Phytoplankton Particulate Elemental Ratios: Three Competing Hypotheses

106 Carbon to 16 Nitrogen to 1 Phosphorous are modeled at constant Redfield proportions, but the surface ocean has variation in C:N:P along latitudes and between ocean basins.

- **Global Ocean**: C:P → Temperature Increases
- **Eastern Indian Ocean**: C:P → Temperature Increases

**H1:**
- **Temperature Increases**

**H2:**
- **C:P →** Nutrient Supply Decreases
- **C:P ←** Nutrient Supply Increases

**H3:**
- **C:P →** Cell Size Decreases
- **C:P ←** Cell Size Increases

In Eastern Indian Ocean temperature & nutrient supply are both INCREASING.
Heterotrophic bacteria
Prochlorococcus
Synechococcus

Eukaryotes < 20um

Eastern Indian Ocean

Temperature Increases
Nutrient Supply Increases
Cell Size Increases
Prochlorococcus everywhere