

Merging Lessons-Learned on System Resilience and Applying Those to a New Generation of Water Resources Projects

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The U.S. Army Corps of Engineers (USACE) Jacksonville District (SAJ) has a decades-long history engaging in large-scale Ecosystem Restoration projects. Throughout this process it has been recognized that healthy ecosystems are more resilient to extreme events (storms, drought, etc.) than unhealthy ecosystems. We are now progressing to include assessments of how these restored ecosystems will respond to climate change and evaluating different climate change scenarios as part of our project formulation process to determine tipping points and adaptation strategies accordingly.

SAJ also has a decades-long history of large-scale coastal storm risk management (CSRMM) projects--primarily in the form of beach and dune restoration. The use of nature-based renourishment of shorelines with native/compatible sand has resulted in CSRMM projects that look and function as if they were intended to be Ecosystem Restoration projects. Resilience from events (storms) is the primary goal of CSRMM and the projects have proven highly effective in this regard with very little economic damage from flooding at our projects across almost 50 years of storm exposure. However, owing to the fact that the economic benefits are achieved through restoration of natural beach and dune systems, these projects also greatly enhance the resilience of their coastal ecosystems.

Jacksonville District is now taking these decades of experience and success and bringing that to bear on the places that lie between the Ecosystem projects and the CSRMM beach projects--urban bay and estuarine communities where climate changes are significantly increasing flood risk. SAJ has formed multidisciplinary teams, comprised of experts from our Ecosystem and CSRMM programs, to study and develop solutions for these areas that connect our existing programs. This presentation will discuss examples of resilience from the Ecosystem and CSRMM programs and how those are being used on this new generation of studies and projects.

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