Crystal Lake Perch Exploratory Analysis

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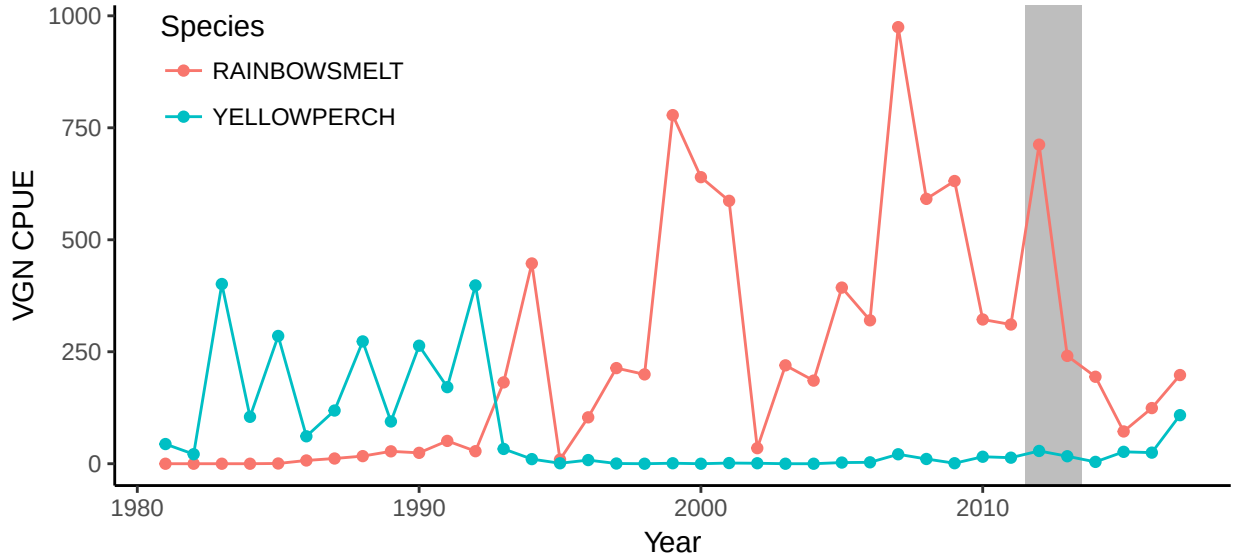
2/5/2018

Crystal Lake Perch

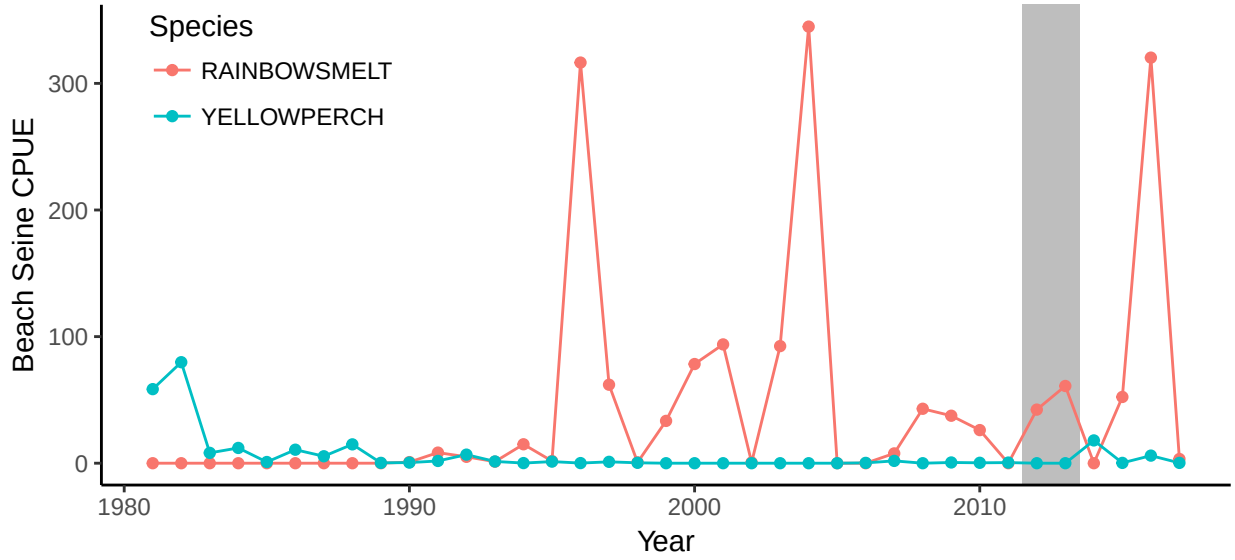
Preliminary analysis of long-term LTER data in Crystal Lake examining patterns in Perch and Smelt following the whole-lake mixing project. In late July 2017 NRL and LTER fish crew observed that perch CPUE appeared to be higher than ever recalled (NRL involved in fish crew since 2009).

Long-term Vertical Gill Net CPUE

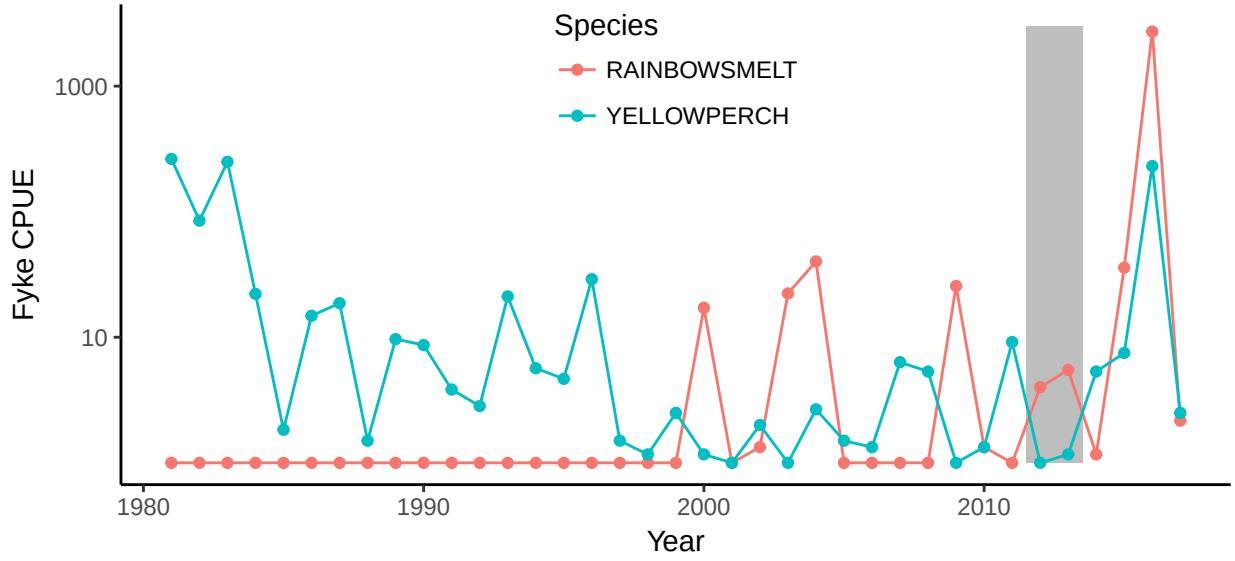


CPUE is summed across all gill nets. Grey bar denotes CR Mixing Exp.

Long-term Beach Seine CPUE

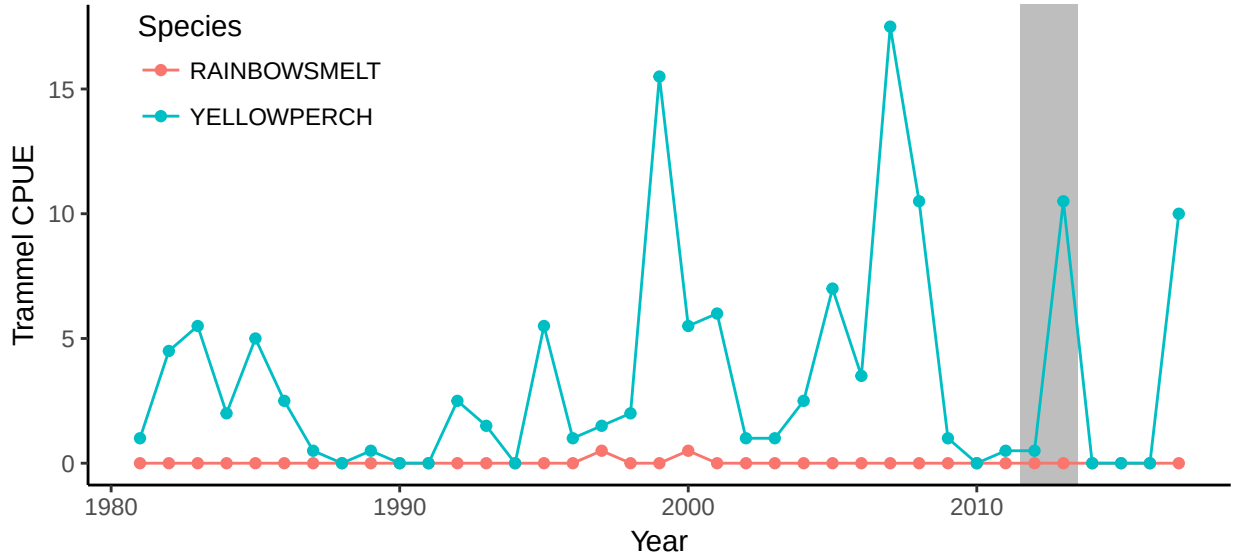


Long-term Fyke Net CPUE

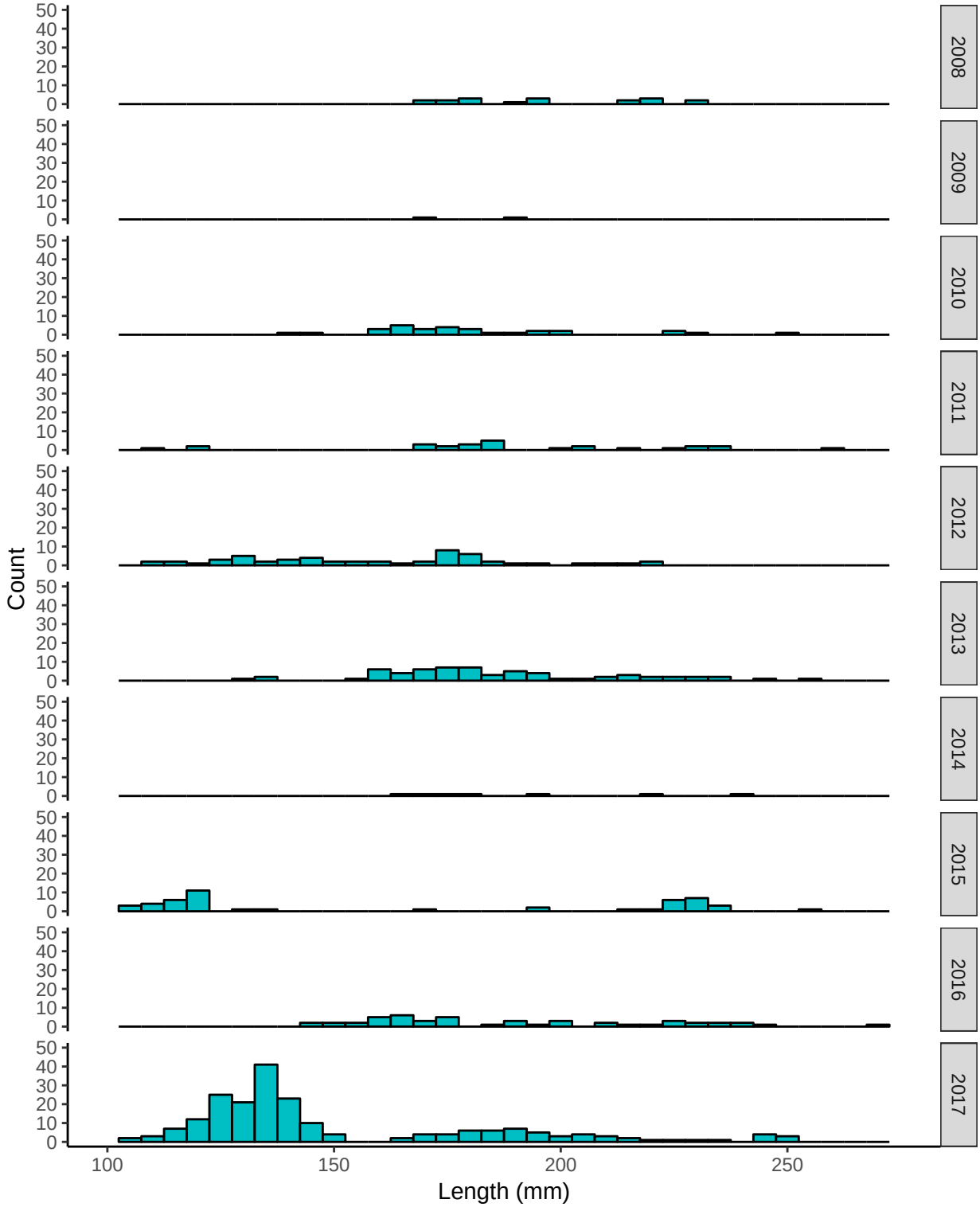


Note the extremely high CPUE for RS in 2016. NRL actually was on the crew that pulled a fyke net with estimated 11k RS. The fyke had over 2kg of RS (approx weight of yoy RS 0.2g). Note that the y-axis is log10 scaled.

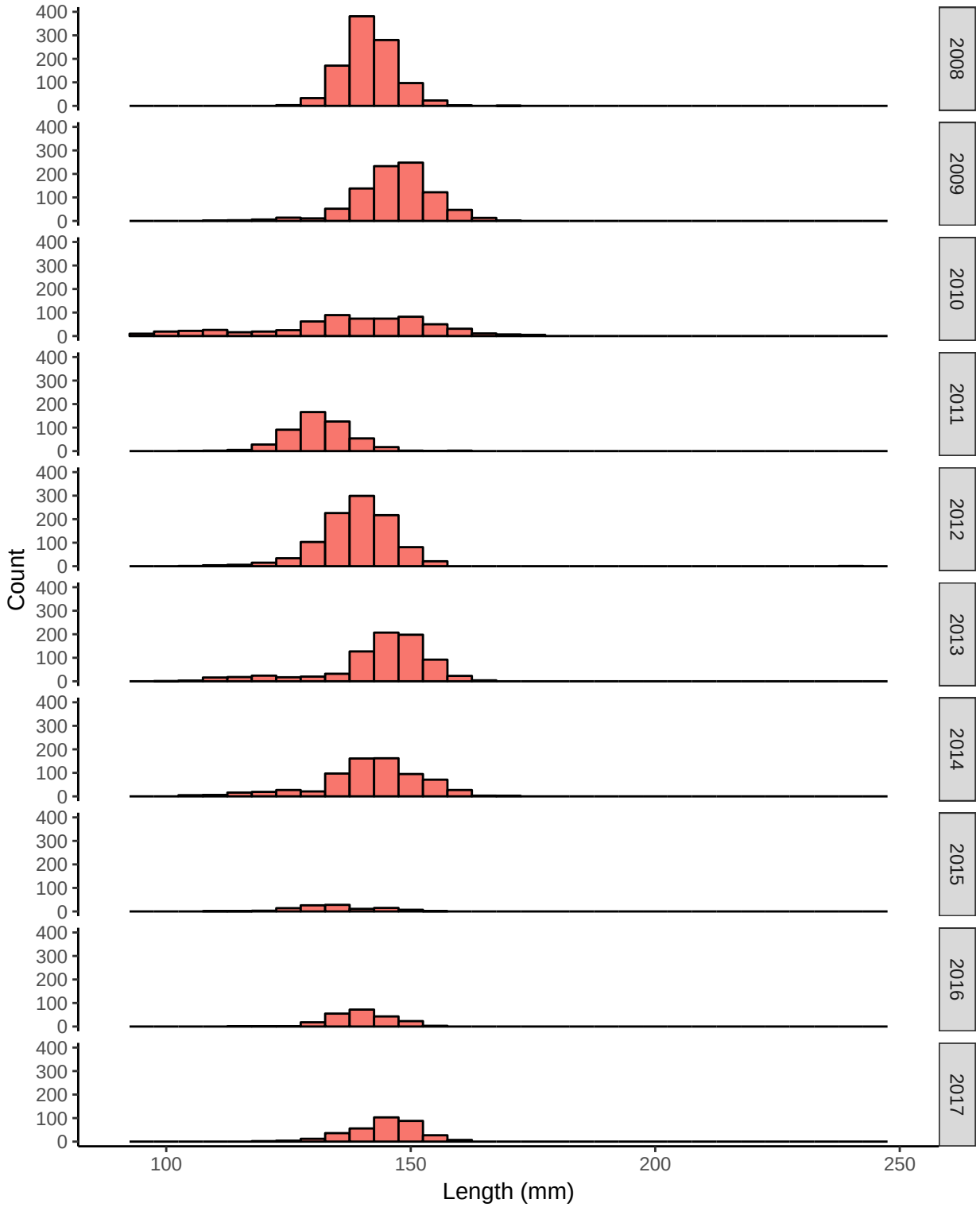
Long-term Trammel Net CPUE



Size Frequency Distributions

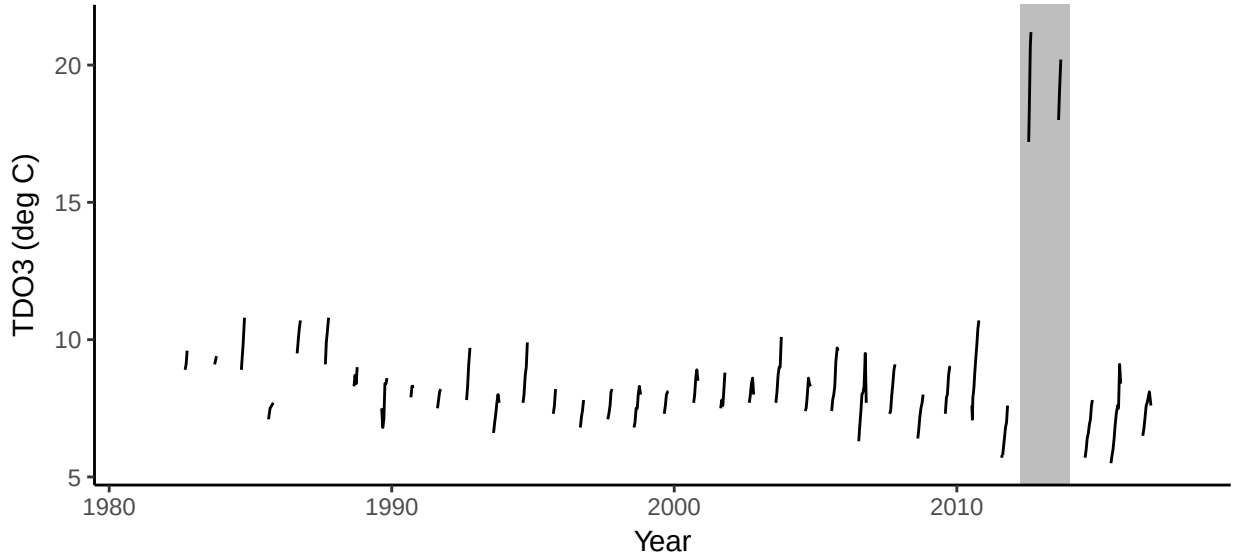


Size frequency distributions for Yellow Perch caught in VGN each year since the Crystal lake mixing experiment (mixed in 2012 and 2013).

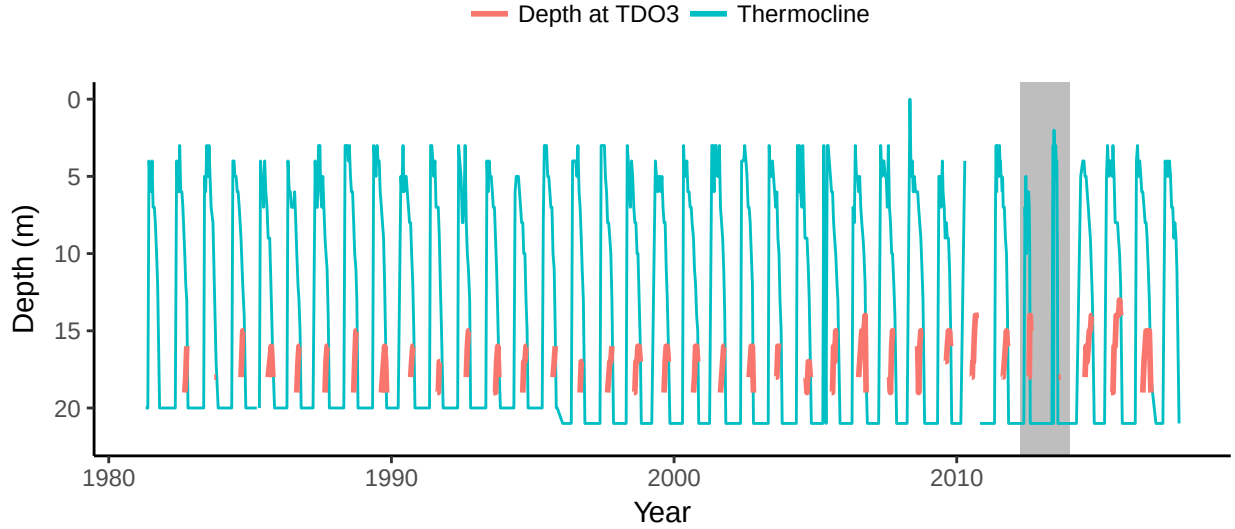


Size frequency distributions for Rainbow Smelt caught in VGN each year since the Crystal lake mixing experiment (mixed in 2012 and 2013).

TDO3 and Thermocline Dynamics

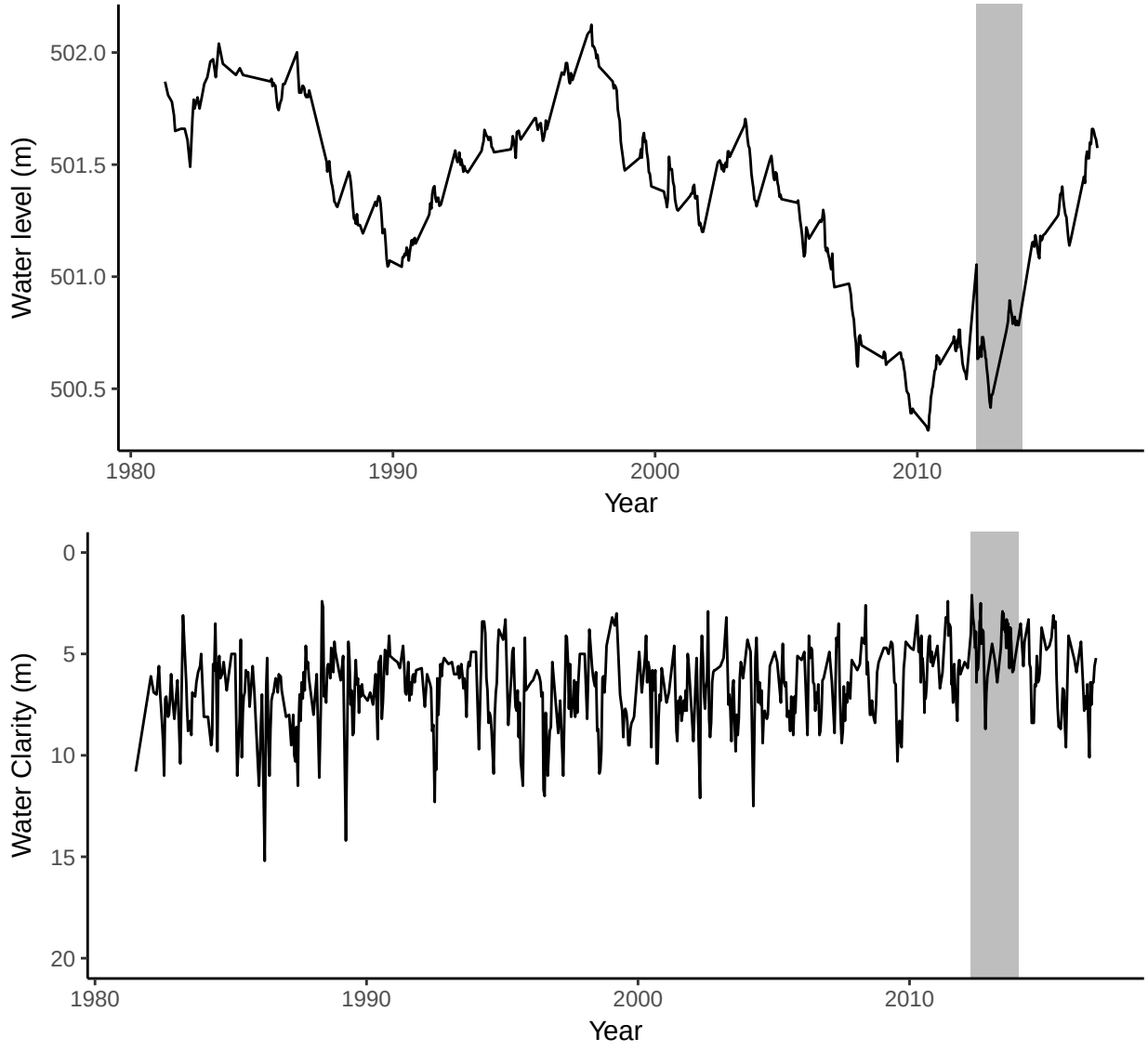


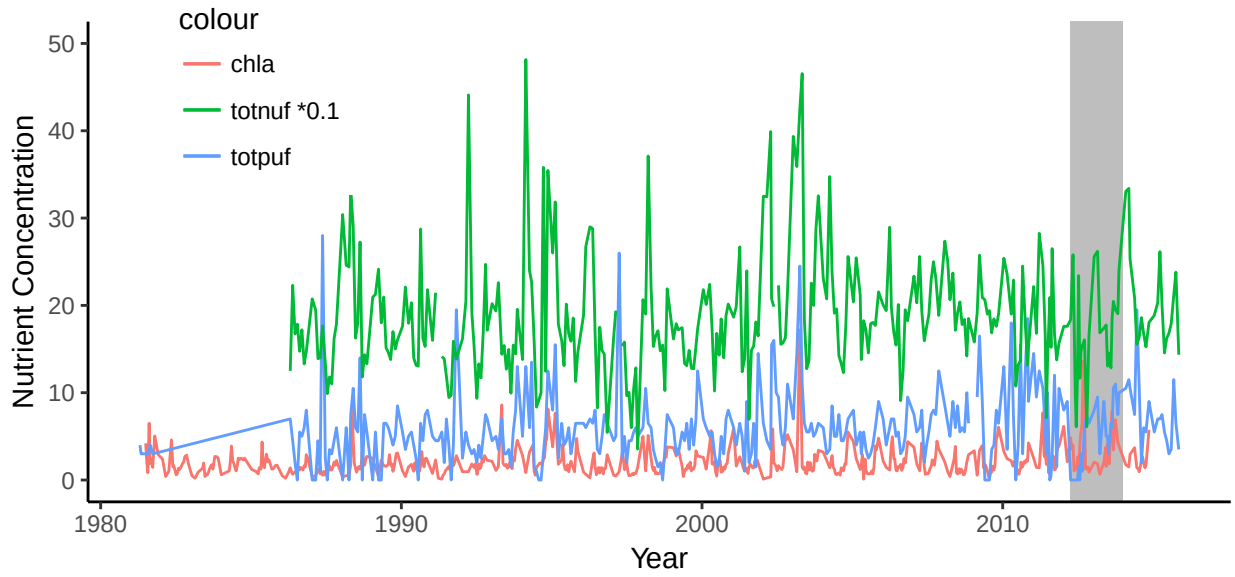
TDO3 was estimated using temp/do profiles collected by LTER. TDO3 identified for each sampling event represents the water temperature value closest to 3 mg/L but less than 4 mg/L. For example, 15m was 5.2 mg/L DO and 16m was 1.8mg/L... TDO3 was reported as the water temperature at 16m.



Depth at DO~3 mg/L estimated the same way as described for TDO3. Epilimnetic depth (bottom of epi) is derived from temp/DO curves.

Basic Limnology





Average Eplilimnetic nutrent concentrations. Mean value of the first two depths for water chemistry. SOP is sample surface then bottom of Epi. TN values multipled by 0.1 to plot on the same scale as TP