

# First-Year Research in Earth Sciences: Dunes

**Conference Presentation:** Parkin, Ann, Catherine Hilbrands, Joanne Hulst, Elizabeth Stranzenbach and Sam Vannette (2012). “Analysis of dune management efforts at North Beach Park dune, Michigan” Annual Meeting of the Michigan Academy of Science, Arts and Letters, Alma College (Alma, MI), 2 March 2012.

**Abstract:** Few studies have focused on the management of Lake Michigan coastal dunes. This project investigates the efforts to stabilize North Beach Park dune, a large parabolic dune in Ottawa County, Michigan. In 2004, dune advance was documented at 0.67 m/yr. in the direction of the only access road to more than 300 houses. Since 2004, Ottawa County implemented a variety of management measures including an elevated boardwalk, sand fences, and planted vegetation. In Fall 2011, we analyzed these management techniques and how they affect the current dune advance rate. We mapped each management effort using GPS, constructed a timeline of management activities, measured dune advance against monitoring posts, analyzed photos from different years, and compared the 2011 measurements with results from 2004. Results show that the advance rate and bare sand areas of the dune have decreased. The sand fences cut down walking on existing pathways but the total number of unmanaged trails increased. We conclude that the management efforts have significantly decreased the advance of the dune towards the road.