

# Kawartha Region Lake Monitoring



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# Kawartha Region Lake Monitoring

- Annual sampling of lakes
- Limnological parameters- water quality
- Establish baseline conditions
- Variability between lakes and between years
- Long term study of Kawartha Region Lakes
- Create opportunities for more frequent or intense sampling

# Kawartha Region Lake Monitoring

## What we are measuring:

specific conductivity	$\mu\text{S/m}$
dissolved oxygen, concentration	mg/L
dissolved oxygen, percent saturation	mg/L
water temperature	$^{\circ}\text{C}$
Secchi depth	M
pH	NA
total suspended solids	mg/L
dissolved organic carbon	mg C/L
absorbance at 350 nm, in absorbance units	$\text{m}^{-1}$
molar absorptivity at 280 nm	$\text{L mol C}^{-1} \text{cm}^{-1}$
spectral slope ratio	NA
total phosphorus	$\mu\text{g P/L}$
soluble reactive phosphorus	$\mu\text{g P/L}$
particulate phosphorus	$\mu\text{g P/L}$
total dissolved nitrogen	mg N/L
nitrate	mg N/L
ammonium	mg N/L
chlorophyll a (suspended)	$\mu\text{g/L}$

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2018 Lakes (24 lakes total)

## KHPP

Adams, N Rathbun, Cold, Bottle, Sawmill, Compass, Sucker, Crab, Mountain, Loon Call, Wolf

## NORKLA

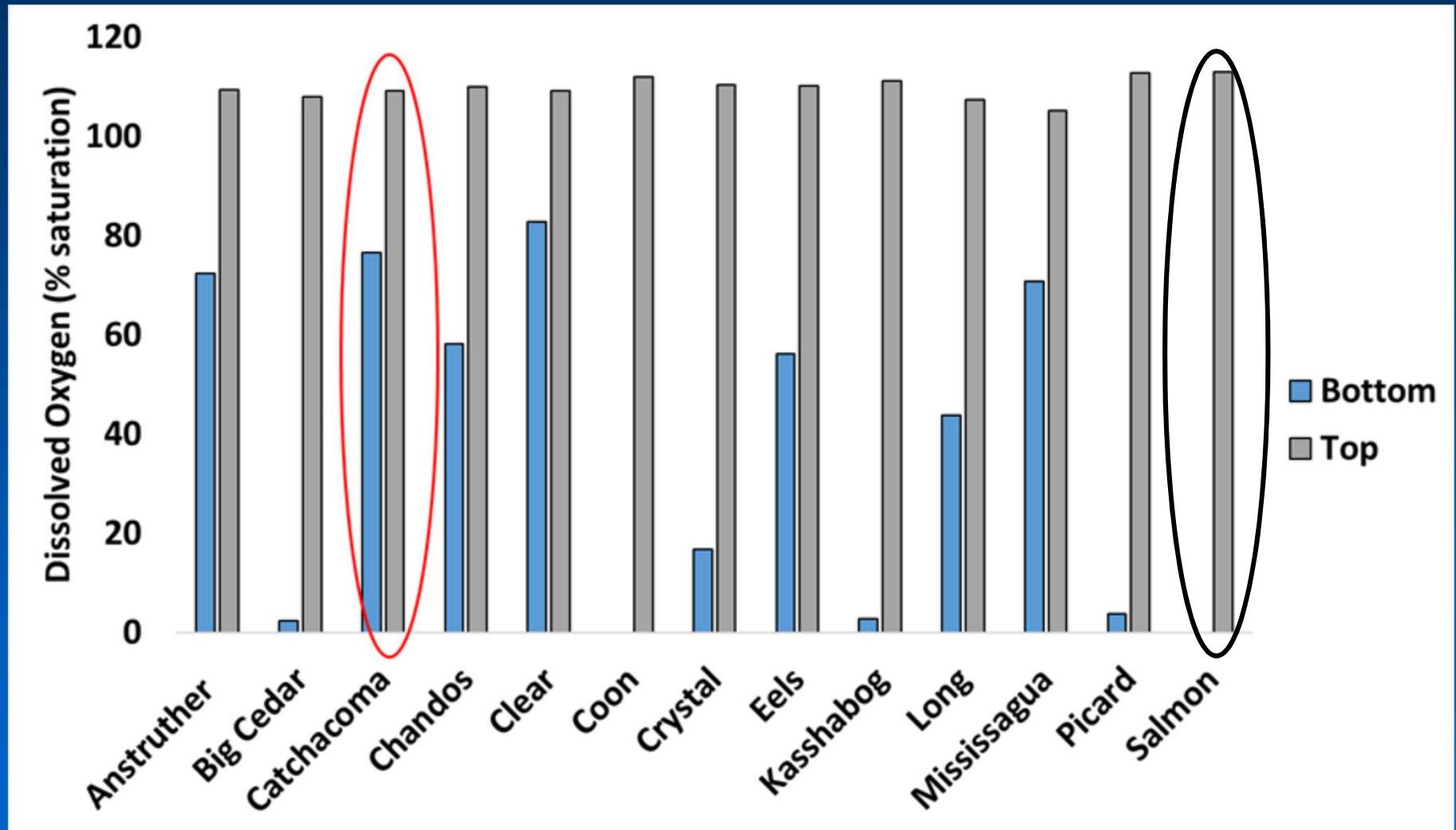
Anstruther, Chandos, Catchacoma, Clear, Coon, Crystal, Eels, Jack, Kasshabog, Long, Mississauga, Picard, Salmon, Stoney

# Kawartha Region Lake Monitoring

## NORKLA 2018 Results

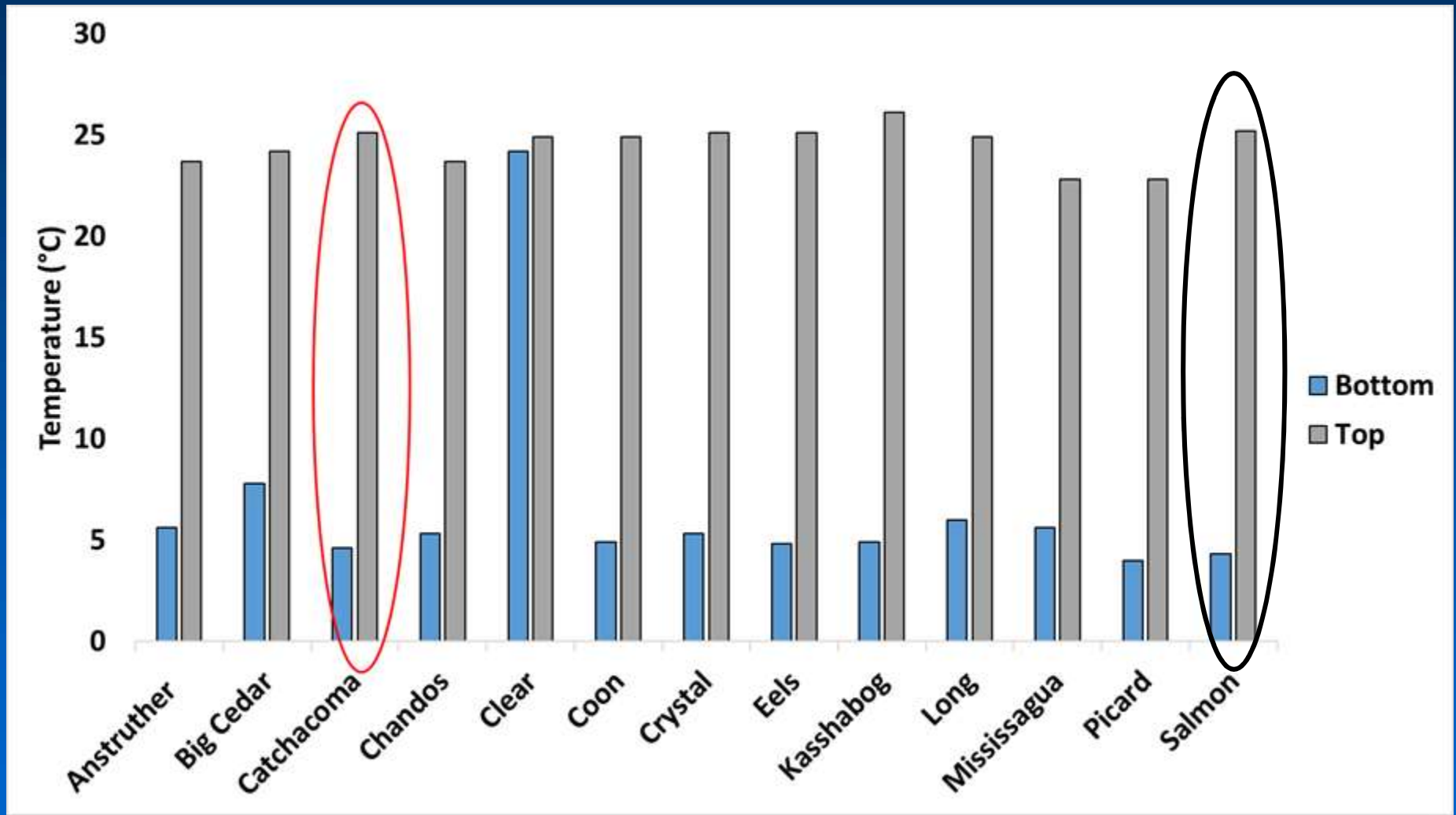
<u>Lake</u>	<u>Cond</u>	<u>DO</u>	<u>Temp</u>	<u>pH</u>	<u>TSS</u>
Anstruther	34.2	109	23.7	7.2	0.6
Big Cedar	186.5	108	24.2	8.2	0.6
Catchacoma	50.7	109	25.1	7.1	0.4
Chandos	143.1	110	23.7	7.1	0.7
Clear	221.5	109	24.9	8.4	1.2
Coon	114.8	112	24.9	8.3	0.7
Crystal	188.7	110	25.1	8.4	0.4
Eels	51.4	110	25.1	7.5	0.6
Kasshabog	88.6	111	26.1	7.5	0.6
Long	35.5	107	24.9	7.8	0.4
Mississauga	45.1	105	22.8	7.7	0.6
Picard	209.4	113	22.8	7.9	0.8
<b>Salmon</b>	<b>172.2</b>	<b>113</b>	<b>25.2</b>	<b>8.3</b>	<b>0.5</b>

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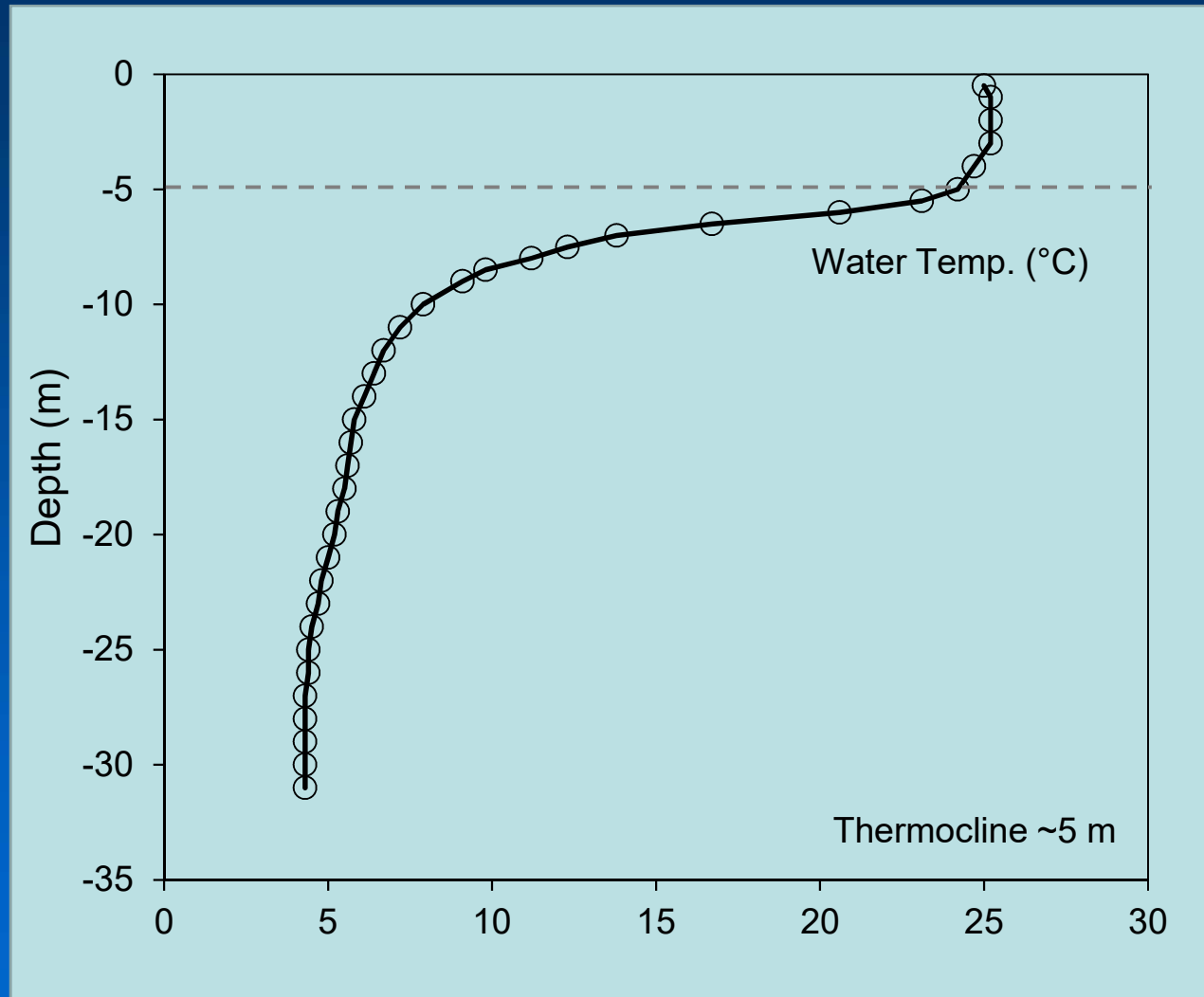
DO Saturation: Balance of primary production and respiration  
Typical range (0 to 100%)

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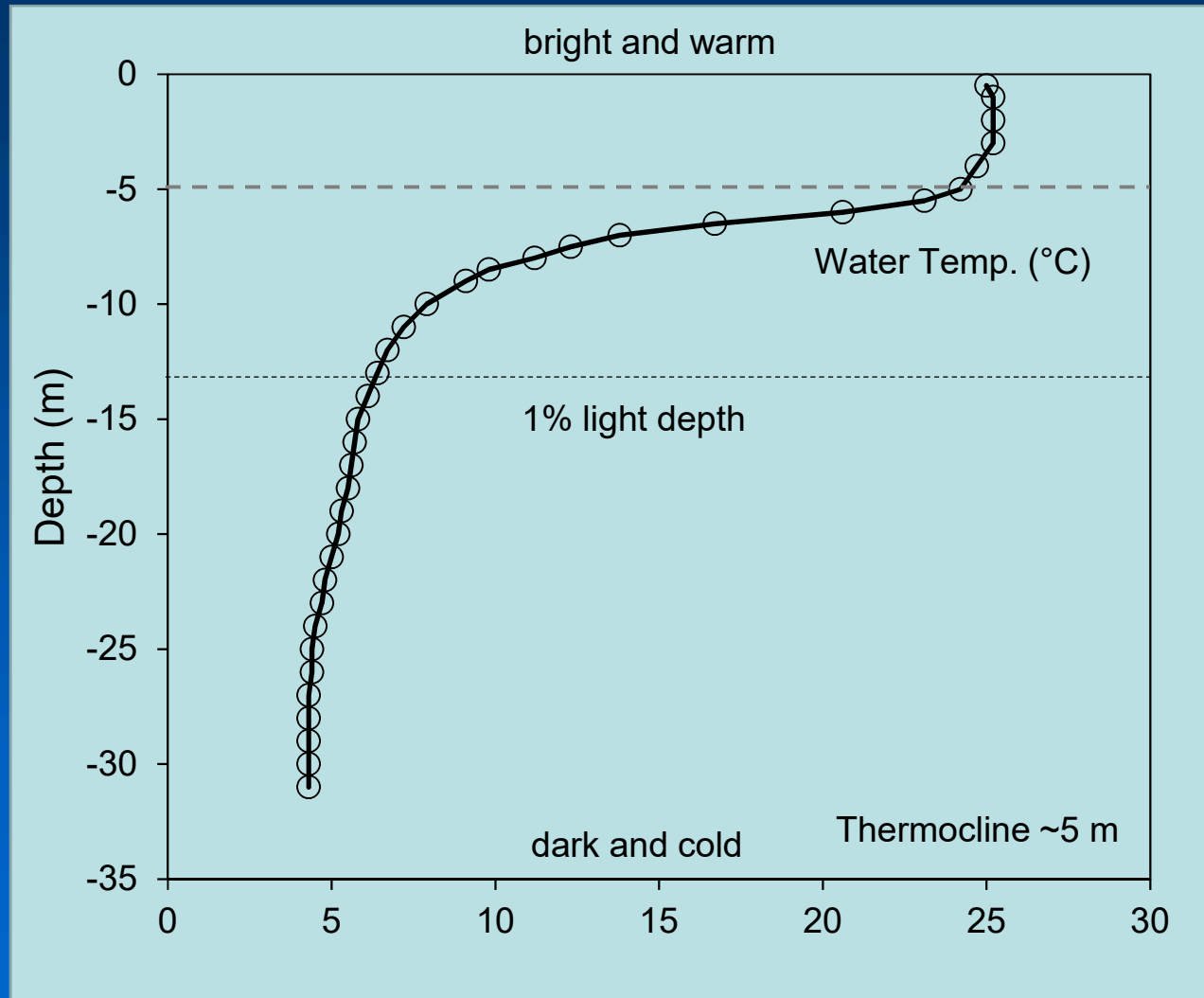
Temperature: Seasonal differences and depth of mixed zone  
Typical range (0 – 30 deg C)

# Salmon Lake – August 8, 2018

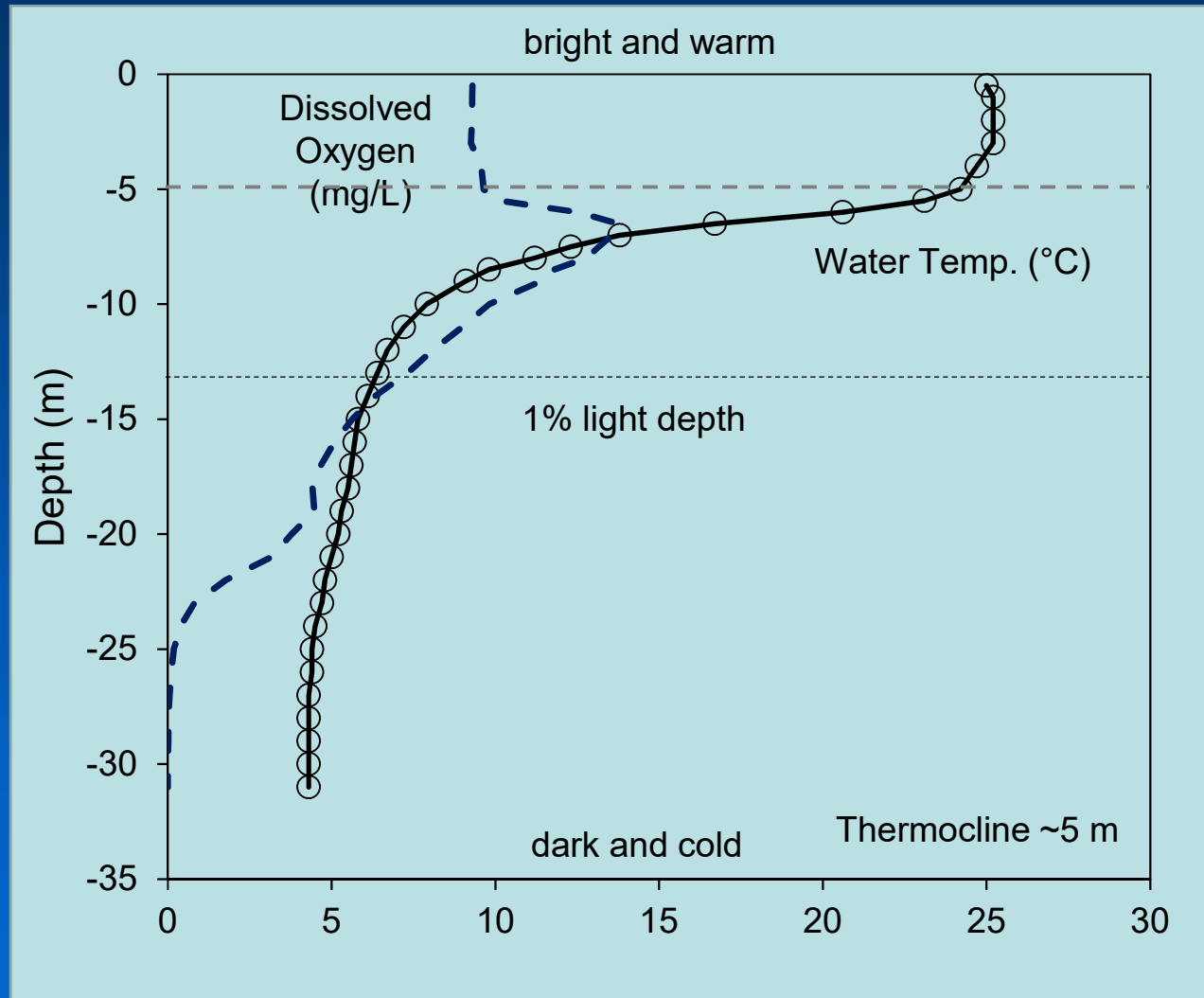




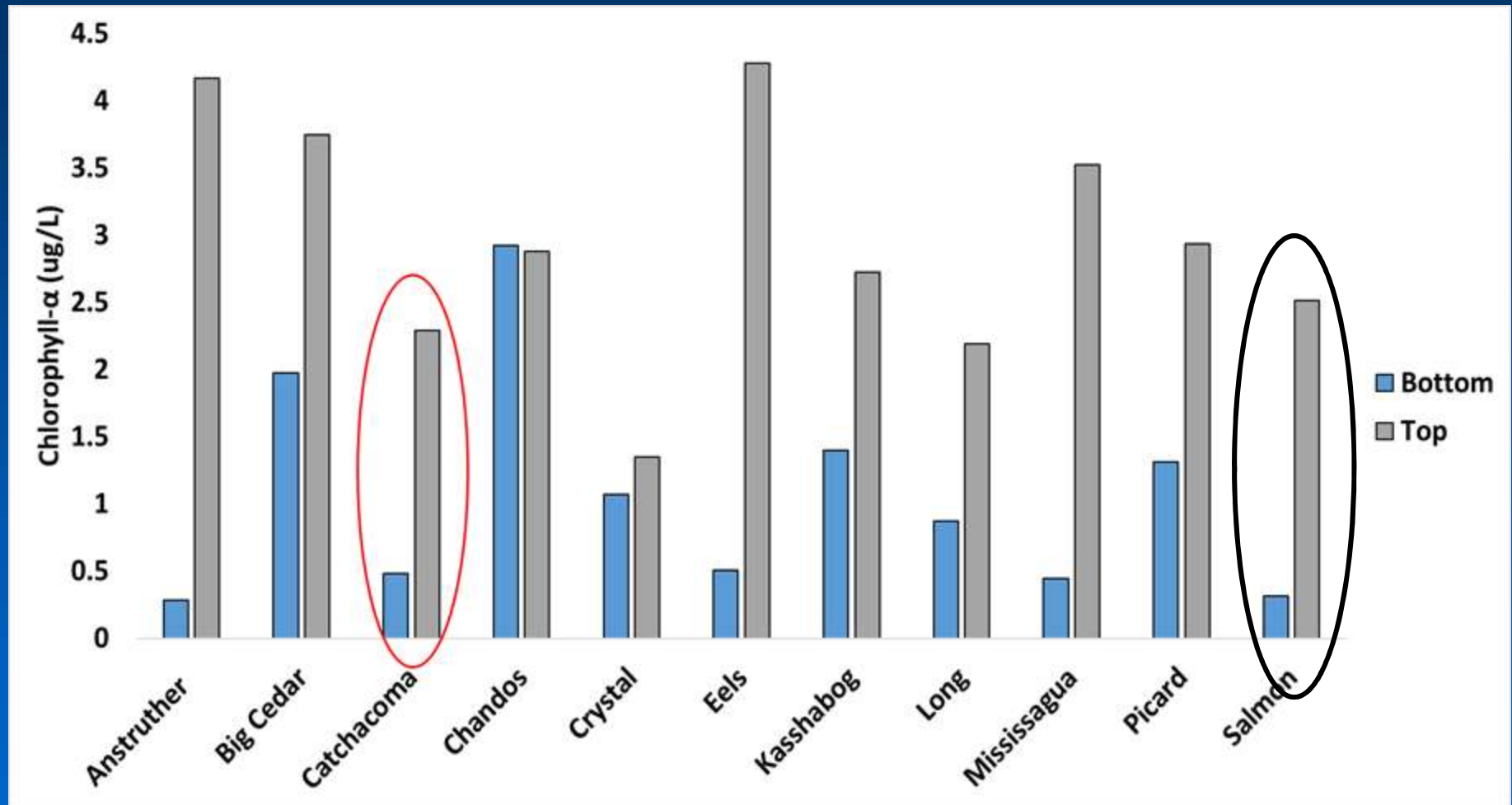
# Salmon Lake – August 8, 2018



# Salmon Lake – August 8, 2018



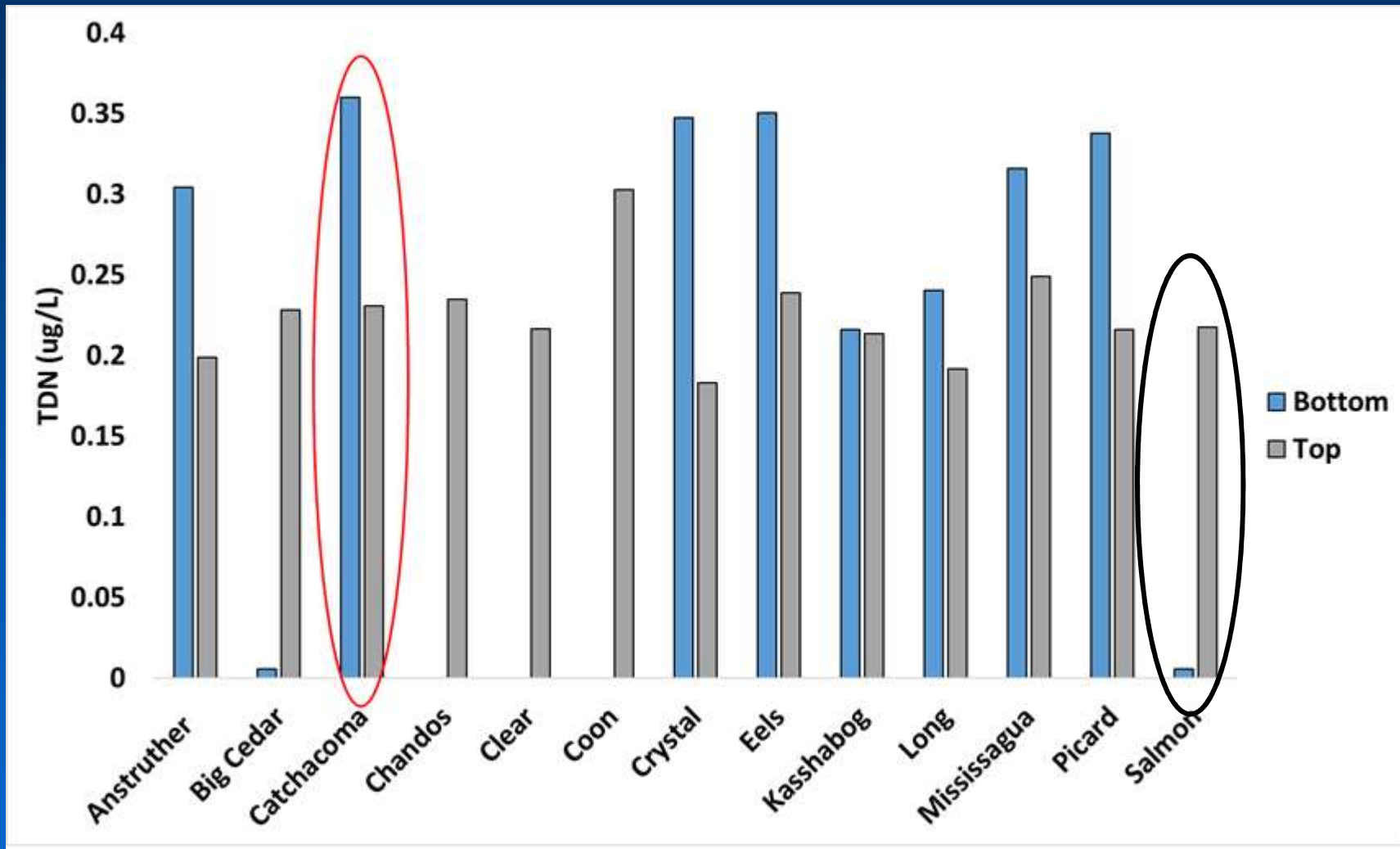
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Chlorophyll a: Index of algal biomass

Typical range for oligotrophic lakes (3-10 ug/L)

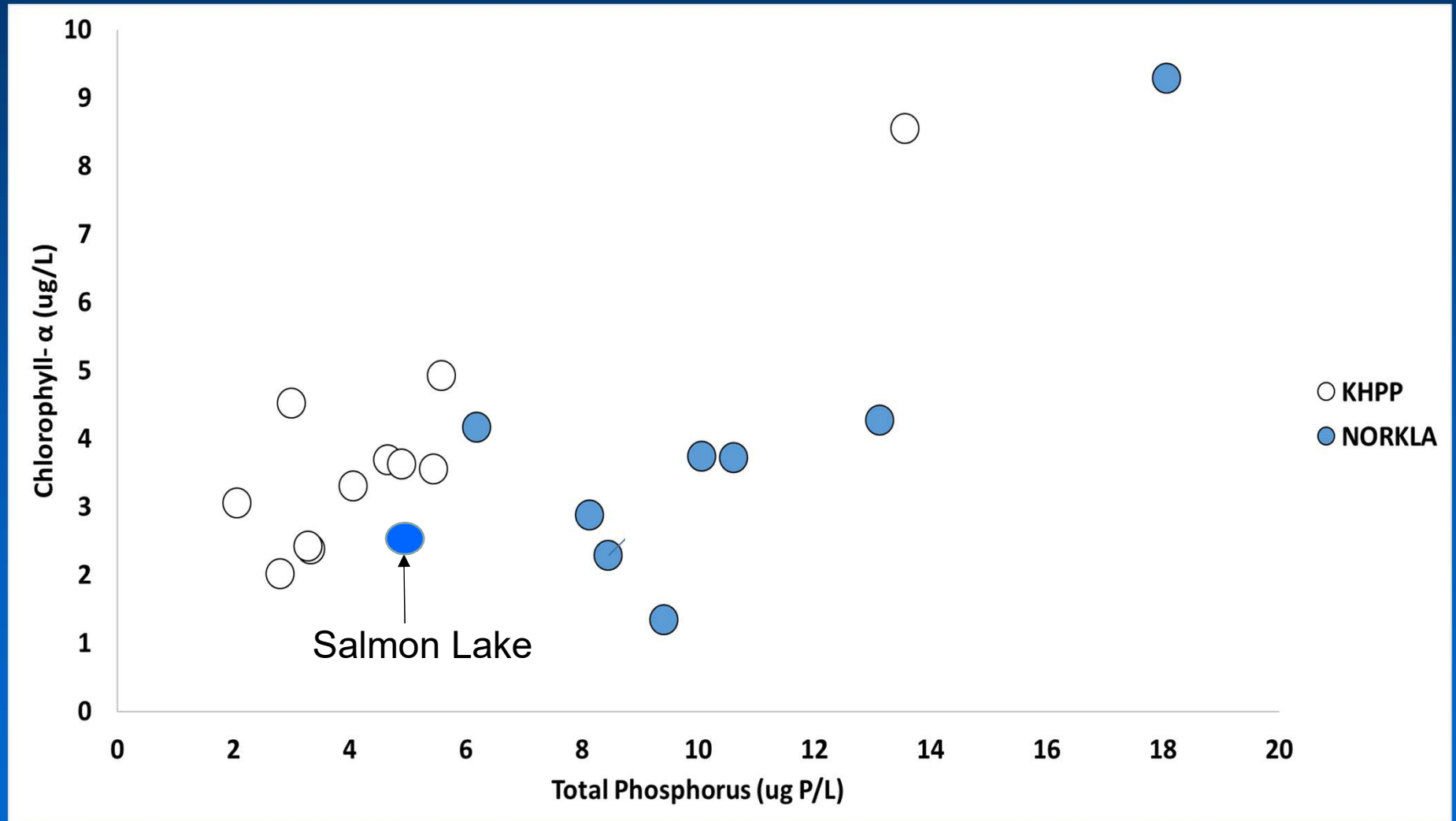
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Total dissolved nitrogen: Mostly dissolved organic N  
Typical range (200-1000 µg N/L)

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## NORKLA vs. KHPP



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## *Mostly expected*

- Unproductive (low CHL and TP)
- Limited between lake variability\*
- Some stratification dynamics
- Low inorganic N with some internal production

# Kawartha Region Lake Monitoring

## *Future work*

- More lake-years to assess patterns through time
- Seasonal sampling on selected lakes
- Small scale experiments to assess processes (like primary production)
- Zooplankton sampling
- Standardize sampling and improve data storage

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NSERC and NORKLA for funding this research,  
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# QUESTIONS?

