

GRAIN SIZE ANALYSIS OF PROTO-SPITS AND BEACH FRONTS IN THE WESTERN ERIE LAKE BASIN IN NORTHWESTERN, OHIO

Courtney Smith

Kent State University, Geology-sedimentology, Stow, OH, USA
csmit248@kent.edu

ABSTRACT

Barrier spits have long been presumed to develop by transporting sediment by longshore drift, but little is known about the development of flying spits. A presumptive flying spit in the drained Glacial Lake Maumee Basin in NW Ohio presents an opportunity to collect extensive samples from offshore, along the crest, and from on-shore deposits in order to perform grain analysis and use GPR techniques to understand sediment transport paths and internal facies architecture. A comparative analysis will also be performed on the modern Presque Isle spit in Erie, Pennsylvania due to its similarity to the Maumee feature in length, curvature, and configuration relative to the coastline. However, the Maumee feature is very narrow and low, is discontinuous, and lacks recurved hooks and washover lobes. These features suggest that it was arrested in a very early stage of development and that flying spit can grow by upward shoaling, like some barrier islands. Directional trends in mean and maximum grain size from potential sediment sources and along and across the spit, combined with breaks or continuities in trends across discontinuities in the spit should clarify sediment transport paths and thereby indicate the spit's manner of growth: either upward shoaling and sand supply from offshore, lateral extension via longshore drift, or local supply from mouths of meltwater channels that flowed off the coastal moraine during deglaciation. Overall, the Maumee feature has the potential to challenge previous ideas on flying spit development and may shed light on factors that control their growth.

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