SAGE: Systems Approach to Geomorphological Engineering Innovative Approach to Coastal Landscape Transformation

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The U.S. Army Corps of Engineers initiative "SAGE," stands for Systems Approach to Geomorphological Engineering. The purpose of this initiative is to develop and pursue a comprehensive view and utilize an integrated methodology to determine the role of the ecosystem(s) in slowing/preventing/mitigating impacts to coastal communities from the consequences of climate change. This concept will take a more holistic approach in exploring the idea of hybrid engineering (i.e., linking 'hard' infrastructure with soft 'ecosystem-based' approaches) to develop innovative techniques to seek solutions and minimize impact from changing climate trends.

This landscape transformation initiative looks at capturing various elements of the "living shoreline" ingenuity by looking at processes and appropriate actions to minimize impacts to coastal communities and shorelines, while also maximizing economic benefits. The U.S. Army Corps of Engineers is interested in exploring the ecological and economic benefits of coastal protection by utilizing our natural ecosystems, rather than just building hard infrastructure to protect coastal communities and shoreline.

This initiative is initially being developed in partnership between the Army Corps of Engineers and various components of the National Oceanic and Atmospheric Administration. However, there are early plans to work with the academic community, various non-governmental organizations and other federal partners to ensure we are taking the appropriate steps moving forward. We envision sharing broad applications of these processes internationally.

Innovative approaches are critical and necessary as our coastal communities and shorelines are facing escalating risks from powerful storms, climate change trends, sea-level rise, storm surge, and changing precipitation patterns that can have dramatic economic losses to those impacted communities and our country. While the threats of these events may be inevitable, our ability to best minimize the impact by utilizing a blend of the natural ecosystem and hard infrastructure is important to explore best practices and appropriate solutions to ensure the resiliency of our coastal communities and shorelines.

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