Supplemental Figures

Alexandra Linz

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Supplemental figures accompanying the paper "Seasonal mixing frequency and historical mixing regime determine hypolimnion bacterial community dynamics in bog lakes"

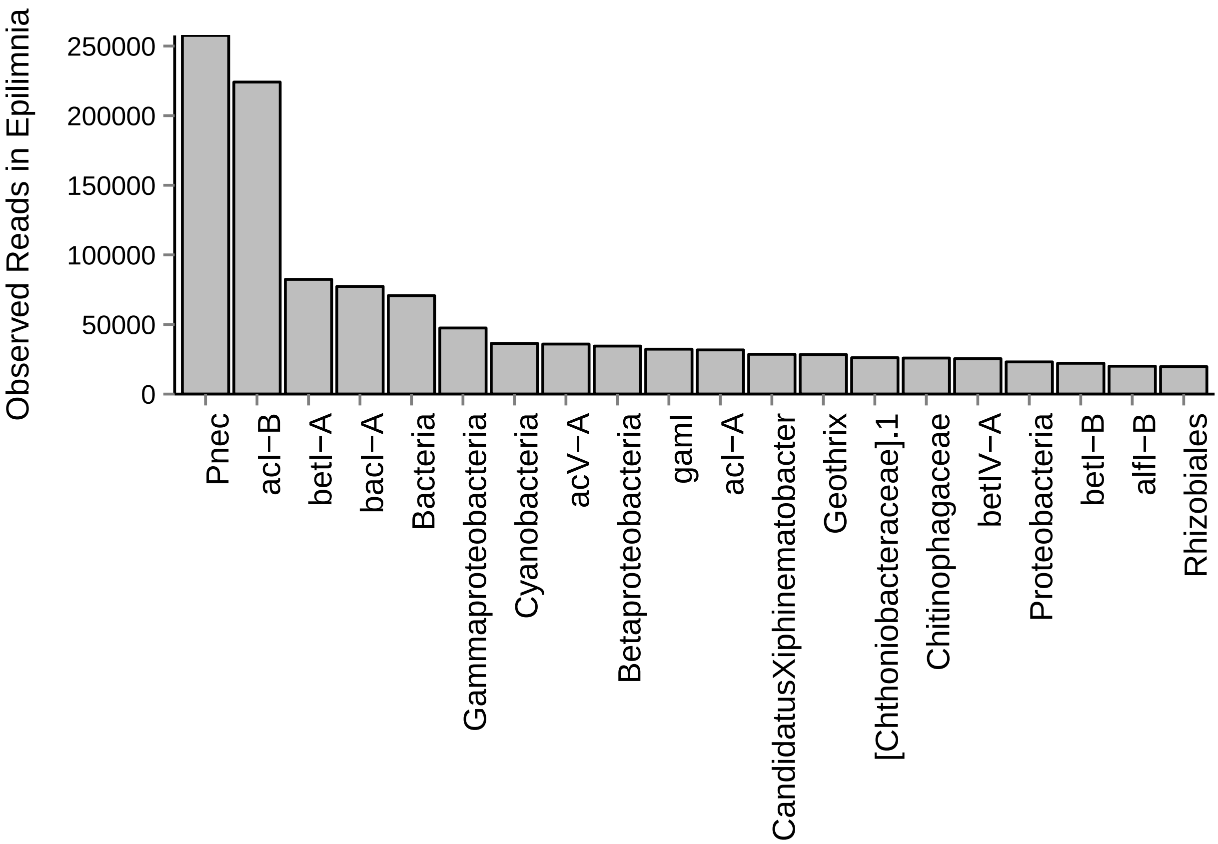


Figure S1. Rank abundance of the 20 most abundant clades in epilimnia samples. Total reads in all epilimnion samples have been summed for each clade-level group. Names represent the last classified level of taxonomic information for that clade; for example, the designation "Bacteria" indicates that clades unclassified at the phylum level are the fifth most abundant group in these samples. The most abundant groups in epilimnia are Pnec, acI-B, betI-A, and bacI-A.

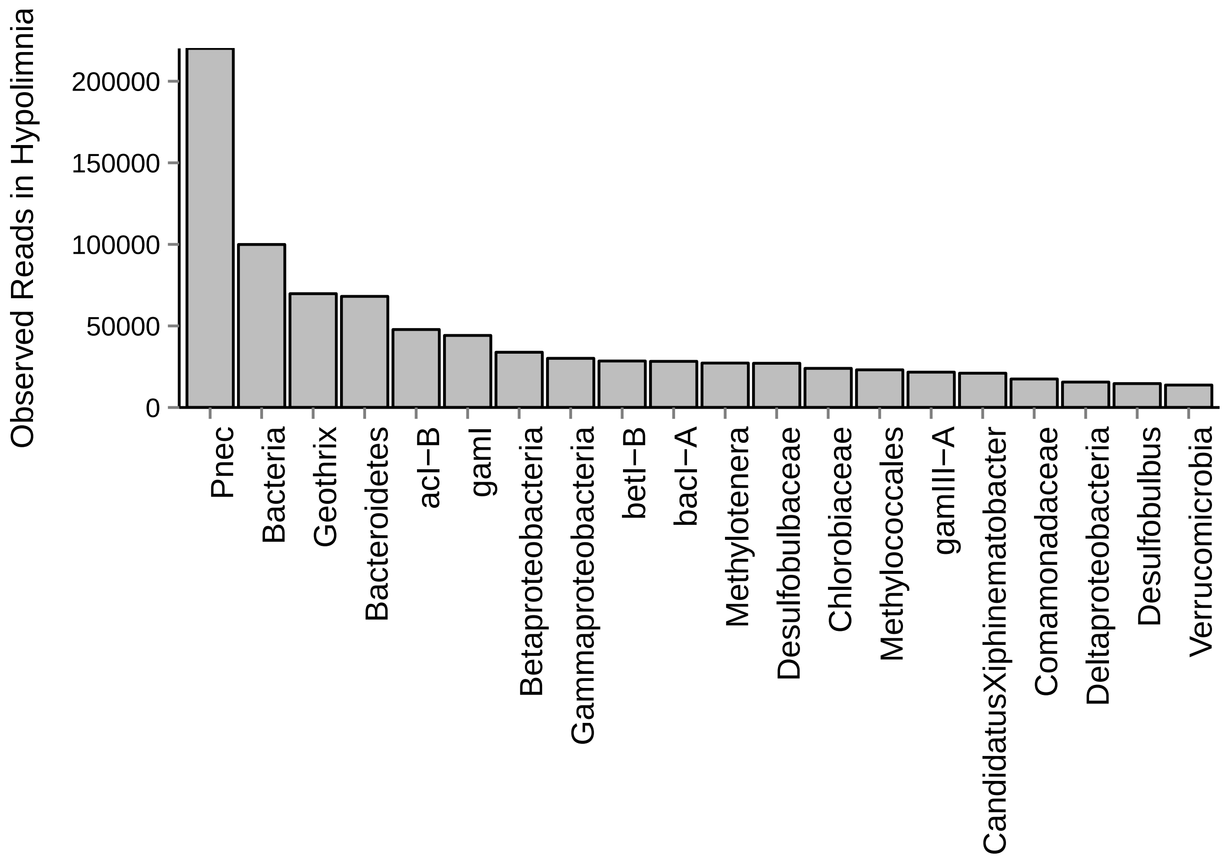


Figure S2. Rank abundance of 20 most abundant clades in hypolimnia (mixed dates and polymictic lake samples removed). As in Fig. S1, clade names reflect the last classified taxonomic level; therefore, the clade labeled "Bacteria" represents all clades that could not be classified into a phylum. Pnec, unclassified *Bacteria*, *Geothrix*, and unclassified *Bacteroidetes* are the most abundant clades in hypolimnia.

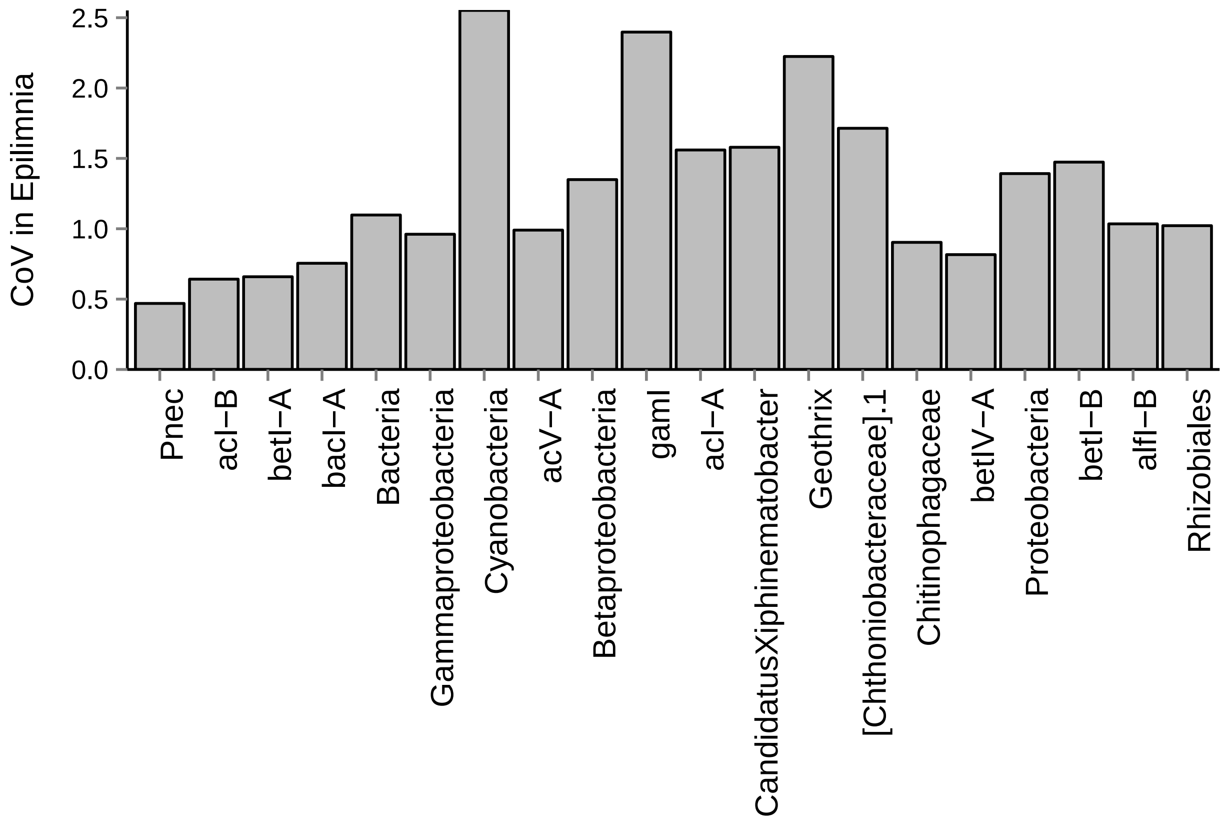


Figure S3. Coefficient of Variance for the top 20 clades in epilimnia. A low CoV indicates low varability in abundance, while a high CoV indicates high variability in abundance. In epilimnia, some of the most abundant clades (Pnec, acI-B, betI-A, and bacI-A) have low CoV values, while *Cyanobacteria*, gamI, and *Geothrix* have high CoV values, indicating more variability in their abundance measurements.

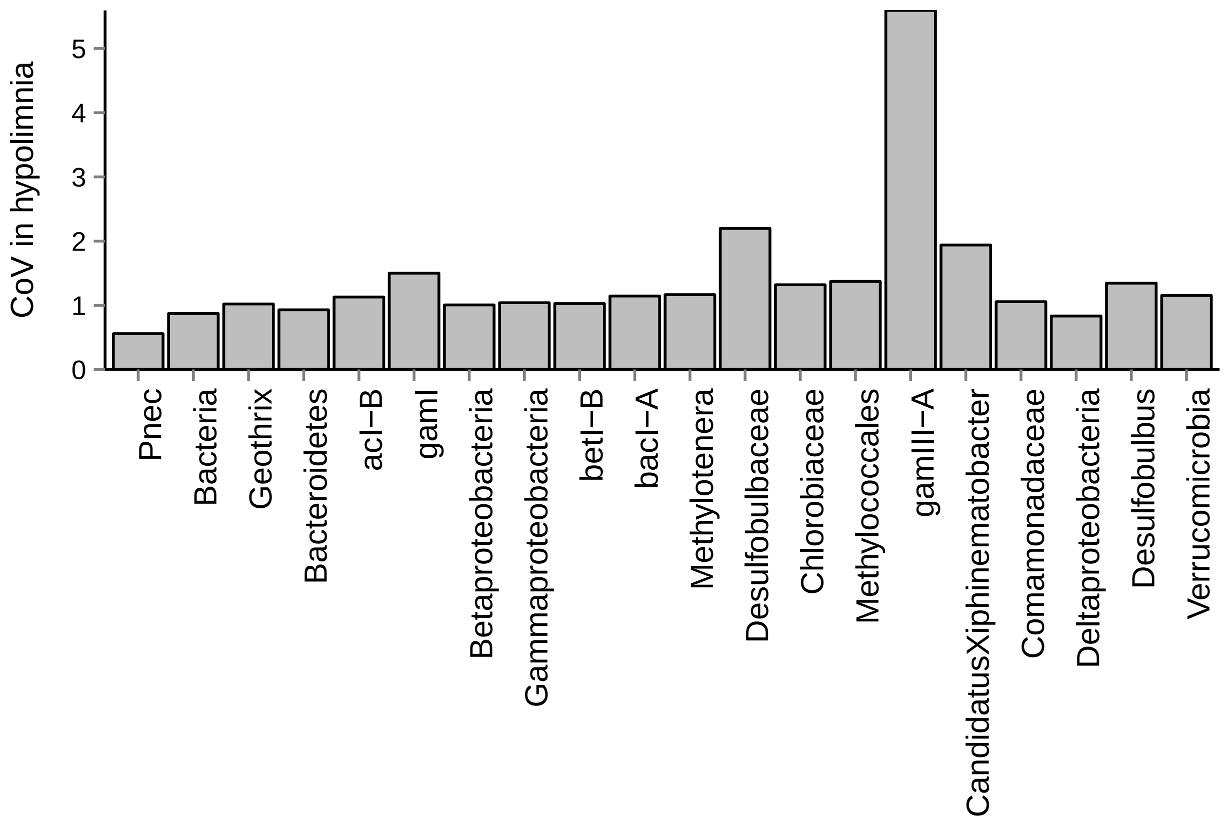


Figure S4. Coefficient of variance for the top 20 clades in hypolimnia (mixing dates and polymictic lake samples removed). A low CoV indicates low varability in abundance, while a high CoV indicates high variability in abundance. In epilimnia, some of the most abundant clades (Pnec, unclassified Bacteria, Geothrix, and unclassified Bacteroidetes) have low CoV values, while gamIII-A has a very high CoV value, indicating more variability in its abundance measurements.

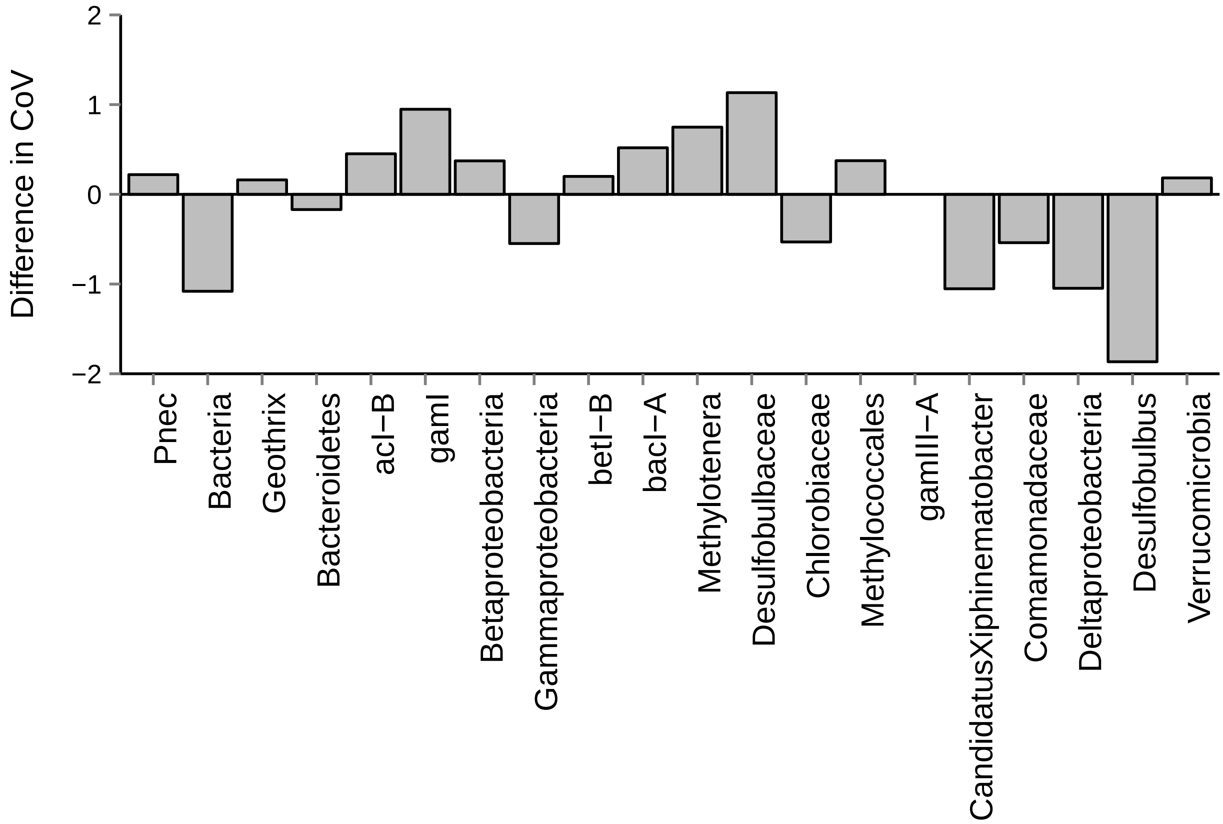


Figure S5. Difference in the coefficient of variance for the top 20 clades between hypolimnia (mixing dates and polymictic lake samples removed) and hypolimnia (mixing dates and polymictic lake samples included). A negative ratio of CoV indicates that a clade was more variable when mixed samples were included, and a positive ratio of CoV indicates that a clade was less variable when mixed samples were included. Clades of gamI and *Desulfobulbaceae* were less variable in mixed samples, while *Desulfobulbus* and *Deltaproteobacteria* were more variable in mixed samples.

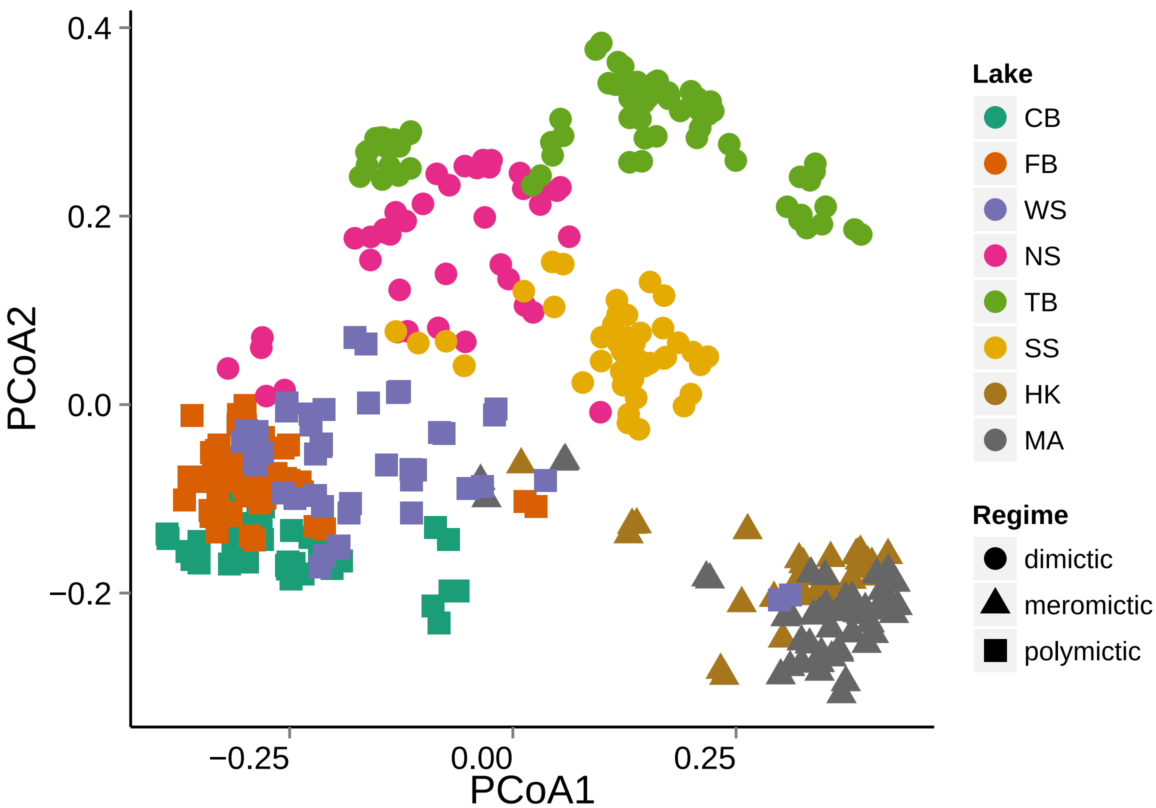


Figure S6a. Principle coordinates analysis of hypolimnia in all lakes. The color of each point indicates which lake it was sampled from, and the shape of each point indicates the mixing regime of that lake. Samples cluster by mixing regime, as well as by lake. Meromictic samples in particular are tightly clustered.

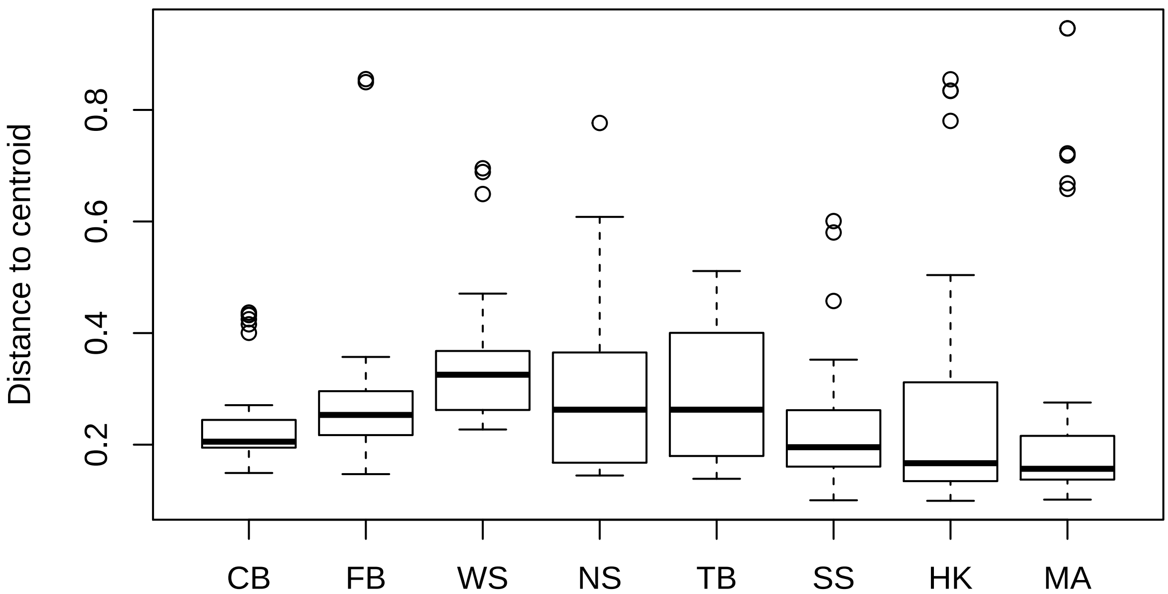
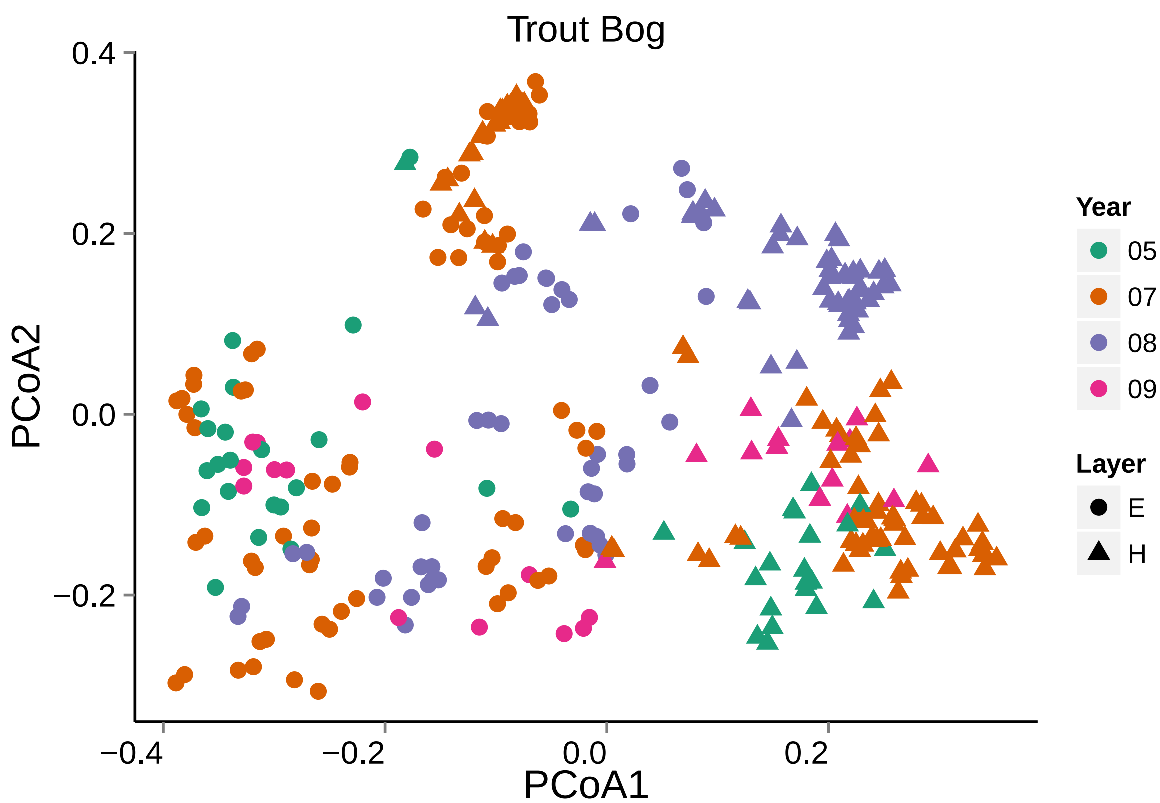
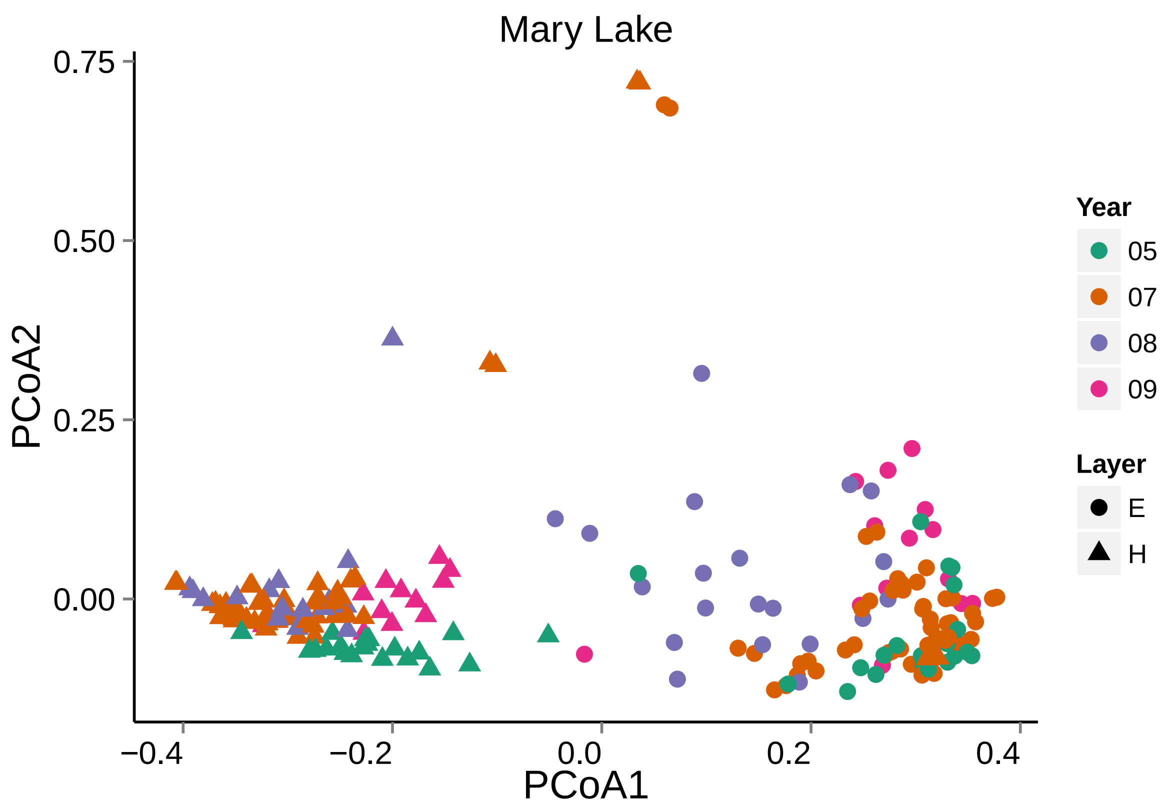
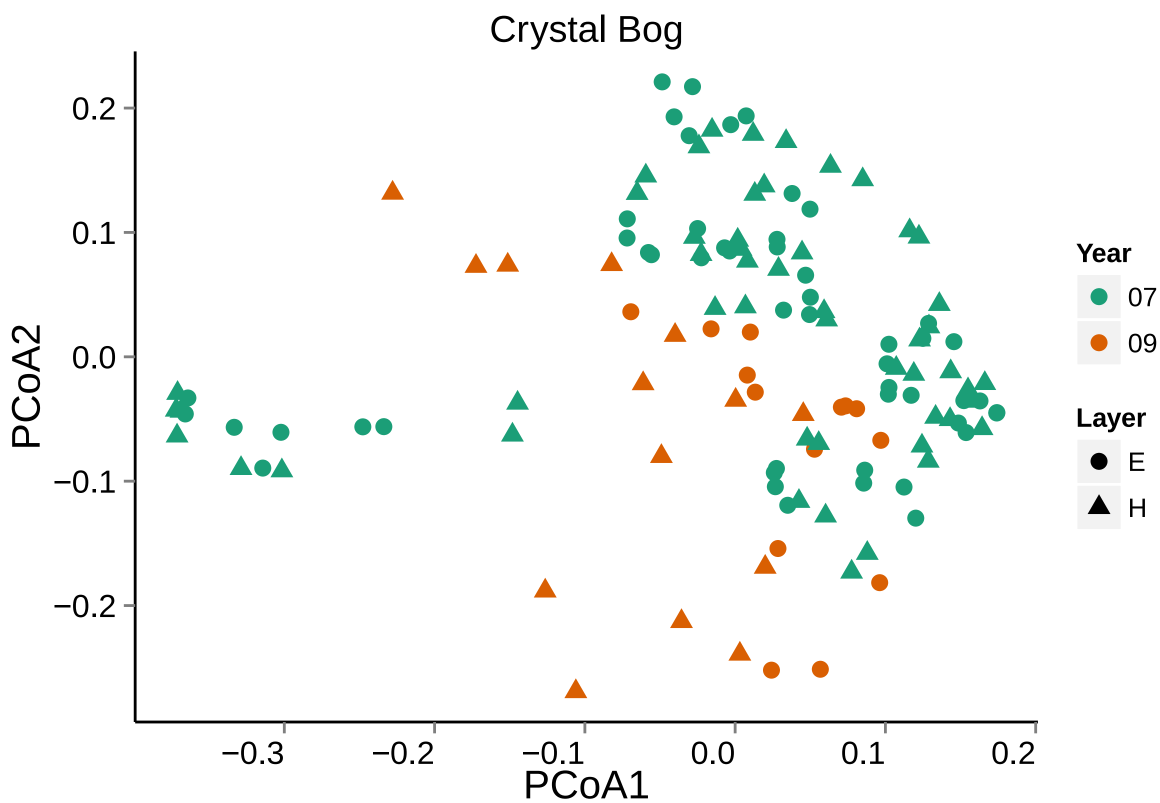
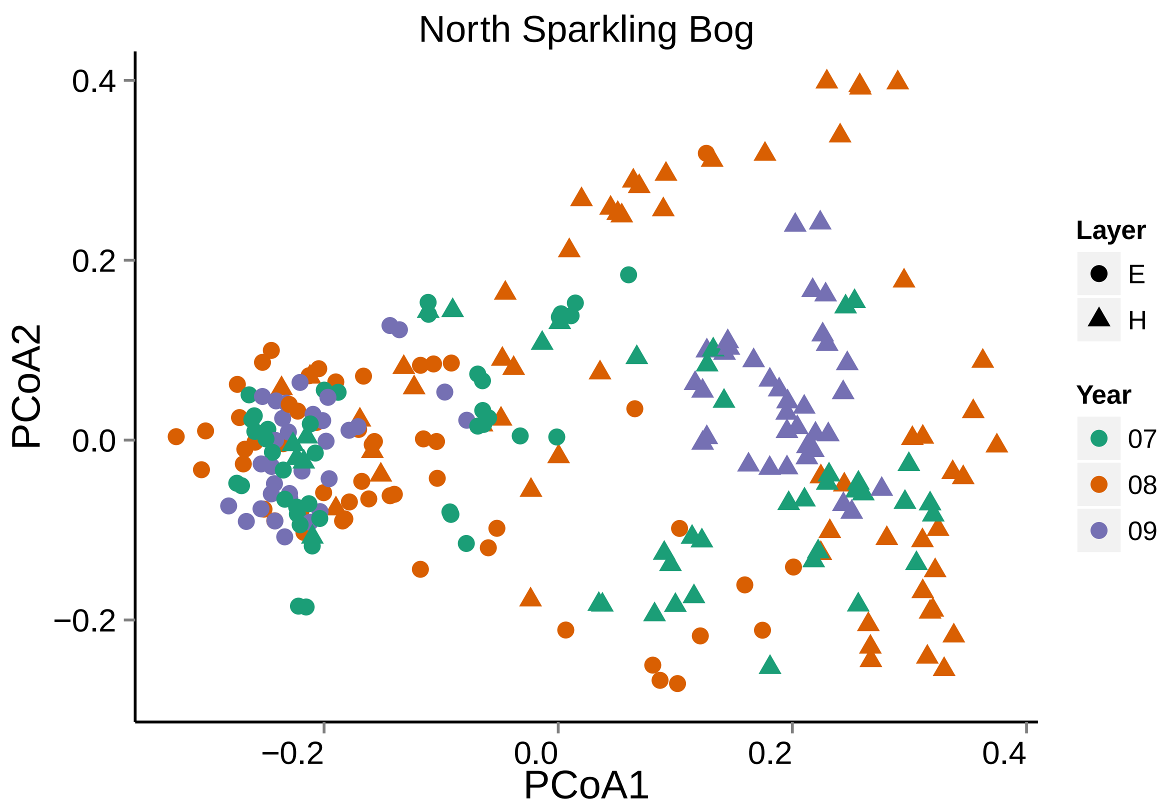


Figure S6b. Distance from the centroid was calculated for each lake as a measure of dispersion. Lakes are arranged by order of increasing depth from left to right. Meromictic hypolimnia (MA and HK) are observed to have the lowest levels of dispersion, indicating a more stable community composition on long time scales. Polymictic hypolimnia (CB, FB, and WS) have increasing dispersion with depth. NS and TB, both dimictic have a wide range of dispersion, while dimictic SS appears more similar in dispersion to meromictic lakes.


Trout Bog
0.4
0.2
0.0
−0.2
PCoA2
−0.4
−0.2
0.0
0.2
PCoA1
Year
05
07
08
09
Layer
E
H


Mary Lake
0.75
0.50
0.25
0.00
PCoA2
−0.4
−0.2
0.0
0.2
0.4
PCoA1
Year
05
07
08
09
Layer
E
H


Crystal Bog
PCoA2
0.2
0.1
0.0
−0.1
−0.2
−0.3
−0.2
−0.1
0.0
0.1
0.2
PCoA1
Year
07
09
Layer
E
H


North Sparkling Bog
PCoA2
0.4
0.2
0.0
−0.2
−0.2
0.0
0.2
0.4
PCoA1
Layer
E
H
Year
07
08
09

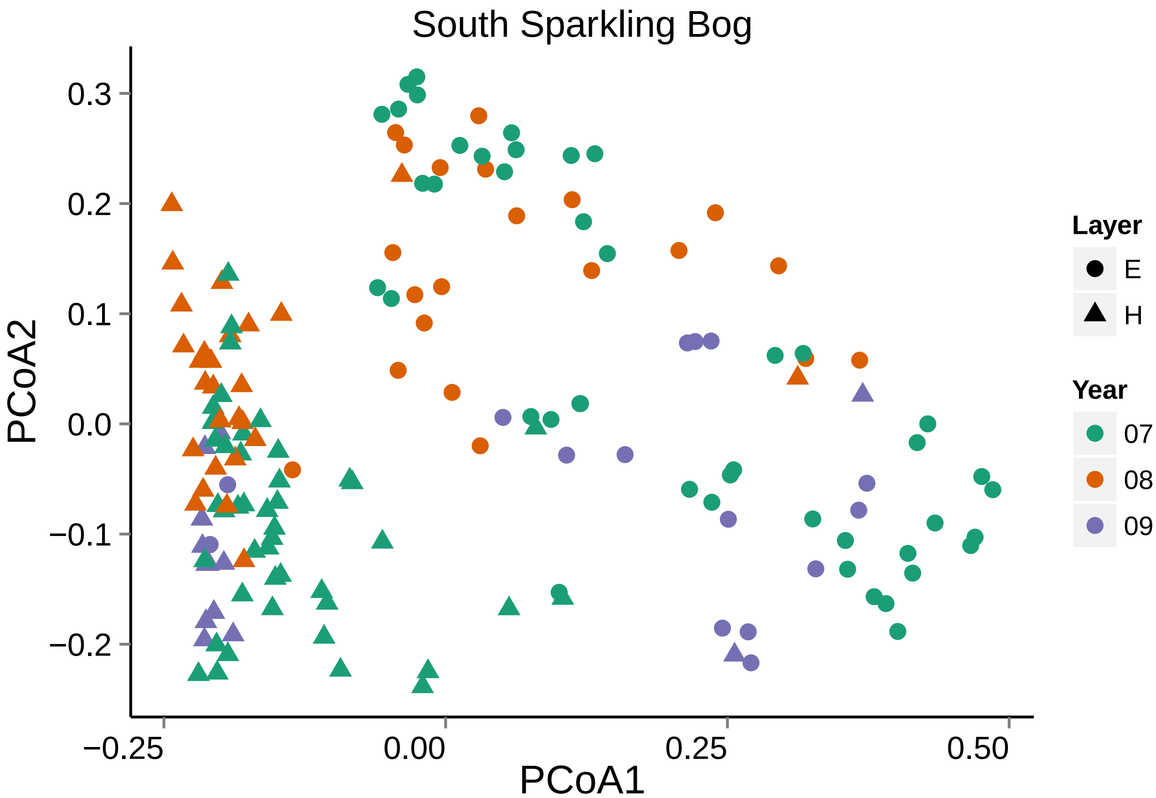
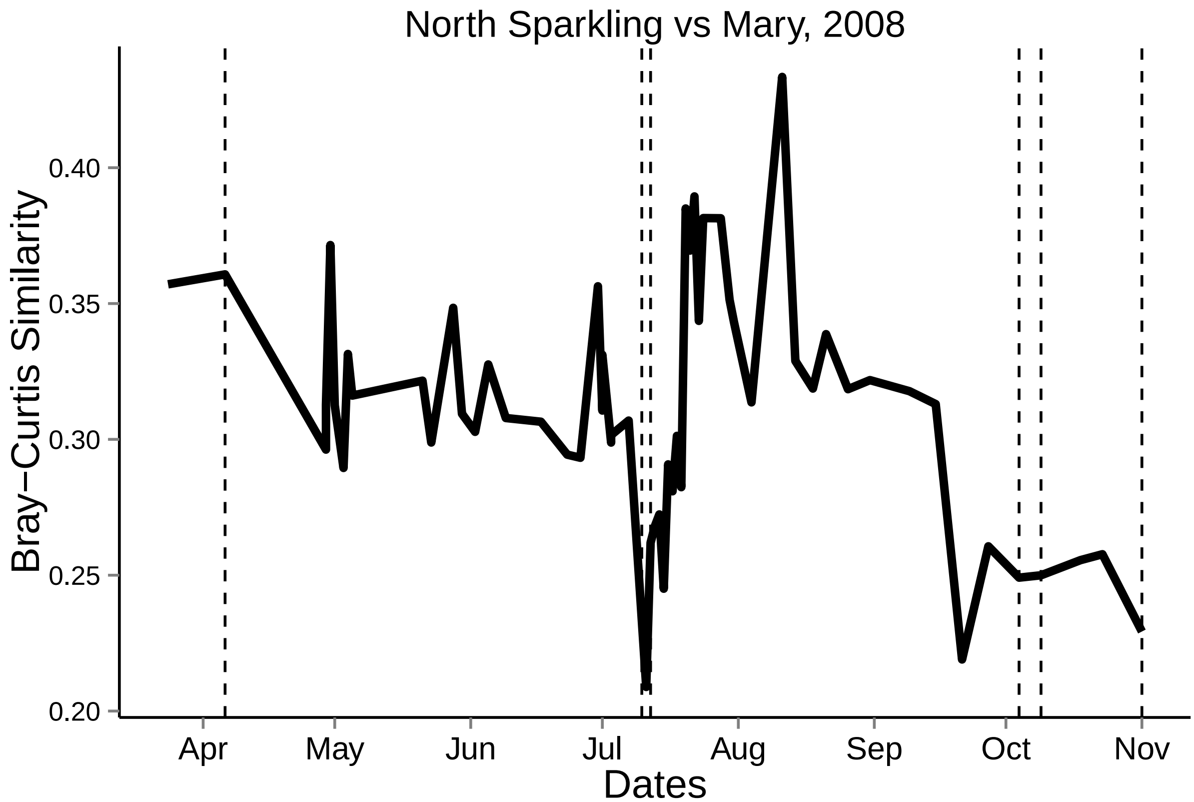
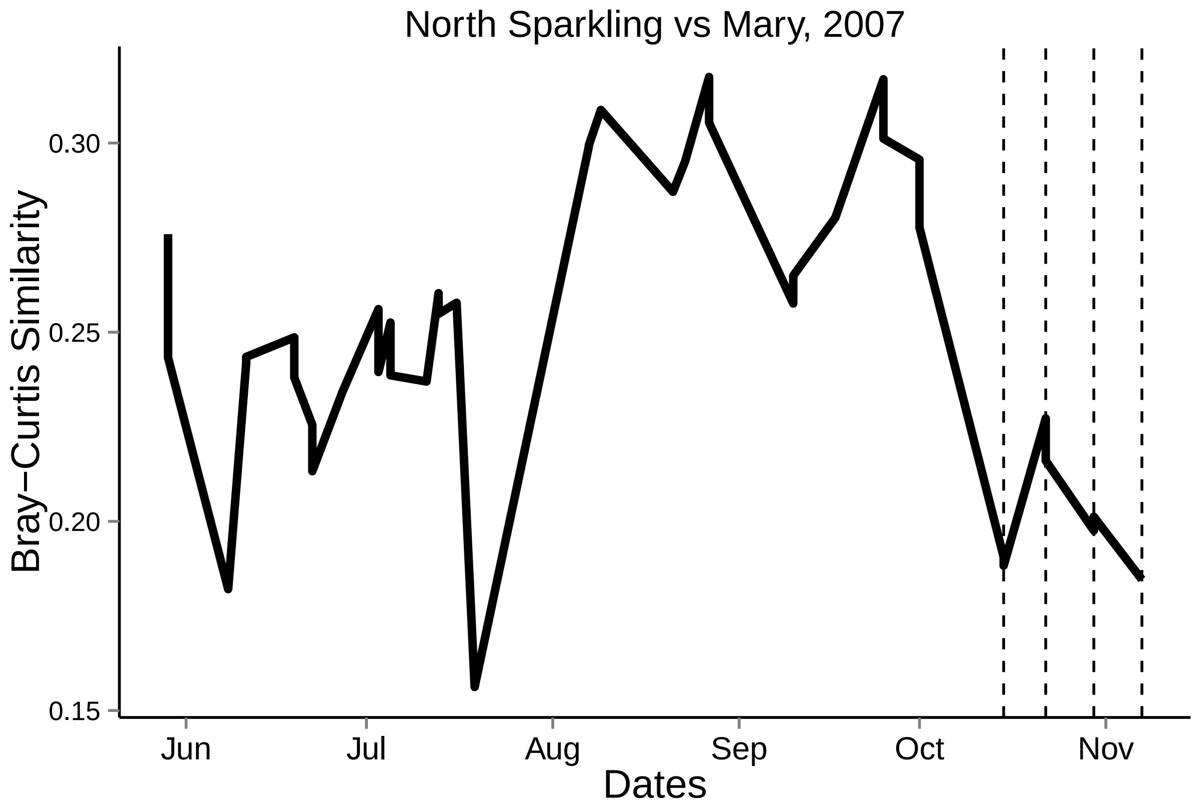
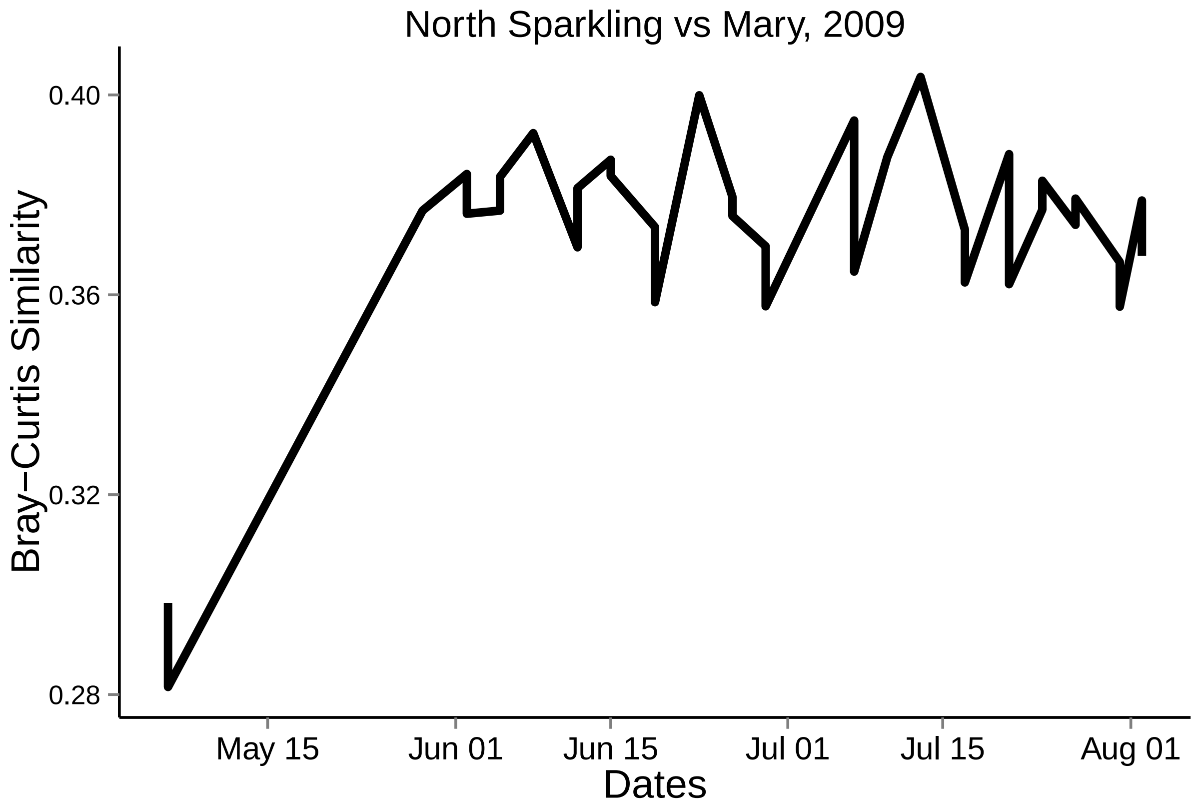


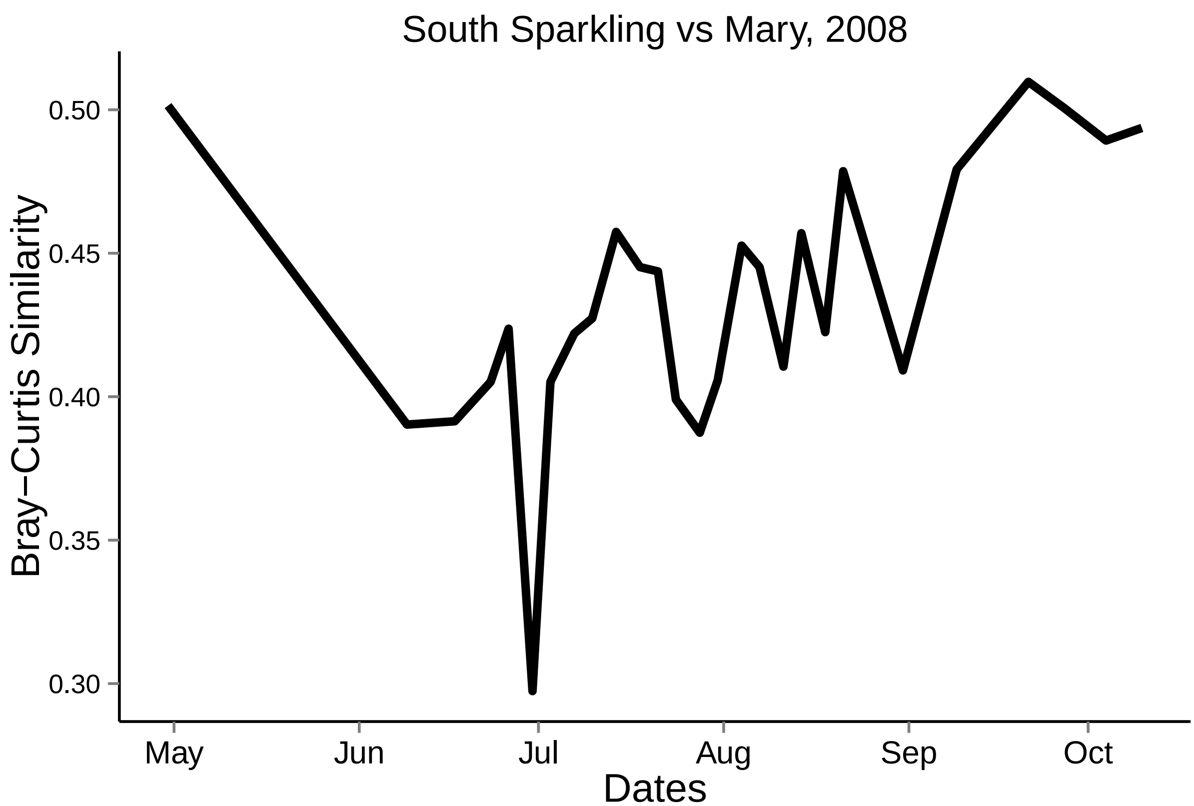
Figure S7. Principle coordinates analysis of epilimnion and hypolimnion samples over four years in all lakes. The shape of each point indicates whether it was collected from the epilimnion or hypolimnion, and the color indicates the year in which it was collected. Epilimnion samples look similar each year, while hypolimnion samples cluster by year. Mary Lake hypolimnion samples are highly similar each year, while Crystal Bog hypolimnion samples are more similar to epilimnion samples. However, all lakes and layers showed significant clustering by year (p=0.0001) using an analysis of similarity test (anosim()).

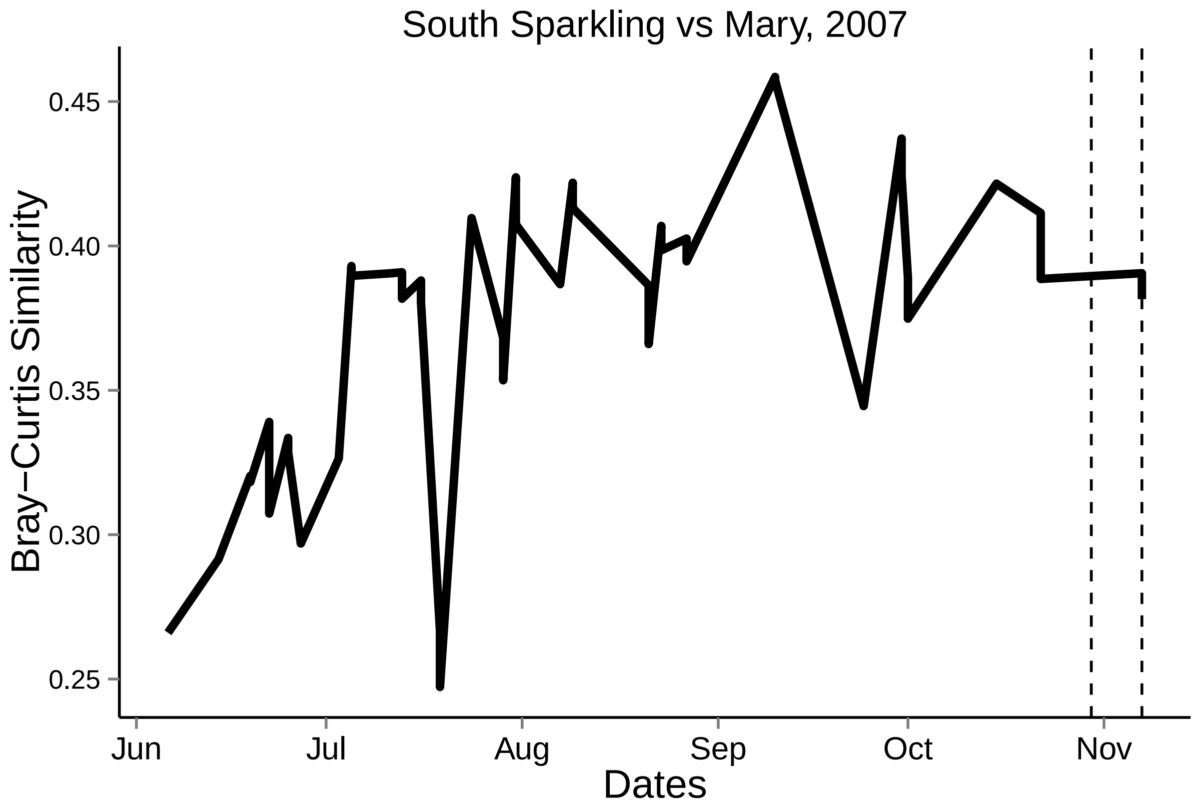

North Sparkling vs Mary, 2008
Bray−Curtis Similarity
0.20
0.25
0.30
0.35
0.40
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dates

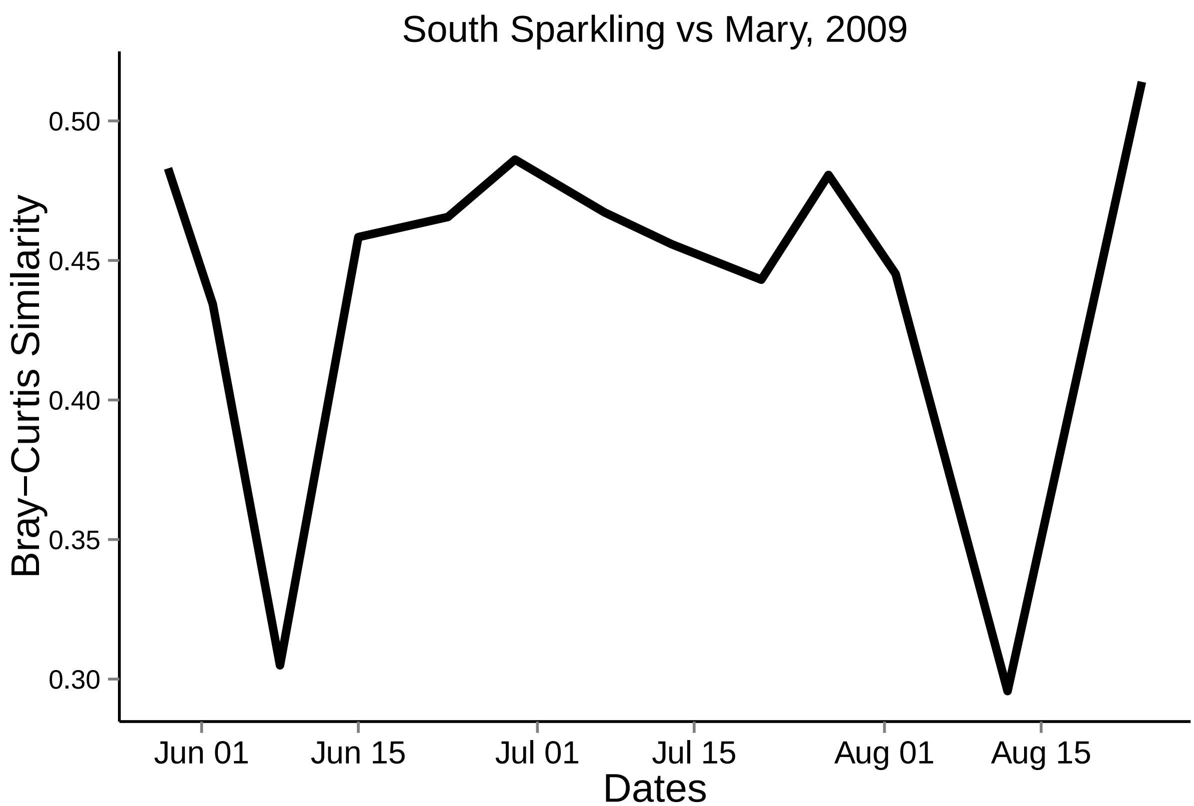


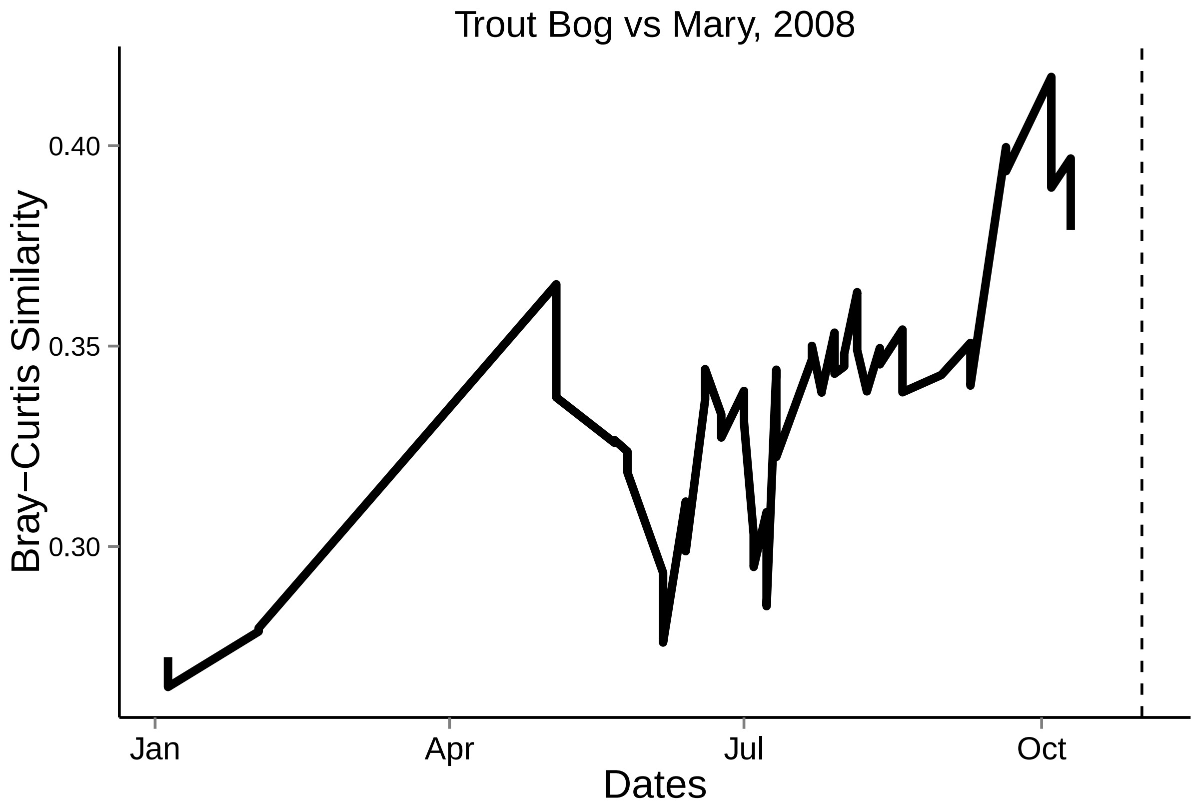
North Sparkling vs Mary, 2007
Bray−Curtis Similarity
0.30
0.25
0.20
0.15
Jun
Jul
Aug
Sep
Oct
Nov
Dates

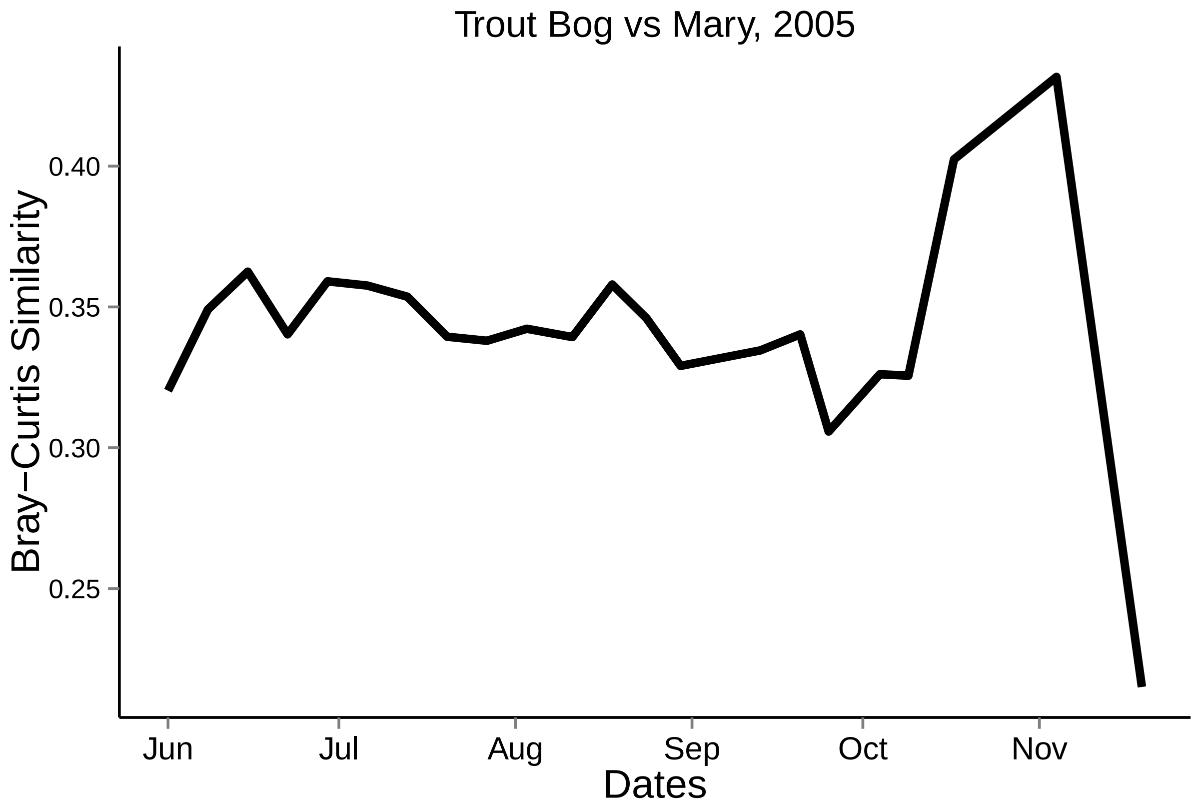

North Sparkling vs Mary, 2009
Bray−Curtis Similarity
0.40
0.36
0.32
0.28
May 15
Jun 01
Jun 15
Jul 01
Jul 15
Aug 01
Dates


South Sparkling vs Mary, 2008
Bray−Curtis Similarity
0.50
0.45
0.40
0.35
0.30
May
Jun
Jul
Aug
Sep
Oct
Dates


South Sparkling vs Mary, 2007
Bray–Curtis Similarity
0.45
0.40
0.35
0.30
0.25
Jun
Jul
Aug
Sep
Oct
Nov
Dates


South Sparkling vs Mary, 2009
Bray–Curtis Similarity
0.50
0.45
0.40
0.35
0.30
Jun 01
Jun 15
Jul 01
Jul 15
Aug 01
Aug 15
Dates


Trout Bog vs Mary, 2008
Bray−Curtis Similarity
0.40
0.35
0.30
Jan
Apr
Jul
Oct
Dates



Trout Bog vs Mary, 2005
Bray−Curtis Similarity
0.40
0.35
0.30
0.25
Jun
Jul
Aug
Sep
Oct
Nov
Dates

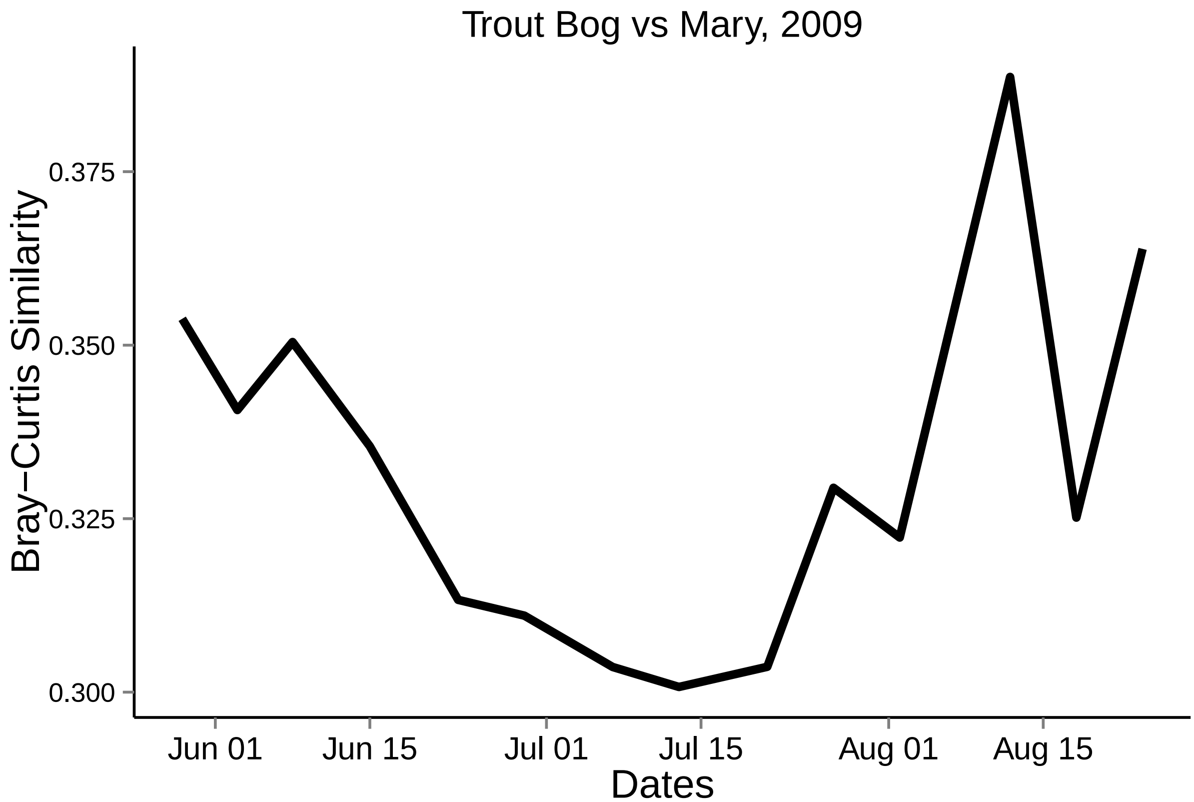


Figure S8. Bray-Curtis Similarity between each dimictic bog lake and Mary Lake . Each point represents the average similarity between the NSB sample taken on that date and every Mary lake sample taken that year. Dashed lines represent days when the water column was mixed, defined as less than one degree difference in temperature between 0.5 m and the maximum sampling depth.