The C-111 Spreader Canal Western Project: Single Project Promises Benefits to Many Species

The C-111 Spreader Canal Western Features Project (Project), which is a component of CERP, was developed to protect and restore the hydrology and ecology of southeastern Everglades National Park (ENP), including Florida Bay. This Project, combined with the earlier C-111 South Dade Project, constructed a nine-mile hydraulic ridge oriented north-south along the ENP eastern boundary to minimize seepage into the C-111 Canal and retain rainfall and natural water flows within Taylor Slough, benefitting up to 252,000 acres of wetlands and coastal habitat. The South Florida Water Management District completed construction of the Project in February 2012 and it became operational in late June 2012.

The Project is anticipated to increase flow in Taylor Slough and decrease discharge out of the C-111 canal through the S-197 structure. The increase in flow through Taylor Slough is expected to result in higher water levels in the Taylor Slough watershed, lower salinities in northern Florida Bay, an expansion of brackish and freshwater submersed aquatic vegetation, greater growth and abundance of the emergent aquatic vegetation community, increased abundance of the freshwater prey-based fish communities, increased nesting success rate for spoonbills, increased growth and survival of juvenile crocodiles, and increased adult crocodile abundance and nesting. Decreased discharge through the S-197 structure will reduce large point-source discharges into Biscayne Bay, which can devastate sessile marine organisms by rapidly lowering salinity.

Water Years 2013 and 2014 (see Hydrology Overview for definition of Water Year) provided the first opportunities to assess the effect of the Project by examining flows, water levels, and downstream salinity. Flows at Taylor Slough Bridge in 2013 were almost 60 percent greater than the historical average, wet season flows were the highest recorded in the last 20 years, and the ratio of C-111 discharge to Taylor Slough flow was the lowest it has been in 20 years. Salinity levels measured downstream of Taylor Slough in Little Madeira Bay were found to be significantly lower after Project completion. However, because both the regional rainfall and rainfall over the local Project footprint were above average in WY2013, downstream effects cannot yet be conclusively linked to the Project.

With only 1-2 years of post-project data, it is only possible at this point to describe correlations between changes in hydrology, ecological responses, and project implementation. However, with the positive post-project hydrologic conditions cited above, measures of submerged aquatic vegetation, number of prey fish species, spoonbill nesting success rate, and crocodile abundance have all shown signs of improvement. These positive initial results are in keeping with our conceptual models and predictions made in advance of project implementation. Additional years of monitoring will be required to determine the Project's contribution to changing ecological indicators, verify cause-effect relationships, and allow us to more effectively use this information as feedback to Project operations.

For a more detailed version of this case study, see the 2014 System-Wide Ecological Indicator Report.