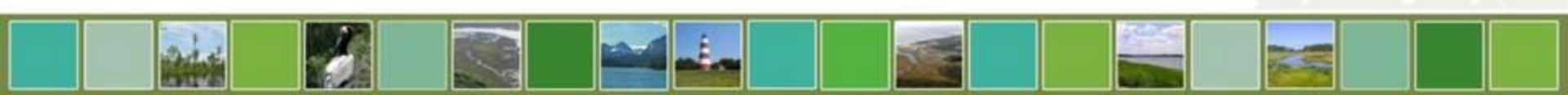




Climate Understanding & Resilience in the River Valley

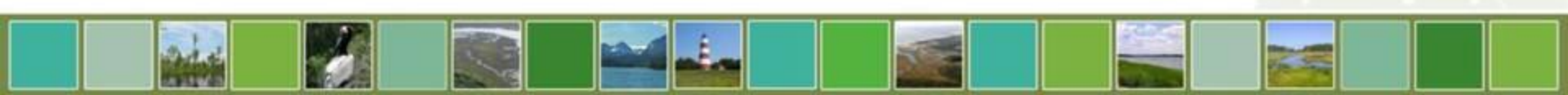


Danielle Boudreau ♦ April 2013 ♦ CURRV Stakeholder Working Group Meeting #1



Presentation Overview

- I. CURRV Project
- II. Responding to Climate Change
Climate Adaptation & Vulnerability Assessments



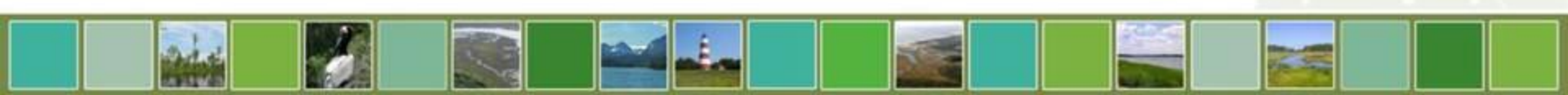


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I. CURRV PROJECT



Project Scope

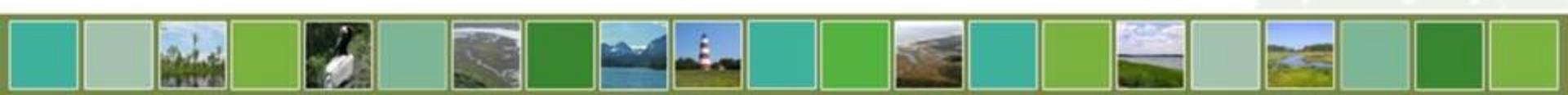
Vulnerability Assessment

Climate Adaptation Strategy

Process Framework & Science Transfer



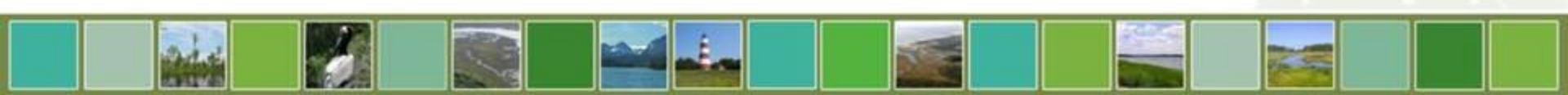
Recovery Strategy (2012), TRV



Project Scope

Focus on Flooding & Inundation:

- Sea Level Rise (SLR)
- Riverine Flooding





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Climate Adaptation in San Diego

2009 CALIFORNIA CLIMATE ADAPTATION STRATEGY

A Report to the Governor of the State of California
in Response to Executive Order S-13-2008



Sea Level Rise Adaptation Strategy for San Diego Bay

January 2012



Prepared by ICLEI-Local Governments for Sustainability for the project's Public Agency
Steering Committee, with the support of The San Diego Foundation.

SAN DIEGO'S CHANGING CLIMATE:

A REGIONAL WAKE-UP CALL

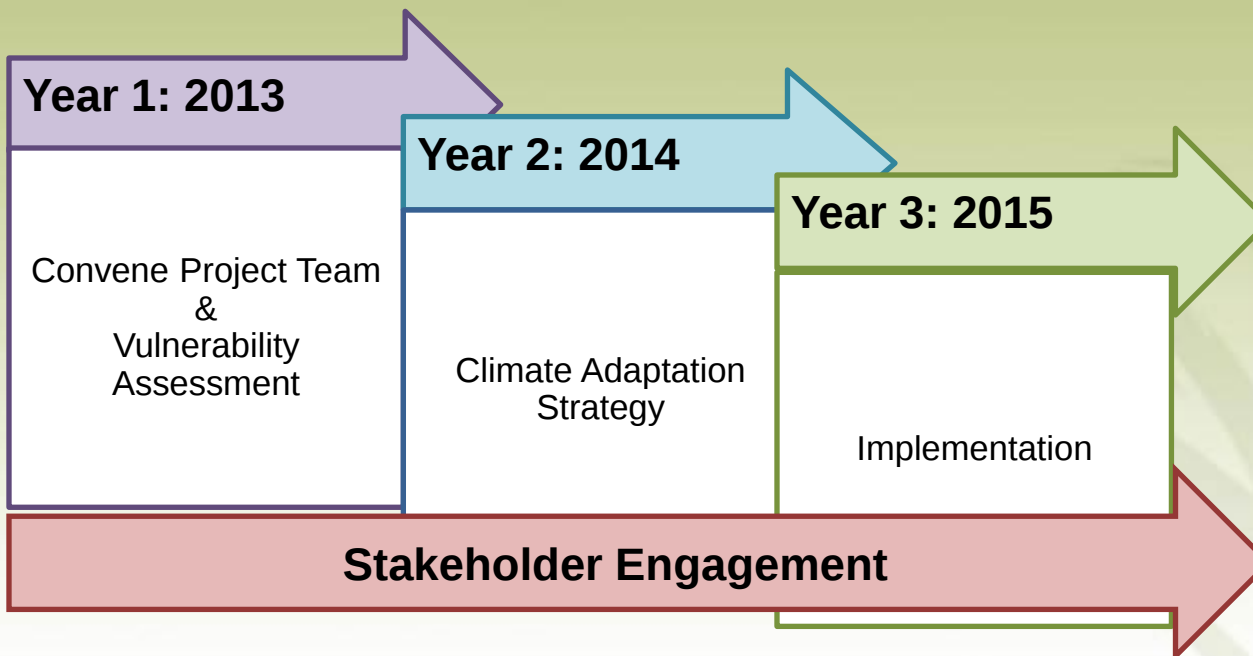
A SUMMARY OF THE FOCUS 2050 STUDY PRESENTED BY THE SAN DIEGO FOUNDATION



The First Comprehensive Regional Assessment of Climate Change Impacts to San Diego County



CURRV Timeline



Stakeholder Engagement

Steering Committee

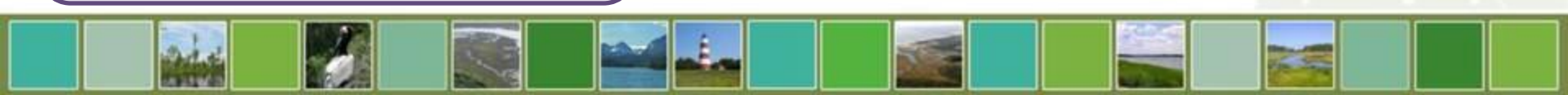
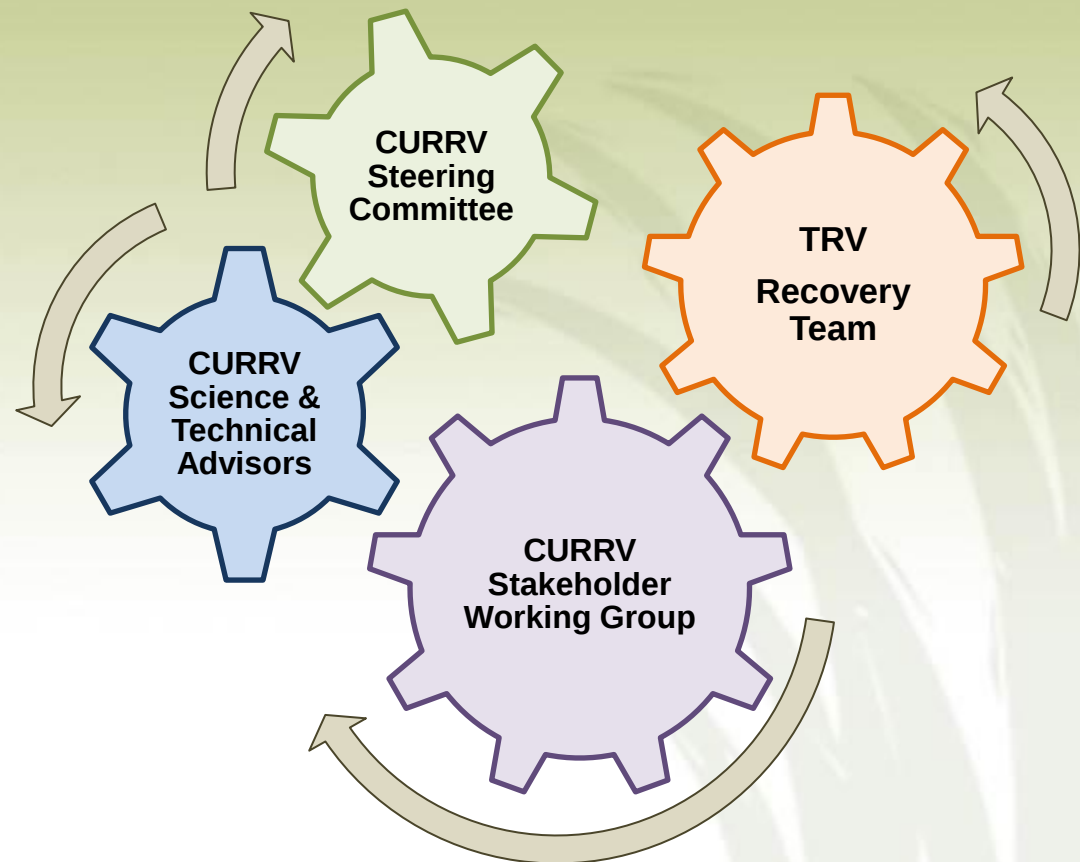
- **Members:** Public agencies owning natural and built resources throughout TRV
- **Purpose:** Lead the development and implementation of the Strategy

Science & Technical Advisors

- **Members:** Subject matter experts
- **Purpose:** Provide scientific & technical guidance throughout the planning process

Stakeholder Working Group

- **Members:** Public agencies, academia, and organizations, who have a direct interest in the future of TRV and/or the collaborative process of climate adaptation planning
- **Purpose:** Provide feedback throughout the planning process



Collaborative Process

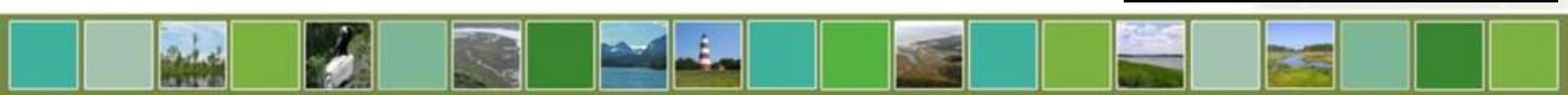
Your role...

Provide input and feedback as we reach key milestones

Participate in stakeholder meetings every 4 months

Help define strategies for maximum benefit

Develop a vision of desired future outcomes that integrates ecological , socioeconomic, and institutional perspectives

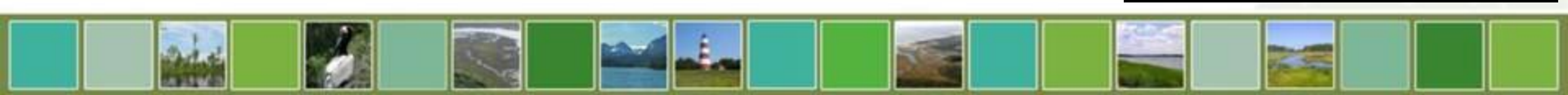


Why Collaborate?

Involving stakeholders throughout the research process **from problem definition to results** will increase the likelihood that science will be applied



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SCIENCE COLLABORATIVE



Stakeholder Meetings

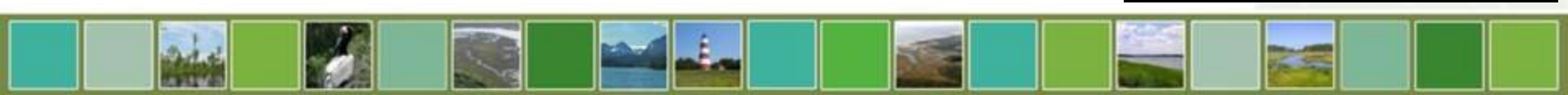
Trainings will be offered each meeting to better equip you to provide necessary input

Today's meeting...

Seeking input :

- Goal & Objectives
- Existing Conditions Report

Vulnerability assessment training





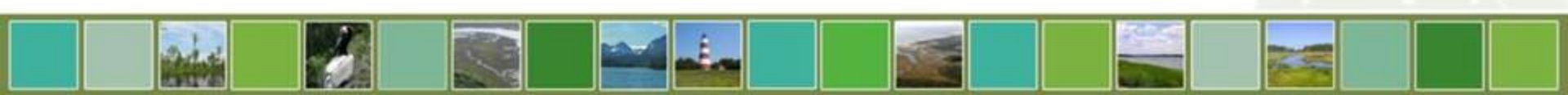
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II. RESPONDING TO CLIMATE CHANGE

CLIMATE ADAPTATION & VULNERABILITY ASSESSMENTS

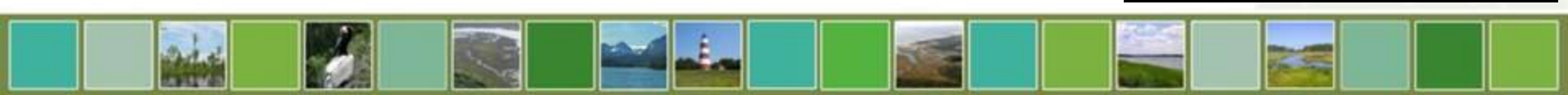


Climate Mitigation

Addresses the causes of climate change

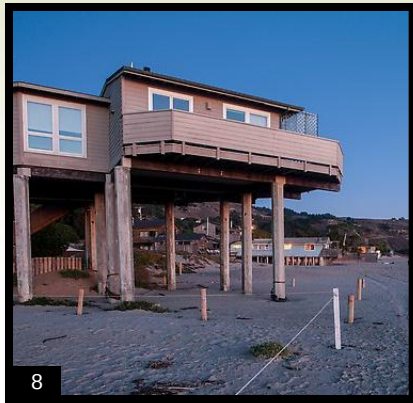


Reduce greenhouse gas emissions

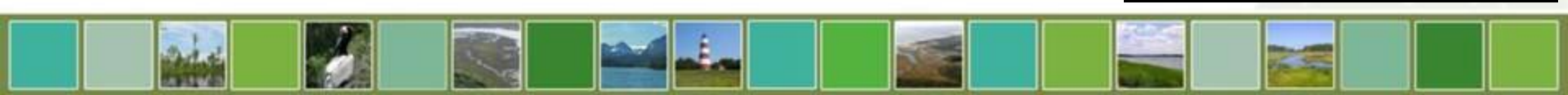


Climate Adaptation

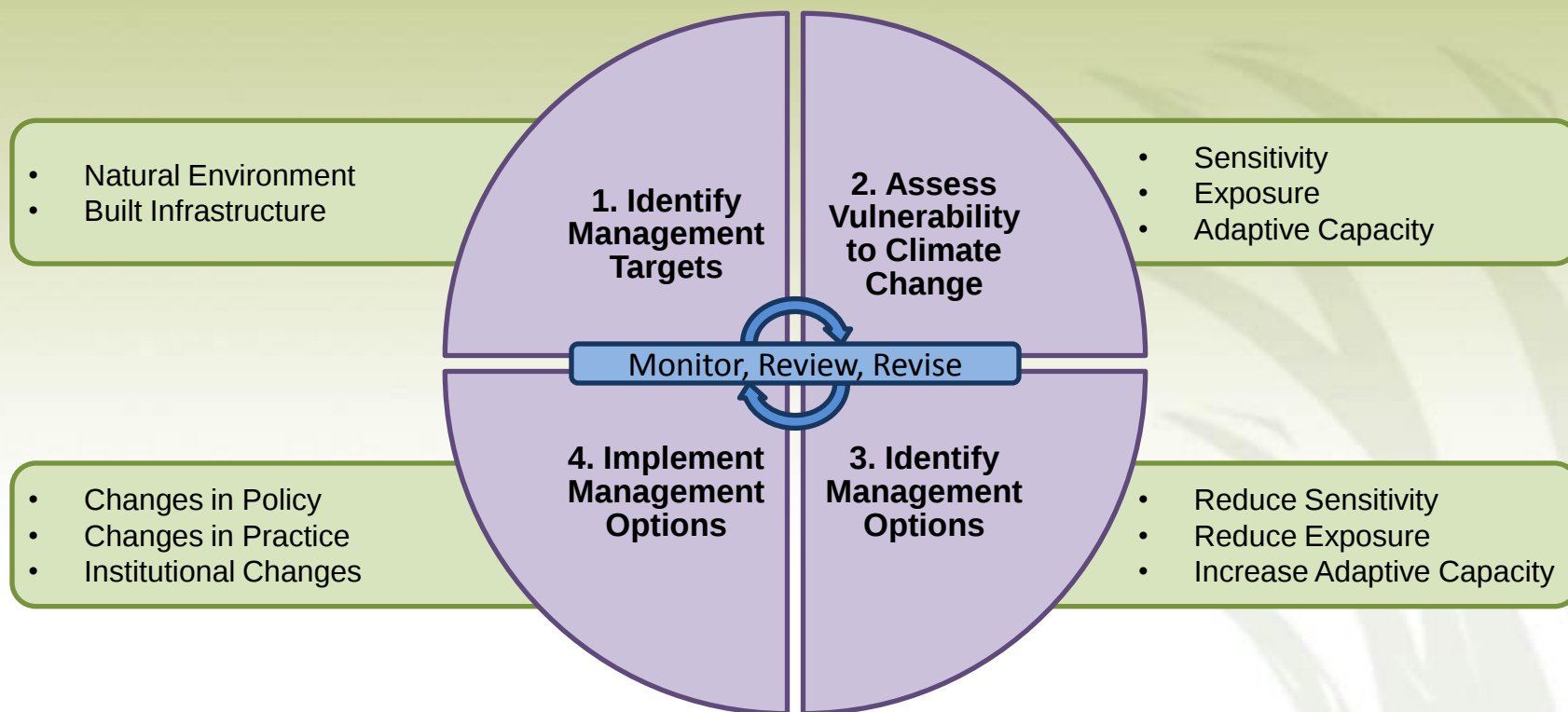
Initiatives and measures designed to ***reduce the vulnerability*** of natural and human systems to the effects of climate change



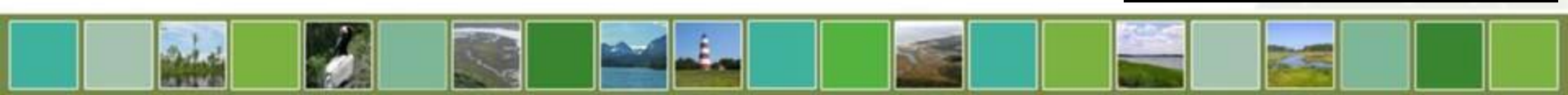
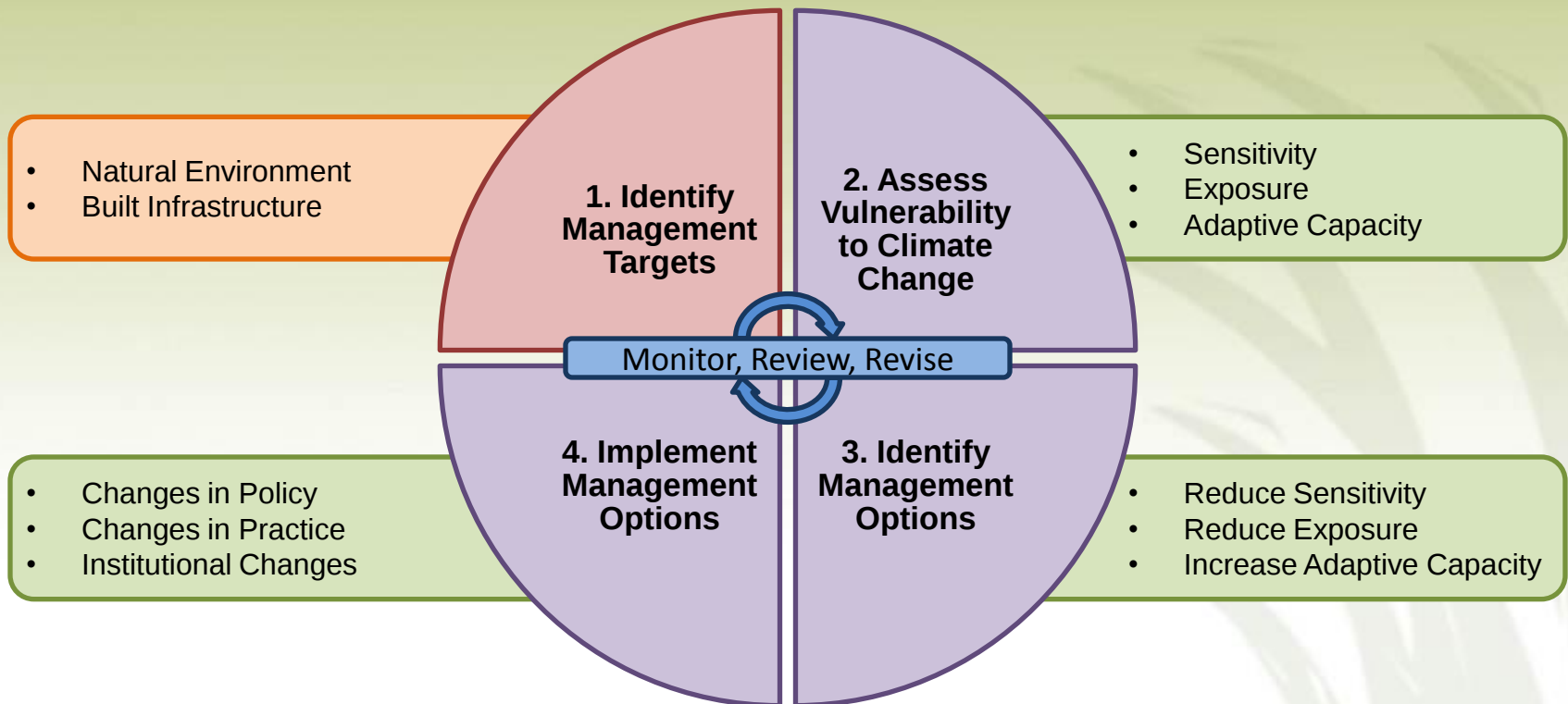
Scanning the Conservation Horizon (2011), National Wildlife Federation.



Climate Adaptation Framework



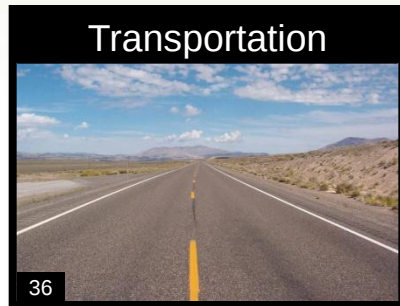
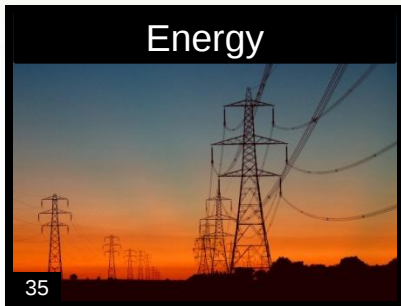
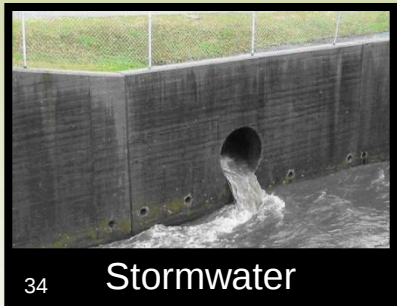
Climate Adaptation Framework



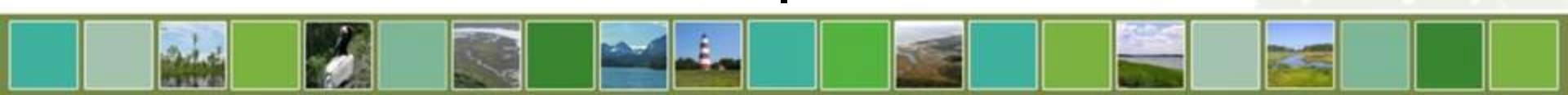
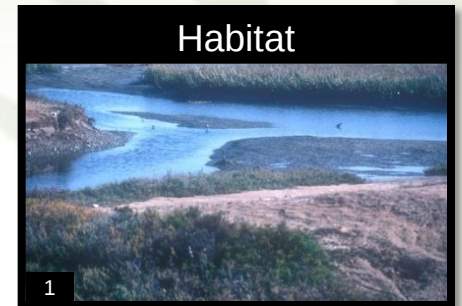


Identify Management Targets

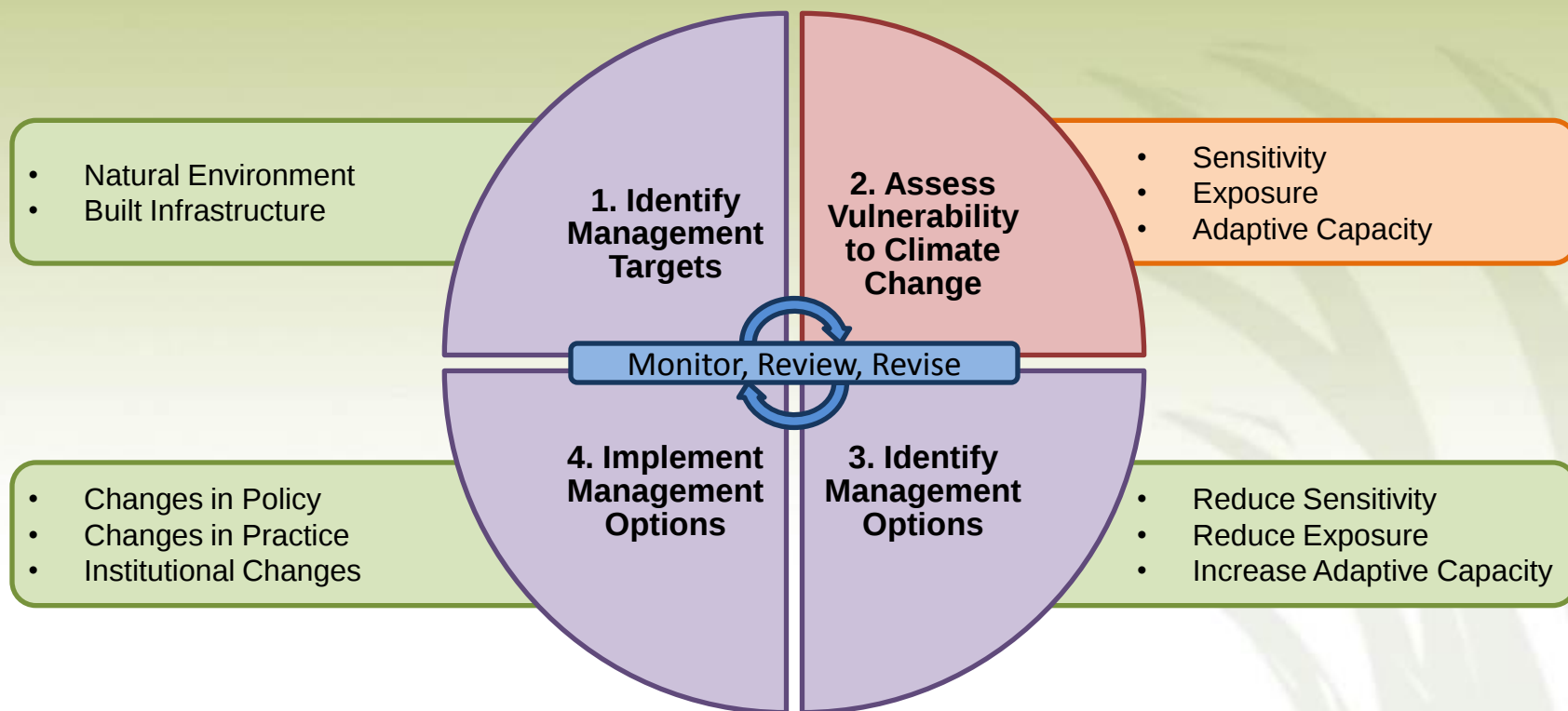
Built Infrastructure



Natural Environment



Climate Adaptation Framework



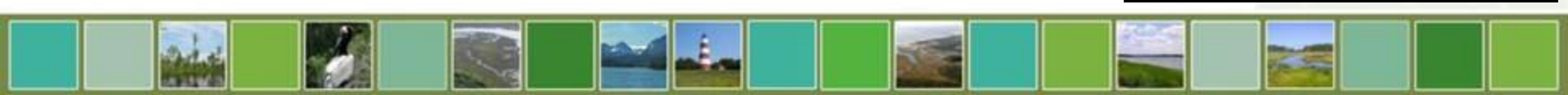
Vulnerability Defined

The extent to which natural and human communities are susceptible to harm from climate change impacts

Vulnerability assessments identify...

Which resources are most vulnerable

Why they are vulnerable



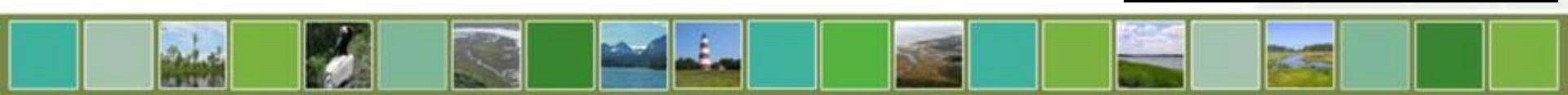
Why assess vulnerability?

Vulnerability assessments can help...

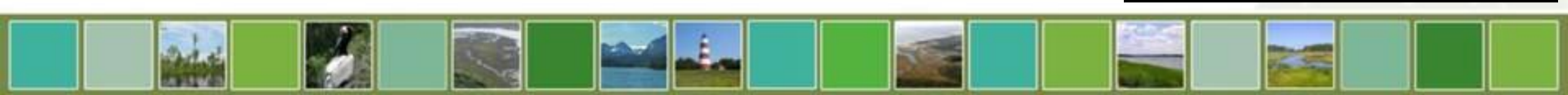
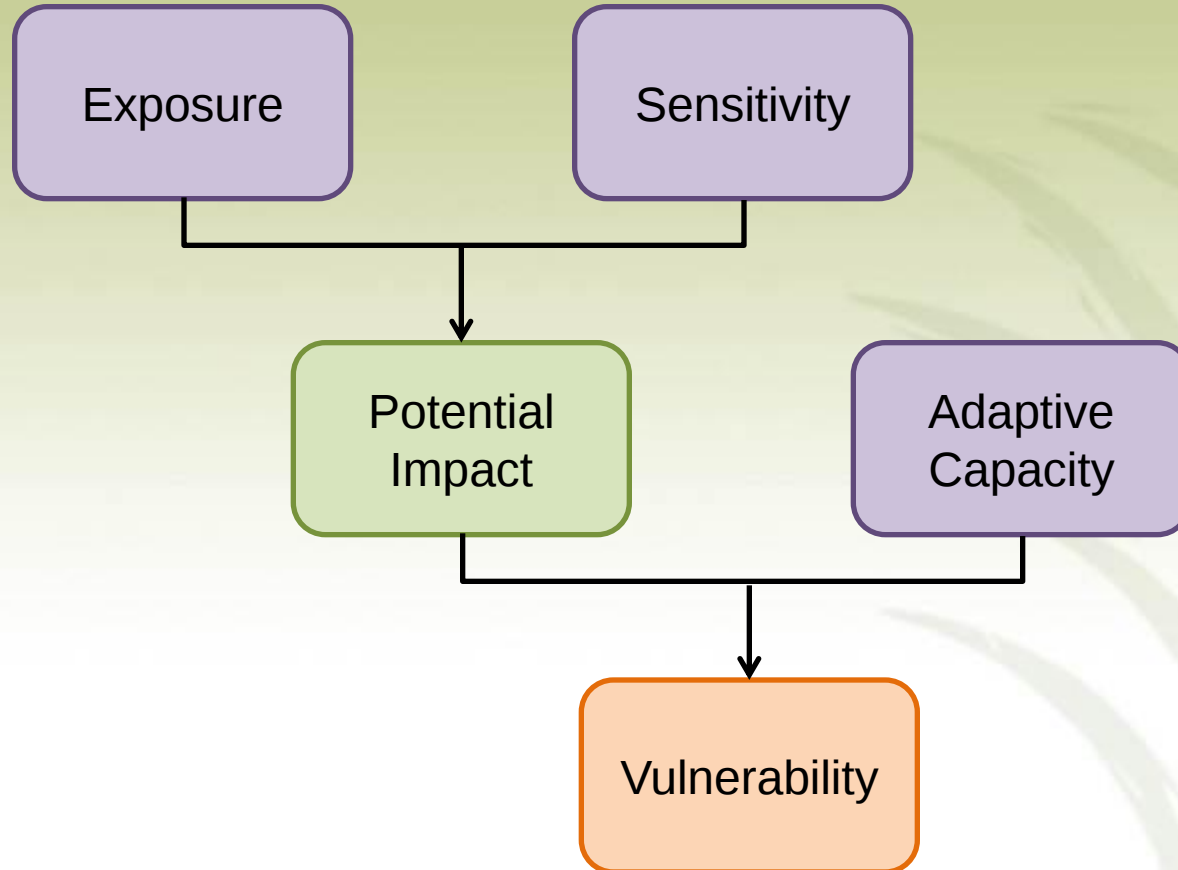
Set management & planning priorities

Inform the development of climate
adaptation strategies

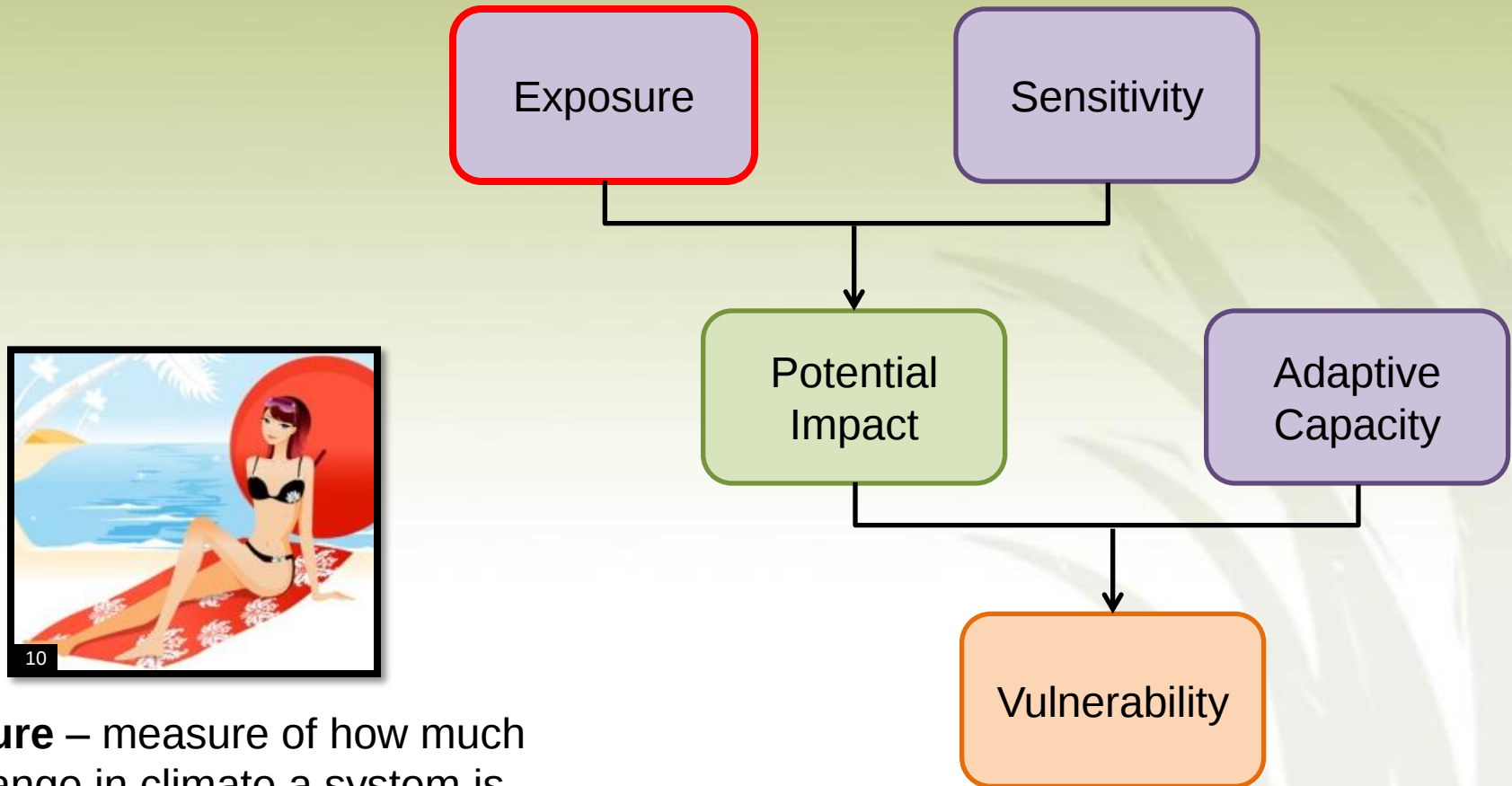
Efficiently allocate scarce resources



Vulnerability Assessment Framework



Vulnerability Assessment Framework

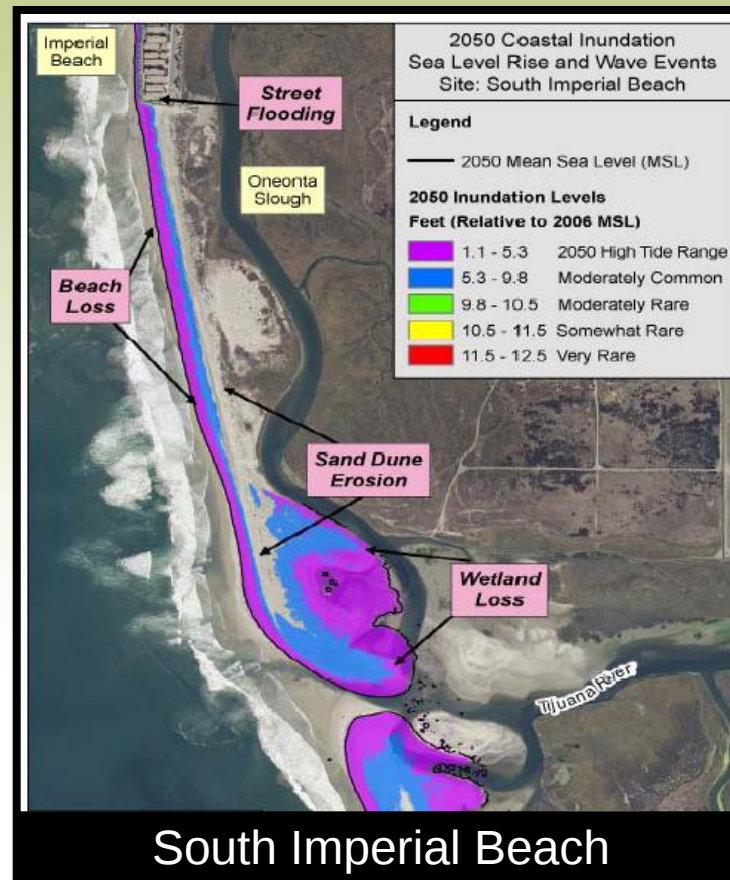


Exposure – measure of how much of a change in climate a system is likely to experience

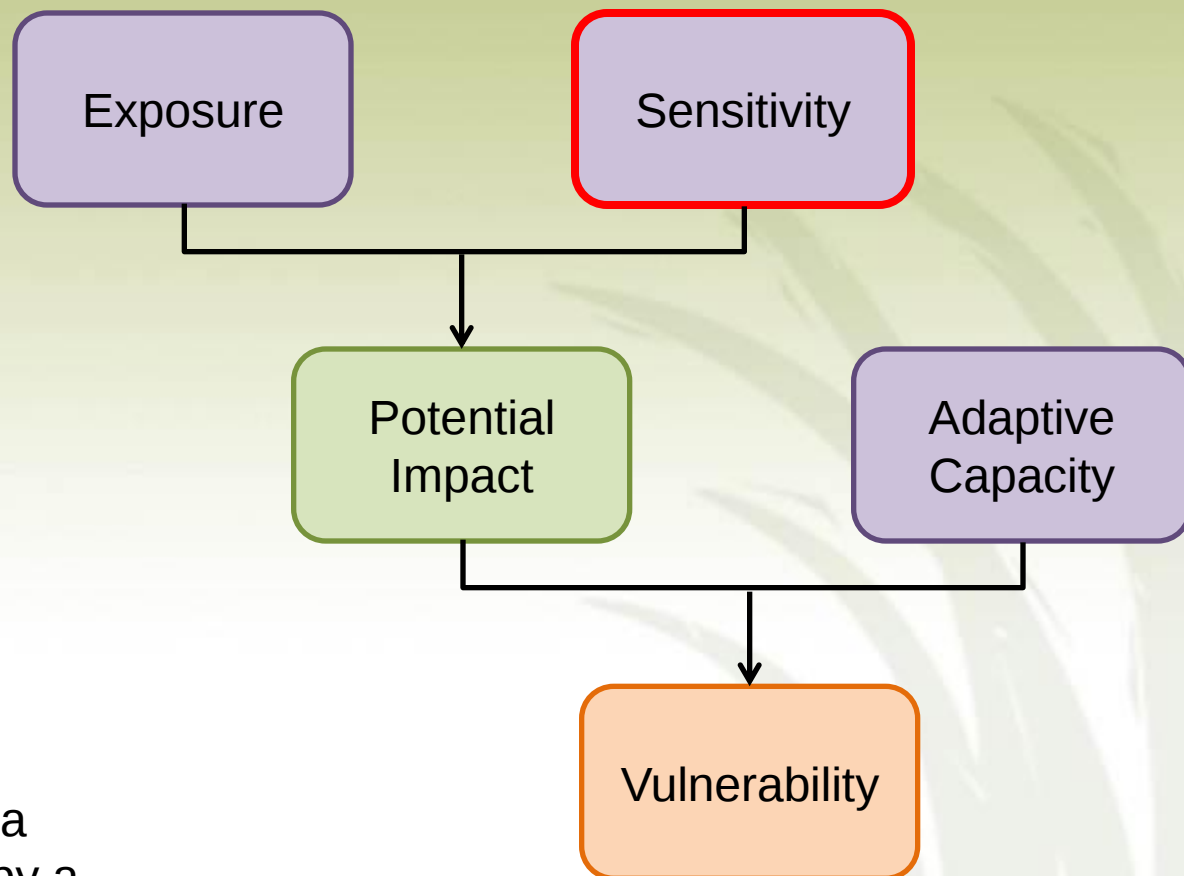




Assessing Exposure



Vulnerability Assessment Framework



Sensitivity – measure of how a system is likely to be affected by a given change in climate



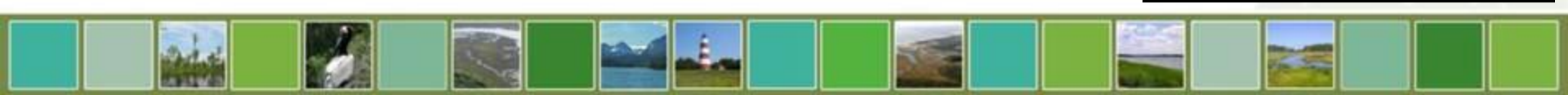


Assessing Sensitivity

Sensitivity Levels	
S0	System will not be impaired by the impact
S1	System will be minimally impaired by the impact
S2	System will be somewhat impaired by the impact
S3	System will be largely impaired by the impact
S4	System will be greatly impaired by the impact

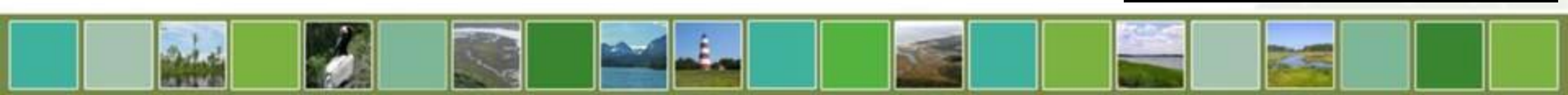
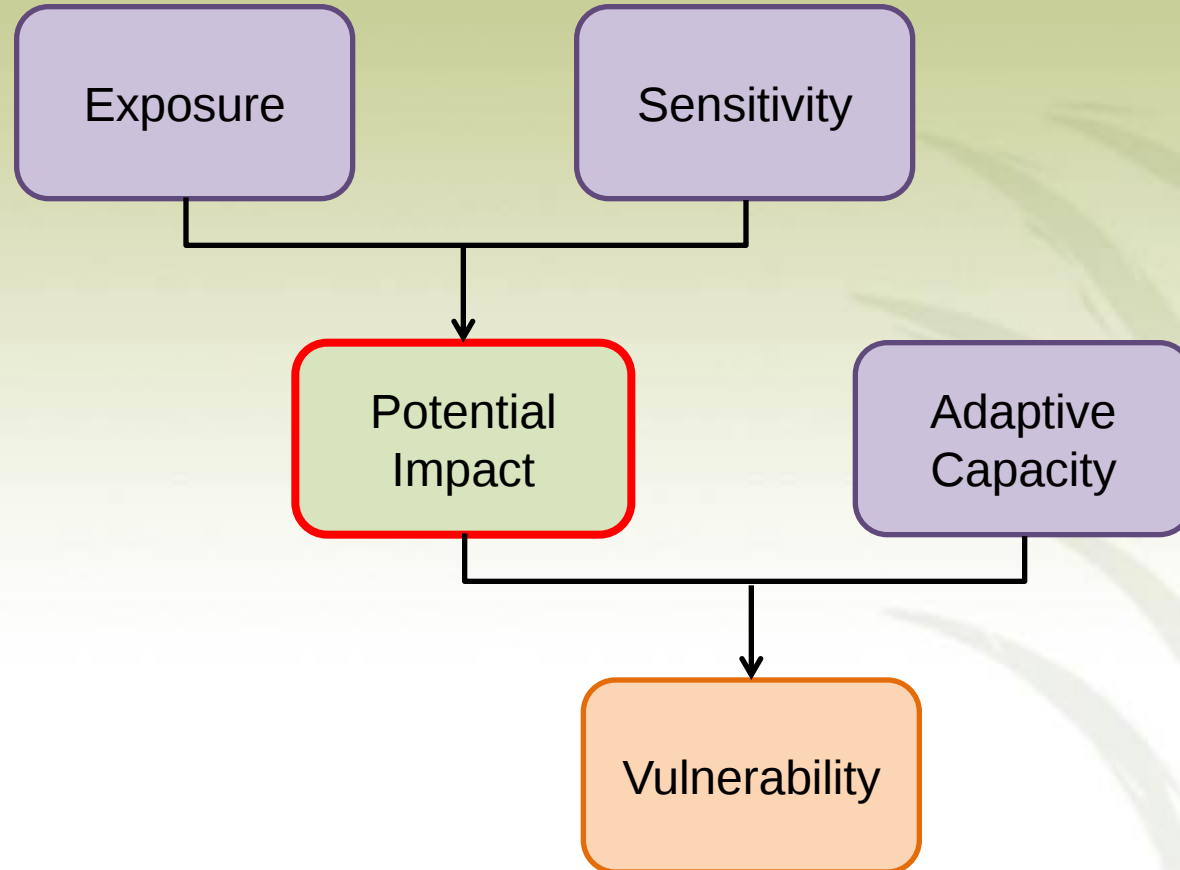
***7. Based on your previous answers and thoughts, what sensitivity level would you give your system for each of the following impacts:**

	S0	S1	S2	S3	S4
Flooding	☐	☐	☐	☐	☐
Erosion	☐	☐	☐	☐	☐
Salt water intrusion	☐	☐	☐	☐	☐
Water table rise	☐	☐	☐	☐	☐
Habitat or species shifts	☐	☐	☐	☐	☐

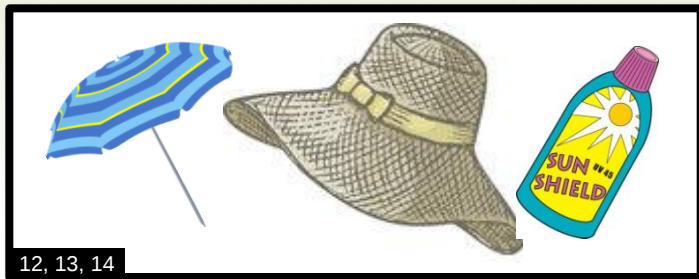
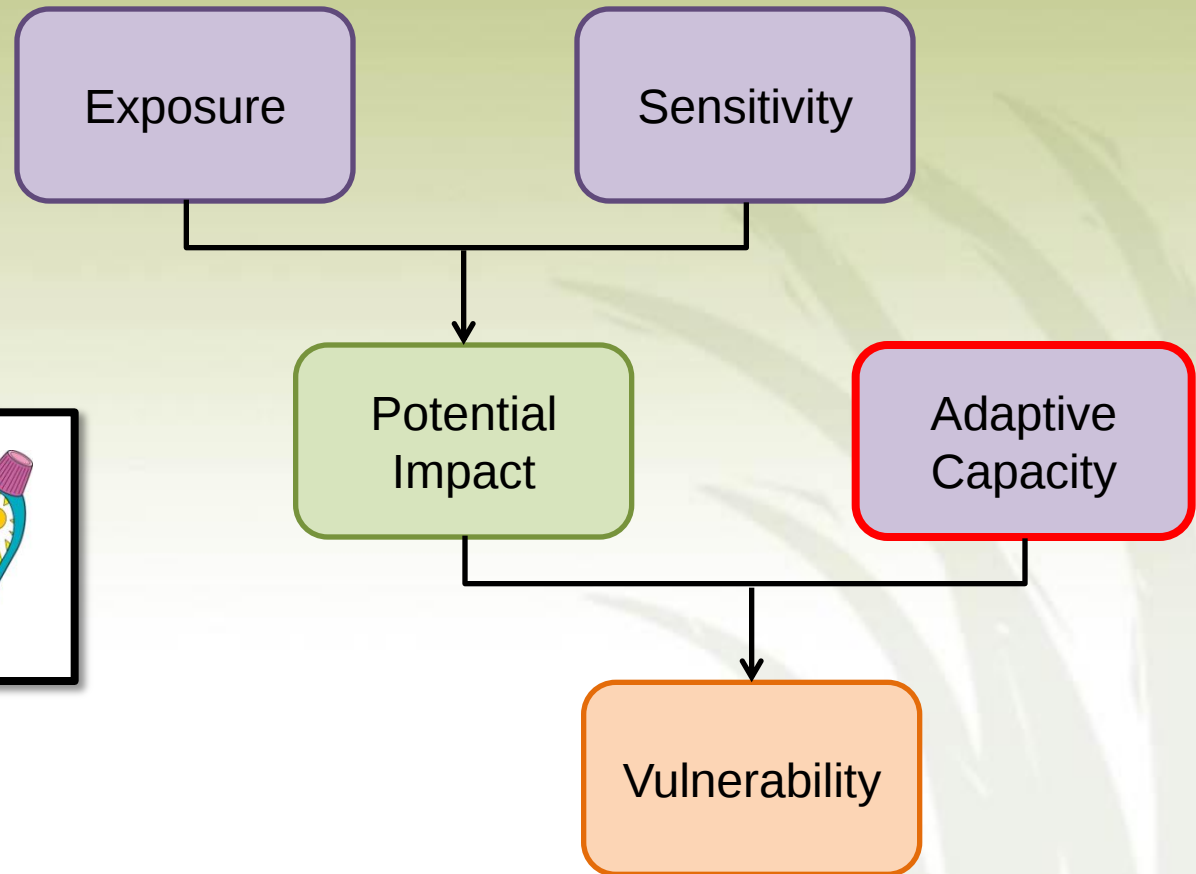




Exposure + Sensitivity = Impact



Vulnerability Assessment Framework



Adaptive capacity – opportunities that may exist to ameliorate the sensitivity or exposure of a system

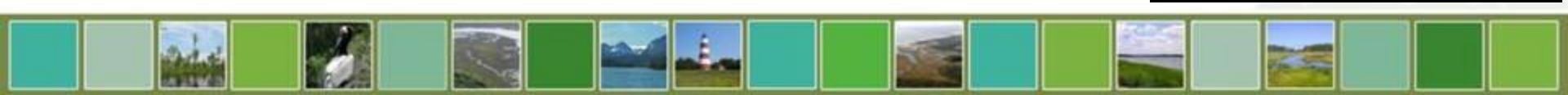




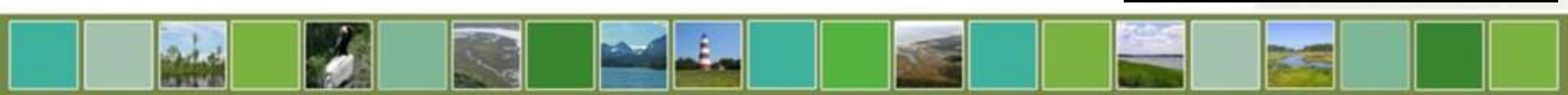
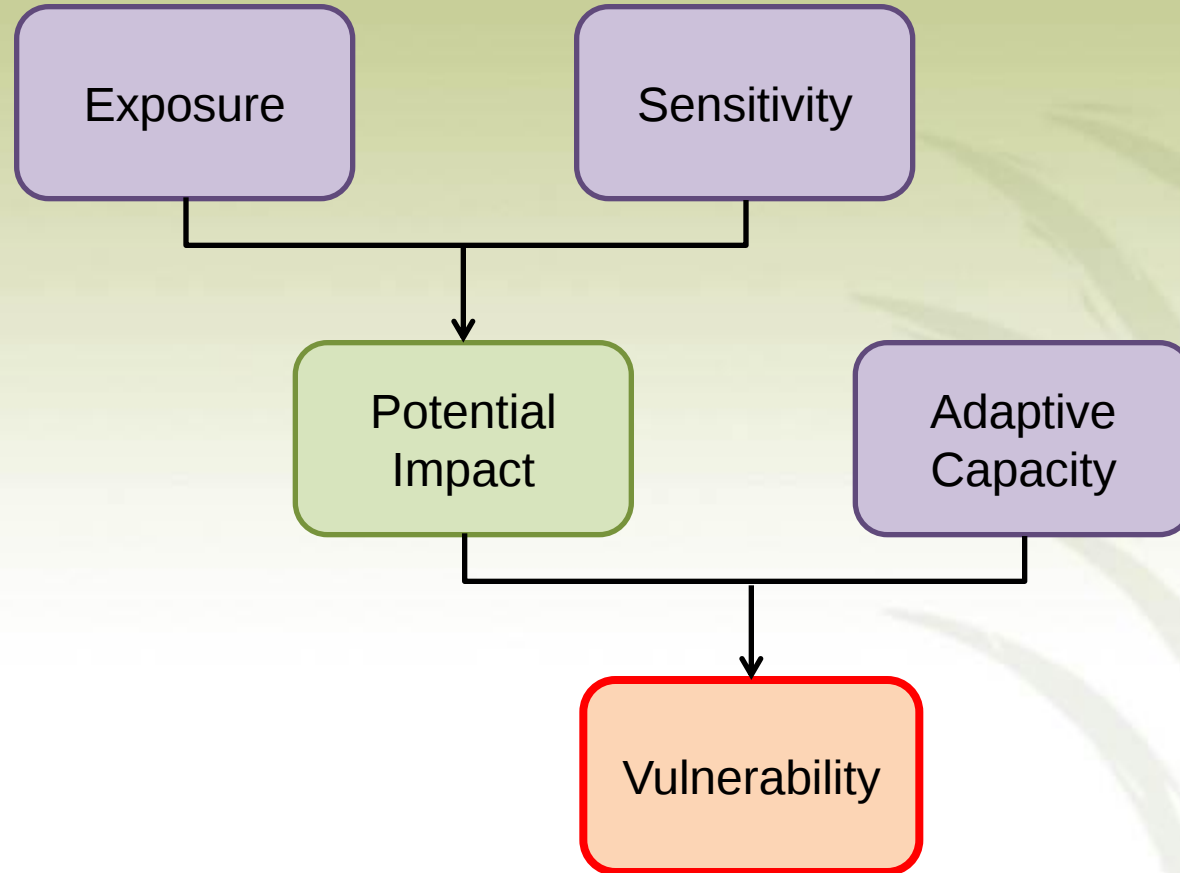
Assessing Adaptive Capacity

***7. What level of resources does your system have in the following areas that will enhance its ability to be flexible and adapt in the long term?**

	Very low	Low	Medium	High	Very high
Economic	☐	☐	☐	☐	☐
Environmental	☐	☐	☐	☐	☐
Governance	☐	☐	☐	☐	☐
Social	☐	☐	☐	☐	☐
Technology / Infrastructure	☐	☐	☐	☐	☐

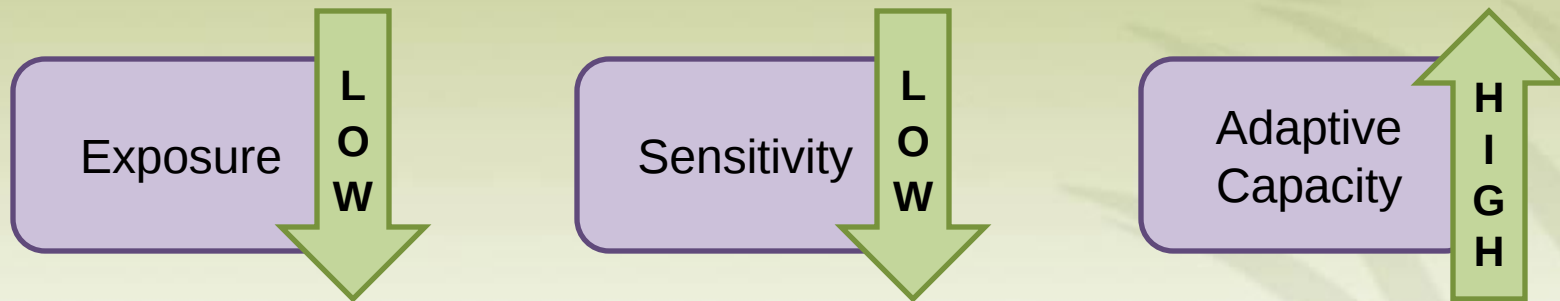


Impact + Adaptive Capacity = Vulnerability

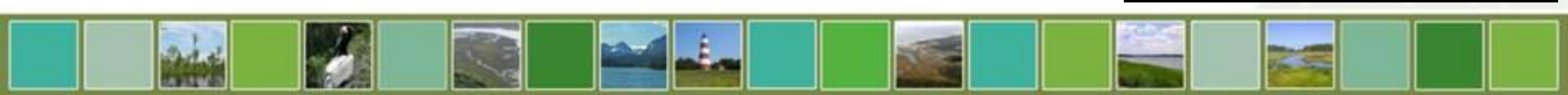
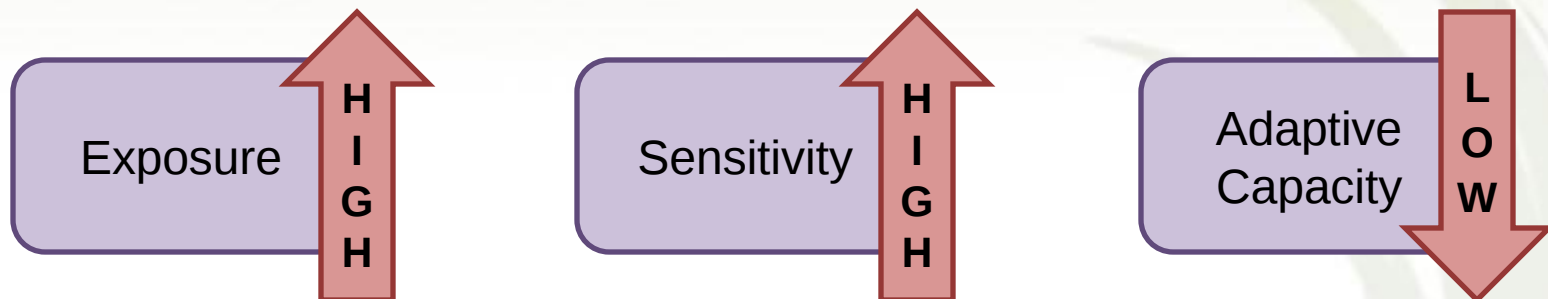


Resiliency

Most Resilient Systems



Least Resilient Systems



Non- Climatic Stressors

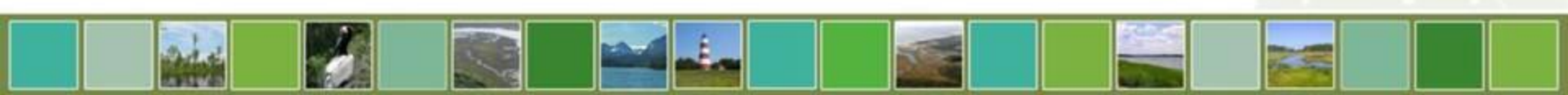
Sediment



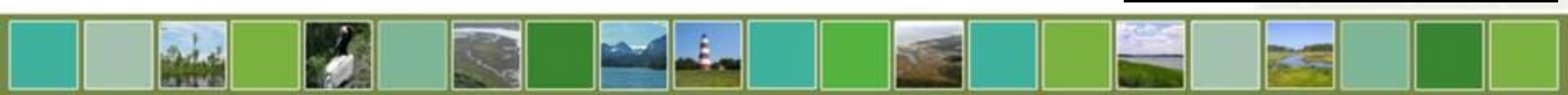
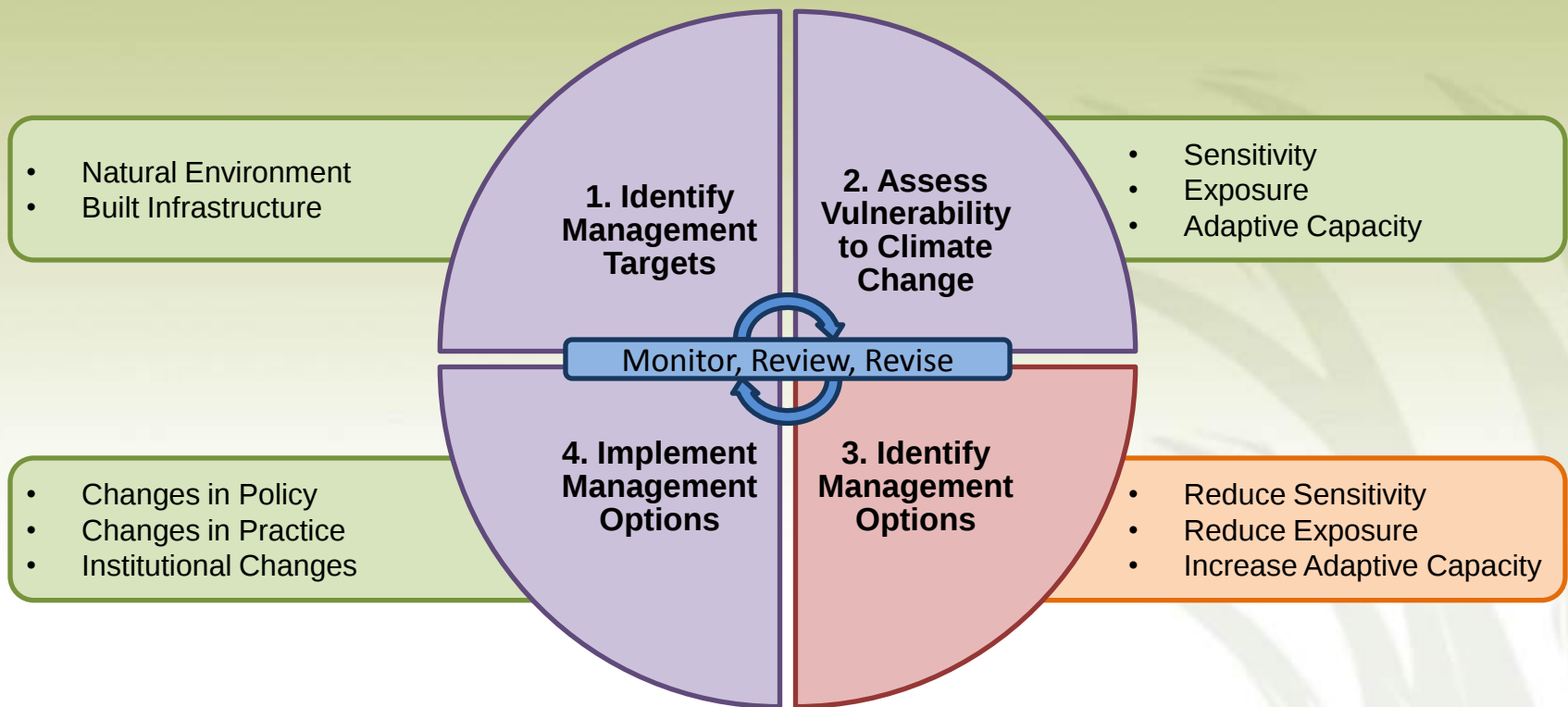
Trash



Pollution



Climate Adaptation Framework



SLR Adaptation Strategies



Hard Shoreline Stabilization

- Bulkhead



Soft Shoreline Stabilization

- Wetland Restoration



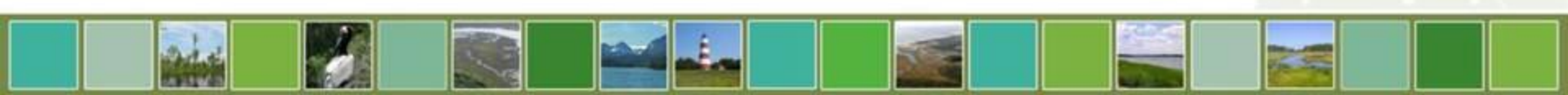
Accommodation

- Beach Nourishment

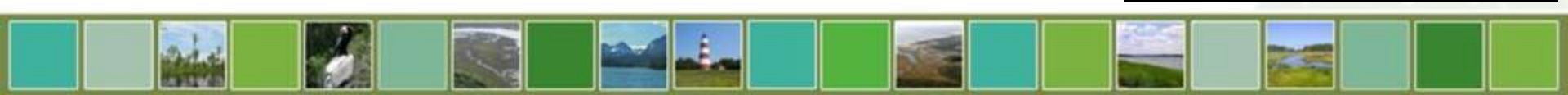
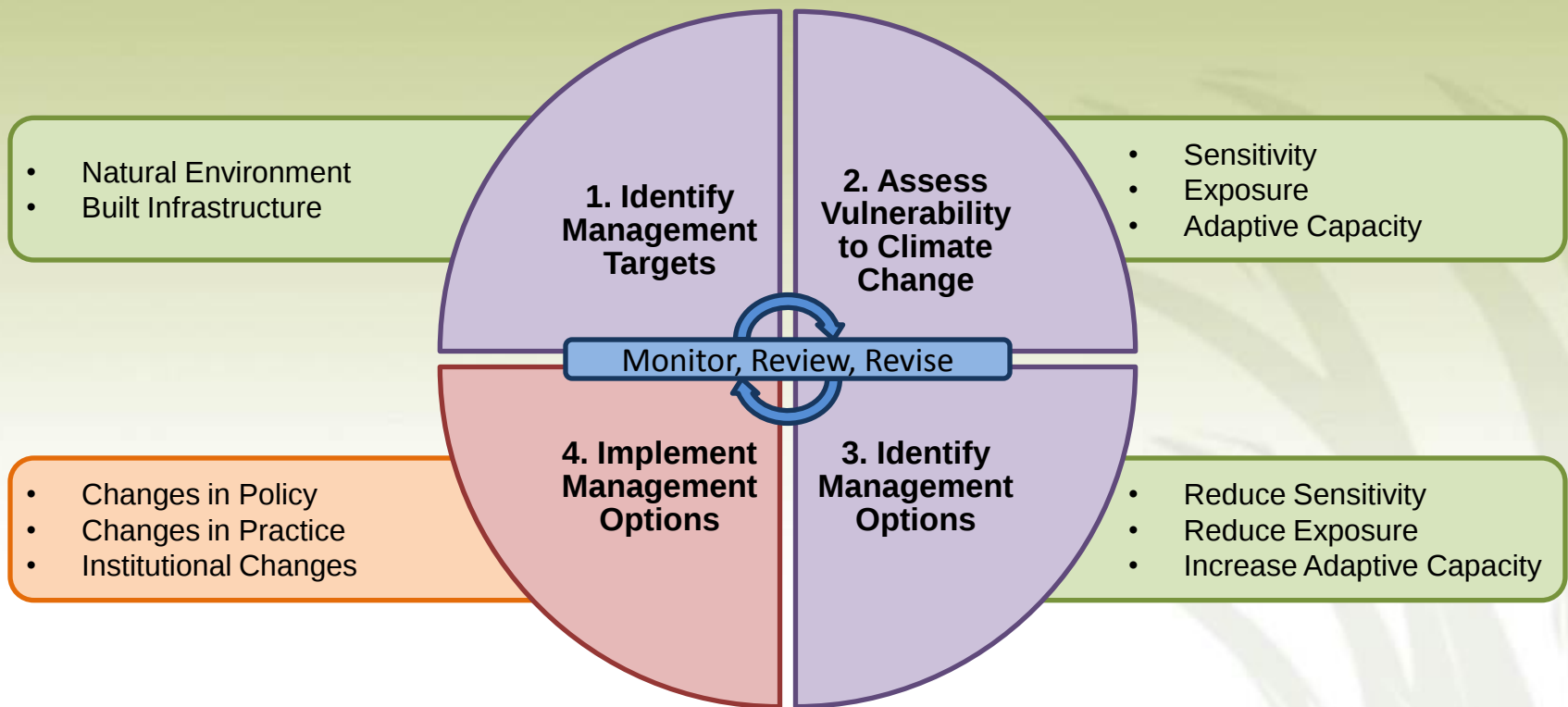


Withdrawal

- Setbacks & Zoning

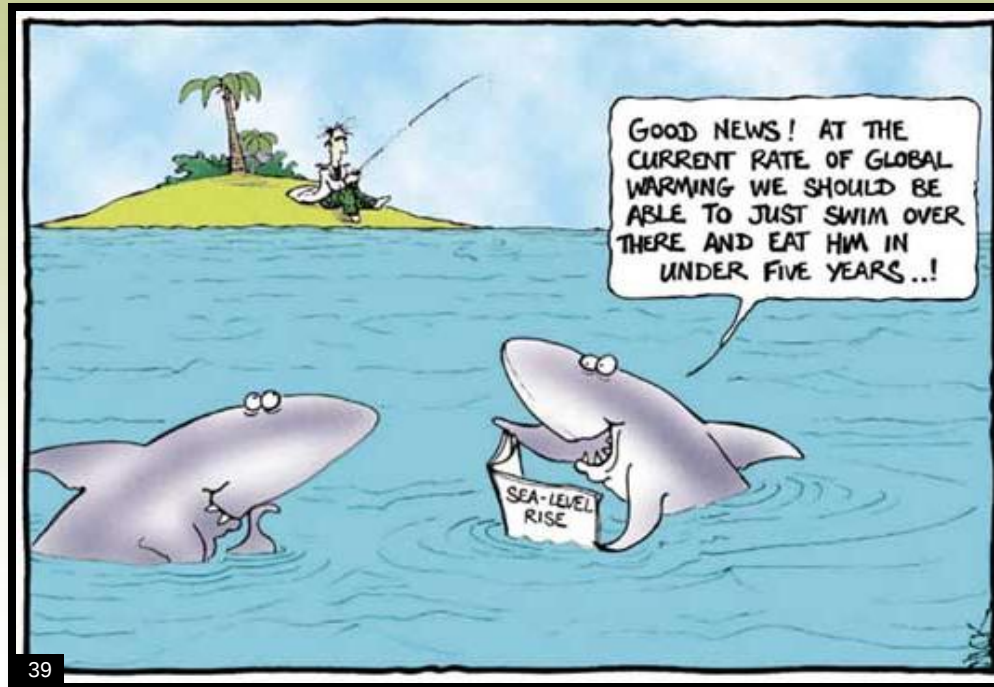


Climate Adaptation Framework

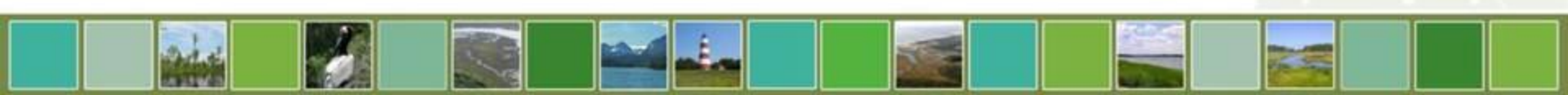




Thank You!



QUESTIONS?



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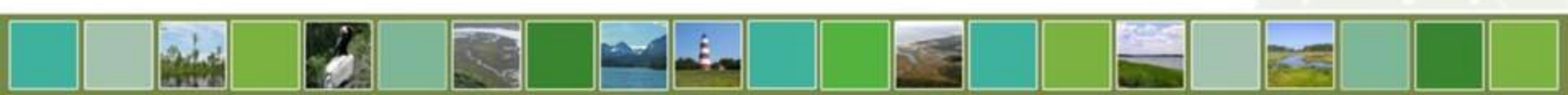


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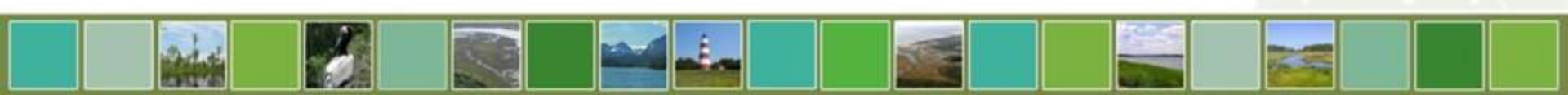


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