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	Resilience Feature	Socio- Ecological	Psychological	Organizational	Engineering & Infrastructure		
Prepare/P lan	Critical function	A system function identified by stakeholders as an important dimension by which to assess system performance					
		Ecosystem services provided to society	Human psychological well-being	Goods and services provided to society	Services provided by physical and technical engineered systems		
Absorb	Threshold	Intrinsic tolerance to stress or changes in conditions where exceeding a threshold perpetuates a regime shift					
		Used to identify natural breaks in scale	Based on sense of community and personal attributes	Linked to organizational adaptive capacity and to brittleness when close to threshold	Based on sensitivity of system functioning to changes in input variables		
Recover	Time	Duration of degraded system performance					
		Emphasis on dynamics over time	Emphasis on time of disruption (i.e., developmental stage: childhood vs adulthood)	Emphasis on time until recovery	Emphasis on time until recovery		
Adapt	Memory/Adapt ive Management	Change in management approach or other responses in anticipation of or enabled by learning from previous disruptions, events, or experiences					
		Ecological memory guides how ecosystem reorganizes after a disruption, which is maintained if the system has high modularity	Human and social memory, can enhance (through learning) or diminish (e.g., post-traumatic stress) psychological resilience	Corporate memory of challenges posed to the organization and management that enable modification and building of responsiveness to events	Re-designing of engineering systems designs based on past and potential future stressors		



















				)R	
The Disaster	Resil	ience Scorecard fo	The United Nations Office for Disaster Flak R	eduction	Resilience
Engage, Share	Unde	rstanding and Coordi	nate		Metrics
<u>Essential 1</u> : Put in civil society. Build	place local	organization and coordi alliances. Ensure that all	nation to understand and departments understand	reduce disaster r their role in disa	
This section of the prediction, mitigat that may be involve integration with other Data you will need applicable, MOUs from the organization.	scorect on, res od; "bc her init to ans and ot	ard will help you assess th ponse, restoration and rec ittom up", on the managen iatives that may have a dis wer this section of the sco her role descriptions for ec neared	e structure and governance overy. It looks "top-down ient of and engagement wit aster resilience impact. recard will include: organ ich organization concerned	of the various act ", on the coordina h grass roots disa. ization charts; list ; names of key inc	
Subject/Issue	Item	measured I	ndicative Measurement	Indicative Measur	
1.1 Organization and coordination	1.1.1 relation	Co-ordination of all	resence of organizational chart	5 - Single point of	
	th ro	Table 1. Recommende the Disaster Relief Rec	d core performance metric overy Act of 2013.	cs by coastal feature for De	epartment of the Interior Resilience projects funded through
	ali	Natural and Artificia Coastal Features	Primary Objectives	and Ecosystem Services	Recommended Core Performance Metrics
		Beach System: Beach/Barrier Island/Dune	Beaches and Dunes: 1) Restore or improve bear resilience of fish, wildliff (e.g., spawning, migratior 2) Restore/improve dune of coastal infrastructure th and attenuating wave en 3) Improve/sustain beach community resilience to 3 4) Enhance understanding including immediate storn from dictubance murch	ach habitat to enhance , and plants, and their habitats nstopovers, critical habitats) habitat to enhance resilience y reducing flooding extent ergy //barrier island ecosystem and .torm surge events g of natural system dynamics m responses, natural recovery m edownee habitation	Beaches and Dunes:           Biotic           • Vegetation cover of dunes pre and post event.           • Fish and wildlife population/ recruitment/ overwintering/stopover weight/health relative to other mitigating factors (e.g. other threats throughout range: site and species specific)           Abiotic           • Post-storm volume of sand in the active shoreface           • Recovery rates of beach and dunes
Page 5 of 56	_		capacities and tendencies. 5) Improve recreation/aesthetics		Structural/Engineering • Beach width, elevation, volume, shoreline position (post-event) - Duce that provide the interview width learth texture substrate
BUILDIN		USGS	Breaches: 1) Manage breach occurr hazard mitigation benefit	ences to maximize habitat and s at least cost	<ul> <li>Using characterization (neight, width, length, texture, substrate) Breaches;</li> <li>Bloitic</li> <li>Fish and wildlife population/ recruitment/ overwintering/ stopover weight/health changes relative to other mitigating factors (e.g. other threats throughout its range: site and species specific)</li> </ul>















Re	silience Ma	trix				
		PREPARE	ABSORB	RECOVER	ADA	<b>NPT</b>
ſ	Physical					
	Information					
	Cognitive					
	Social					
Sys	stem Domains		Disruptive E	Y vent Stage	es	
		Sca	ale	1		<b>→</b>
Hom	e Neighborhood	l Town	County	Region	State	Country
BUIL	DING STRONG <sub>®</sub>		li	nnovative solutions	for a safer, b	etter world

me ———	Adve	rse Event			
Previous Cycle	Plan/Prepare	Absorb	Recover	Adapt	
Physical	State and capability of equipment and personnel, network structure	Event recognition and system performance to maintain function	System changes to recover previous functionality	Changes to improve system resilience	
Information •	on Data preparation, presentation, analysis, and storage event closure event closure		Data use to track recovery progress and anticipate recovery scenarios	Creation and improvement of data storage and use protocols	
Cognitive	System design and operation decisions, with anticipation of adverse events	Contingency protocols and proactive event management	Recovery decision- making and communication	Design of new system configurations, objectives, and decision criteria	
Social	Social network, social capital, institutional and cultural norms, and training	Resourceful and accessible personnel and social institutions for event response	Teamwork and knowledge sharing to enhance system recovery	<ul> <li>Addition of or changes to institutions, policies, training programs, and culture</li> </ul>	

















4. Performance Scores								
<ul> <li>Identify specific metrics (qualitative or quantitative) or proxies for the capability of the system to perform in each cell of the matrix.</li> <li>Examples:</li> </ul>								
	Raw <u>Value</u>	Utility Bounds	Normalized Score					
Participation in Notify NYC Alert System:	20%	0 - 85%	2.4 (low)					
Height of Existing dunes/berms:	8'	0 -15'	5.3 (med)					
Access to debris removal equipment:	med	N-L-M-H	med					
ERDC           BUILDING STRONG <sub>0</sub> Innovative solutions for a safer, better world								





































































