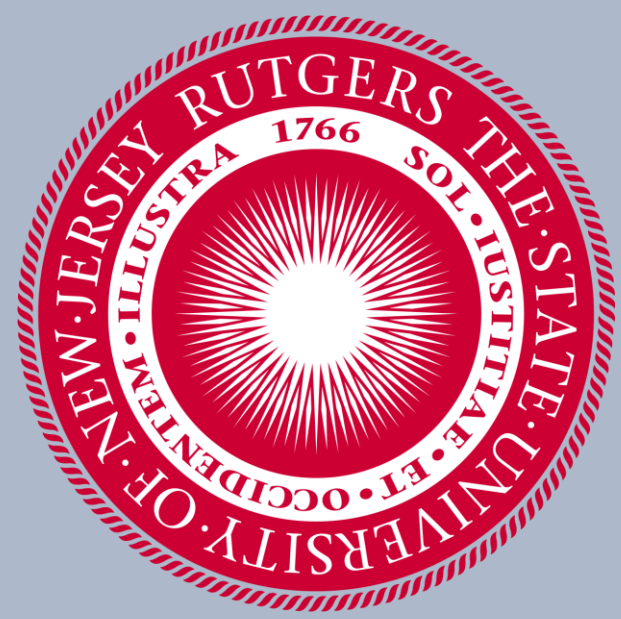


Understanding the seasonal linkages of underlying oceanographic conditions and phytoplankton dynamics in and around offshore wind development areas

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Introduction

Characterizations of Mid-Atlantic Bight (MAB) phytoplankton communities are currently poor as a result of low interseasonal coverage & in-situ sampling. With the development of offshore wind along the New York/New Jersey coast, baselines will be necessary to assess the impacts of wind turbine operation. Quarterly sampling will be performed to identify relationships between ocean water column structure, seasonal patterns of taxon-specific phytoplankton abundance and biomass, and phenology.

Methods

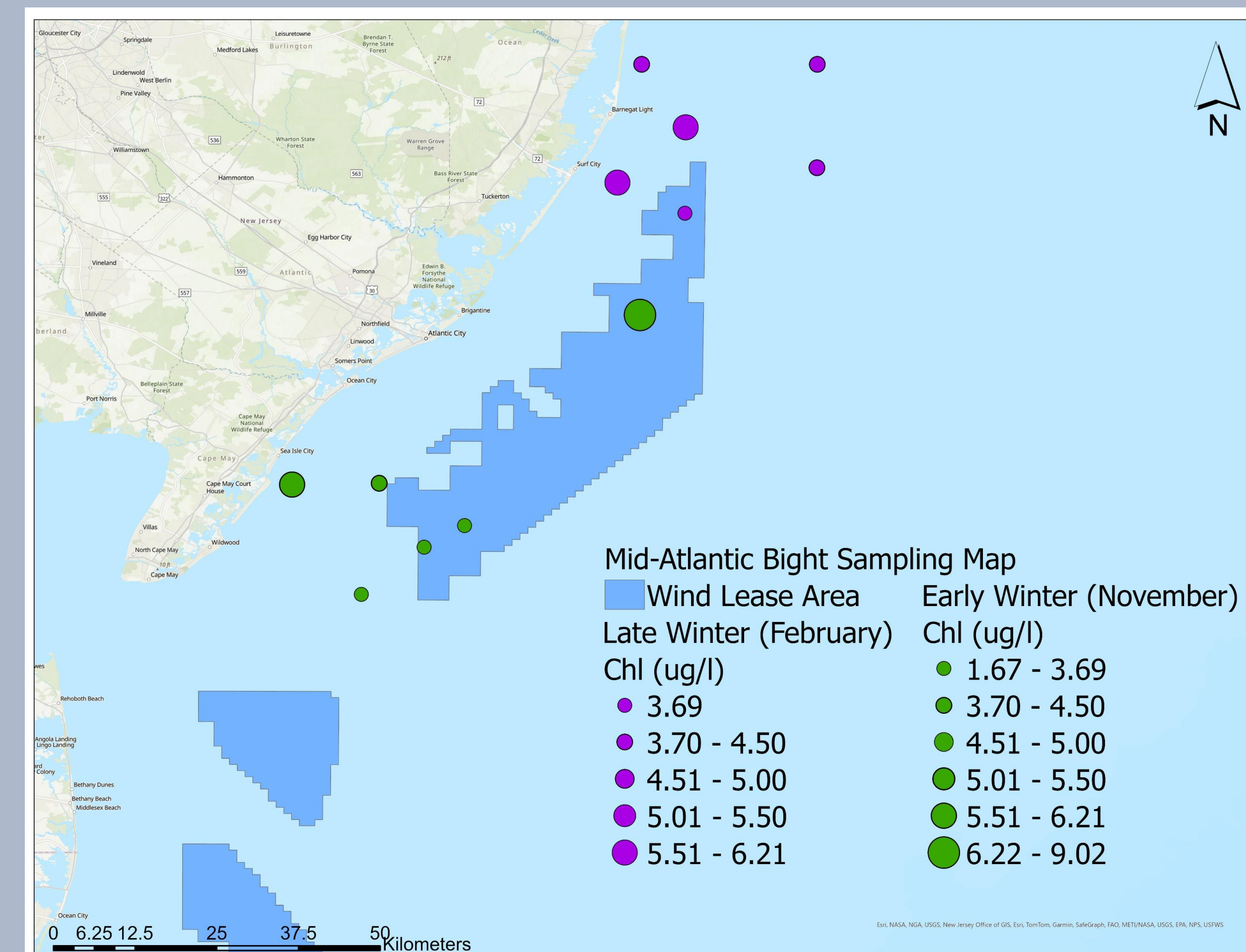
Filtered and preserved water samples were collected during early and late winter 2023 from 10 to 30 kilometers offshore coastal New Jersey. Pigments were analyzed from filters to determine phytoplankton (chlorophyll) biomass and major taxonomic groups.

Results

Chlorophyll concentrations were generally higher nearshore, and increased 29% between early and late winter. High concentrations of fucoxanthin pigment suggest that diatoms dominate the phytoplankton community.

Discussion

Further investigation using imaging flow cytometry and microscopy will determine species-specific phytoplankton community composition, and relating these parameters to physical ocean characteristics will assist in identifying the drivers of phytoplankton seasonal dynamics.



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