# Cyanobacteria, All Aphanizomenon, Dolichospermum, Other Group Collapse

One size?

Other category had only 20 observations

Aphanizomenon Small = 11.04-15.72 µm ESD

Large = 19.73-31.32 µmESD

Dolichospermum 6.75-24.00 µm ESD

## 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, All APHANIZOMENON, DOLICHOSPERMUM, AND OTHER

taxaCyAll <- subset(volbio\_all,

select = c(samp\_ev, exp, rep, mag, Group, type, \_sz, esd, counts\_per\_ml, bio\_per\_vol\_pgc\_ml)) %>%

mutate(totalMnCPM=counts\_per\_ml,totalMnBPM= bio\_per\_vol\_pgc\_ml)

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

taxaCyAll <- filter(taxaCyAll, grepl('cyanobacteria', Group))

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

taxaCyAll <- subset(taxaCyAll,

select = c(samp\_ev, exp, rep, mag, Group, type, esd, szesd,

totalCPM, totalMnBPM))

taxaCyAll$totalCPM<- formattable(taxaCyAll$totalCPM,

format="f",digits=2)

taxaCyAll$totalMnBPM<- formattable(taxaCyAll$totalMnBPM,

format="f",digits=2)

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

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

## size/esd name but keep the esd and biomass columns

taxaCyAllLumpC <- aggregate(totalCPM ~ szesd +esd,

data = taxaCyAll, FUN = sum, na.rm =TRUE)

taxaCyAllLumpB <- aggregate(totalMnBPM ~ szesd + esd,

data = taxaCyAll, FUN = sum, na.rm =TRUE)

taxaCyAllLump <- merge(taxaCyAllLumpC, taxaCyAllLumpB, by="szesd")

taxaCyAllLump <- subset(taxaCyAllLump,

select = c(szesd, esd.x, totalCPM, totalMnBPM))

colnames(taxaCyAllLump)[1] = " grpSzEsd "

colnames(taxaCyAllLump)[2] = "esd"

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

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

taxaCyAllLump$szGroup <- with(taxaCyAllLump, ifelse(esd < 12, 'small', ifelse(esd > 24, 'large',

ifelse(esd >= -12 & esd <= 24, "medium", "WHAT?"))))



|  |  |  |  |
| --- | --- | --- | --- |
| **grpSzEsd** | **esd** | **totalMnCPM** | **totalMnBPM** |
| cyanobacteria other 1.6 80 6.75 | 6.75 | 0.04 | 1.27 |
| cyanobacteria dolichospermum 4 16 7.27 | 7.27 | 0.49 | 17.73 |
| cyanobacteria other 4 24 8.32 | 8.32 | 0.46 | 25.35 |
| cyanobacteria dolichospermum 4 40 9.86 | 9.86 | 5.72 | 520.60 |
| cyanobacteria dolichospermum 4 48 10.48 | 10.48 | 0.32 | 34.64 |
| cyanobacteria other 4 50 10.63 | 10.63 | 0.04 | 4.76 |
| cyanobacteria aphanizomenon 4 56 11.04 | 11.04 | 9.49 | 1208.28 |
| cyanobacteria dolichospermum 4 64 11.54 | 11.54 | 9.59 | 1395.39 |
| cyanobacteria other 4 64 11.54 | 11.54 | 0.07 | 9.49 |
| 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 dolichospermum 4 80 12.43 | 12.43 | 1.16 | 211.61 |
| cyanobacteria other 4 80 12.43 | 12.43 | 1.85 | 337.03 |
| cyanobacteria dolichospermum 6 40 12.93 | 12.93 | 0.05 | 10.15 |
| cyanobacteria other 4 96 13.21 | 13.21 | 0.46 | 100.74 |
| cyanobacteria dolichospermum 4 120 14.23 | 14.23 | 1.81 | 492.91 |
| cyanobacteria dolichospermum 6 56 14.46 | 14.46 | 0.25 | 72.06 |
| 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 other 4 128 14.54 | 14.54 | 0.90 | 262.97 |
| cyanobacteria dolichospermum 6 64 15.12 | 15.12 | 0.22 | 71.59 |
| cyanobacteria dolichospermum 4 160 15.66 | 15.66 | 0.04 | 16.05 |
| cyanobacteria dolichospermum 8 40 15.66 | 15.66 | 0.57 | 208.78 |
| cyanobacteria other 8 40 15.66 | 15.66 | 0.22 | 81.32 |
| cyanobacteria aphanizomenon 6 72 15.72 | 15.72 | 0.04 | 16.21 |
| cyanobacteria dolichospermum 6 80 16.29 | 16.29 | 1.21 | 496.17 |
| cyanobacteria other 6 80 16.29 | 16.29 | 1.19 | 489.03 |
| cyanobacteria dolichospermum 4 240 17.93 | 17.93 | 0.04 | 23.17 |
| cyanobacteria other 8 72 19.05 | 19.05 | 0.97 | 636.06 |
| cyanobacteria aphanizomenon 8 80 19.73 | 19.73 | 62.05 | 45159.98 |
| cyanobacteria dolichospermum 8 80 19.73 | 19.73 | 2.66 | 1934.83 |
| cyanobacteria aphanizomenon 6 160 20.52 | 20.52 | 3.41 | 2792.28 |
| cyanobacteria dolichospermum 6 200 22.10 | 22.10 | 0.71 | 721.96 |
| cyanobacteria aphanizomenon 8 120 22.58 | 22.58 | 12.52 | 13671.89 |
| cyanobacteria dolichospermum 8 144 24.00 | 24.00 | 0.72 | 938.06 |
| cyanobacteria other 8 168 25.27 | 25.27 | 4.90 | 7488.02 |
| cyanobacteria aphanizomenon 8 320 31.32 | 31.32 | 0.56 | 1626.77 |

|  |  |  |  |
| --- | --- | --- | --- |
| Cyanobacteria, All | | | |
| total mean  CPM | <15, 15-25, >25 µm esd size groups | µm esd original size groups | <12, 12-24, >24 µm esd size groups |
| small | 53.83 |  | 26.21 |
| medium | 86.58 |  | 114.20 |
| large | 5.46 |  | 5.46 |

List of ESD measurements

|  |  |  |  |
| --- | --- | --- | --- |
| **grpSzEsd** | **esd** | **totalMnCPM** | **totalMnBPM** |
| cyanobacteria other 1.6 80 6.75 | 6.75 | 0.04 | 1.27 |
| cyanobacteria dolichospermum 4 16 7.27 | 7.27 | 0.49 | 17.73 |
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