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New Jersey Sports and Exposition Authority

# Sawmill Creek Wildlife Management Area

Lyndhurst, New Jersey



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*Hydrodynamic and sediment transport modeling help inform a plan to restore tidal flow, ecological function, and resilience to 740 acres of tidal marsh.*

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## **SERVICES**

Ecological Restoration

**T**he 741-acre Sawmill Creek Wildlife Management Area (WMA) was a thriving tidal marsh; however, 200 years of anthropogenic impacts such as dikes, tide gates, and ditches severely altered and deteriorated ecosystem services such as habitat, carbon sequestration, protection from storms, and water quality improvement. In 1950, the tide gates and dikes were breached, which restored tidal flow to the marsh. However, 90 years of no tidal flow resulted in marsh subsidence and large swaths of mudflats and open water. This limited the ecological function of the marsh and it became a carbon source. It provided minimal buffering from storms and lacked habitat diversity.

In alignment with its mission to protect the delicate balance of the region's natural resources, the New Jersey Sports and Exhibition Authority's Meadowlands Research and Restoration Institute sought to restore the WMA and turned to Biohabitats for help.

Biohabitats' role for this phase of the restoration vision was to develop hydrodynamic and sediment transport modeling of the tidal system of the Sawmill Creek WMA. Biohabitats developed a two-dimensional hydrodynamic and sediment transport for the complex of existing channels, mudflat, and marsh. The model was informed by detailed LIDAR and hydrodynamic monitoring at the site. The model is being used to determine the best approach for restoration. Other important considerations included climate change and sea level rise so that the site's full ecological and carbon sequestration value could be realized into the future.