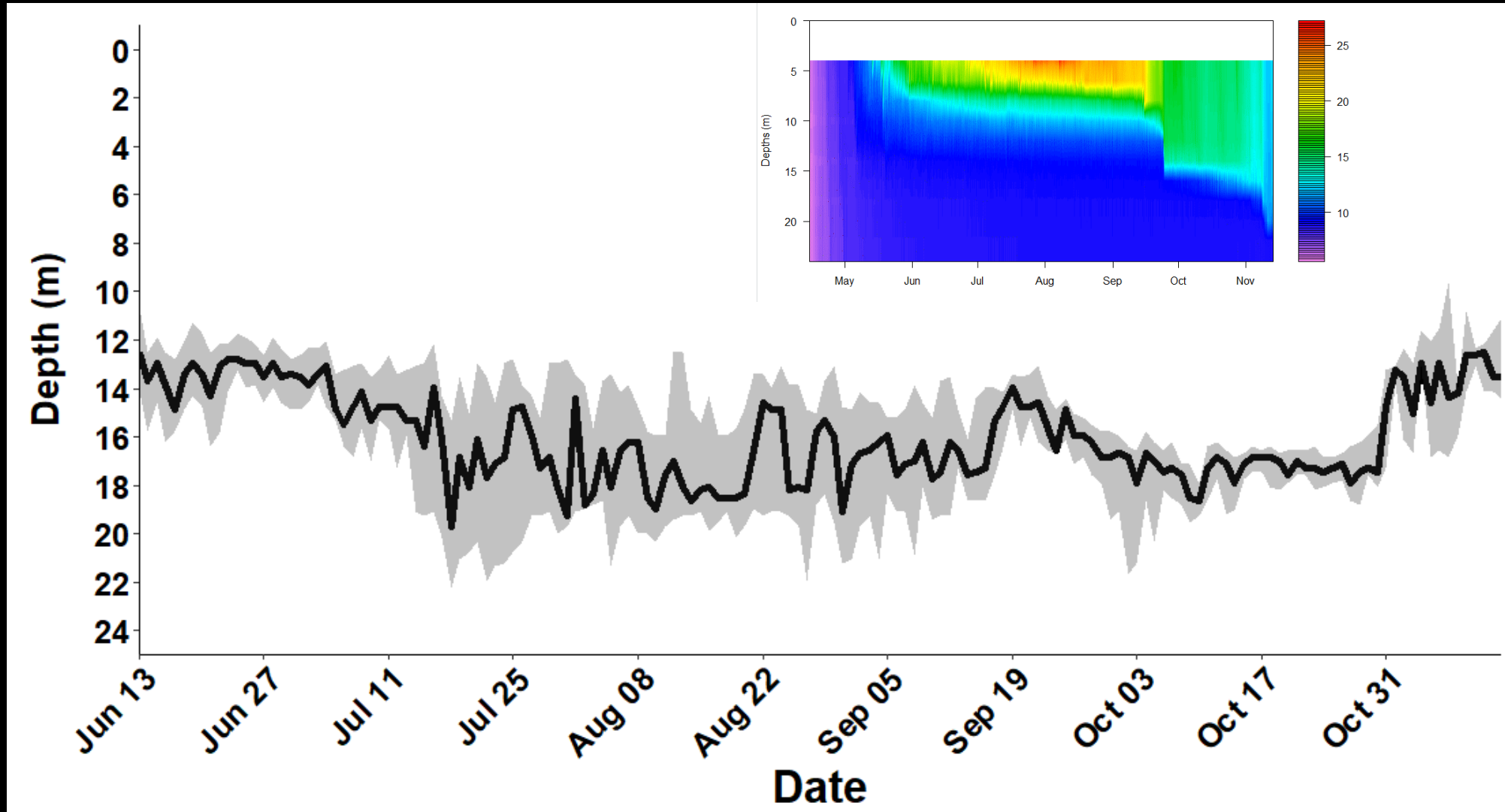
April – November, 2022: South Basin Water Column Temperature



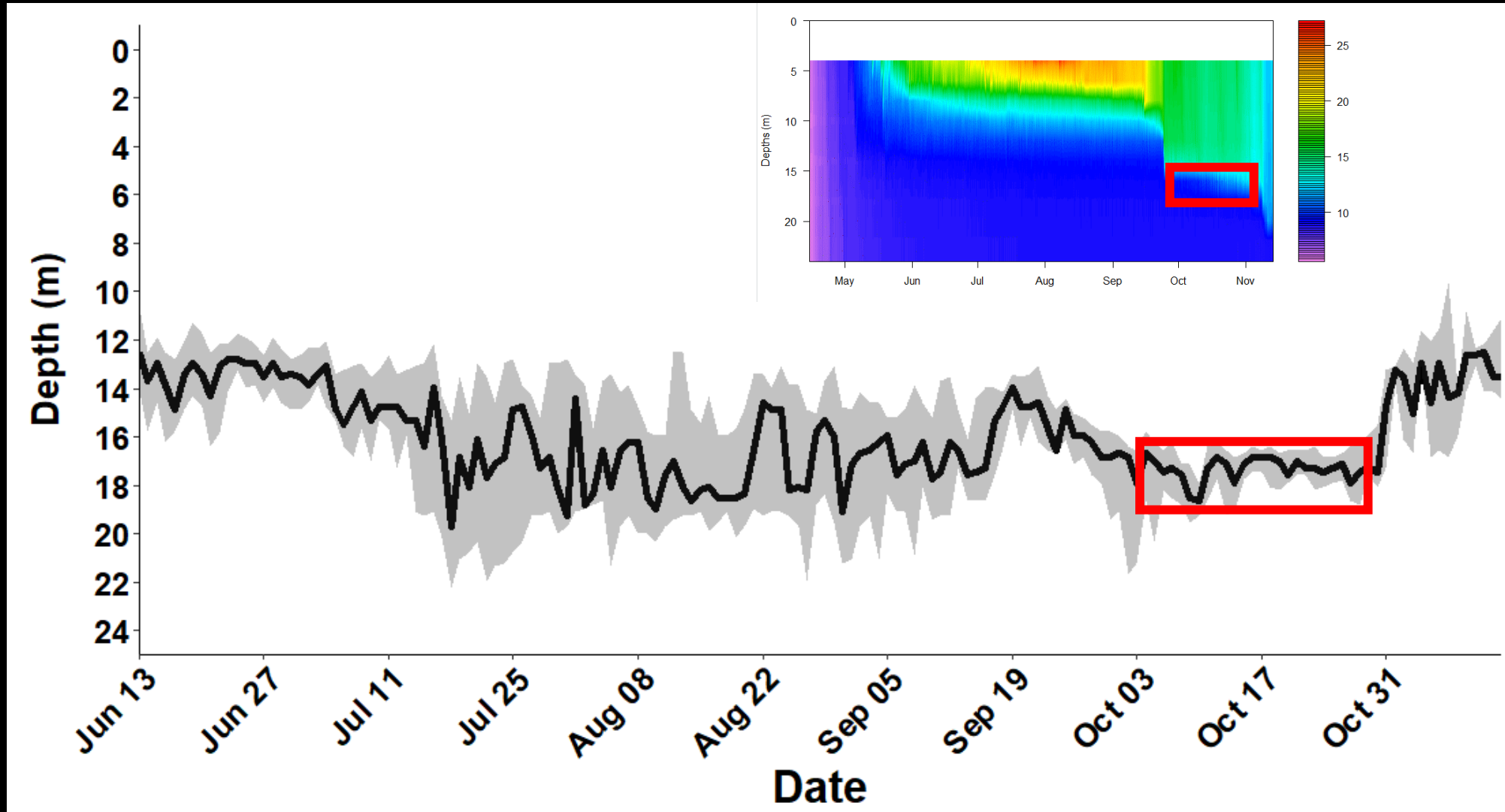
April – November, 2022: South Basin Water Column Temperature



Lake Trout Tracking Data: Annual Trends



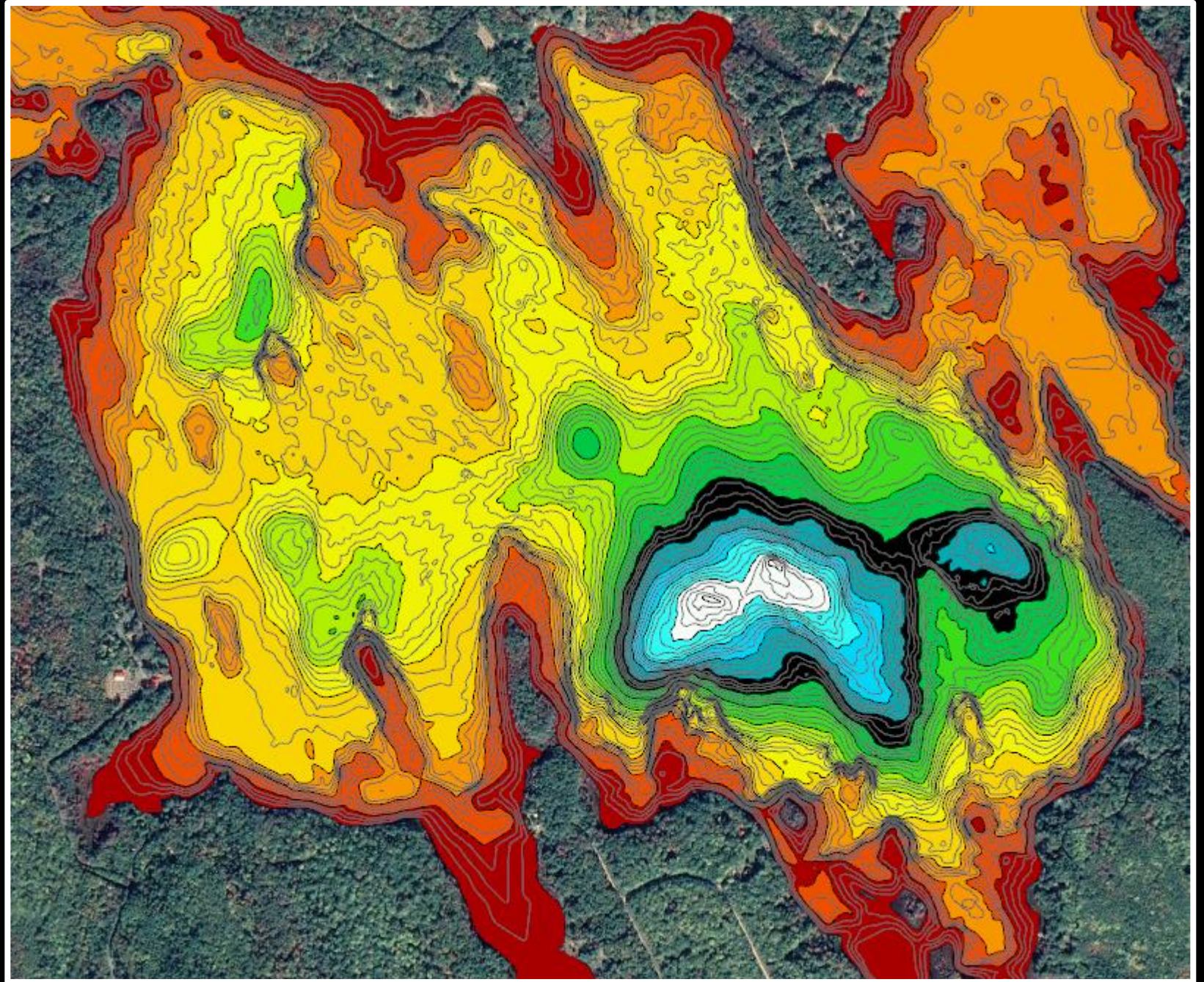
Lake Trout Tracking Data: Annual Trends



Most restricted
thermal refuge:

16 - 18m =

~**1.1%** of the total
volume of Sherbrooke
Lake.

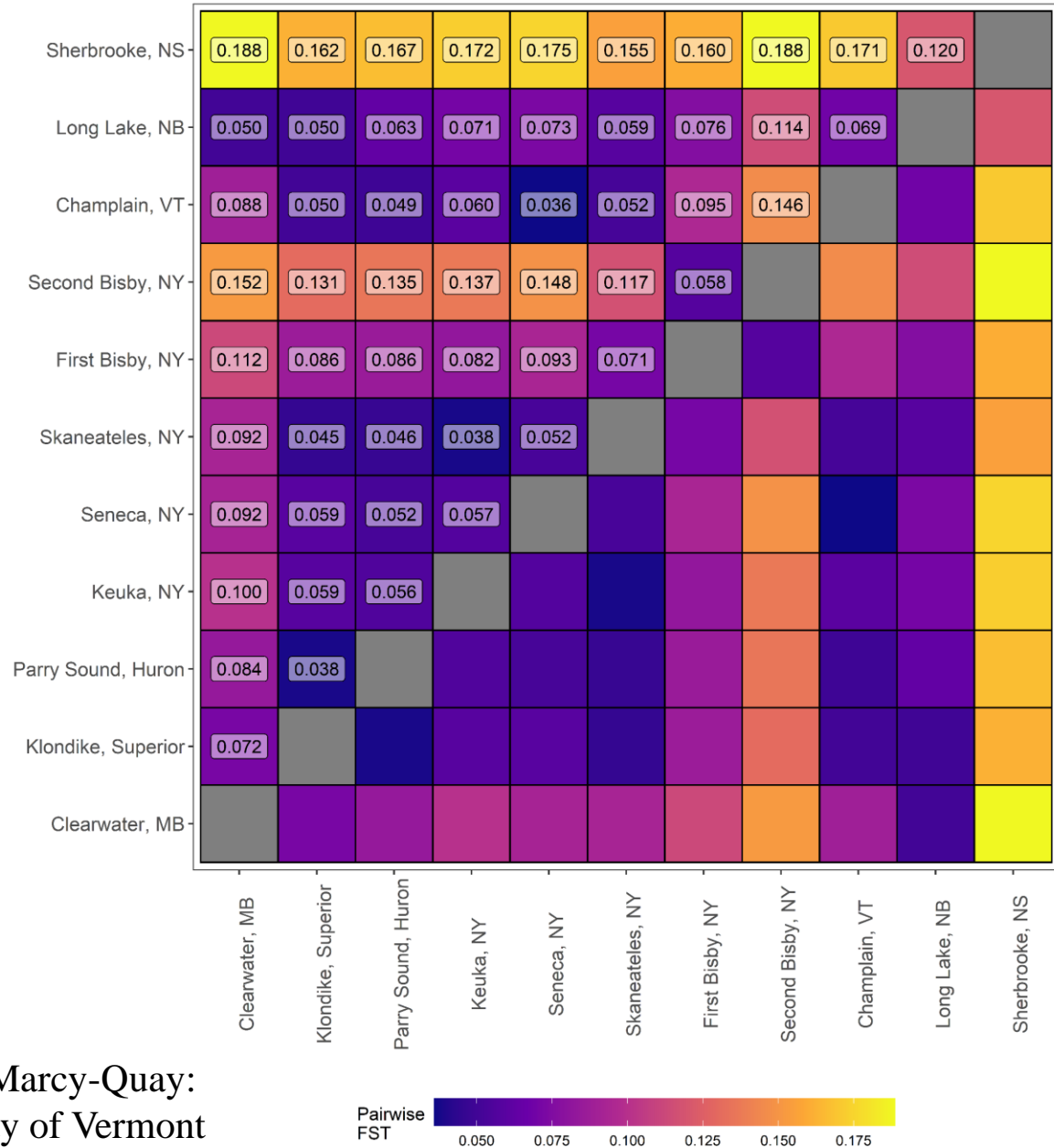


DNA Analysis:

Native/Genetically
Unique!



Dr. Ben Marcy-Quay:
University of Vermont

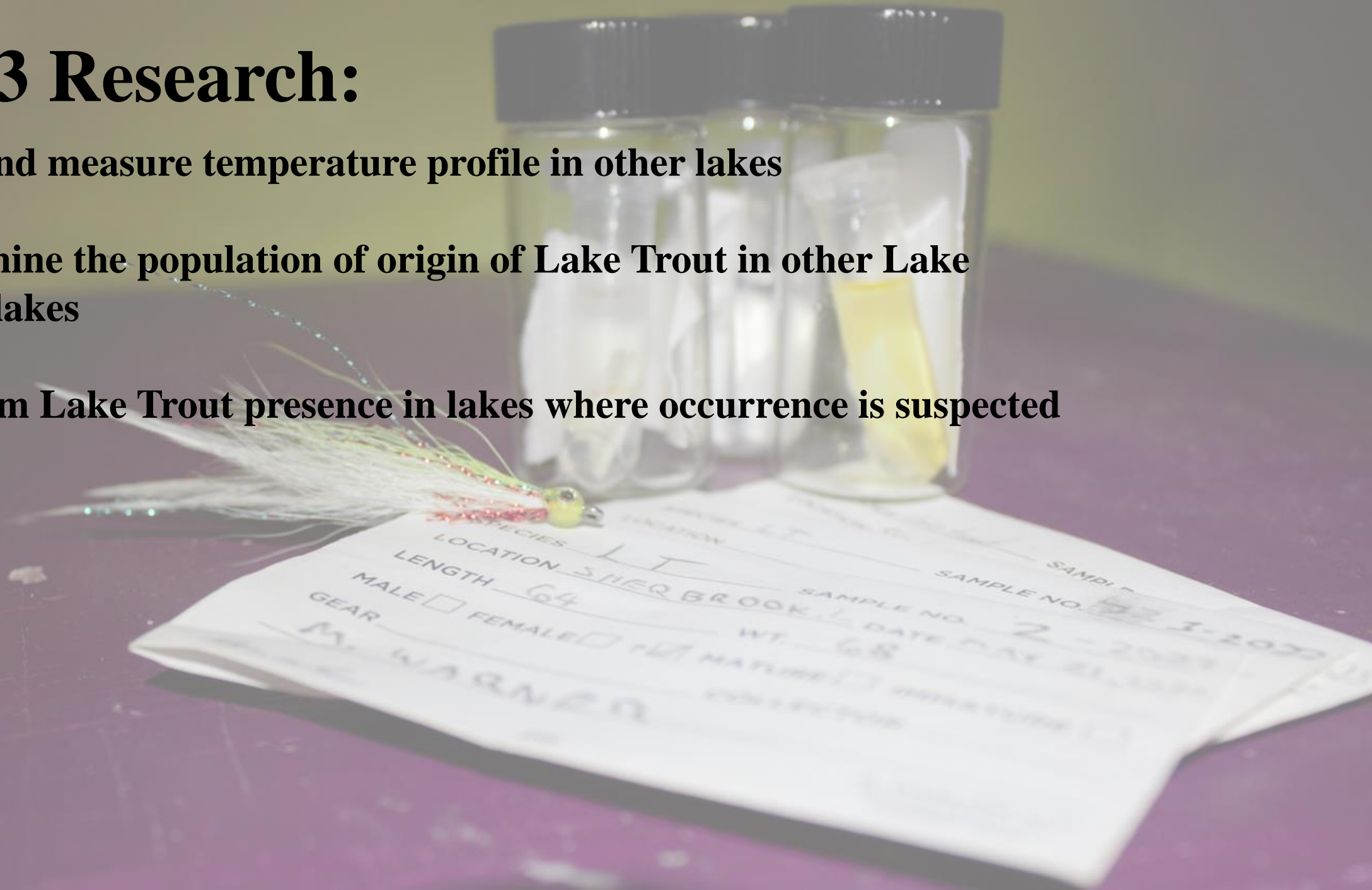


2023 Research:

Map and measure temperature profile in other lakes

Determine the population of origin of Lake Trout in other Lake Trout-lakes

Confirm Lake Trout presence in lakes where occurrence is suspected



SPECIES LT LOCATION SHEP BROOK SAMPLE NO. 2 DATE 2-2023
LENGTH 64 WT. 68 NATURE ☐ IMPROVED
MALE ☐ FEMALE ☐ GEAR M. WARNER

Mitacs

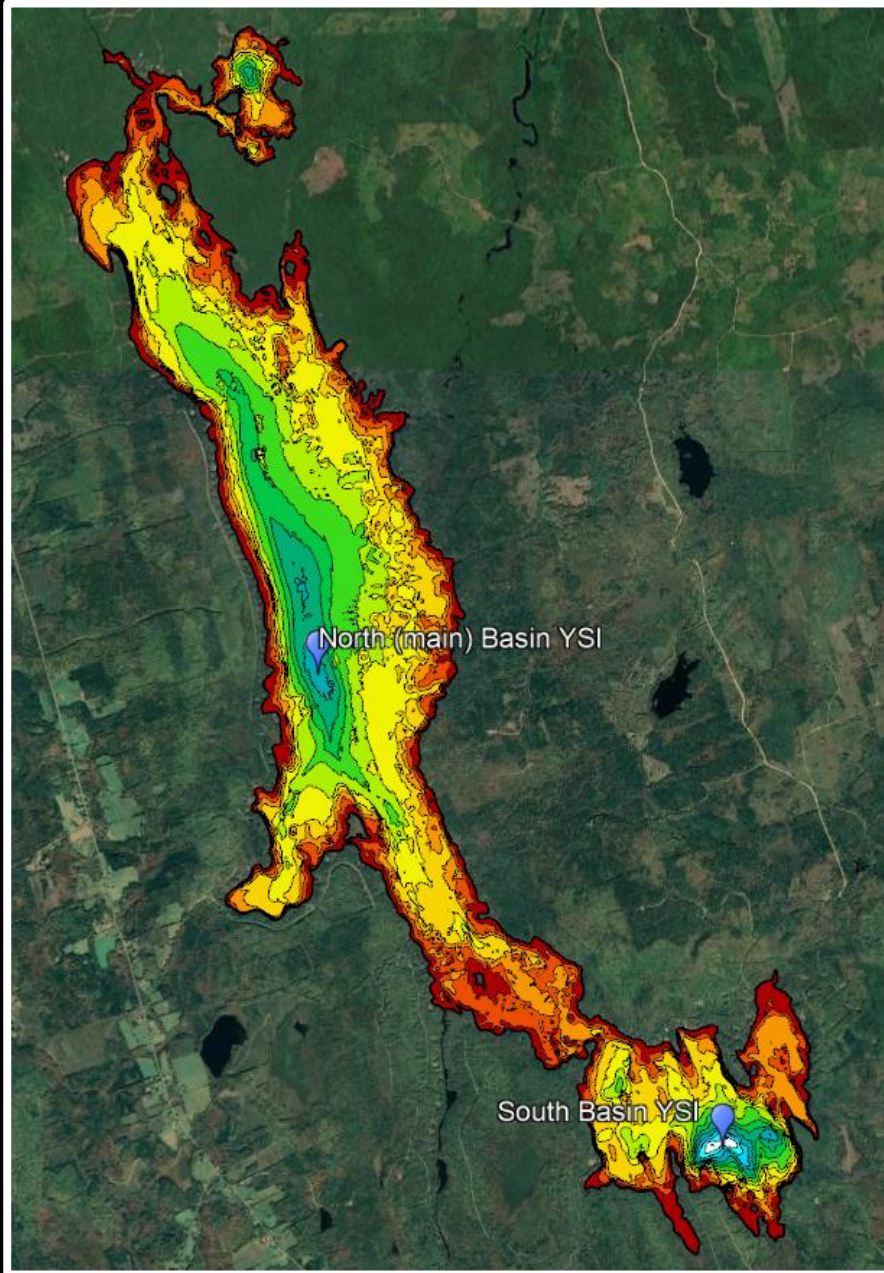


Thank You!

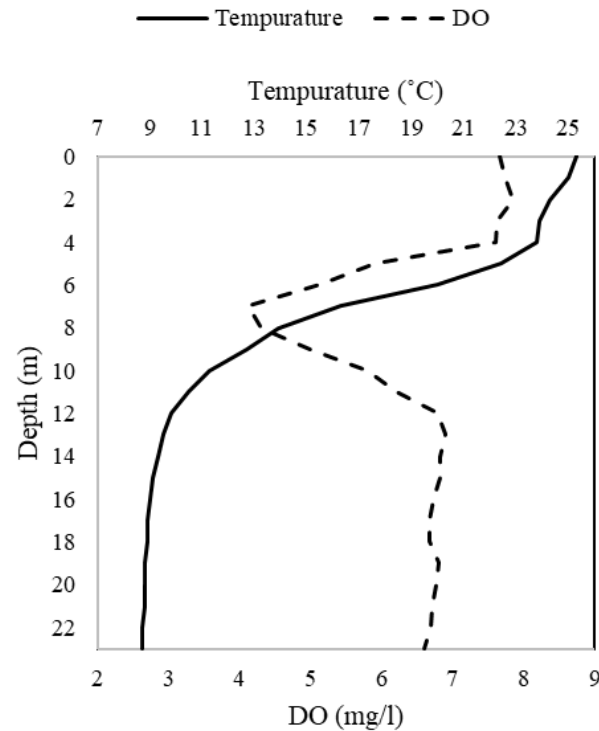


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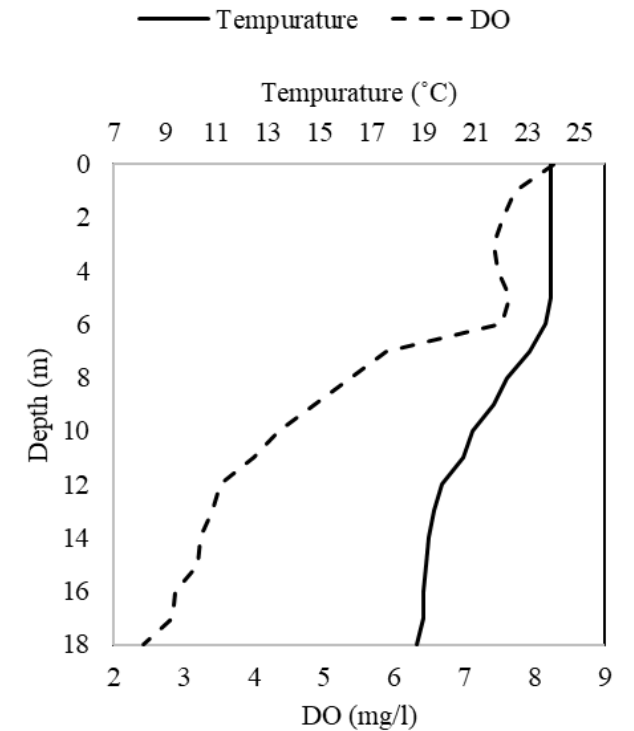
Habitat Limitations:



South Basin, Sherbrooke Lake: Water Column Temperature and Dissolved Oxygen (DO; mg/l)



North (main) Basin, Sherbrooke Lake: Water Column Temperature and Dissolved Oxygen (DO; mg/l)



Lake Trout Tracking Data: Individual Fish

