# Equations for Microplankton Analysis

## Preservative factor

(sample water, ml – preservative added, ml)/ sample water ml

## Volume of organism, by shape, in µm3 per cell

cone1 = (pi/12) \* diameter2 \* height

cones2 = 2 \* pi/12) \* diameter2 \* height

sphere = (pi/6) \* diameter3

prolate spheroid = (pi/6) \* diameter2 \* height

cylinder = (pi/4) \* diameter2 \* height

ellipsoid = (pi/6) \* diameter \* height \* width

rectangular box = diameter \* height \* width

prism on elliptic base = (pi/4) \* diameter \* height \* width

prism on parallelogram = 0.5 \* diameter \* height \* width

## Equivalent Spherical Diameter of organism

esd = 2\*(0.75/pi\*vol\_per\_cell\_um3)1/3

## Biomass, by taxonomic group, in pgC cell-1

cililate = 0.216 \* volume0.939

tintinnid = 0.216 \* volume0.939

chlorophyte = 0.216 \* volume0.939

dinoflagellate = 0.216 \* volume0.939

ochrophyte = 0.216 \* volume0.939

unidentified = 0.216 \* volume0.939

cyanobacteria = 0.216 \* volume0.939

diatom, V > 3,000 µm3 = 0.117 \* volume0.881

diatom V ≤ 3,000 µm3 = 0.287 \* volume0.811

## Clearance Rate, ml copepod-1 day-1

(ml of water with that organism in it; i.e., concentration of that organism)

V /T \* ( lnC -lnE)/n

V= volume of experimental container, 595 ml

T= time of experiment, in our case, 1 day

C = means of control samples, either counts ml-1, or biomass in pgC ml-1 or µgC L-1

E = experimental samples, either counts ml-1, or biomass in pgC ml-1 or µgC L-1

## Ingestion Rate (aka feeding rate or consumption rate), quantity (biomass pgC or µgC, or cell counts) copepod-1 day-1

CR x mean I

CR = Clearance rate, either in ml copepod-1 day-1, or in

I = initial samples

## Counts per milliliter

counts/(propCntd\*pres\_fact\*vol\_set\_ml)

propCntd = proportion of the slide area that was counted

pres\_fact = preservative factor, see above

vol\_set\_ml = volume of sample settled in the conical tube, in milliliters

## Biomass per milliliter, in pg Carbon

bio\_pgC\_ml = tot\_biomass\_pgC/(propCntd\*pres\_fact\*vol\_set\_ml)

See above for divisor details

## Biomass per liter, in µg Carbon

bio\_pgC\_ml\*1000