Table 1: Natural Infrastructure and Nature-based Measures: Summary of risk reduction performance and engineering guidance, costs, and factors relevant to climate change.

Key - = Low confidence, feature not likely to address + = High confidence, data available ~ = Limited confidence refinement needed Blank = need data			Risk Reduction Performance[1]					Design/O&M Criteria	Costs[2] per linear foot		Other Factors	
			Reduce coastal erosion/ Shoreline Stabilization	Nuisance floods (high tides with sea level rise)	Short wave (<2') attenu-ation (Stabilize Sediment)	Reduce force & height of med. waves (2- 5')	Storm Surge (low frequency extreme events)	(for performance areas specific to feature)	Construction	Annual O&M[3]	Mitigates climate change (CO_2 sequest-ration)	Adaptability to sea level rise & changing community needs
Strategy	Structural	Groins	+[4]	-	+			+	$2-5k	$.1-.5k	No	
		Breakwaters	+[4]	-	+	+		+	$5 - 10k	>$.5k	No	Variable
		Seawall/ Revetments/ Bulkheads	+[4]	+		+	+	+	$5-10k $5-10k $2-5k	>$.5k $.1 -.5k $.1 -.5k	No	
		Surge Barriers	-			+	+	+	>$10k[5]		No	
	Existing Natural	Wetlands	+		+	~	~	N/A	N/A		Yes	Yes
		Mangroves/ coastal forest	+		+	+	+	N/A	N/A		Yes	Yes
		Vegetated Dunes	+		+	+	+	N/A	N/A		~	Yes
	Nature-based	Beach Nourishment	+	+	+	+		+	$2k - 5k[6]	$.1k -.5k		Yes
		Vegetated Dune creation	+	+	+	+	+	+	$.03k - 5k[6]	$.1k -.5k	~	Yes
		Barrier Island Restoration	+	+	+	+	+	+	$0.76k - $1.1k[7]			Yes
		Small scale edging and sills (living shorelines)	+	~	+				$1k-2k	<$.1k	Variable	Yes
		Restored Oyster/Shell-fish Reefs	+		+	~	~	Possible, akin to low breakwaters	$.23k - .24k[8]		Yes	Yes
		Restored/ Created Coral Reefs	+		+	~	~	Possible, akin to low breakwaters	$.2k – 508k[9]		~	
		Restored Maritime Forests (including Mangroves)	+	+	+	+	+		$.23k - 216k[10] /ha (mangroves)		Yes	Yes
		Restored Wetlands[11]	+	+	+	~		-	$0.81k- 36.4k/ha[12]		Yes	Yes

[1] General coastal risk reduction performance factors include storm intensity, track, forward speed, surrounding local bathymetry and topography
[2] USACE and NOAA (2015) is the source for most costs in this table unless otherwise noted with a footnote. Values not adjusted for inflation.
[3] Based on 50 year project life
[4] While these hardened coastal features can effectively reduce erosion in certain coastal areas, they also often lead to increased or unwanted erosion in other coastal areas.
[5] No data for surge barriers presented by linear foot, but due to size, engineering complexity and more difficult construction conditions, estimated to be greater than $10k/linear foot.
[6] Higher cost is for beach nourishment with vegetated dune creation. Low end estimate based on a NRDA Trustees (2012) for Pensacola Beach.
[7] Day et al. (2005)
[8] Gregalis et al. (2008)
[9] Ferrario et al. (2014)
[10] Gilman and Ellison (2007)
[11] Various methods including sediment diversions or hydrological reconnection
[12] Coastal Resources Management Council's "The Costs of Environmental Restoration Projects"