

## ORAL PRESENTATION

### DRIVERS AND SPATIAL CONSISTENCY OF SPECIALIZATION IN A DOMINANT, MAT-DWELLING DIATOM, *ENCYONEMA EVERGLADIANUM*, FROM THREE FRESHWATER WETLANDS IN THE CARIBBEAN BASIN

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We used populations of an abundant diatom in calcareous microbial mats, *Encyonema evergladianum*, from 3 karstic wetlands in the Caribbean Basin to test whether the relative abundance of this species is more strongly driven by macrohabitat features (landscape-scale gradients of conductivity and P availability) or mat microhabitat characteristics (biomass and mineral content), and whether specialization is maintained in populations from geographically separated but environmentally similar wetlands. We found that, across Caribbean wetlands, the abundance of *E. evergladianum* was most strongly tied to microbial-mat biomass, suggesting that this species is specialized for, and probably contributes to, the unique conditions of these mats. However, the magnitude and importance of micro- and macroscale drivers on *E. evergladianum* abundance differed among wetlands, which implies that this diatom has differentiated ecotypically across its range. We found no morphological correlates to potential ecotypes, making it difficult to distinguish between ecotypes without molecular studies. We also searched for an engineering role of *E. evergladianum* in mat structure by examining freeze-fractured mat fragments under scanning electron microscopy, but found no morphological evidence for functional contributions to mat cohesion. *Encyonema evergladianum* is a consistently strong indicator of oligotrophic, freshwater conditions that promote calcareous microbial mats in coastal karstic wetlands of the Caribbean. However, abundance-based approaches to habitat assessment need to be calibrated in the context of individual wetlands, particularly in these subtropical wetlands that are exposed to abrupt ecosystem-scale changes in response to climate and anthropogenic changes in salinity and nutrient delivery.