

# Engineered sandbars don't measure up for nesting plovers

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Piping Plovers have more success nesting on natural sandbars than on human-built habitat. Credit: D. Borden

Dams alter rivers in ways that reduce the creation of natural sandbars, which is bad news for threatened Piping Plovers that depend on them for

nesting habitat. Between 2004 and 2009, more than 200 hectares of engineered sandbars were built along the Missouri River to address the problem—but how does this engineered habitat compare to the real thing? A new study from *The Condor: Ornithological Applications* takes advantage of a natural experiment created by the region's 2011 floods, demonstrating that the engineered habitat doesn't provide the benefits of sandbars created by nature.

Kelsi Hunt of the Virginia Polytechnic Institute and State University and her colleagues collected data downstream of Gavins Point Dam from 2005 to 2014, monitoring more than 1,000 nests and banding almost 3,000 individual birds both before and after massive floods in 2011 created vast new areas of natural sandbar [habitat](#). Nest success, chick survival, and total reproductive output all increased after the flood and remained high as flood-created sandbars began to age, even without the intensive predator management that had been done on the engineered sandbars. In contrast, Piping Plover populations nesting on engineered sandbars grew in the first year after the habitat's construction, but there wasn't enough space to go around—high population densities quickly led to high risk from predators and decreased reproductive rates.

"I realized just how interesting of a [natural experiment](#) the flood provided us with when my advisor and I boated the entirety of the Gavins Point Reach prior to the 2012 field season," says Hunt. "The amount of sandbar habitat that the 2011 [flood](#) created was incredible to see. Where before there was just river, huge sandbars replaced it. Some of the sandbars it created were larger than city blocks and took hours to survey." She hopes that managers can learn from this study to create better engineered habitat for sandbar-nesting birds, building more nesting space at one time and constructing new habitat close to existing sandbars so that young birds will have an easy time finding and colonizing it.

"This paper presents a clear contrast in demographic rates of Piping Plovers in naturally created and human-restored habitats that can be used to compare and refine conservation strategies," adds Anne Hecht, Piping Plover recovery coordinator for the U.S. Fish and Wildlife Service.

"Although it focuses on Missouri River sandbars, it has important implications for conservation of Piping Plover habitat rangewide, as well as for other species experiencing disruption of habitat formation processes."

**More information:** "Demographic response of Piping Plovers suggests that engineered habitat restoration is no match for natural riverine processes" January 10, 2018,

[www.bioone.org/doi/full/10.1650/CONDOR-17-93.1](http://www.bioone.org/doi/full/10.1650/CONDOR-17-93.1)

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