

The coccolithophore community of the Sargasso Sea

Josué G. Millán

Indiana State University, Terre Haute, Indiana, USA. jmillan1@sycamores.indstate.edu

Amos Winter

Indiana State University, Terre Haute, Indiana, USA

Richard W. Jordan

Yamagata University, Yamagata, Japan

Jeremy R. Young

University College London, London, UK

Leocadio Blanco-Bercial

Bermuda Institute of Ocean Sciences, St. Georges, Bermuda

Rod Johnson

Bermuda Institute of Ocean Sciences, St. Georges, Bermuda

The Sargasso Sea is a dynamic region in the North Atlantic Ocean, delimited by the western boundary current that forms part of the North Atlantic gyre, and is often depicted as an oligotrophic environment. In the Sargasso Sea, most of the primary production occurs between 80 m and 120 m, at the Deep Chlorophyll Maximum (DCM). The haptophytes, a clade of algae that share a common evolutionary ancestor, represent the main group of eukaryotes in the Sargasso Sea as detected by total integrated Chl-a biomass. From this group, coccolithophores are arguably the best known organisms due to their contribution in global carbon cycles as key calcifying primary producers. Hence, multiple projects around the world have been carried out to study coccolithophore communities from disparate locations, usually based on cruises of opportunity such as latitudinal oceanic transects across the Atlantic Ocean close to the mid-Atlantic ridge. This has created a disproportionate data set which is often used to represent the entire ecosystem. On the western side of the North Atlantic, research on phytoplankton communities has been undertaken at the Bermuda Atlantic Time-series (BATS) by various groups but not to the level of taxonomic identification of coccolithophores which we attain in this presentation. Our examinations from a short study focusing on the lower photic zone from samples collected from hydrostation S, show a high biodiversity not previously reported. We found that the coccolithophore community at BATS during the fall of 2020 comprises 206 morphotypes, of which 90 are present at 20 m depth, and 182 in the lower photic zone (DCM and below). Of those, at least 40 morphotypes are completely new to science or undescribed.