

First-Year Research in Earth Sciences: Dunes

FYRES: Dunes Research Report: LePage, Gabe, Bastian Bouman, Benjamin Johnson, Ryan Kiper and Madison Smith (2015). “Boardwalk Interactions with a Lake Michigan Dune System.” FYRES: Dunes Research Report #17. Grand Rapids (MI): Department of Geology, Geography and Environmental Studies, Calvin College. 28 p.

Abstract: Boardwalks enable visitors to enjoy dunes in a way that protects sensitive dune environments from human impacts, but a tension remains as a boardwalk itself alters a dune system. This study investigates how a boardwalk in Hoffmaster State Park, Michigan affects human interactions with a Lake Michigan coastal dune system. In autumn 2014, the boardwalk was mapped and the quality of its features assessed. Human impacts were investigated by documenting unmanaged trails and interviewing park staff. Ecological communities were mapped, and vegetation conditions near the trails were recorded. The boardwalk is part of a managed trail system connecting a visitor center with the beach; the boardwalk gives visitors access to a high dune lookout over Lake Michigan. The boardwalk ends at two viewing platforms and is worn but functional. A network of unmanaged trails indicate that people leave the boardwalk. The boardwalk and the unmanaged trails interrupt the ecological communities. The study results suggest that the boardwalk enables enjoyment of the dune and protects vulnerable environments, but it also affects the formation of unmanaged trails and influences dune processes. Understanding the spatial patterns of human interaction with the dune can inform the planning process as park staff work towards reconstructing the boardwalk in the next few years.