BRGMON-1 Lower Bridge River Aquatic Monitoring Program

Data Analysis & Reporting
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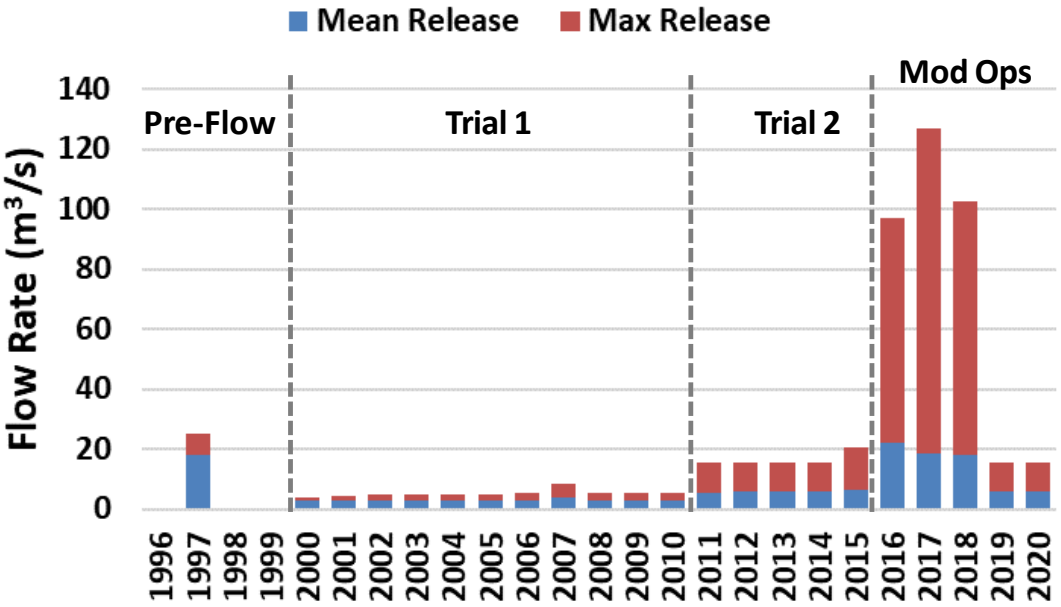
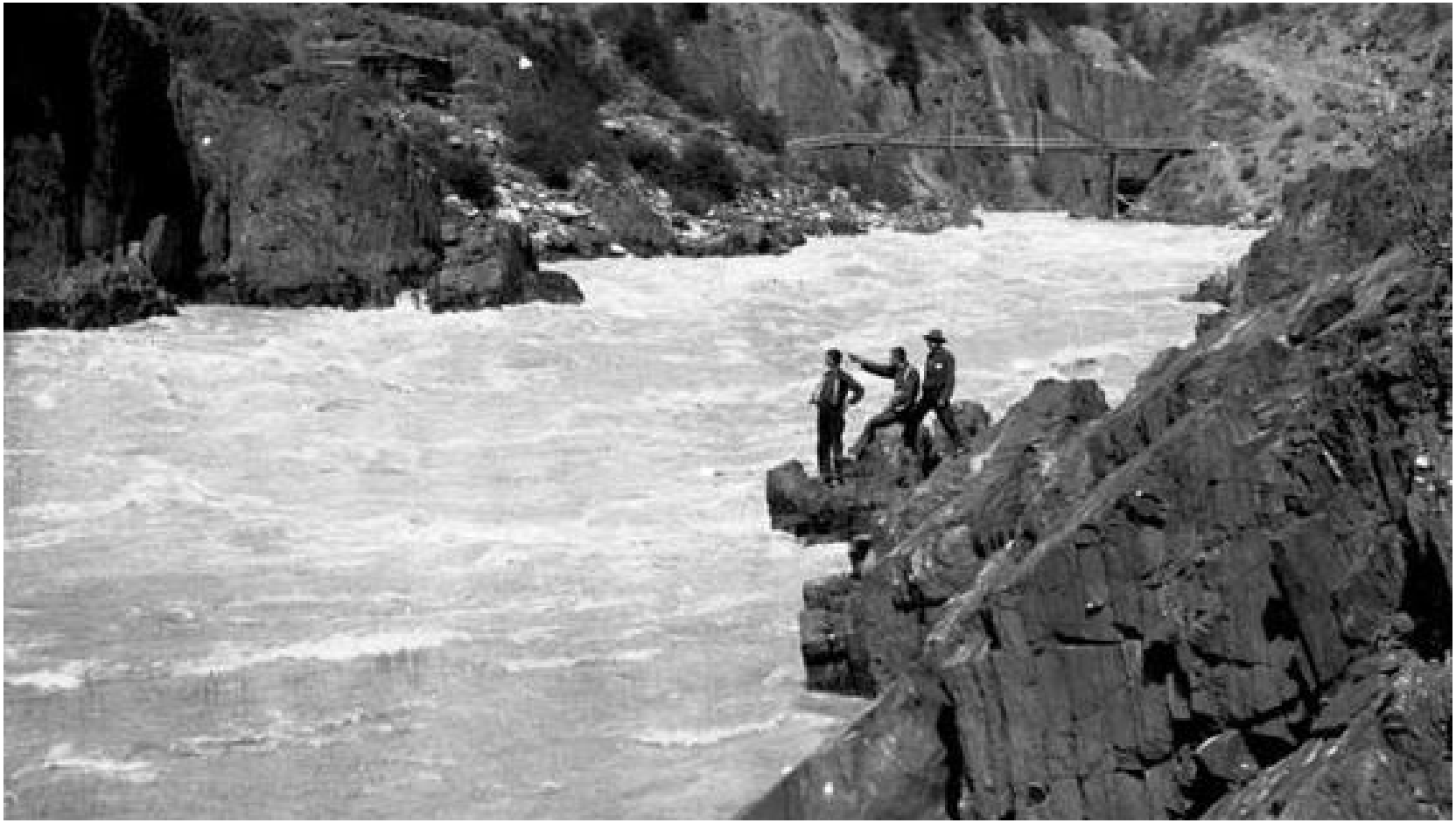
SER Technicians

Lower Bridge River flow trials and modified operations



Experiment designed to assess ecosystem response to different flows from Carpenter Reservoir (2 trials plus modified regime)

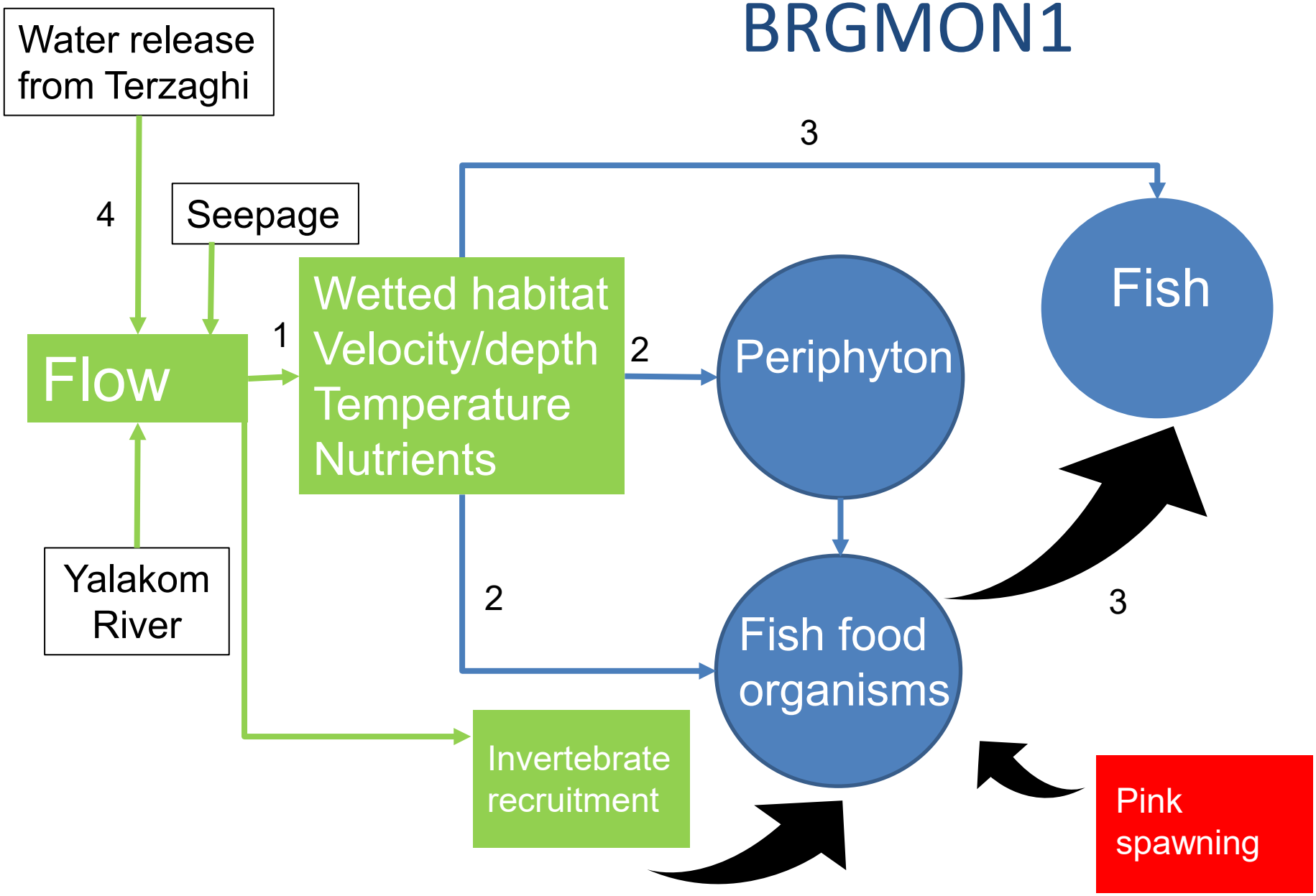
Bridge River: BC Archives



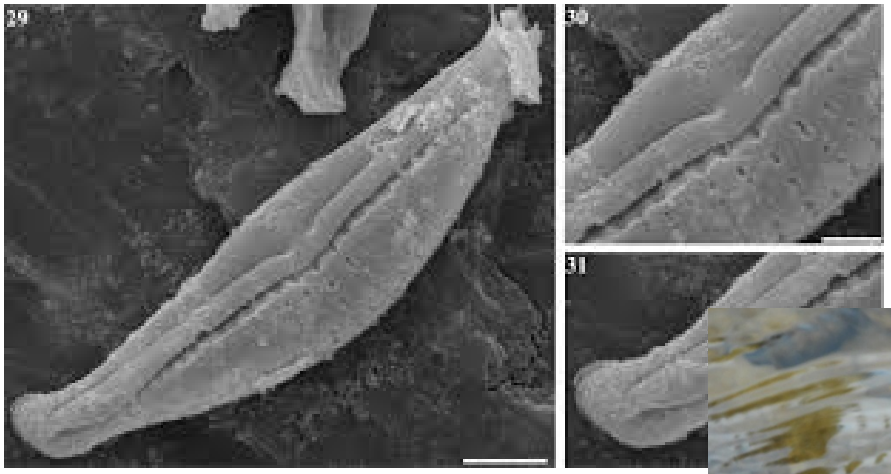
LBR: 1996

LBR: June 2016

Management questions: BRGMON1



Fish food organisms supported by benthic algae



e.g. Diatoms

EPT

+

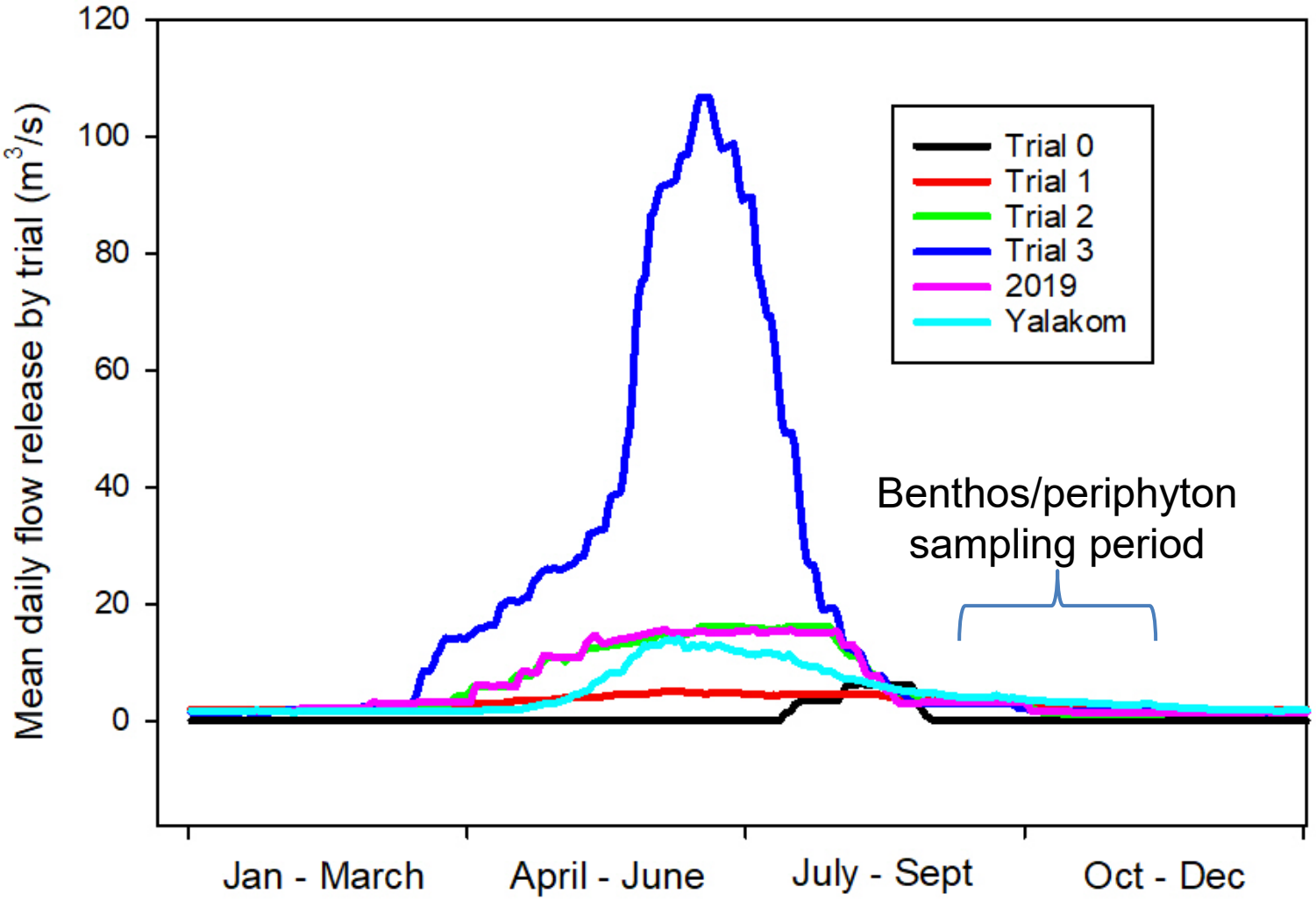
Chironomids

=

Most benthos in LBR

Substrata incubated for several weeks and biota harvested

Flow Trials: blocks of time



Reach: spatial boundaries

Expectations

- Biota in 2019 expected to be the same as during Trial 2 due to similarity of flows.

Analysis

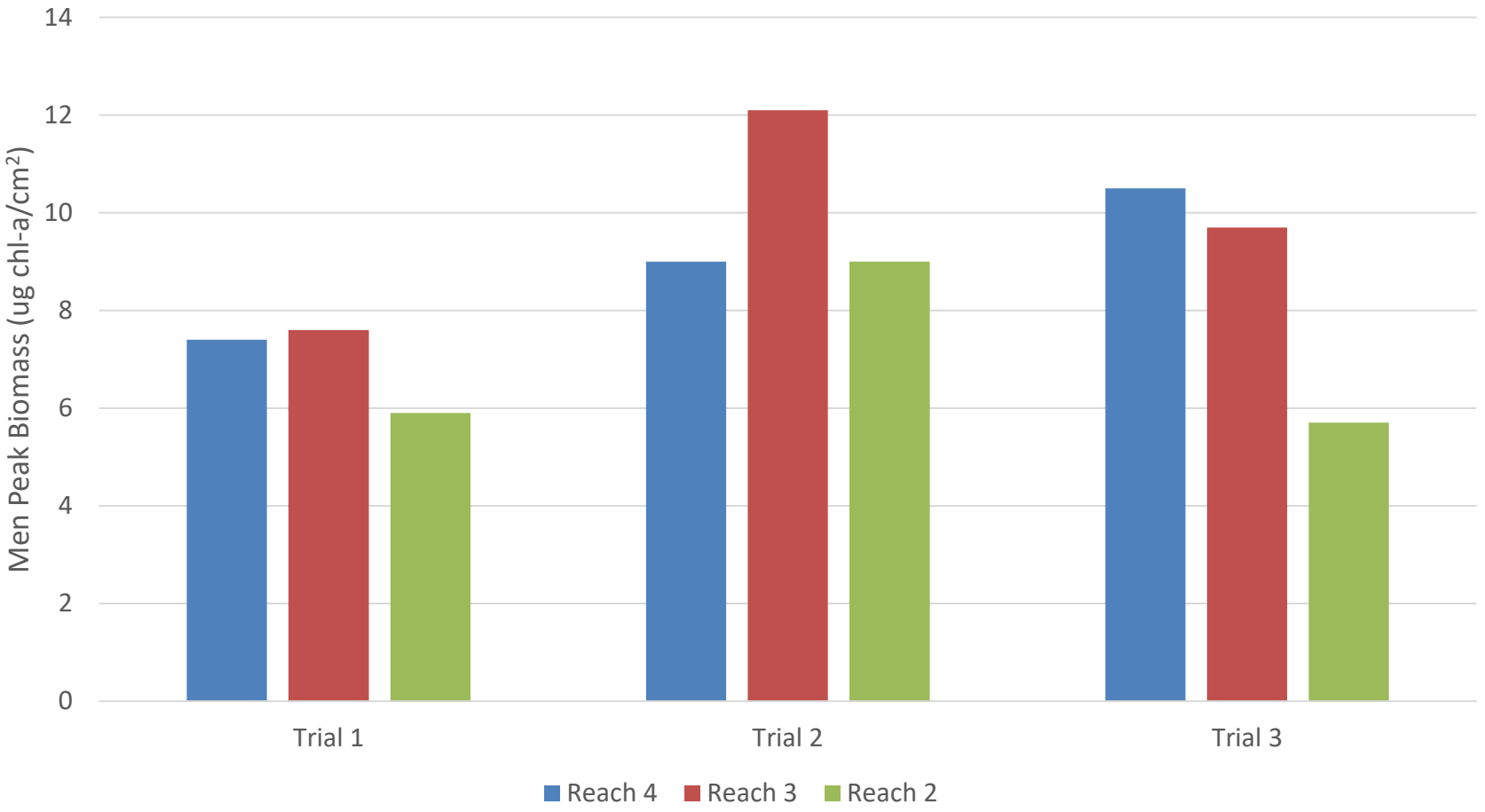
- 2-factor ANOVA to test for Trial and Reach effects on biotic metrics (Years are replicates)

- 2019 means contrasted with Trial 2 95% confidence intervals (Years are replicates)

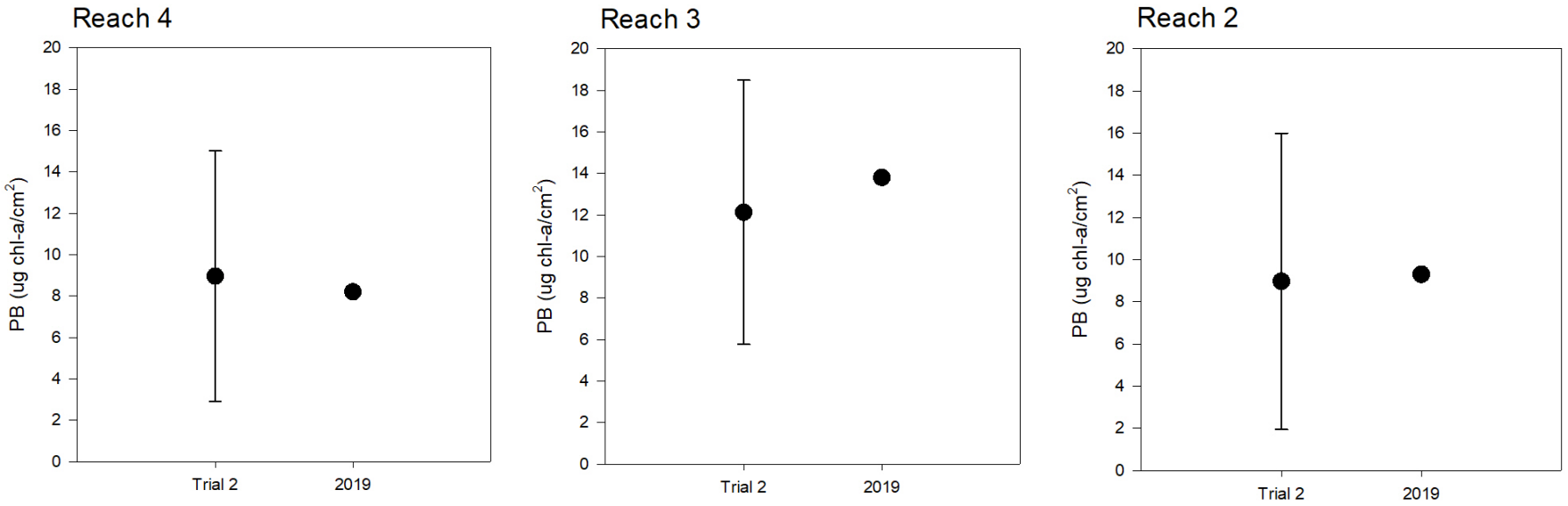
Periphyton peak biomass (PB)

No Trial effect
No Reach effect
No TxR interaction

Tested by ANOVA

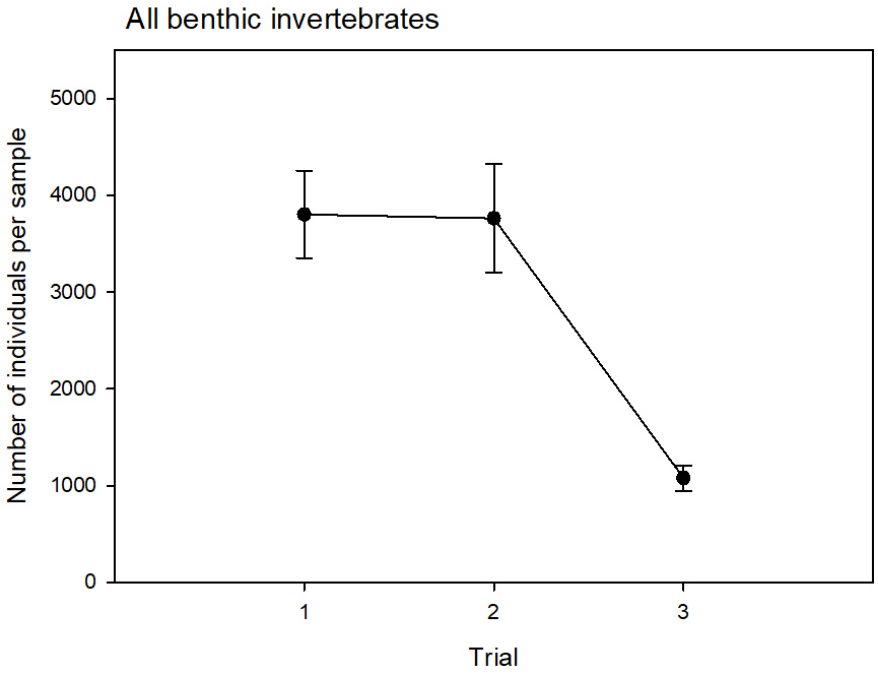


Periphyton PB: Trial 2 vs 2019

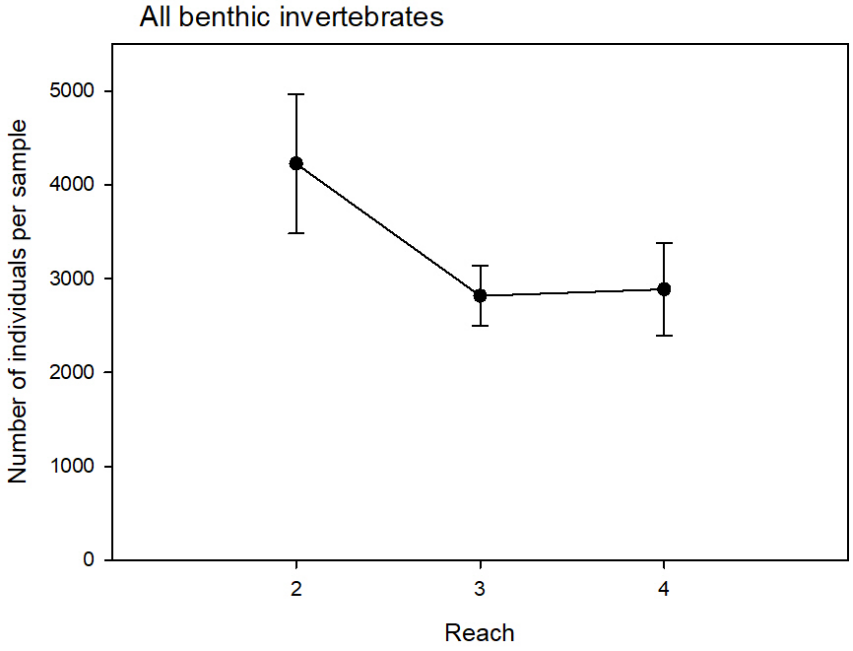


No difference in algal biomass between Trial 2 and 2019

Total benthos by trial and reach

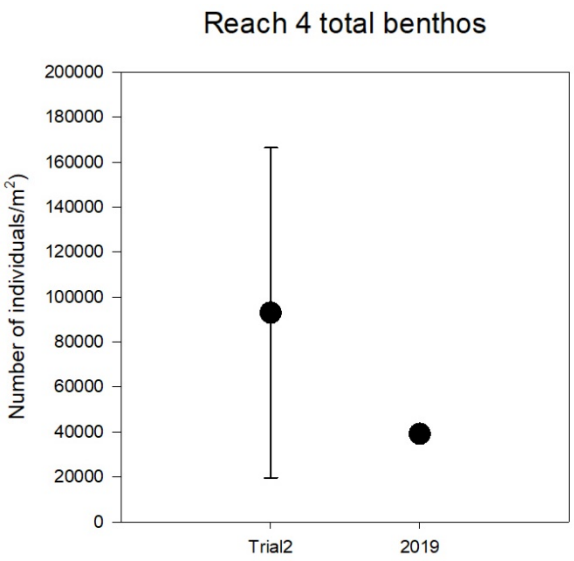


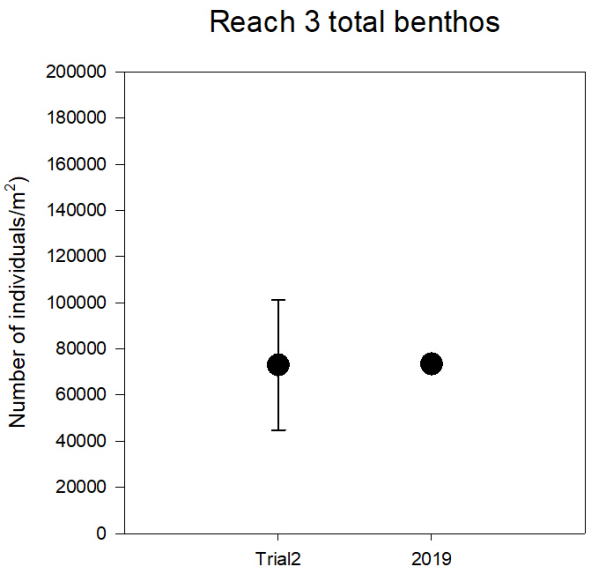
Trial effect ($p<0.001$)

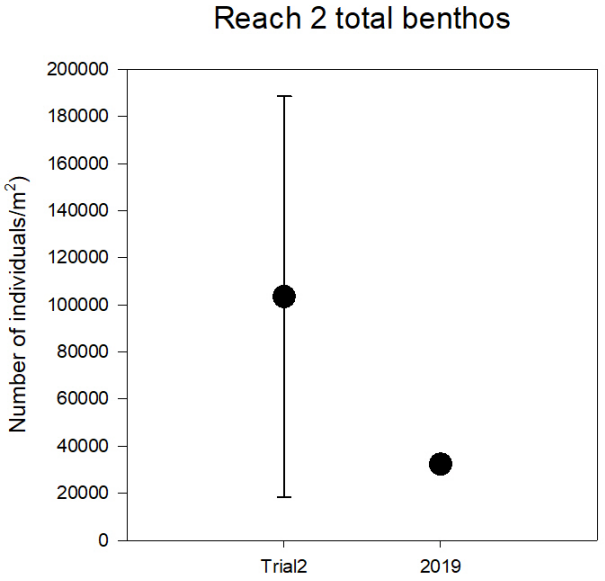


No reach effect ($p=0.54$)

Total benthos : Trial 2 vs 2019







Poor recovery in Reach 4 and 2
Good recovery in Reach 3

Cause

Recruitment

Flow

Substrata

Fish

Food

Temperature

Cause

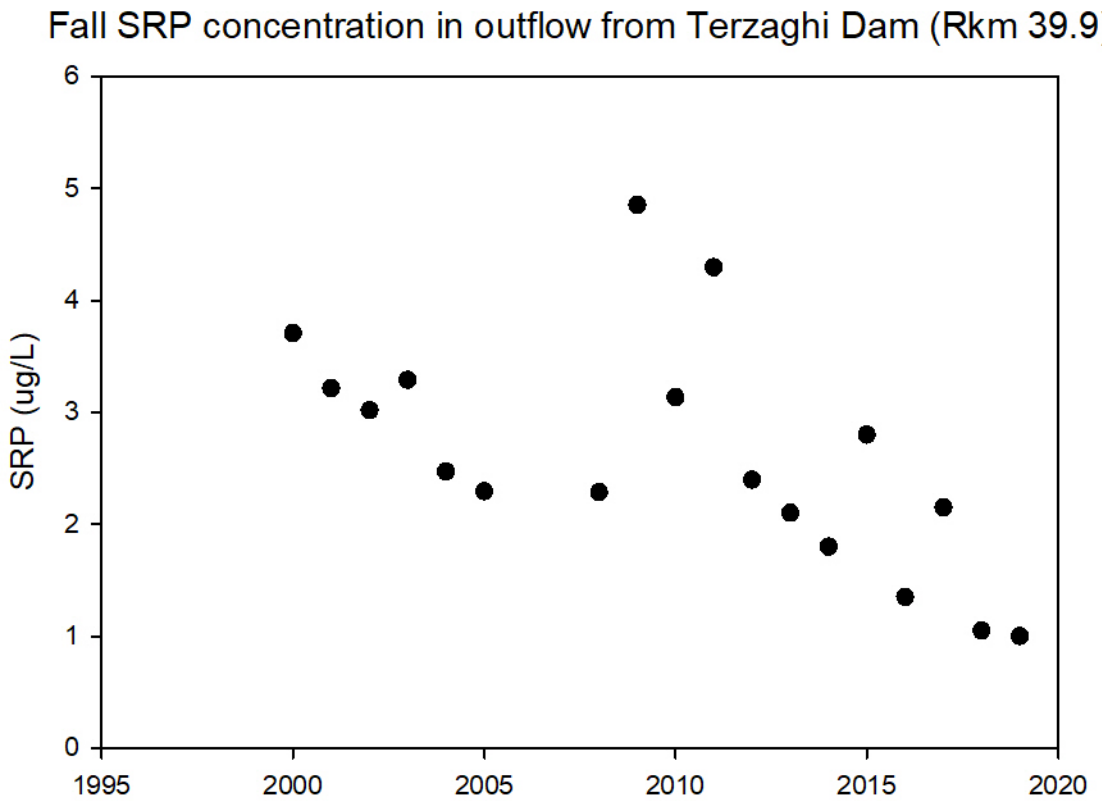
Light

Nutrients

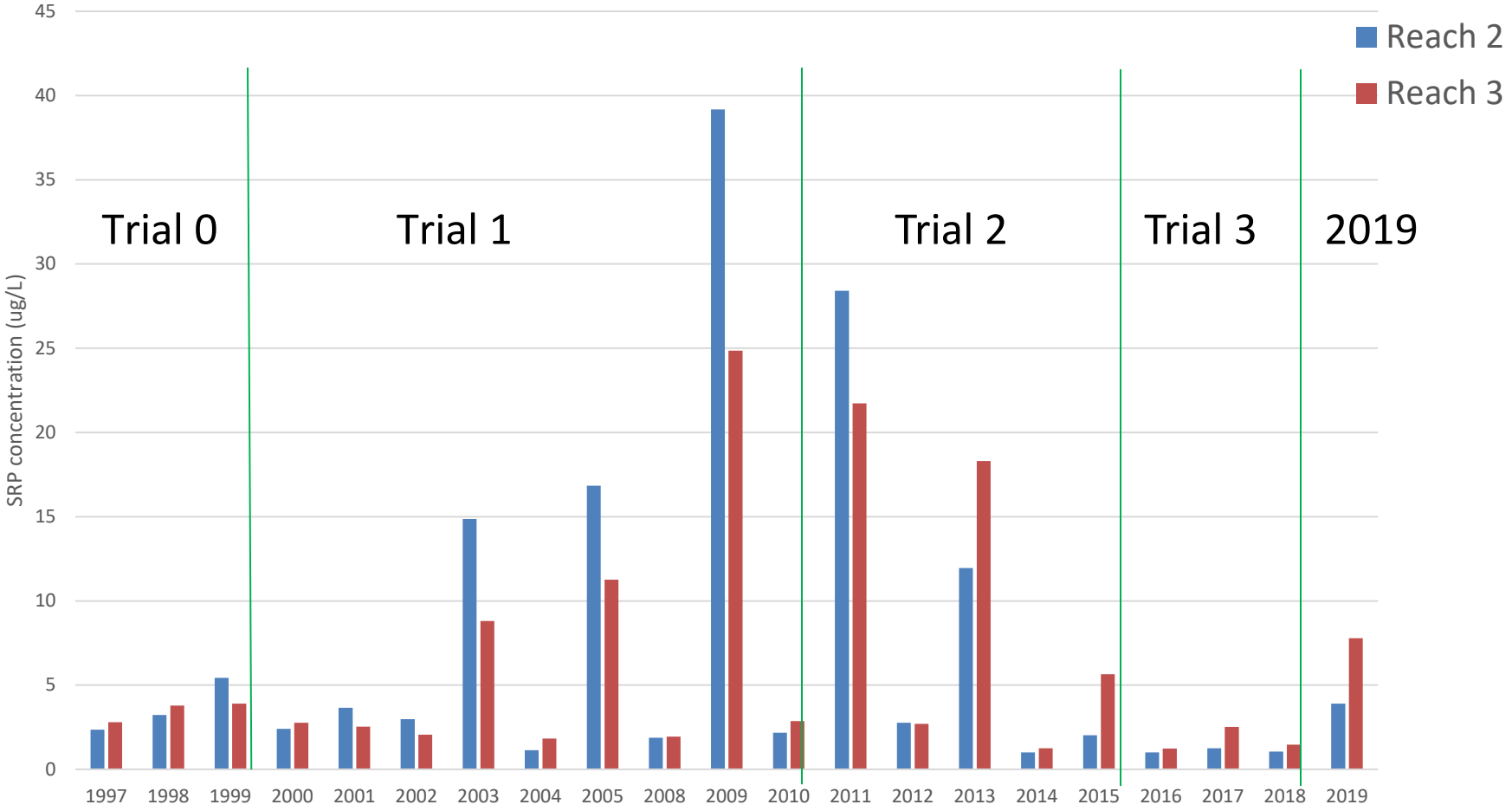
Temperature

Sloughing/
Grazing

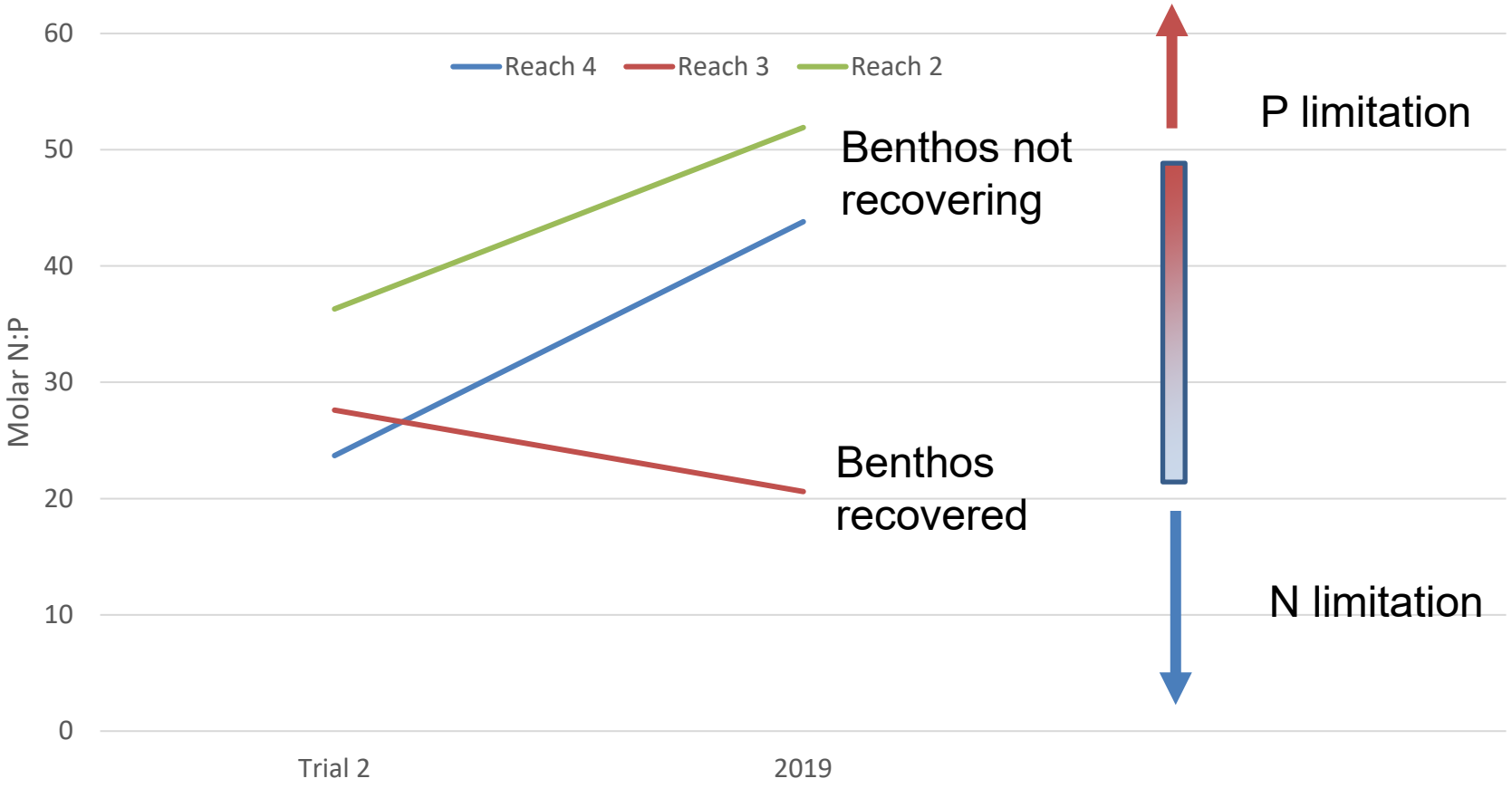
Declining [soluble P] in Reach 4



[SRP] over time:
odd years are pink years



Molar N:P and potential nutrient limitation



Conclusions to date

- Periphyton is highly resilient to flow variation and can recover quickly following scour
- Fish food is abundant at Trial 1 and 2 flows
- High modified flows reduced fish food
- Recovery of fish food from high flow is limited in presence of high phosphorus limitation of biological production