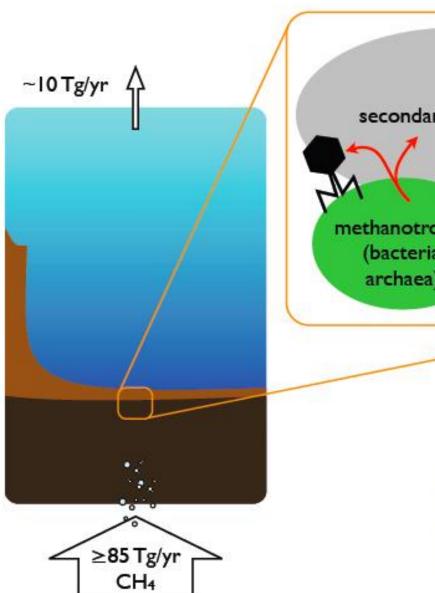


### Fleet Improvement Committee Early Career Scientist Program

## Chief Scientist Training Cruise Participant Introductions

### Microbial biodiversity and evolution at marine cold seeps Sarah Bagby (Valentine lab, UCSB)



secondary consumers

other primary producers

methanotrophs (bacteria, archaea)

CH4

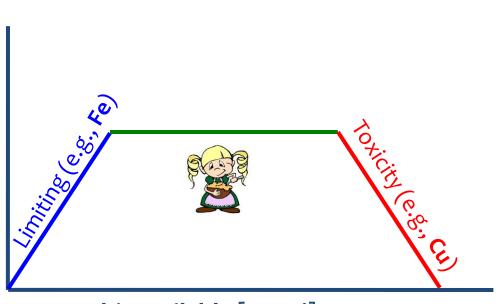
We use novel incubators to track these processes and players in situ





### Kristen Buck: Trace Metal Biogeochemistry

phytoplankton growth rate



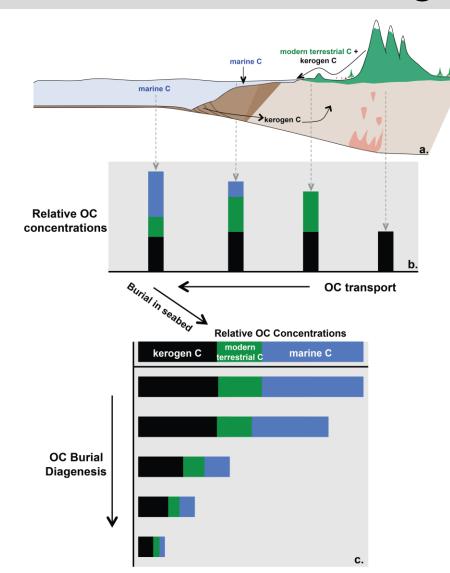


bioavailable [metal], nM



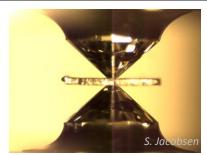


### Active Margin Carbon Cycle



- •elemental, stable isotope measurements
- •biomarkers: lignin, n-alkanes, fatty acids, etc.
- •spectroscopy: FTIR and Raman

#### Other related research:



simulated subduction zone experiments high temperature-high pressure anvil cells





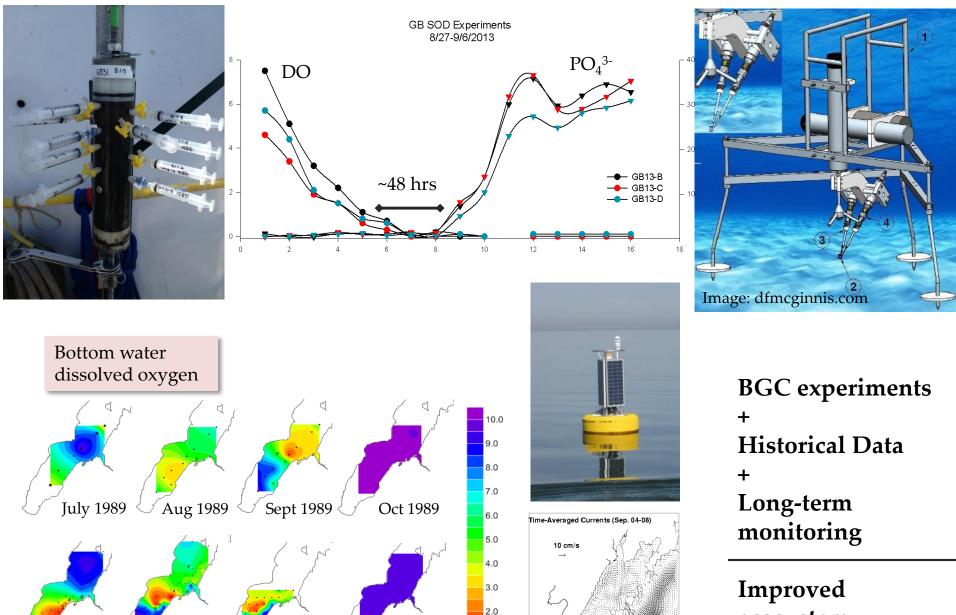






### Broader Impacts: Societal importance

Research highlights and emphasis



1.0

0.0

mg/L

Oct 2012

Sept 2012

July 2012

Aug 2012

Shelby LaBuhn; UW-Milwaukee

Improved ecosystem understanding → Societal benefits

#### Yuehan Lu

Assistant Professor in Organic Geochemistry/Biogeochemistry; Department of Geological Sciences, University of Alabama

### Research Theme

Watershed
Hydrology
Climate

Aquatic Organic Matter (source, composition, age, transformation, preservation)

Microbial Food Webs

Whole-system

Metabolism

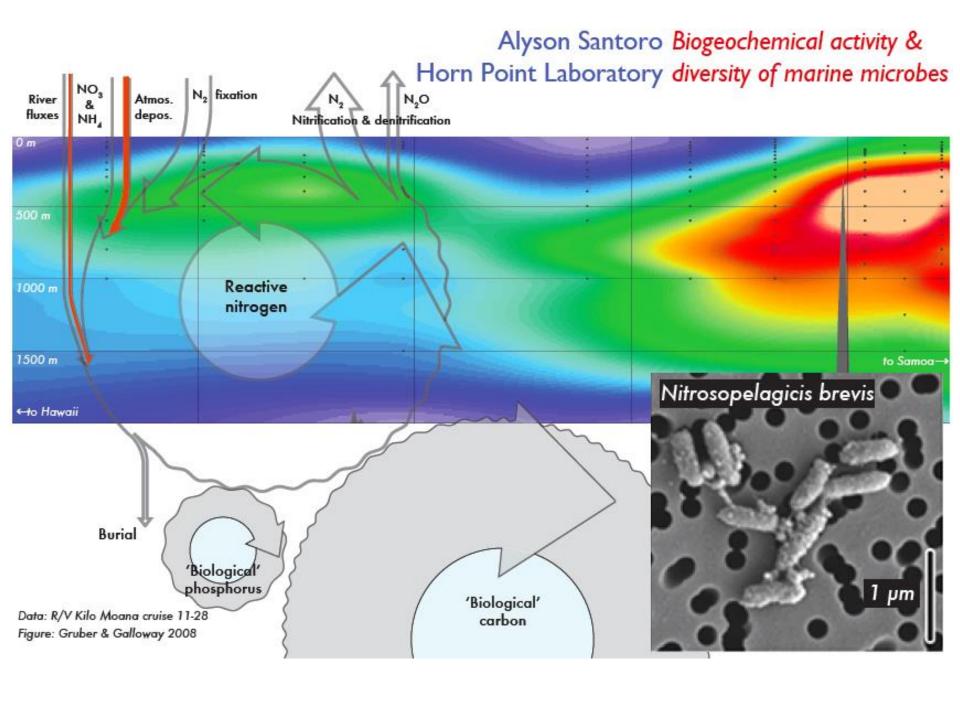
### Research Tools

Isotopes: Stable carbon & nitrogen, Radiocarbon Lipid Biomarkers: Lignin, Fatty Acid, Sterol, Alkane Optical Properties: 3D Fluorescence, Absorption High-resolution Mass Determination: FTICRMS

Molecular fossils: sourcespecific + resistant; recording past climate changes

Ecosystem responses to anthropogenic changes and climate changes

2. Molecules associated with sulfide-tolerate microorganism for reconstructing past anoxic events.



# Trueblood Lab: Marine Environmental Physiology

Examine the impact environmental changes have on physiological processes

