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Coastal Risk Reduction and Resilience: Using the Full Array of Measures

ALEXANDRIA, VIRGINIA. Coastal areas are especially vulnerable to hazards now and in the future posed by waves and surges associated with sea level change and coastal storms. There are a variety of approaches that can be used to reduce the risks of these hazards to coastal areas. This topic is the subject of intense interest following Hurricane Sandy.

"Coastal Risk Reduction and Resilience: Using the Full Array of Measures," a recently published paper, discusses this issue as well as the U.S. Army Corps of Engineers' capabilities to assist in reducing risks posed to coastal areas and improve resilience to coastal hazards through an integrated planning approach that draws from the full array of coastal risk reduction measures.

Coastal risk reduction can be achieved through a variety of approaches, including natural or nature-based features (e.g., wetlands and dunes), nonstructural interventions (e.g., policies, building codes and emergency response such as early warning and evacuation plans), and structural interventions (e.g., seawalls and breakwaters).

"This report was prepared by a multidisciplinary team at the direction of the Directorate of Civil Works to clarify language used by the USACE to describe the full array of coastal risk reduction measures," Director of Civil Works Mr. Stephen L. Stockton said.

"This will help improve transparency and communications with our partners and stakeholders as we work together to address the increasing challenges posed by coastal storms and changing sea levels combined with aging infrastructure and a dynamic socioeconomic environment," Mr. Stockton said.

The USACE approach to coastal risk reduction measures considers the engineering attributes of the various measures (how do these help reduce vulnerabilities) and dependencies among features (how do they impact each other) over both the short- and long-term. USACE also considers the full range of environmental and social benefits produced by component features of each measure.

As discussed in the report, there has been a renewed interest in coastal risk reduction efforts that integrate the use of natural and nature-based features. This renewed interest reveals the need for improved quantification of the value and performance of nature-based defenses for coastal risk reduction.

Federal, state, local, non-governmental organization and private sector interests connected to our coastal communities possess a complementary set of authorities and capabilities for developing more integrated coastal systems. The effective implementation of an integrated approach to flood and coastal flood hazard mitigation relies on a collaborative, shared responsibility framework between Federal, state, and local agencies and the public.

The report is available through the [Responses to Climate Change website](#). Report authors include Dr. Todd Bridges (USACE Engineer Research and Development Center), Roselle Henn (USACE North Atlantic Division), Shawn Komlos (Institute for Water Resources), Debby Scerno (USACE Directorate of Civil Works), Dr. Ty Wamsley (USACE Engineer Research and Development Center), and Dr. Kate White (Institute for Water Resources).

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