Maryland Coastal Adaptation Report Card

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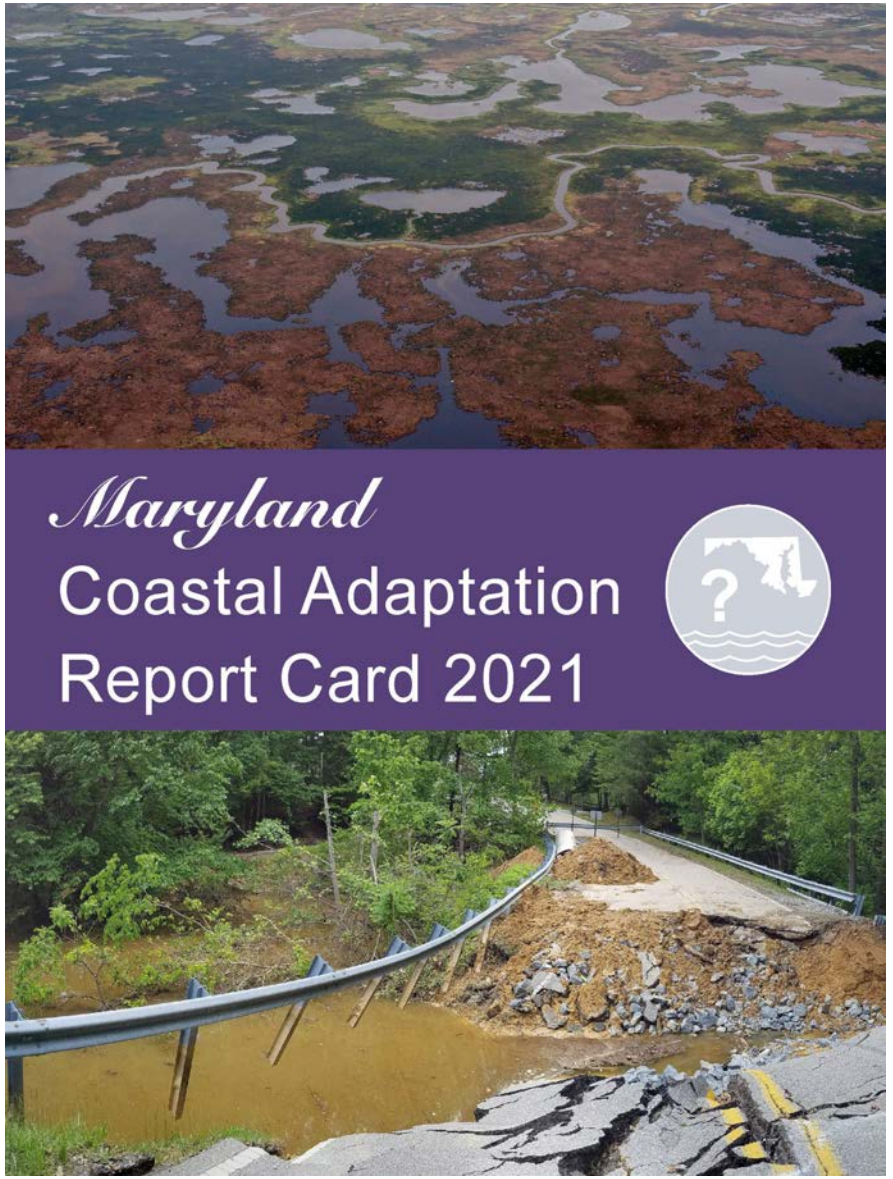
Integration and Application Network



University of Maryland
CENTER FOR ENVIRONMENTAL SCIENCE
INTEGRATION AND APPLICATION NETWORK

Coastal impacts of climate change

Adaptation is ongoing

Current efforts: Are they enough?

- How do we measure adaptation?
- How do we measure success?

Background research

Mitig Adapt Strateg Glob Change (2013) 18:361–406
DOI 10.1007/s11027-012-9423-1

ORIGINAL ARTICLE

A comprehensive review of climate adaptation in the United States: more than before, but less than needed

Rosina Bierbaum · Joel B. Smith · Arthur Lee · Maria Blair · Lynne Carter · F. Stuart Chapin III · Paul Fleming · Susan Ruffo · Missy Stults · Shannon McNeeley · Emily Wasley · Laura Verduzco

Regional Studies in Marine Science 2 (2015) 113–123

Contents lists available at ScienceDirect

Regional Studies in Marine Science

journal homepage: www.elsevier.com/locate/rsma

Coastal vulnerability and progress in climate change adaptation: An Australian case study

Marcello Sano [a,c], June Gainza [a,d,*], Scott Baum [b,c], Darryl Low Choy [b,c], Silvia Neumann [b,c], Rodger Tomlinson [a]

[a] Griffith Centre for Coastal Management, Griffith University, Gold Coast Campus, Queensland 4222, Australia
[b] Urban Research Program, Griffith University, Nathan campus, 170 Kessels Road Nathan, Qld 4111, Australia
[c] Griffith Climate Change Response Program, Australia
[d] Environmental Hydraulics Institute "IH Cantabria", Universidad de Cantabria, Santander, Spain

Climatic Change
https://doi.org/10.1007/s10584-019-02565-9

RESEARCH ARTICLE

Indicators to measure the climate change adaptation outcomes of ecosystem-based adaptation

Camila I. Donatti [1] · Celia A. Harvey [1,2] · David Hole [1] · Steven N. Panfil [3] · Hanna Schurman [4]

Environmental Science & Policy 66 (2016) 420–426

Contents lists available at ScienceDirect

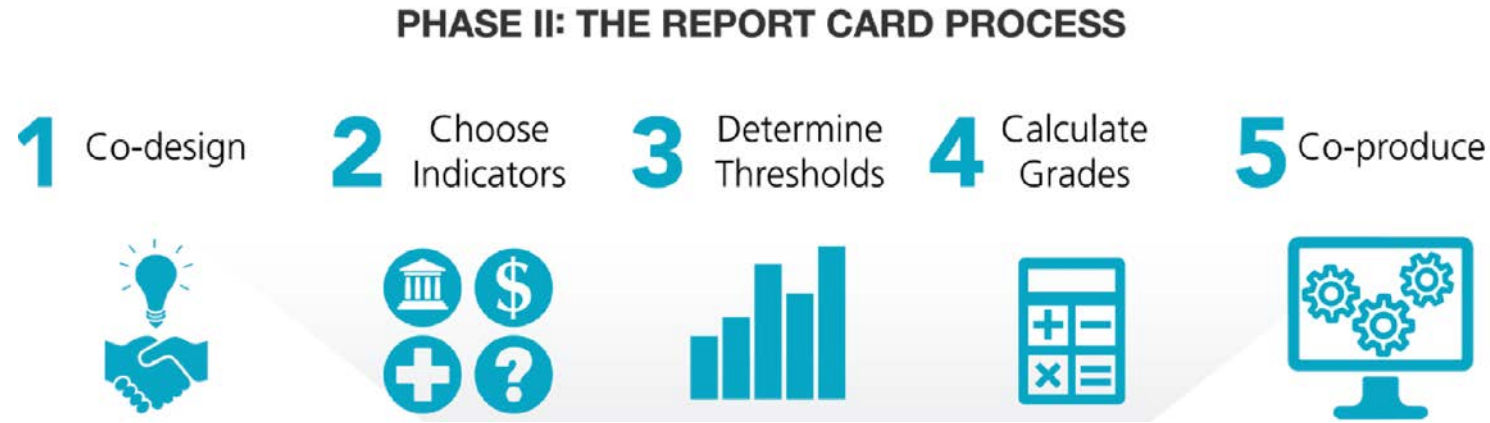
Environmental Science & Policy

journal homepage: www.elsevier.com/locate/envsci

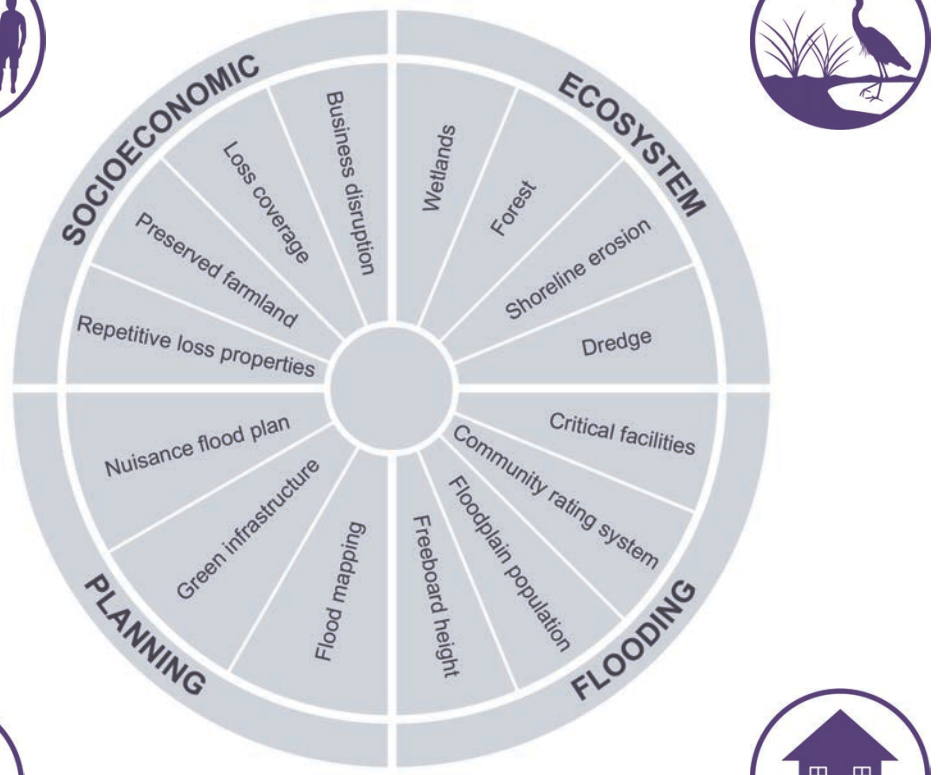
Indicators of urban climate resilience: A contextual approach

Stephen Tyler [a,*], Erwin Nugraha [b], Ha Kim Nguyen [c], Nhung Van Nguyen [d], Aniessa Delima Sari [e], Pakamas Thinpanga [f], Thao Thanh Tran [g], Sheo Shanker Verma [h]

Report card process: assessing coastal adaptation



Indicator Scoring



- Target or threshold condition identified
  - Science
  - Expert consultation
  - Legislative goals
- Current condition compared to threshold
- Scored on a scale of 0-100% and A-F grading scale

F 0–20% misses adaptation goals
D 21–40%
C 41–60%
B 61–80%
A 81–100% meets adaptation goals

Indicators to measure adaptation progress

Socioeconomic

- Business disruption
- Loss coverage
- Preserved farmland
- Repetitive loss properties

Ecosystem

- Wetlands
- Forest
- Shoreline erosion
- Dredge

Planning

- Nuisance flood plan
- Green infrastructure
- Flood mapping

Flooding

- Critical facilities
- Community rating system
- Floodplain population
- Freeboard height

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Indicator Score: Repetitive loss properties

- Properties with >2 flood insurance claims in 10 years
- May be “mitigated” or adapted to withstand coastal change events
- Threshold: percent mitigated
- Data: Maryland Department of Emergency Management
- Score: 11%

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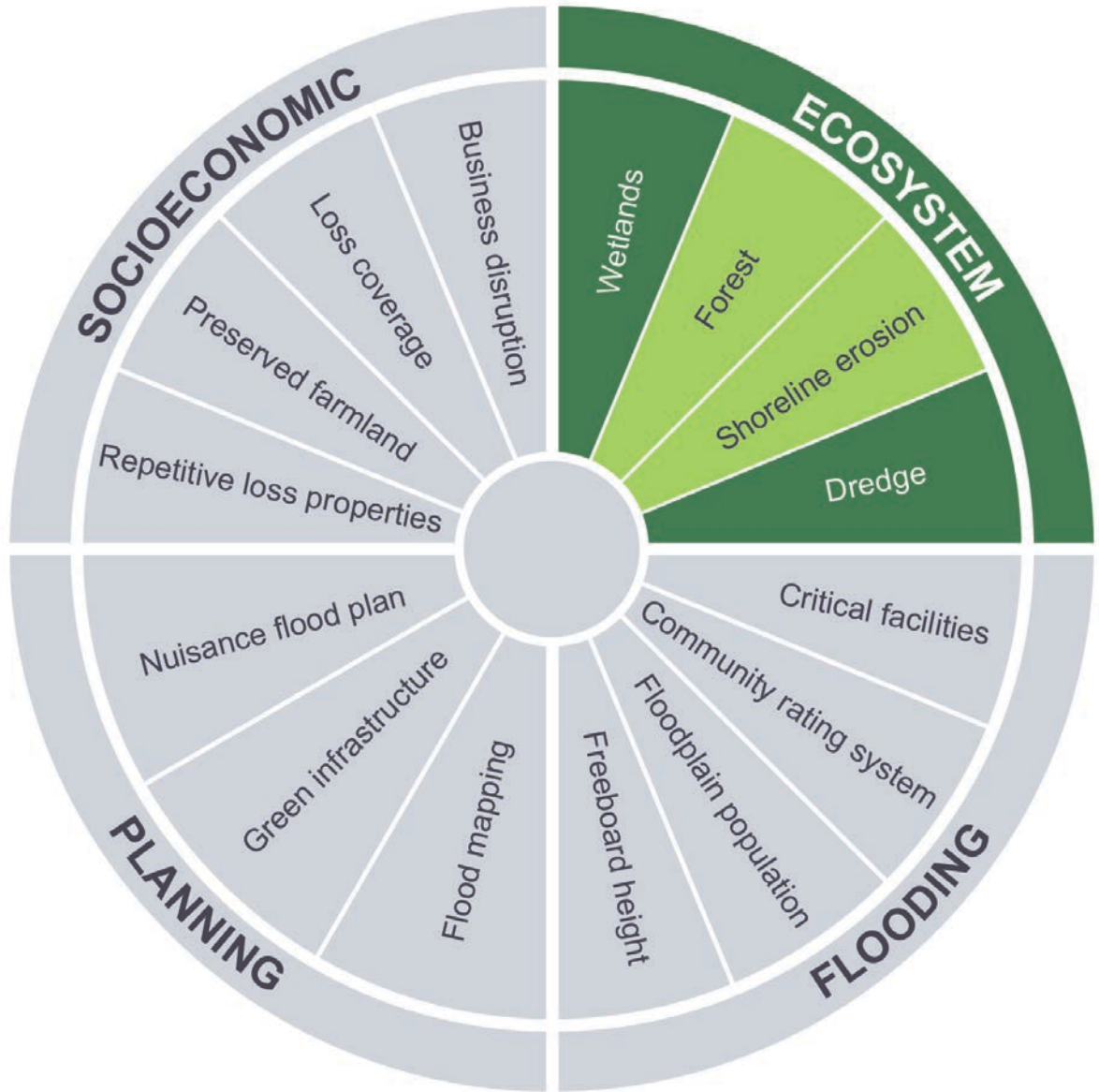
Indicator Score: Wetlands

- Buffer against flooding
- Threatened by coastal change
- Threshold: no net loss
- Data: NOAA Office for Coastal Management CCAP Database
- Score: 100%



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Indicator Score: Critical Facilities

- Must continue to operate during emergencies
- FEMA: “even a slight chance of flooding is too great a threat.”
- Threshold: no critical facilities in flood hazard areas
- Data: Maryland Hazard Mitigation Plan
- Score: 10%

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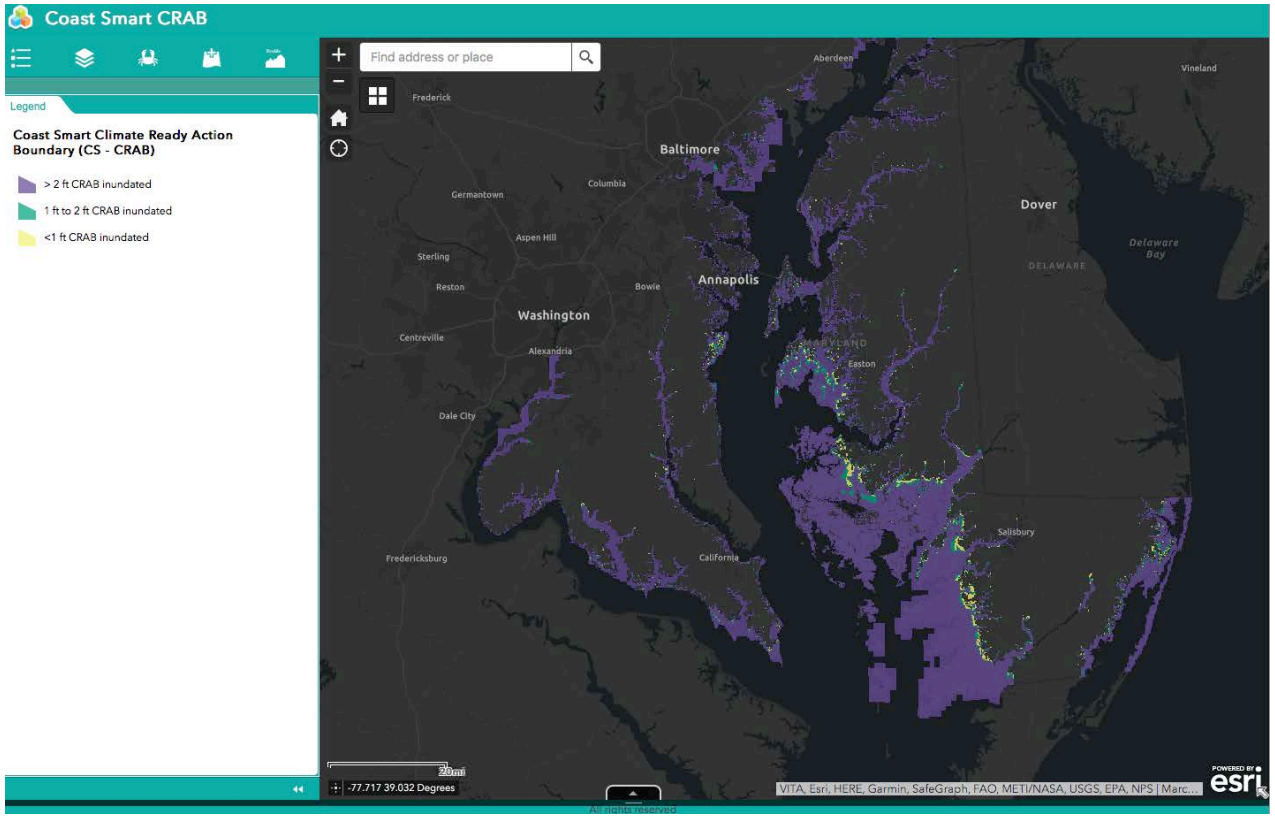
Indicator score: Flood mapping



- Essential in planning and adaptation
- Threshold for 100% score
  - Integrated mapping products for sea level rise, storm surge, nuisance flooding
  - Comprehensive technical assistance to support use
- Data: Committee of flood experts and stakeholder expert knowledge
- Score: 55%

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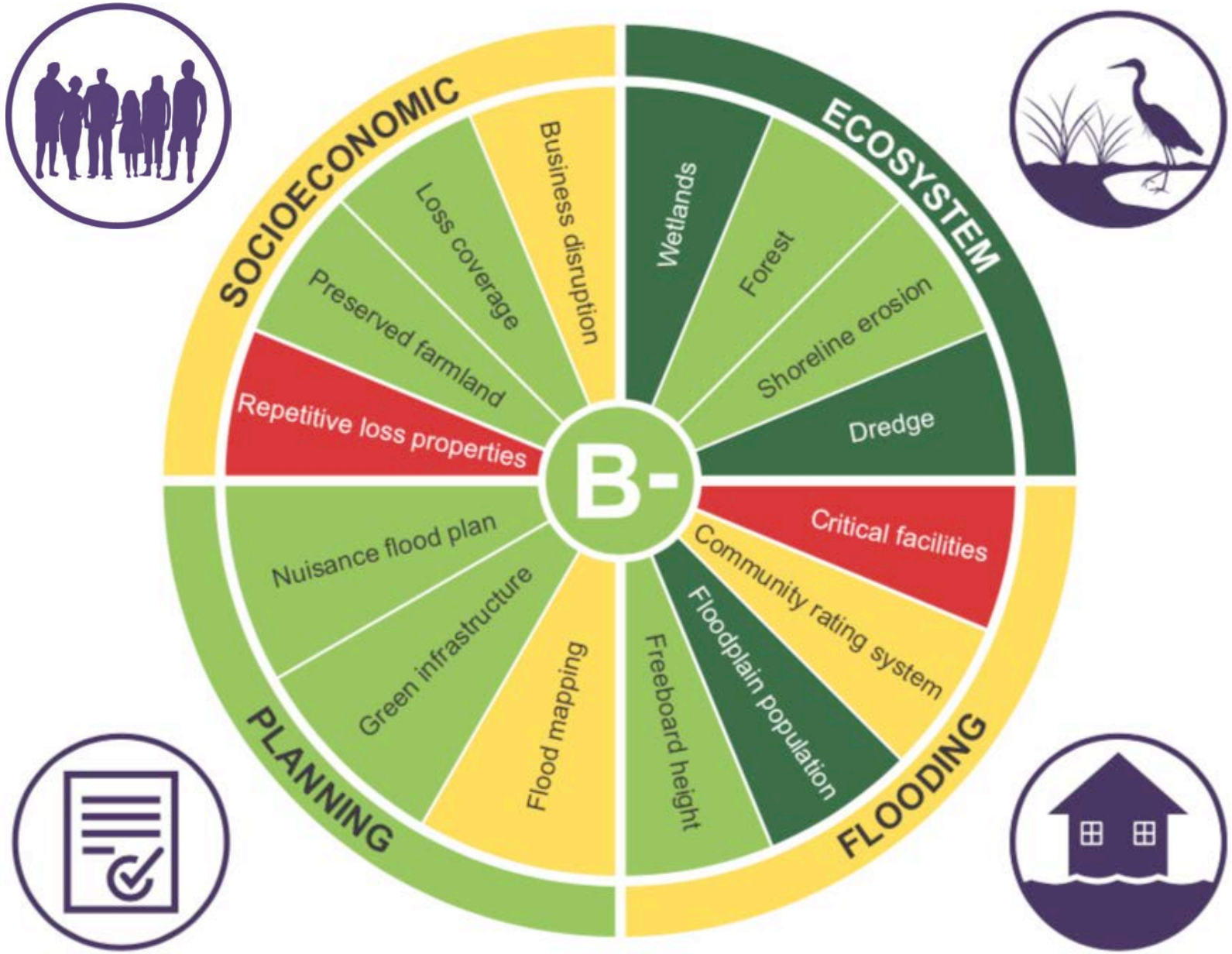

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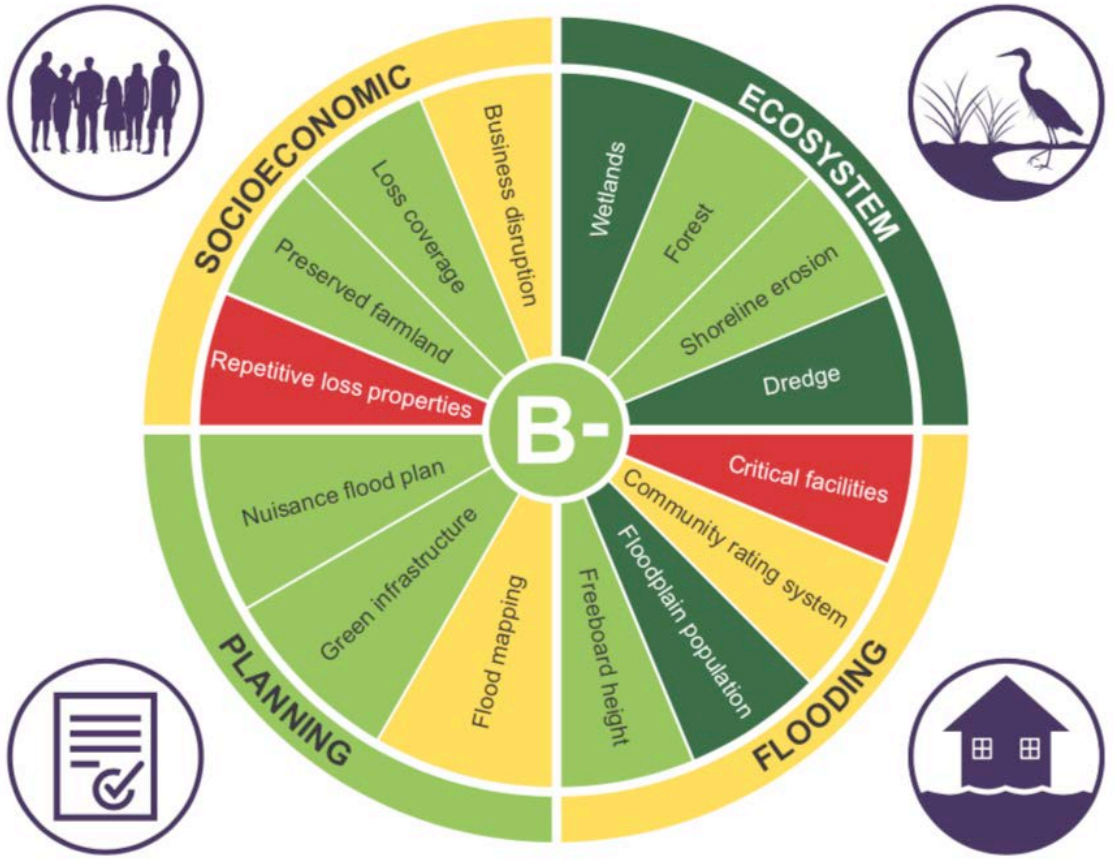
Recommendations for future efforts

- Red indicators
  - Critical facilities: $ and focus on mitigation efforts, future facility locations
  - Repetitive loss properties: financial assistance or rewards for mitigation
- Yellow indicators
  - Flood mapping: ongoing efforts
  - Business disruption: mitigation; infrastructure
  - CRS: engage communities
- Continue assessing over time
- Refine indicators



Recommendations for future assessments

- Fill indicator data gaps
  - Seagrasses
  - Incorporate equity
- Assess at finer scale (Charles County)

For more information:

https://ian.umces.edu/projects/coastal-adaptation-report-card-2021/

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