

First-Year Research in Earth Sciences: Dunes

FYRES: Dunes Research Report: Etienne, Kaitlyn, Alejandra Crevier, Jack M. Davis, Stephanie A. Praamsma, and Adrienne Tauscheck (2016). “Evaluating Sand Fence Placement, Purpose, and Efficacy on West Michigan Dunes.” FYRES: Dunes Research Report #20. Grand Rapids (MI): Department of Geology, Geography and Environmental Studies, Calvin College. 19 p.

Abstract: Adding sand fences to a dune can significantly impact morphology, ecology, and human interactions with the landscape. Although the effects (intended and unintended) of sand fences have been documented on ocean coasts, no such study has focused on the Great Lakes region. In autumn 2015, we visited four Ottawa County Parks along Lake Michigan’s coast to map the locations of fences and unmanaged trails. We photographed each site to capture fence settings and conditions. We estimated porosity and recorded damage intensity and type for each fence. We categorized the amount of deposition near each fence using a ranking system. Our results show that fence locations affect human accessibility and sand deposition. Unmanaged trails often appeared to be a byproduct of fence placement. The greatest deposition on average was observed at the least vegetated site closest to the shore. Most fences were damaged, lowering their ability to deter human traffic or trap sand. Our study results add to the body of knowledge on sand fence location, orientation, and condition, providing information that can aid management practices to promote a healthy dune environment.