Analyzing Microbial Community for Enhanced Nutrient Removal and Biomass Productivity on a Pilot-Scale Algal Turf Scrubber® in Dairy Wastewater

Juchao Yan[1], David Arellano[1], Blake Hovde[2], Anand Kumar[2], Armand Earl Ko Dichosa[2]

[1]Department of Physical Sciences, Eastern New Mexico University, Portales, NM
[2]Bioscience Division, Las Alamos National Laboratory, Los Alamos, NM

Built on our ongoing research of using algae to recover nutrients in dairy wastewater on an outdoor pilot-scale Algal Turf Scrubber® (ATS), we have used metagenomics to analyze the microbial communities for the samples collected at different locales down the floway. This is toward engineering the algal/bacterial assemblage, which is conducive to the most efficient nutrient removal and highest biomass productivity. Interestingly, our preliminary findings show that ATS is a highly dynamic system, whereby sulfur-based metabolism appears to dominate the initial floway then converts to a nitrogen-based metabolism at the terminal end.