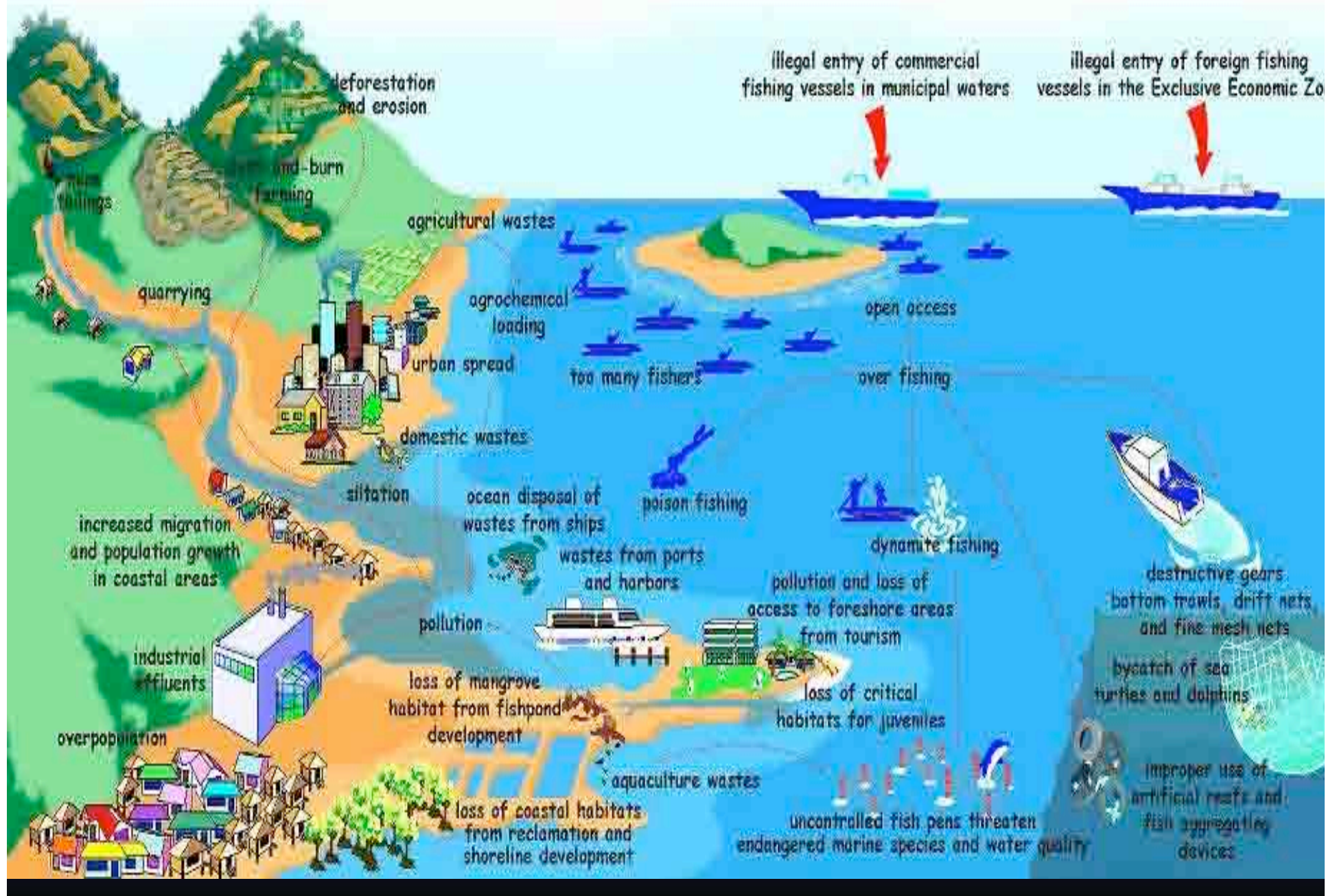


How Resilient is the Northeast to Natural Hazards?



Pam Rubinoff
Rhode Island Sea Grant
URI Coastal Resources Center



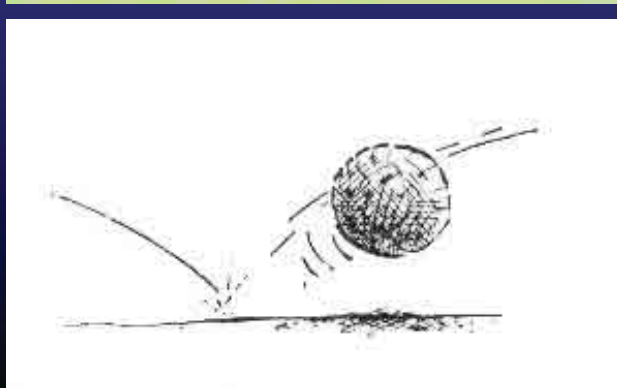


Resilience

*Absorb
shock*



*Bounce
back*



*Learn &
adapt*



resilience

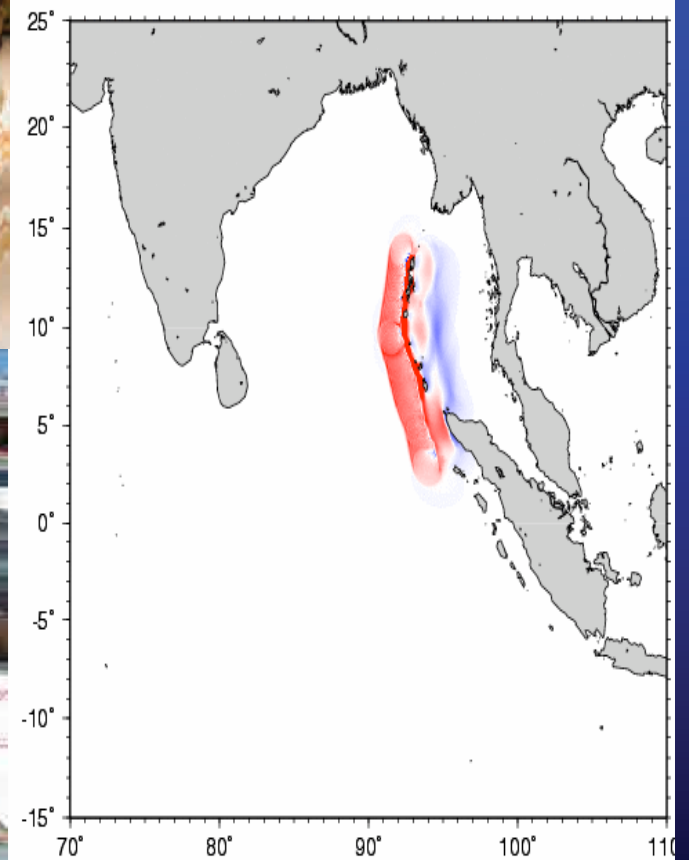
is the flip side of

vulnerability

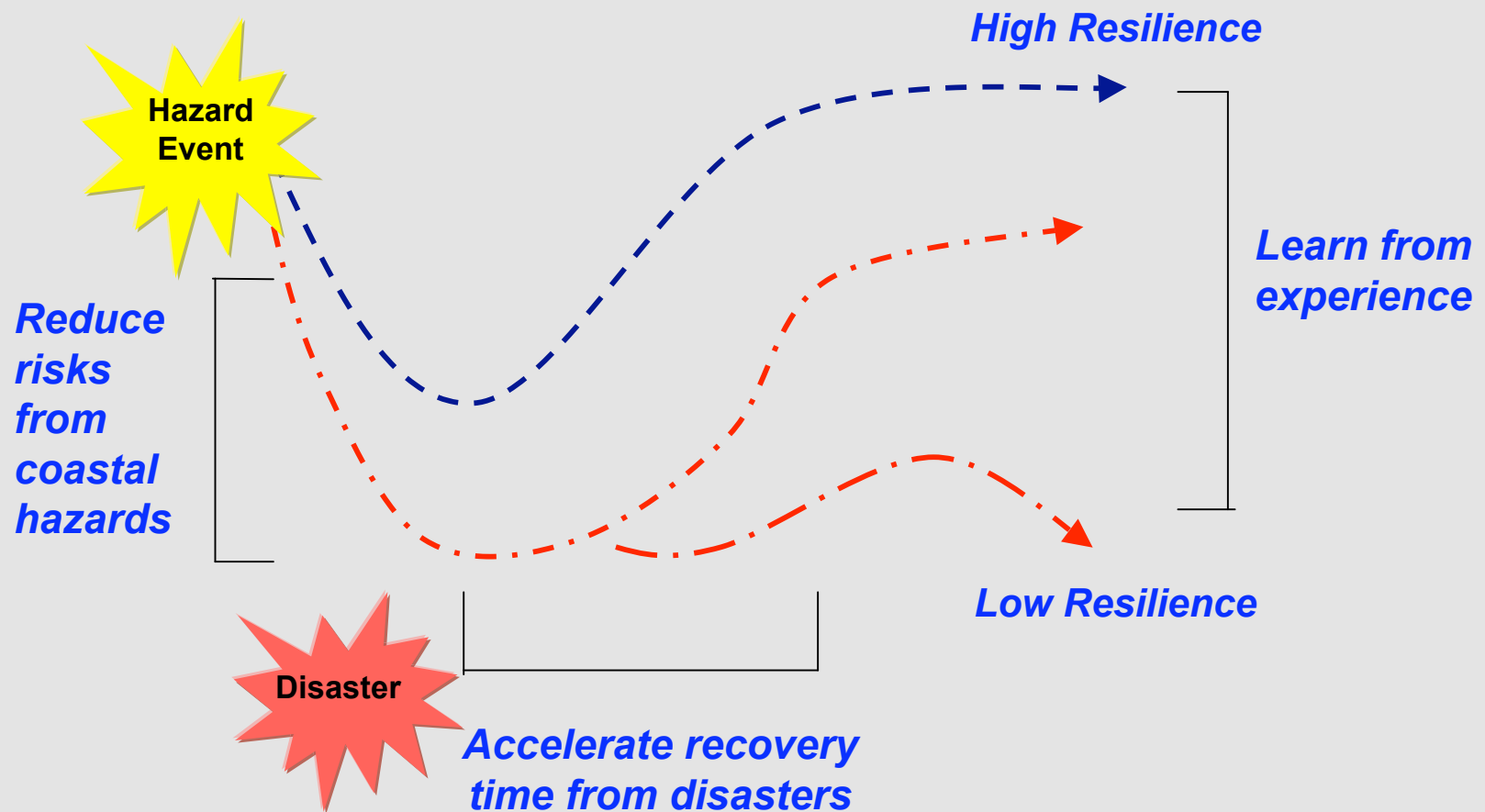
December 26, 2004



2004 Sumatra Earthquake 010 min



Goals of Coastal Community Resilience



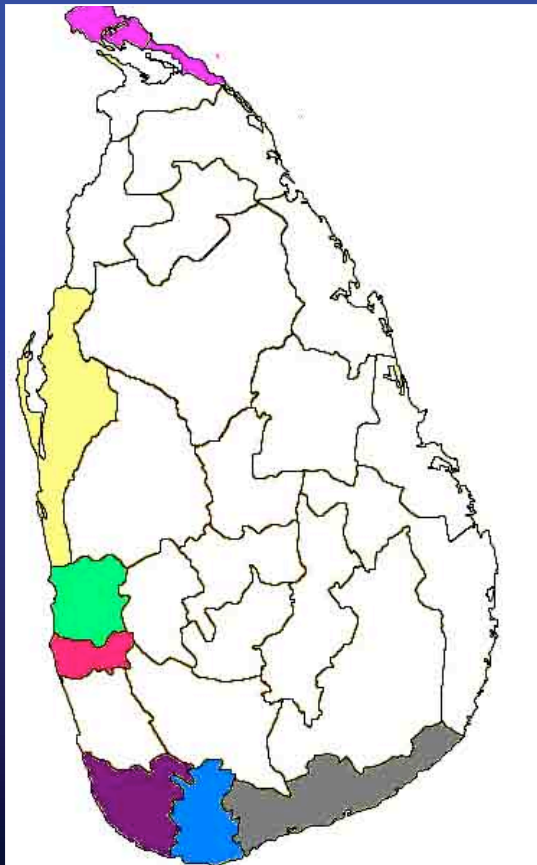
A New Paradigm



Adaptive process for managing for resilience



Local Application



NE Assessment

LITERATURE REVIEW OF THE U.S. NORTHEAST COASTAL COMMUNITY: MANAGEMENT OF COASTAL ECOSYSTEMS AND NATURAL HAZARDS

Priority Issues for the
Northeast State Coastal Programs

Highest priorities are on the left side and descend to the lowest on the right.
Priorities are based on the current NOAA 309 Assessment Reports.

	Cumulative and Secondary Impacts	Ocean Resources	Wetlands	Hazards	Energy Siting	Public Access	Special Area Management Plans	Aquaculture	Debris
Maine	High	High	Medium	High	Medium	High	High	Medium	Low
New Hampshire	High	High	High	Medium	Medium	Medium	Low	Medium	Low
Massachusetts	High	High	High	High	Medium	High	Medium	Low	Low
Rhode Island	High	Medium	High	Medium	High	Medium	High	Low	Low
Connecticut	High	High	Medium	Medium	High	Medium	Low	Medium	Medium

Table 2. Priority Issues for the Northeast State Coastal Programs

COASTAL SERVICES CENTER AT THE UNIVERSITY OF RHODE ISLAND
FOR THE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION (NOAA)
COASTAL SERVICES CENTER



NOAA Coastal Services Center
LINKING PEOPLE, INFORMATION, AND TECHNOLOGY

HOW RESILIENT IS YOUR COASTAL COMMUNITY?

A GUIDE FOR EVALUATING COASTAL COMMUNITY RESILIENCE TO TSUNAMIS AND OTHER HAZARDS



Resilience Benchmarks	
A. Governance	
Plans and policies	A1 Community development plans and policies incorporate short-term and long-term goals and actions for achieving coastal community resilience.
Basic services	A2 Basic services are accessible to society provided by capable and transparent institutions as an enabling condition for building coastal community resilience.
Collaboration mechanisms	A3 Multisectoral collaboration mechanisms are functional and effectively used to manage for resilience.
Leadership, financial and technical resources	A4 Financial, technical and human resources provide regular support to achieve community resilience.
B. Socio-economy and Livelihoods	
LIVELIHOODS	
Sustainable and diverse livelihoods	B1 Economic development plans and programs promote sustainable and diverse livelihoods based on knowledge of risks from coastal hazards.
Technical and financial resources	B2 Technical and financial resources are available to promote economic diversification, to reduce vulnerability to coastal hazards, and promote post-disaster recovery.
Social and cultural networks	B3 Social and cultural networks established and support efforts to build coastal community resilience.
C. Coastal Resource Management	
Plans, institutions, and systems	C1 Plans, institutions, and systems established and effectively managing coastal and other natural resources for food security, sustainable development, conservation, natural resource/habitat restoration, and public safety.
Ecosystems protected and maintained	C2 Sensitive coastal habitats, ecosystems and natural features are protected and maintained to reduce risk from coastal hazards.
Restoration policies	C3 Restoration policies and systems guide post-disaster management of natural resources and minimize risks from coastal and natural hazards.
D. Land Use Management and Structural Design	
Land use decisions	D1 Land use plans are developed and reviewed based on an assessment of risks from coastal hazards and the need to protect sensitive coastal habitats.
Siting, design, and construction	D2 Siting, design and construction of public and private structures considers risks from coastal hazards and protects sensitive coastal habitats.
Monitoring and enforcement	D3 Effective monitoring and enforcement of land use policies and building standards and codes.
Redevelopment policies and systems	D4 Redevelopment policies and systems guide post-disaster reconstruction away from sensitive and vulnerable areas.

www.crc.uri.edu/download/CCRGuide_lowres.pdf

www.iotws.org

Governance

Leadership, systems, & institutions provide enabling conditions for coastal community resilience



- ✓ Strong legal framework with decentralized management; home rule
- ✓ Implementation and coordination gaps
- ✓ Regional agreements beginning to occur for coordination and advisory
- ✓ Federal agencies have regional offices for permitting, TA, oversight

Fair

Livelihoods & Socio-economy



Prosperous, sustainable, diverse economies and livelihoods and healthy, peaceful socio-cultural conditions allow communities to maintain quality of life before, during, and after disasters

- ✓ Citizen-government involvement
- ✓ Diversified economies in region
- ✓ Small businesses provides diversity but also vulnerability
- ✓ Region is under-insured

Good

Coastal Resource Management

Active management of coastal area resources reduces vulnerability to coastal hazards and sustains environmental services and livelihoods

- ✓ Strong state programs - detailed policies/permitting
- ✓ Varied local level implementation responsibilities
- ✓ Ecosystem-based plans in select locations
- ✓ CRM plans with linkages to land use and hazards
- ✓ Restoration programs in place
- ✓ Regional linkages, both formal and informal

Good

Land Use & Structural Design

Effective land use and structural design reduce risks from coastal hazards

- ✓ Significant amount of pre-existing structures in high hazard areas
- ✓ States use International Building Code
- ✓ Local level implementation with varied capacities
- ✓ Flood maps used for design/planning, are outdated
- ✓ Structural mitigation projects are site-by-site, per hazard mitigation plans and state/fed priorities

Fair

Risk Knowledge



Understanding of coastal hazards and appropriate measures to minimize risk reduces community exposure

- ✓ Unaware of risks or aware and complacent?
- ✓ Lack of awareness on flood plains and insurance
- ✓ Technology and expertise exists, but maps and information is limited for decisions
- ✓ Models and application for risk analysis varies in technique and in scale

Warning & Evacuation

Community is capable of receiving notifications and alerts of coastal hazards, able to warn at risk populations, and act on warning information

- ✓ Good local & in-state warning/evacuation system
- ✓ Regional evacuation planning activities uncertain
- ✓ Uncertain how effective programs are in vulnerable & non-english speaking communities
- ✓ Communication of interstate riverine flood warnings for businesses is improving

Good

Emergency Response

Emergency response institutions and systems are established and maintained to respond quickly to coastal disasters and address community emergency needs



- ✓ Local level response is supported by states
- ✓ Coordination between emergency managers and coastal managers inconsistent.
- ✓ Inter-state agreements not widely used to coordinate responses (i.e. port closures for energy)

Disaster Recovery

Plans, systems, and institutions minimize negative environmental, social, and economic impacts from disaster recovery

- ✓ Tendency to get back to normal
- ✓ Short term recovery not linked to long term community visions
- ✓ Long term recovery plans are limited
- ✓ Opportunity for looking at regional assets and long term development planning

Poor

Resilience Benchmarks

A. Governance

<input checked="" type="checkbox"/> Plans and policies <input checked="" type="checkbox"/> Basic services <input checked="" type="checkbox"/> Collaboration mechanisms <input checked="" type="checkbox"/> Leadership, financial and technical resources	A1 Community development plans and policies incorporate short-term and long-term goals and actions for achieving coastal community resilience.
	A2 Basic services are accessible to society provided by capable and transparent institutions as an enabling condition for building coastal community resilience.
	A3 <u>Multisectoral</u> collaboration mechanisms are functional and effectively used to manage for resilience.
	A4 Financial, technical and human resources provide regular support to achieve community resilience.

B. Socio-economy and Livelihoods

LIVELIHOODS <input checked="" type="checkbox"/> Sustainable and diverse livelihoods <input checked="" type="checkbox"/> Technical and financial resources <input checked="" type="checkbox"/> Social and cultural networks	B1 Economic development plans and programs promote sustainable and diverse livelihoods based on knowledge of risks from coastal hazards.
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	B3 Social and cultural networks established and support efforts to build coastal community resilience.

C. Coastal Resource Management

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	C2 Sensitive coastal habitats, ecosystems and natural features are protected and maintained to reduce risk from coastal hazards.
	C3 Restoration policies and systems guide post-disaster management of natural resources and minimize risks from coastal and natural hazards.

D. Land Use Management and Structural Design

<input checked="" type="checkbox"/> Land use decisions <input checked="" type="checkbox"/> <u>Siting</u> , design, and construction considers risks <input checked="" type="checkbox"/> Monitoring and enforcement <input checked="" type="checkbox"/> Redevelopment policies and systems	D1 Land use plans are developed and reviewed based on an assessment of risks from coastal hazards and the need to protect sensitive coastal habitats.
	D2 <u>Siting</u> , design, and construction of public and private structures <u>considers</u> risks from coastal hazards and protects sensitive coastal habitats.
	D3 Effective monitoring and enforcement of land use policies and building standards and codes
	D4 Redevelopment policies and systems guide post-disaster reconstruction away from sensitive and vulnerable areas

Multi layer information collection



Compiling information for Assessment



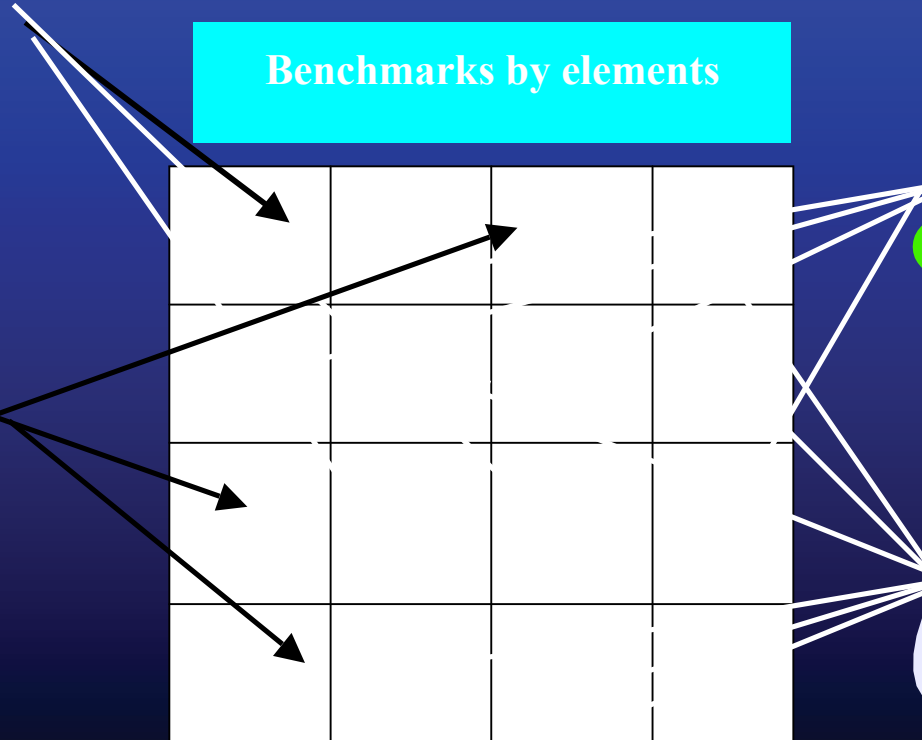
Focal
groups

Institutional
visits &
resource
interviews

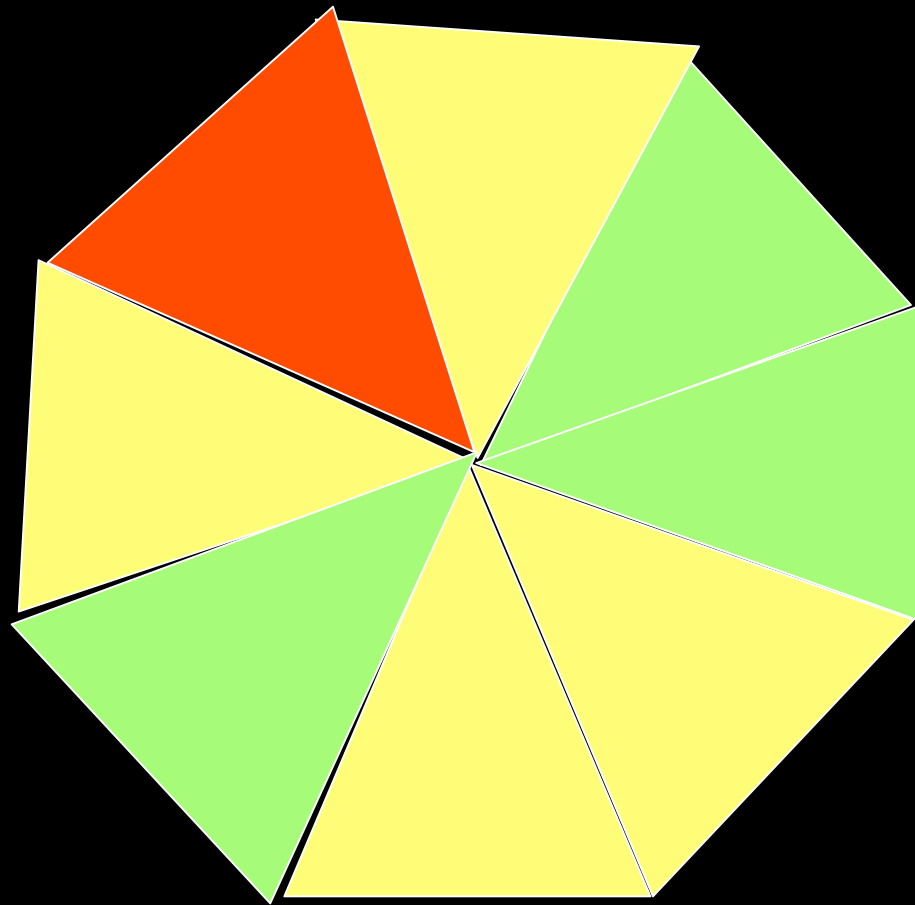


Secondary
reviews

Benchmarks by elements

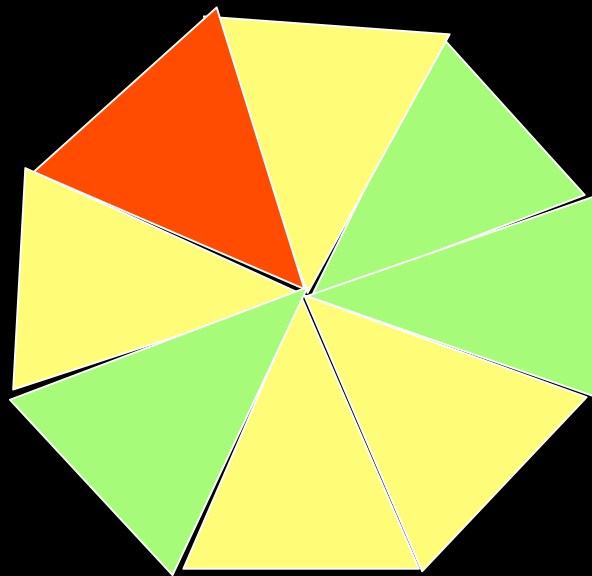


CURSORY view of NE



A reality check is needed!

*Engage stakeholders to truly
examine the strengths and
weaknesses of local communities*





Pam Rubinoff, rubi@crc.uri.edu

<http://seagrant.gso.uri.edu/ccd/haz.html>

www.coastalcommunityresilience.org