

# Quantifying plankton predation rates, their effects on primary production, phytoplankton community composition, size spectra and potential for export

## SCIENCE GOALS

Grazing is the single largest loss process of marine primary productivity and alters plankton taxonomic composition and particle size spectra.

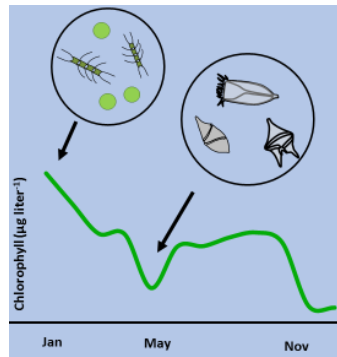
Our goals are to:

### 1. Quantify herbivorous protist grazing rates

- Measure grazing rates on primary production using traditional and eco-genomic markers
- Measure feeding potential of herbivorous protists below the euphotic zone
- Enhance resolution of rate estimates
- Obtain incubation-free estimates of grazing in herbivorous protists and determine prey field in macrozooplankton

### 2. Predict Predation and its influence on different export pathways

- Discover and parameterize relationships between phytoplankton population dynamics and environmental and biological conditions

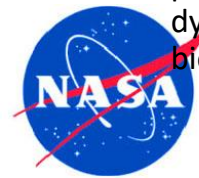
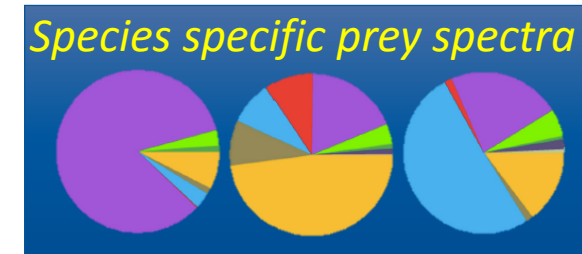


## TEAM MEMBERS

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## LOGISTICS

### Process ship

1. Water collection + incubations to measure microzooplankton grazing and phytoplankton growth
2. Filtering water for in situ assessment of microzooplankton grazing
3. Collect and fix macrozooplankton (collab. w/ Steinberg/Maas)

### Survey ship

1. Water filtering to assess grazing



## MEASURED PARAMETERS

1. Particle size, fluorescence/cell, forward scatter, size fractionated Chl a
2. Phytoplankton and microzooplankton taxonomic composition and abundance
3. Grazing effects on abundance, identity and size spectrum
4. Simultaneous rates of phytoplankton growth and microzooplankton grazing
5. Macrozooplankton gut contents (species composition)

