# Cyanobacteria Aphanizomenon Group Collapse

Small = 11.04-15.72 µm ESD

Large = 19.73-31.32 µmESD

## References for deciding on groupings:

Add Menden-Deuer & Lessard

Olenina et al. 2003: Re: a centric diatom: T. baltica varies considerably in diameter (20-100 μm). Factors for three size groups (small, medium, and large) were calculated according to the common distribution of cell size

## Code

### CYANOBACTERIA APHANIZOMENON

taxaCyA <- subset(volbio\_all, select = c(samp\_ev, exp, rep, mag, Group, type, grp\_sz, esd, counts\_per\_ml, bio\_per\_vol\_pgc\_ml)) %>%

mutate(totalCPM=counts\_per\_ml)

taxaCyA$szesd <- paste(taxaCyA$grp\_sz, taxaCyA$esd)

taxaCyA <- filter(taxaCyA, type =='aphanizomenon' )

taxaCyA <- subset(taxaCyA,totalCPM !=0)

taxaCyA <- subset(taxaCyA, select = c(samp\_ev, exp, rep, mag, Group, type, esd, szesd, totalCPM, bio\_per\_vol\_pgc\_ml))

taxaCyA$totalCPM<- formattable(taxaCyA$totalCPM, format="f",digits=2)

taxaCyA$bio\_per\_vol\_pgc\_ml<- formattable(taxaCyA$bio\_per\_vol\_pgc\_ml, format="f",digits=2)

write\_xlsx(taxaCyA, "data/TopTen/Cyanobacteria/taxaCyA.xlsx")

### Add up the counts per ml for each distinct cilate

size/esd name but keep the esd and biomass columns

taxaCyAlumpC <- aggregate(totalCPM ~ szesd +esd, data = taxaCyA, FUN = sum, na.rm =TRUE)

taxaCyAlumpB <- aggregate(bio\_per\_vol\_pgc\_ml ~ szesd + esd, data = taxaCyA, FUN = sum, na.rm =TRUE)

taxaCyAlump <- merge(taxaCyAlumpC, taxaCyAlumpB, by="szesd")

taxaCyAlump <- subset(taxaCyAlump, select = c(szesd, esd.x, totalCPM, bio\_per\_vol\_pgc\_ml))

colnames(taxaCyAlump)[1] = "Group"

colnames(taxaCyAlump)[2] = "esd"

colnames(taxaCyAlump)[4] = "totalBPM"

write\_xlsx(taxaCyAlump, "data/TopTen/Cyanobacteria/taxaCyAlump.xlsx")

save(taxaCyAlump, file = "data/TopTen/Cyanobacteria/taxaCyAlump.Rdata")

### Make a dot plot of esd and counts

CyAPlot <- subset(taxaCyA, select = c(esd, totalCPM))

p <- ggplot(CyAPlot, aes(x=esd, totalCPM)) +

geom\_point(size=1, color="blue") +

scale\_x\_log10 (n.breaks=10) +

wimGraph()+

theme(axis.text.x = element\_text(angle=90, hjust = 0.5, vjust = 0.2, size = 8))

p + ggtitle("Cyabnobacteria Aphanizomenon by ESD")+

theme(plot.title = element\_text(size = 15))



List of ESD measurements

|  |  |  |  |
| --- | --- | --- | --- |
| **Group** | **esd** | **totalCPM** | **totalBPM** |
| cyanobacteria aphanizomenon 4 56 11.04 | 11.04 | 9.49 | 1208.28 |
| cyanobacteria aphanizomenon 4 72 12.00 | 12.00 | 0.33 | 53.40 |
| cyanobacteria aphanizomenon 4 80 12.43 | 12.43 | 1.68 | 305.53 |
| cyanobacteria aphanizomenon 4 128 14.54 | 14.54 | 0.65 | 188.86 |
| cyanobacteria aphanizomenon 8 32 14.54 | 14.54 | 18.48 | 5379.63 |
| cyanobacteria aphanizomenon 6 72 15.72 | 15.72 | 0.04 | 16.21 |
| cyanobacteria aphanizomenon 8 80 19.73 | 19.73 | 62.05 | 45159.98 |
| cyanobacteria aphanizomenon 6 160 20.52 | 20.52 | 3.41 | 2792.28 |
| cyanobacteria aphanizomenon 8 120 22.58 | 22.58 | 12.52 | 13671.89 |
| cyanobacteria aphanizomenon 8 320 31.32 | 31.32 | 0.56 | 1626.77 |

List of ESD measurements

|  |  |  |  |
| --- | --- | --- | --- |
| **Group** | **esd** | **totalCPM** | **totalBiomass** |
| flagellate in a cone 4 4 4.00 | 4.00 | 6.94 | 34.13 |
| flagellate other 3.67 5.5 4.20 | 4.20 | 507.24 | 283.71 |
| flagellate in a cone 6 6 6.00 | 6.00 | 2.20 | 30.08 |
| flagellate other 6.33 9.5 7.25 | 7.25 | 120.06 | 1436.42 |
| flagellate other 8 16 10.08 | 10.08 | 1.84 | 133.58 |
| flagellate other 9 14 10.43 | 10.43 | 32.72 | 2264.12 |
| flagellate euglenid 8 20 10.86 | 10.86 | 0.21 | 91.02 |
| flagellate euglenid 8 32 12.70 | 12.70 | 0.09 | 145.06 |
| flagellate euglenid 8 40 13.68 | 13.68 | 0.92 | 156.99 |
| flagellate other 12 20 14.23 | 14.23 | 0.19 | 194.92 |
| dinoflagellate peridinium 16 16 16.00 | 16.00 | 1.00 | 1098.56 |
| flagellate colonial 16 16 16.00 | 16.00 | 0.09 | 580.25 |
| dinoflagellate prorocentrum 17.6 17.6 17.60 | 17.60 | 0.85 | 324.52 |
| dinoflagellate peridinium 20 20 20.00 | 20.00 | 1.27 | 1428.90 |
| flagellate other 16 32 20.16 | 20.16 | 0.60 | 2134.71 |
| flagellate euglenid 8 136 20.57 | 20.57 | 0.14 | 1177.63 |
| dinoflagellate peridinium 20 24 21.25 | 21.25 | 0.78 | 1130.77 |
| flagellate euglenid 12 80 22.58 | 22.58 | 0.65 | 2156.86 |
| flagellate euglenid 16 48 23.08 | 23.08 | 0.87 | 3188.45 |
| dinoflagellate peridinium 24 24 24.00 | 24.00 | 3.32 | 8241.13 |
| flagellate other 24 32 26.42 | 26.42 | 1.87 | 3213.28 |
| flagellate euglenid 16 144 33.28 | 33.28 | 0.13 | 2283.61 |
| flagellate euglenid 40 40 40.00 | 40.00 | 0.74 | 6989.27 |