Prevention of Coastal Erosion by Natural Dune Formation at the Fort Fisher Civil War Monument

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Abstract:

The beach of Fort Fisher, North Carolina is an area containing rich history dating back to the American Civil War. It was the last major Confederate port, and its capture led to the end of the war and abolishment of slavery. Like much of the North Carolina coastline, Fort Fisher is environmentally impacted by coastal erosion. However, Fort Fisher is impacted more so than other North Carolina beaches because of its rare outcrop of coquina rock, and after 1976 erosion rates were as high as 10 feet per year and steadily increasing. To preserve and protect this relic from the effects of an eroding coast, the U.S Army Corps of Engineers designed a 3,040-foot long stone seawall made up of 400 individual interlocking concrete units called STA-PODS. However, this seawall is not as effective as planned. They have a high maintenance level, and are only expected to halt ocean side erosion for about 50 years. Ironically, this seawall is actually increasing downdrift erosion rates rather than decreasing them. Using indigenous coastal vegetation like sea oats and beach grasses, natural sand dunes can be formed providing a low cost, low maintenance organic alternative to artificial seawalls. This solution was first demonstrated in 2002 at Wrightsville Beach, just 23 miles away from Fort Fisher.