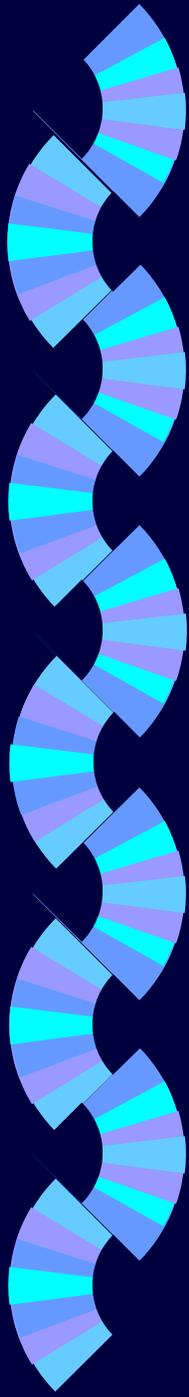


Zooplankton/Phytoplankton

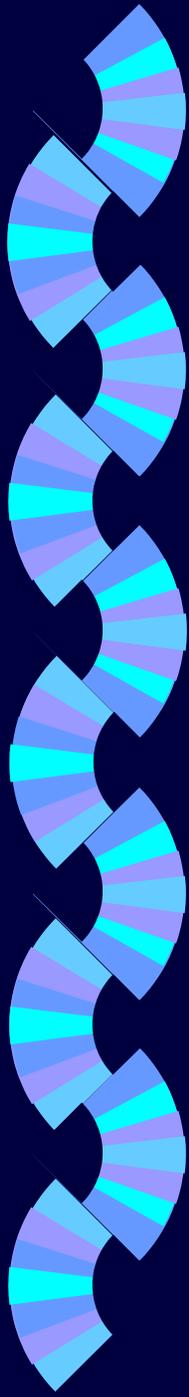
The Biologicals

Debra Piper



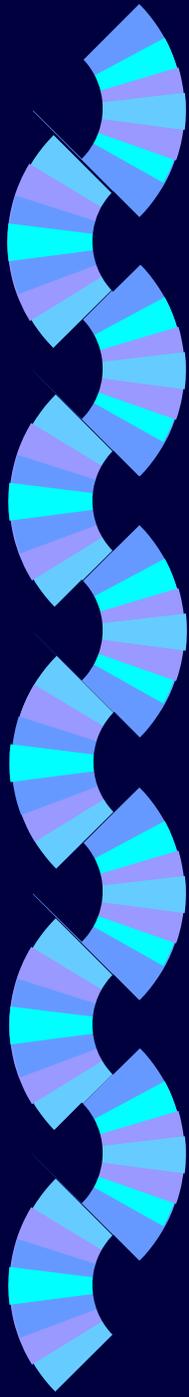
Who, What, Where

- ❖ Investigator
- ❖ Media
- ❖ Focus Names
- ❖ Analytes
- ❖ Grace Analytical Laboratory
- ❖ Open Lake
- ❖ GRLZ, GRLP
- ❖ Zooplankton, Phytoplankton



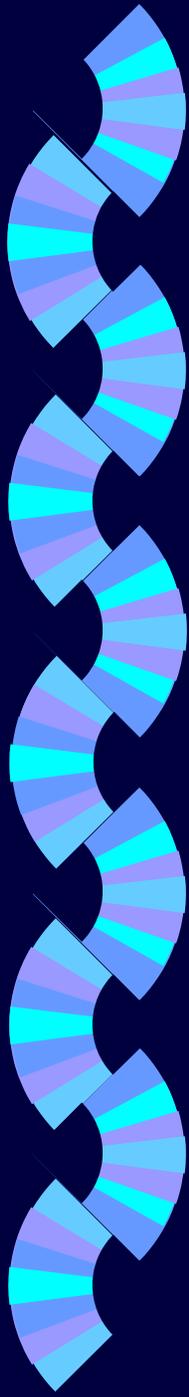
The Methods

- ❖ Species identification, counts, and measurements were used to calculate abundances and biovolumes/biomass for phytoplankton and zooplankton



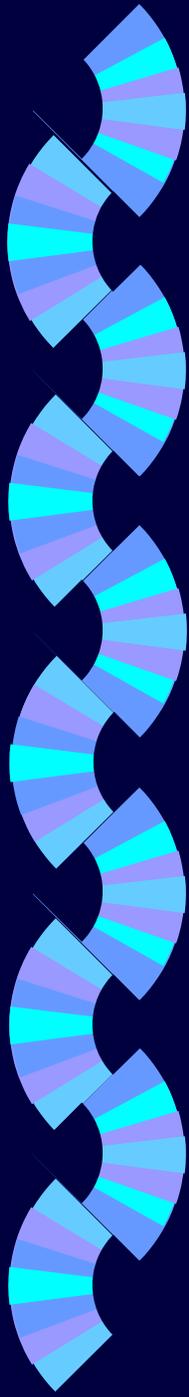
The Verification Process

- ❖ Non-RDMQ Process
- ❖ Counts and measurements used for abundance and biovolume/biomass calculations were verified to original bench sheets
- ❖ Formulas and shapes used for biovolume/biomass calculations were checked for each species identified



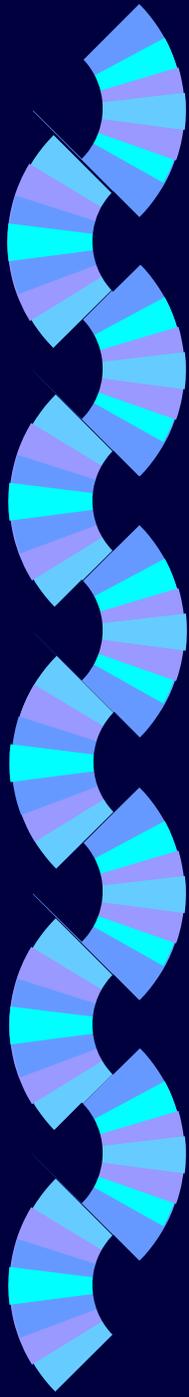
Zooplankton - Outstanding Issues

- ❖ An incorrect formula was used to calculate the biomass of *Bythotrephes*



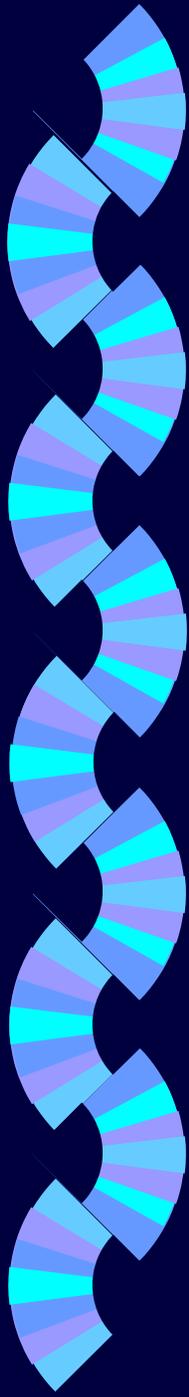
The Incorrect Formula

- ❖ The formula that was incorrectly used is a regression based on total length (the body + the spine)
- ❖ The laboratory only measured the body length
- ❖ This leads to a significant under estimation of the biomass
- ❖ This can be corrected



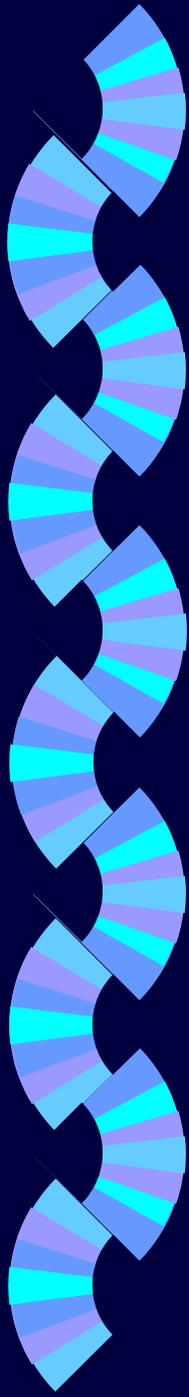
Zooplankton - More Issues

- ❖ Due to the 20 meter depth tows used for sampling there appears to be skewed representation of the Zooplankton community



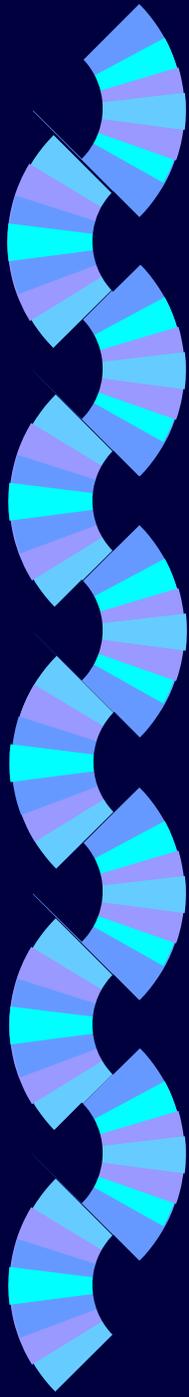
The 20 Meter Tow Depth

- ❖ The zooplankton migrate up and down the water column every 24 hour period. Most species appear above 20 meters during the night
- ❖ The field logbooks containing the time of day of sample collection have been lost. Estimates of sampling time are available



The 20 Meter Tow Depth - Further Comparisons Show:

- ❖ Two copepods (*Limnocalanus macrurus* and *Diaptomus sicilis*) rarely migrate above 20 meters in the water column
- ❖ 100 meter tow results in 1998 indicate that these species could make-up 10% of the community in number
- ❖ These species are thought to be important fish food organisms



Outstanding Issues - Phytoplankton

- ❖ For samples collected during the June 1994 cruise, measurements of the length of *Rhizosolenia* are 10 times greater than they should have been. This resulted in an over estimation of biovolume
- ❖ *Sub transylvanicus* (look like pill boxes) the depth measurements appear to be too small resulting in an under estimation of biovolume