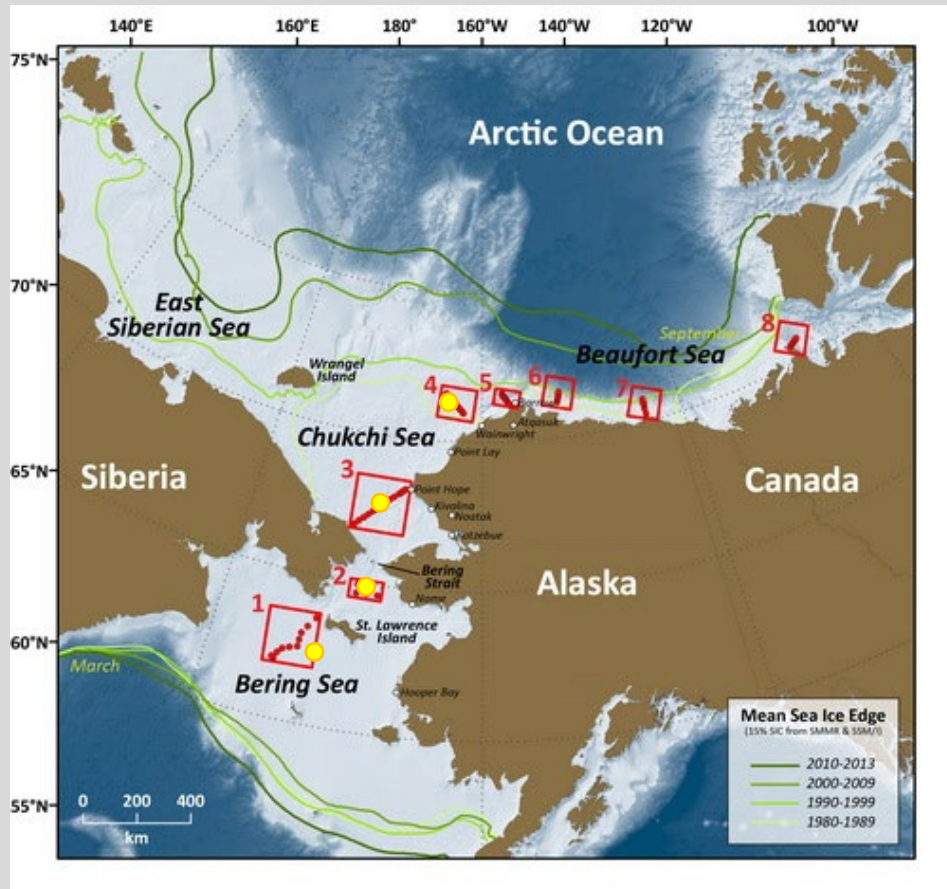


Annual cycles of export fluxes of biogenic matter in the Bering and Chukchi Seas

Catherine Lalande, Amundsen Science, Université Laval, Québec City, Canada

Long-term monitoring of export fluxes using sequential sediment traps
deployed on moorings near the DBO sites



DBO4: 2015-2016, 2018-2019, 2019-?
(Chukchi Ecosystem Observatory)

DBO3: 2017-2019 (ASGARD)

DBO2: 2017-2019 (ASGARD)

DBO1: 2020-2023 (Monitoring SLIP region)

NPRB Arctic Integrated Ecosystem Research Program Special Issue Deep-Sea Research II

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Deep-Sea Research II xxx (xxxx) xxx



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Annual cycle of export fluxes of biogenic matter near Hanna Shoal in the northeast Chukchi Sea

Catherine Lalande^{a,*}, Jacqueline M. Grebmeier^b, Russell R. Hopcroft^c, Seth L. Danielson^c

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^b Chesapeake Biological Laboratory, University of Maryland Center for Environmental Science, Solomons, MD, USA

^c College of Fisheries and Ocean Sciences, University of Alaska Fairbanks, Fairbanks, AK, USA

Chukchi Ecosystem Observatory

AOOS
Alaska Ocean Observing System

Olgoonik
Fairweather LLC

W UNIVERSITY of
WASHINGTON



UNIVERSITÉ LAVAL

University of Alaska
CENTER FOR ENVIRONMENTAL SCIENCE

UAF UNIVERSITY of
ALASKA
FAIRBANKS



Xeos Locator Beacon

TRDI WAVES:

Acoustic Doppler Current Profiler

SBE 37-SM MicroCat:

Conductivity, Temperature, Pressure

AURAL:

Passive Acoustic recorder

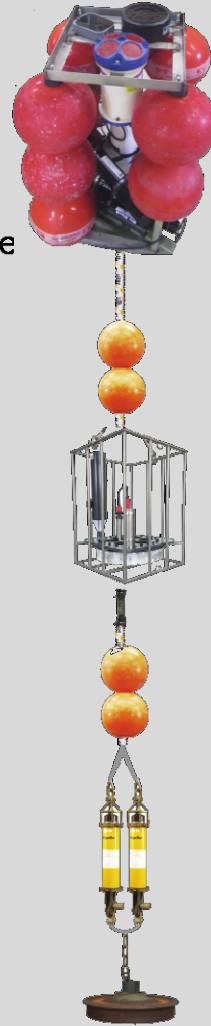
Aanderaa RCM9

Current meter

SBE 37-SM MicroCat at

Conductivity, Temperature, Depth

2 Push-Off Release Transponders



Xeos Locator Beacon

Suna V2: Nitrate

HydroC pCO₂

SeapHOx: pH, Oxygen, Salinity and Temperature

Laser In-Situ Scattering and Transmissometry

Acoustic Zooplankton and Fish Profiler

SeaCat datalogger:

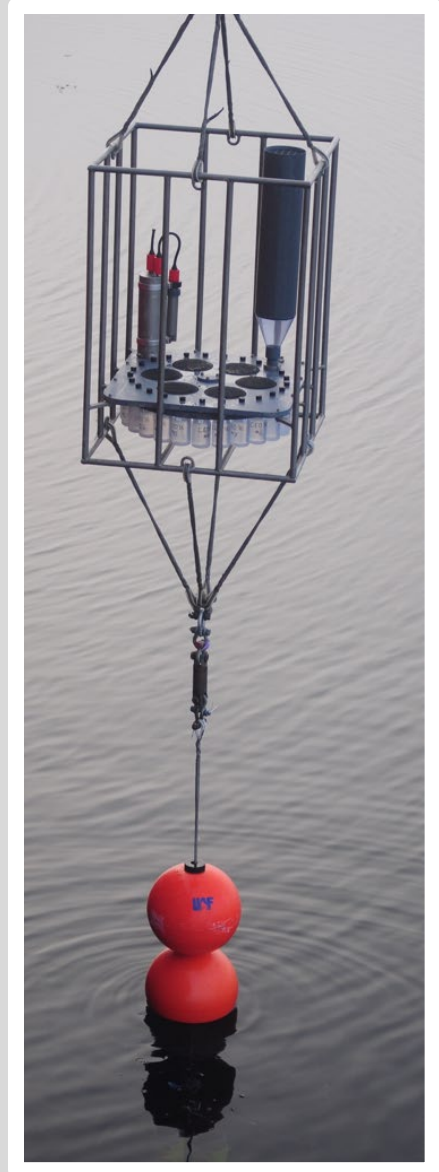
Conductivity, Temperature, Pressure,

Photosynthetically Active Radiation,

Oxygen, turbidity, Colored Dissolved Organic Matter

Sediment Trap

2 Push-Off Release Transponders



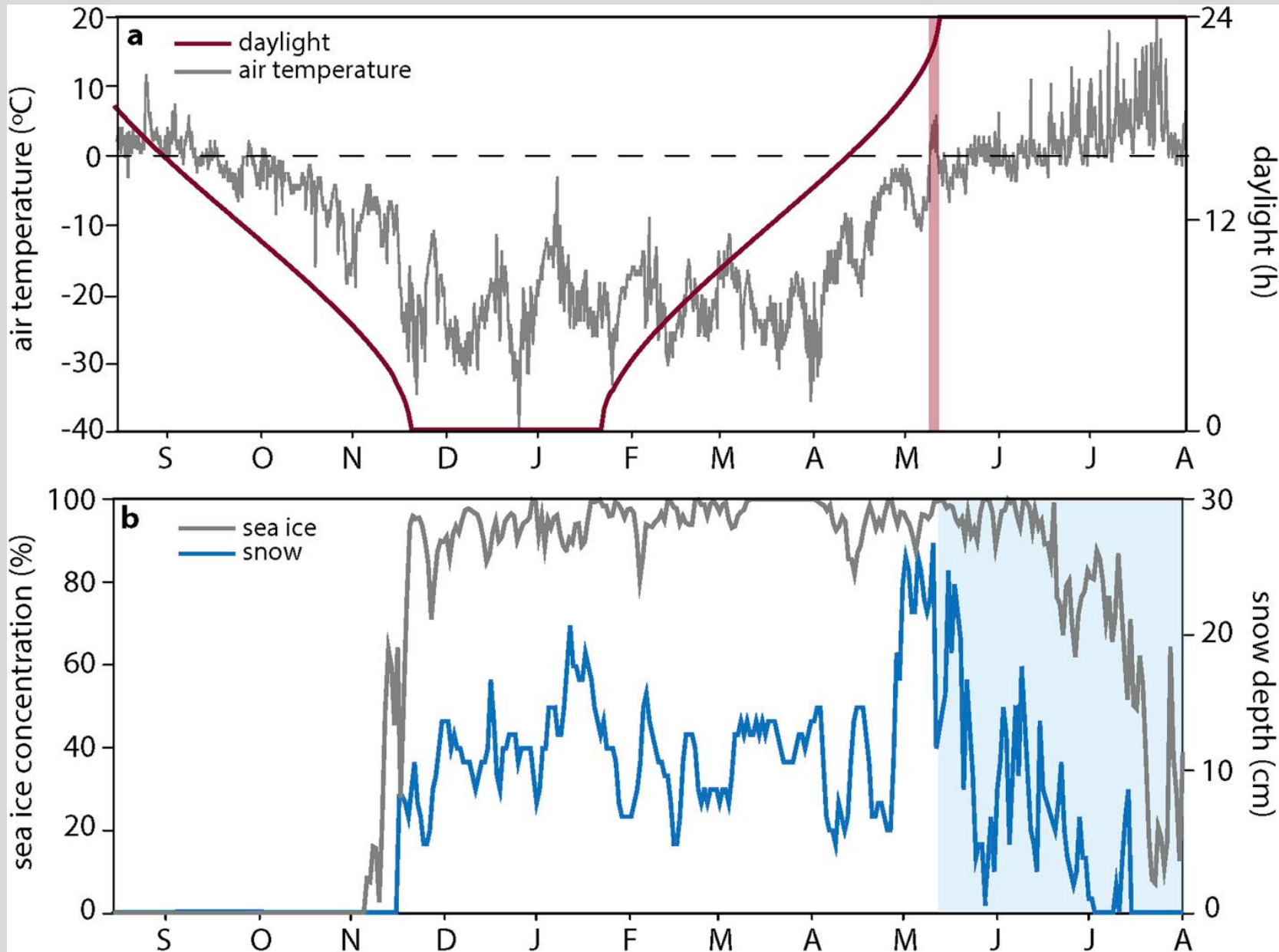


Sequential Sediment Trap

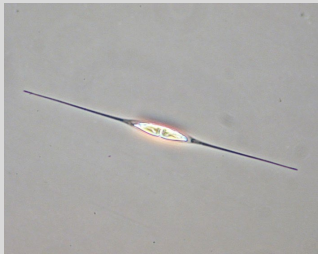
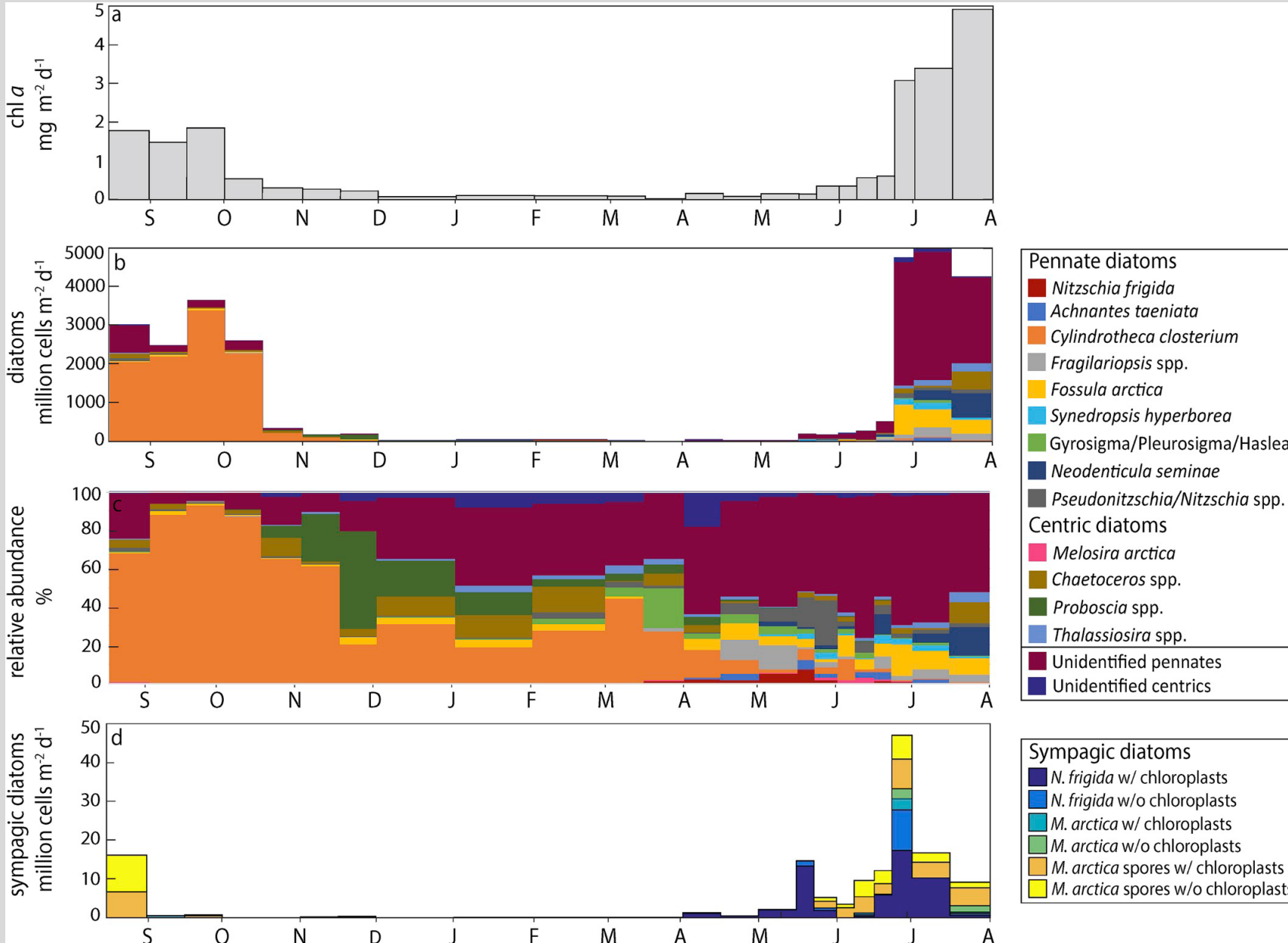
Export fluxes ($\text{m}^{-2} \text{d}^{-1}$)



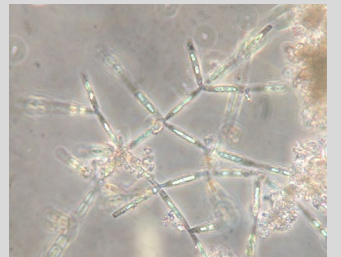
2016-2016 deployment: Sunlight, Air temperature, Sea ice and Snow



Chl *a* and Diatom fluxes

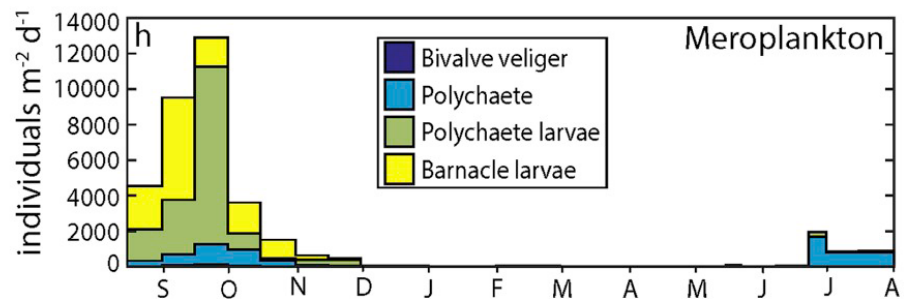
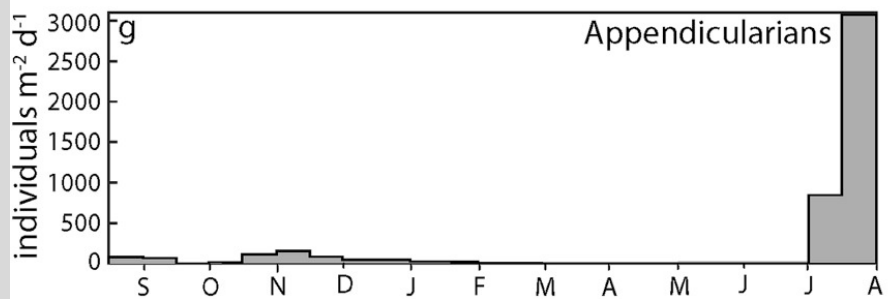
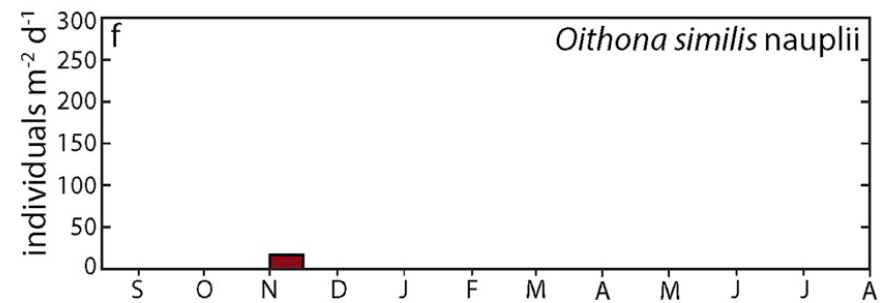
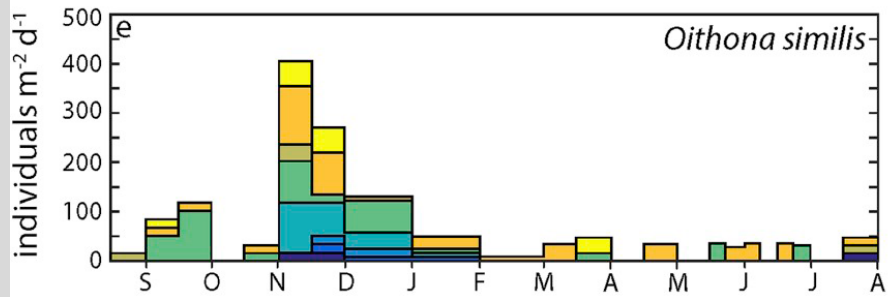
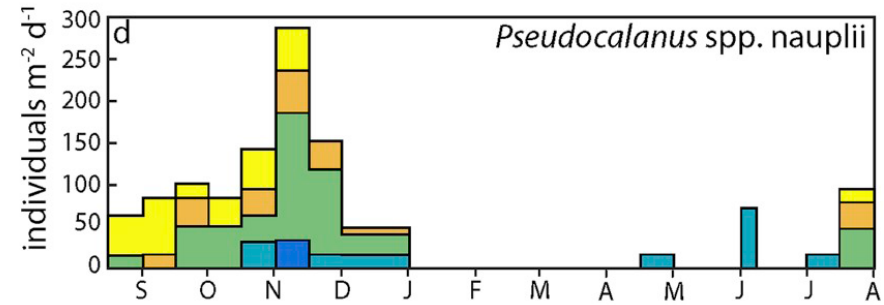
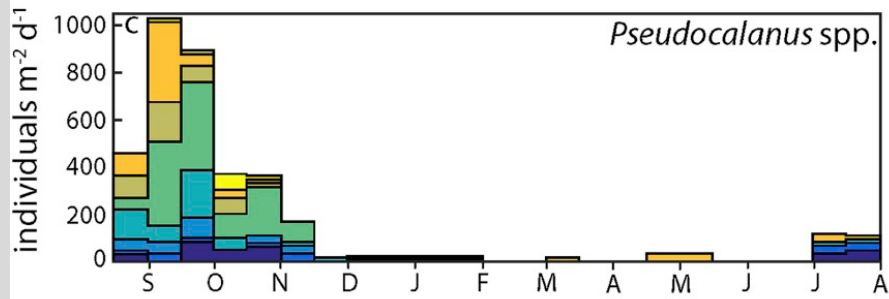
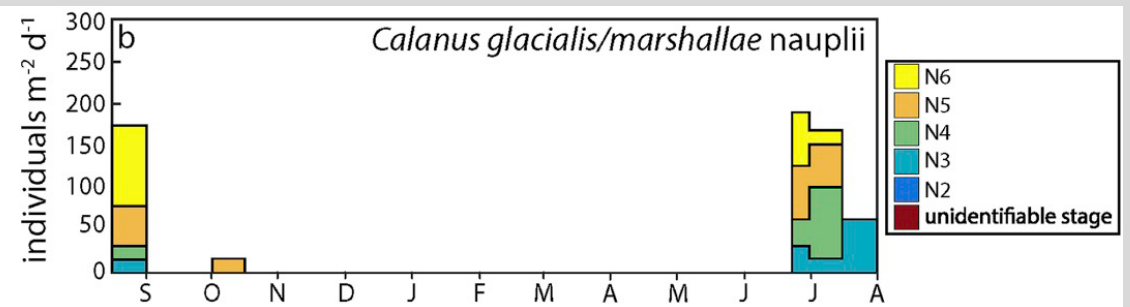
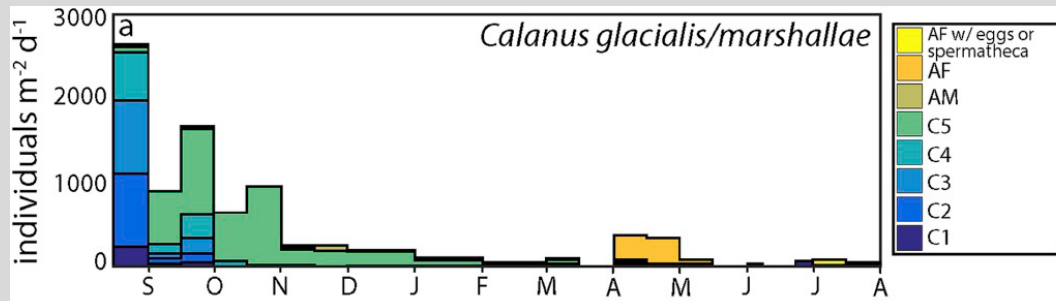


Cylindrotheca closterium

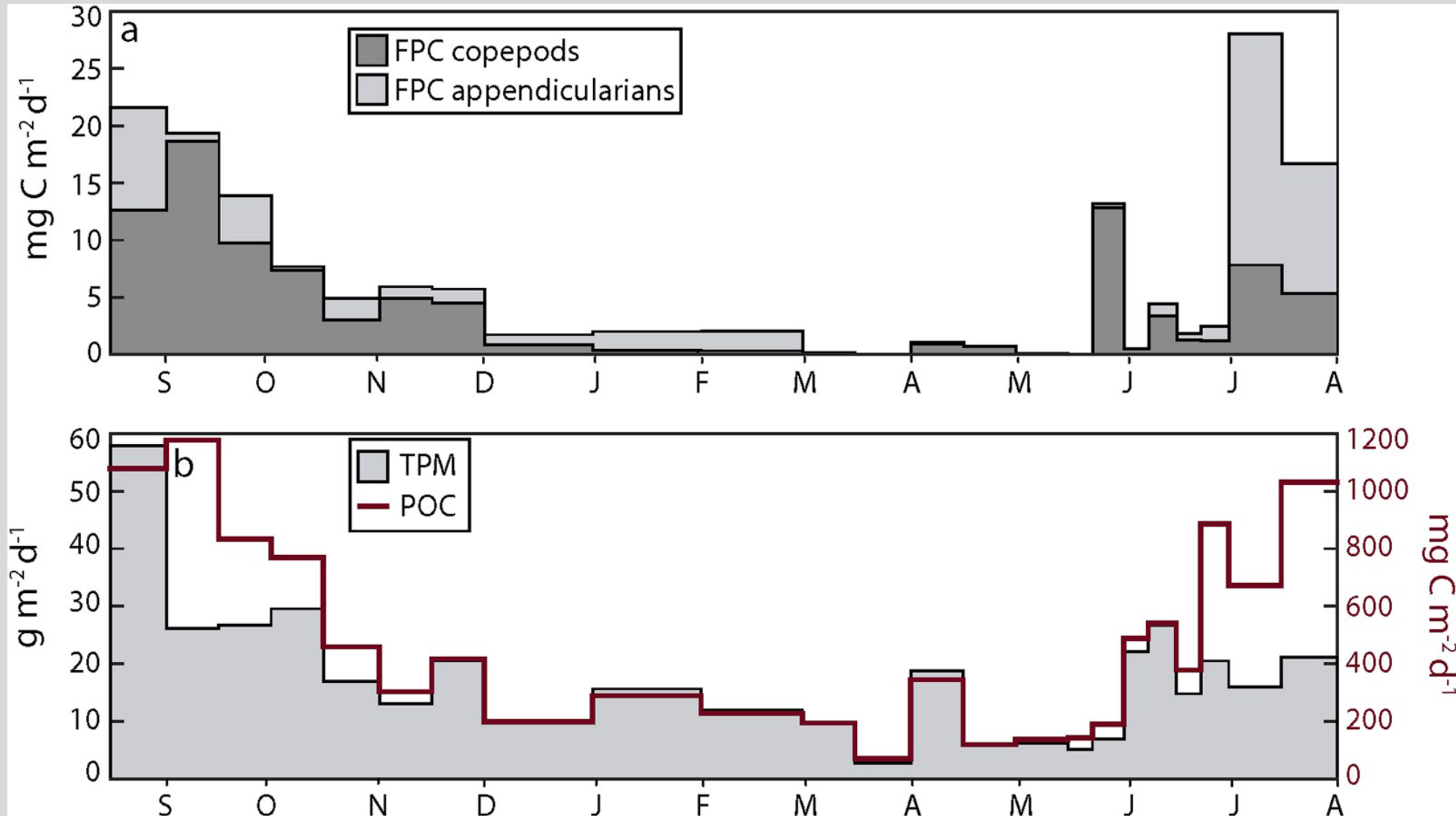


Nitzschia frigida

Seasonal development of zooplankton and meroplankton communities

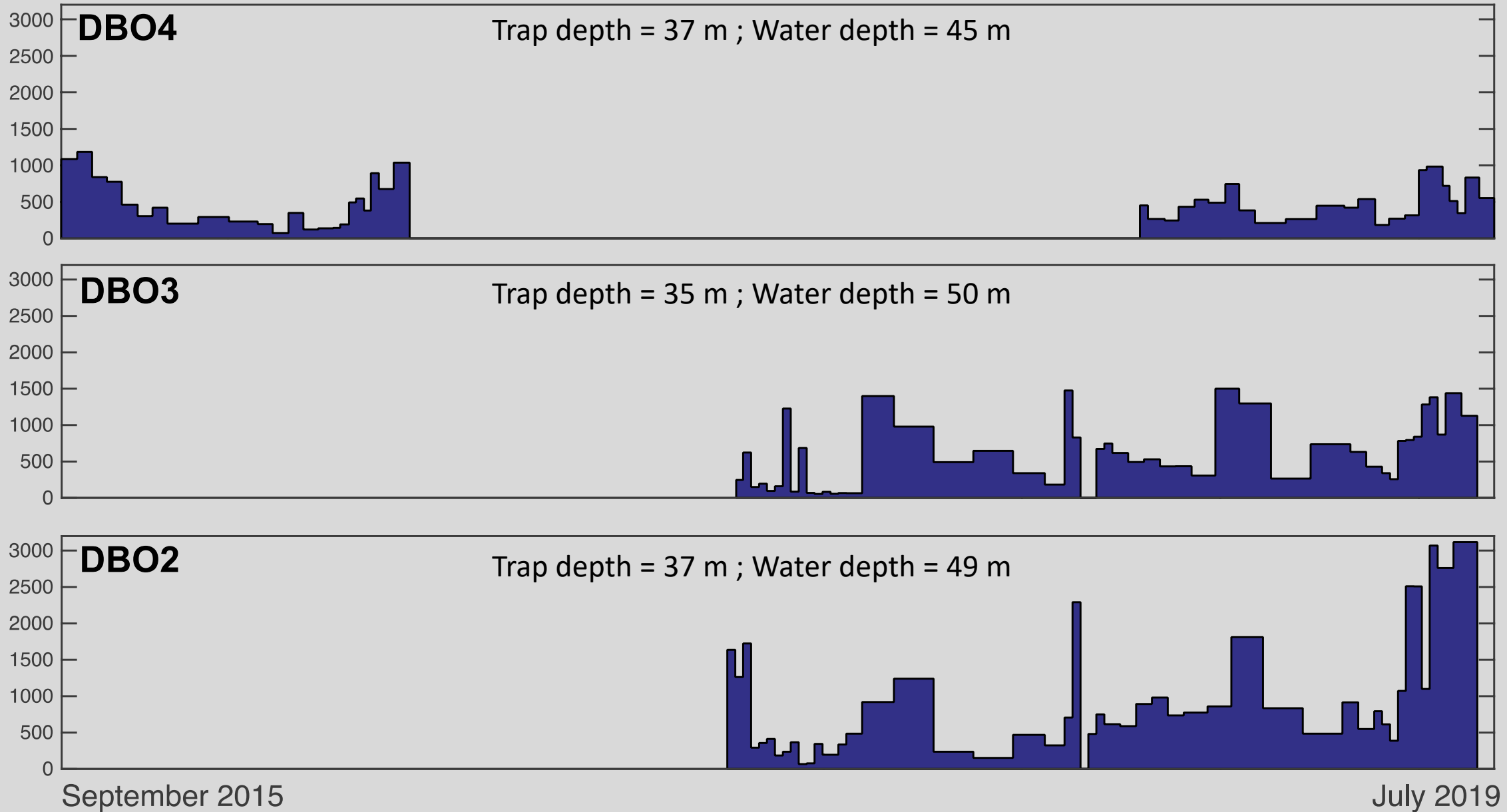


Zooplankton Fecal Pellet Carbon fluxes, Total Particulate Matter, and Particulate Organic Carbon fluxes



- Same measurements completed for 2017-2018 deployments
- Analyses ongoing for 2018-2019 deployments at 3 DBO sites

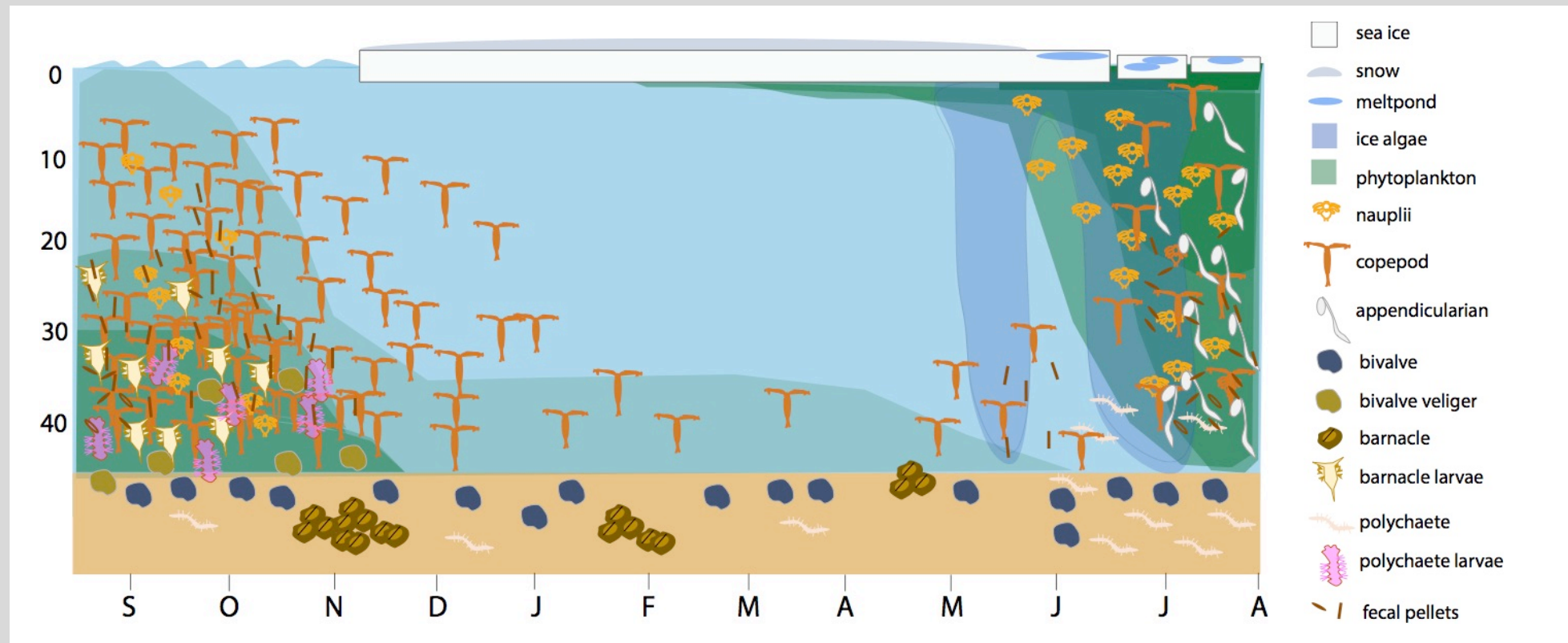
Preliminary results - POC fluxes



- Sediment trap samples available for other measurements

Chelsea Wegner - Exploring the production, contributions and utilization of sea ice algae in DBO using IP₂₅ and other lipid biomarkers

High-resolution biological time-series measurements are providing critical information to track biodiversity, seasonal development of the phytoplankton, zooplankton, and meroplankton communities, and food supply to the benthos



Thank you

