



Sea Level Rise Planning and School Curriculum



Kathryn Frank
Urban and Regional Planning, UF

Two Projects: Two Curricula

- Matanzas – Northeast Florida
 - Sea Level Rise Primer
 - Sea Level Rise Strategies Role-Play Game
- Levy County – Gulf Coast, Big Bend
 - Planning for Coastal Change Summer Camp Curriculum

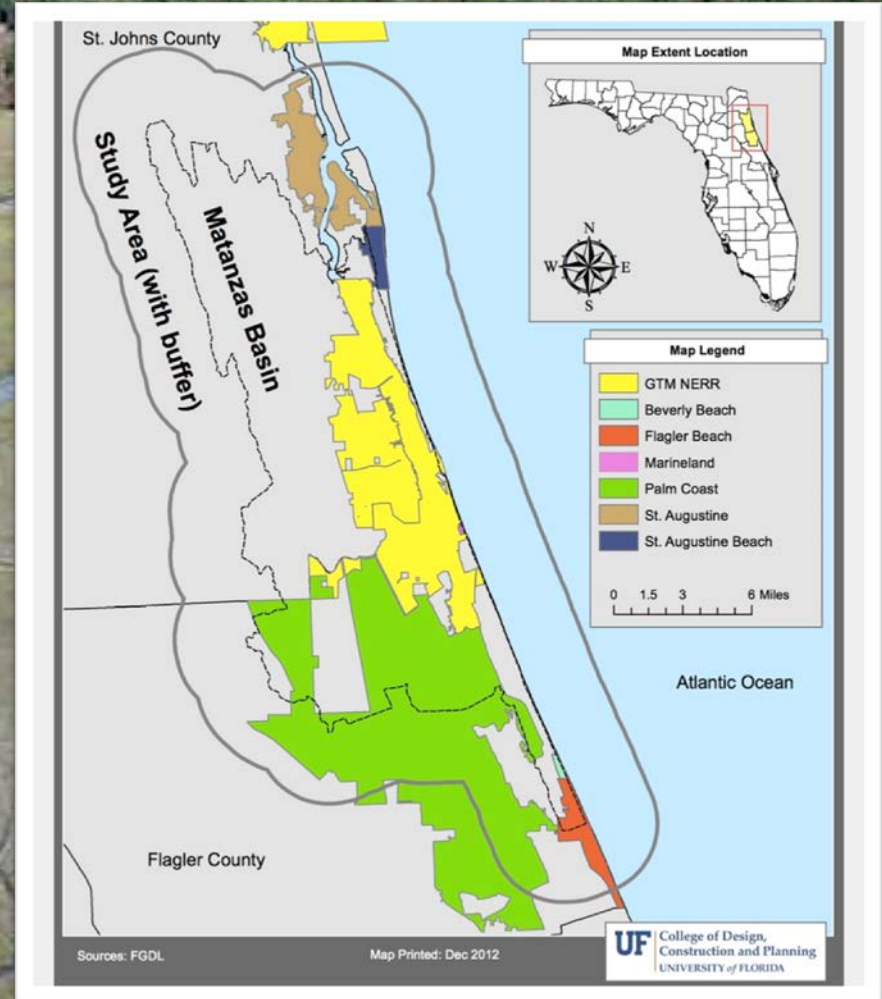


Sea Level Rise Impacts

Matanzas Study Area



Matanzas Basin



Study Area



St. Augustine

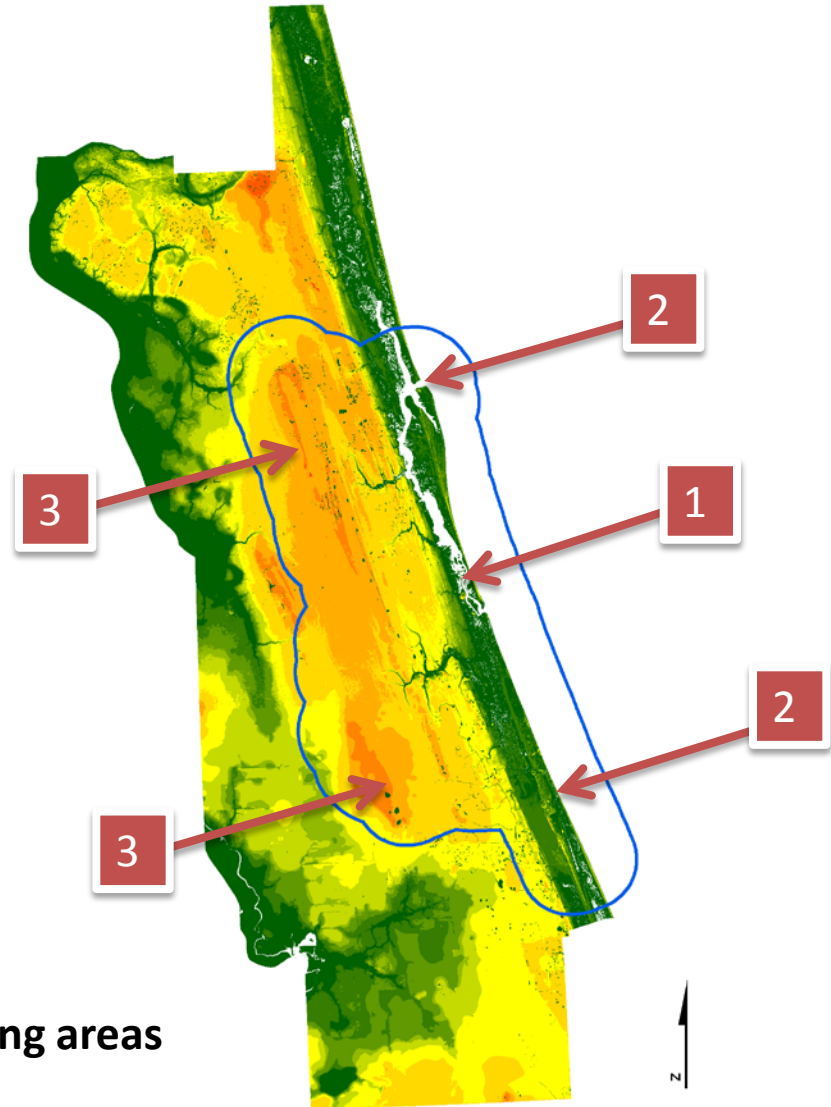


Palm Coast-Flagler Beach

Elevation and Development

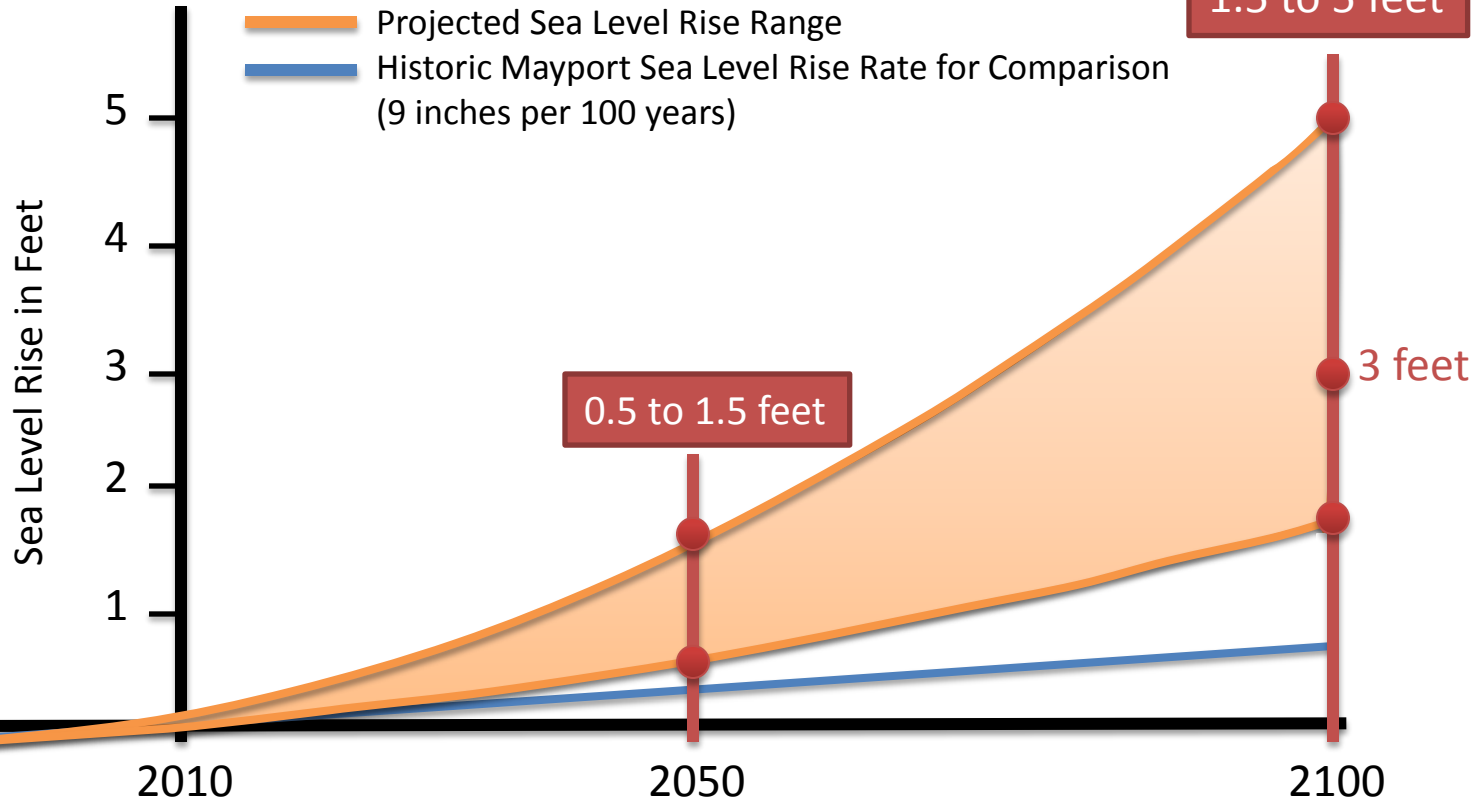
Three Types of Areas for Adaptive Design

1. Coastal natural areas
1. Coastal development
1. Upland future development or conservation



Future Sea Level Rise

US Army Corps of Engineers Guidance



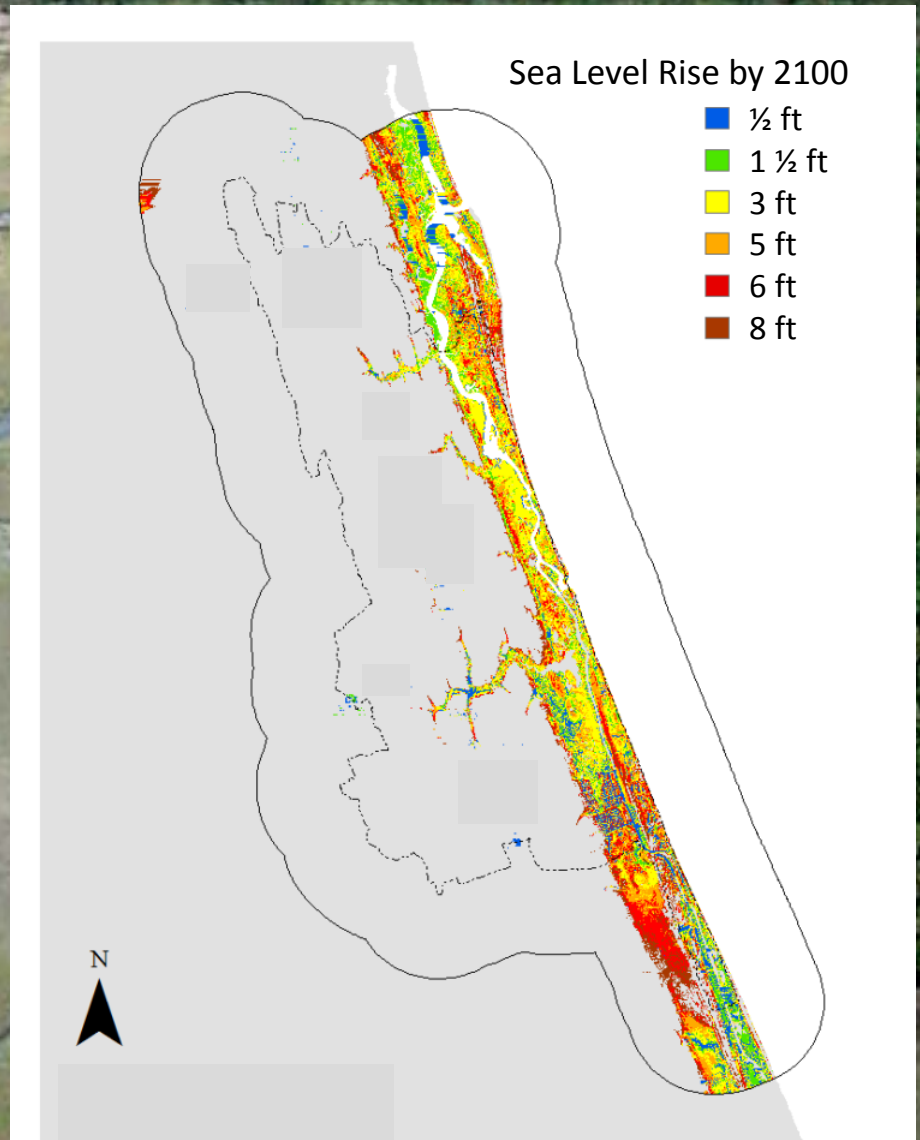
Analysis of Sea Level Rise Impacts

Impacts	Elevation Model	Habitat Changes Model: SLAMM	Storm Surge Model: Hazus	Local Knowledge
Increased flooding frequency	✓	✓	✓	✓
Greater coastal erosion				✓
Saltwater intrusion into aquifers				✓
Higher storm surges			✓	✓
Habitat and species changes		✓		✓

Areas Impacted by Sea Level Rise

Dynamic Model

- Sea Level Affecting Marshes Model (SLAMM)
- Habitat changes
- Shows impacts to developed areas if they are allowed to change



NOAA Sea Level Rise Viewer

<http://www.csc.noaa.gov/digitalcoast/tools/slrvIEWer>

Sea Level Rise and Coastal Flooding Impacts

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

Sea Level Rise Confidence Marsh

Vulnerability Flood Frequency

Sea Level Rise 3 ft SLR

Legend

- Water Depth
- Low-lying Areas
- Area Not Mapped
- Visualization Location

View Levels

Overview

Use the slider bar above to see how various levels of sea level rise will impact this area.

Levels represent inundation at high tide. Areas that are hydrologically connected are shown in shades of blue (darker blue = greater depth).

Low-lying areas, displayed in green, are hydrologically "unconnected" areas that may flood. They are determined solely by how well the elevation data captures the area's hydraulics. A more detailed analysis of these areas is required to determine the susceptibility to flooding.

Understanding the Map

Additional Information

United States Department of Commerce | National Oceanic and Atmospheric Administration | National Ocean Service

Contact Us | Privacy Policy | Link Disclaimer | USA.gov

Why plan for sea level rise now?

- Sea level rise is occurring now and will **accelerate**
- **Planning** is slow
- **Responsibility** for public safety, health and welfare
- Gain public **confidence** and reduce liability and market uncertainties
- **Opportunities** to reduce risk and costs, improve communities, and provide adaptation services



Leave a Positive Legacy

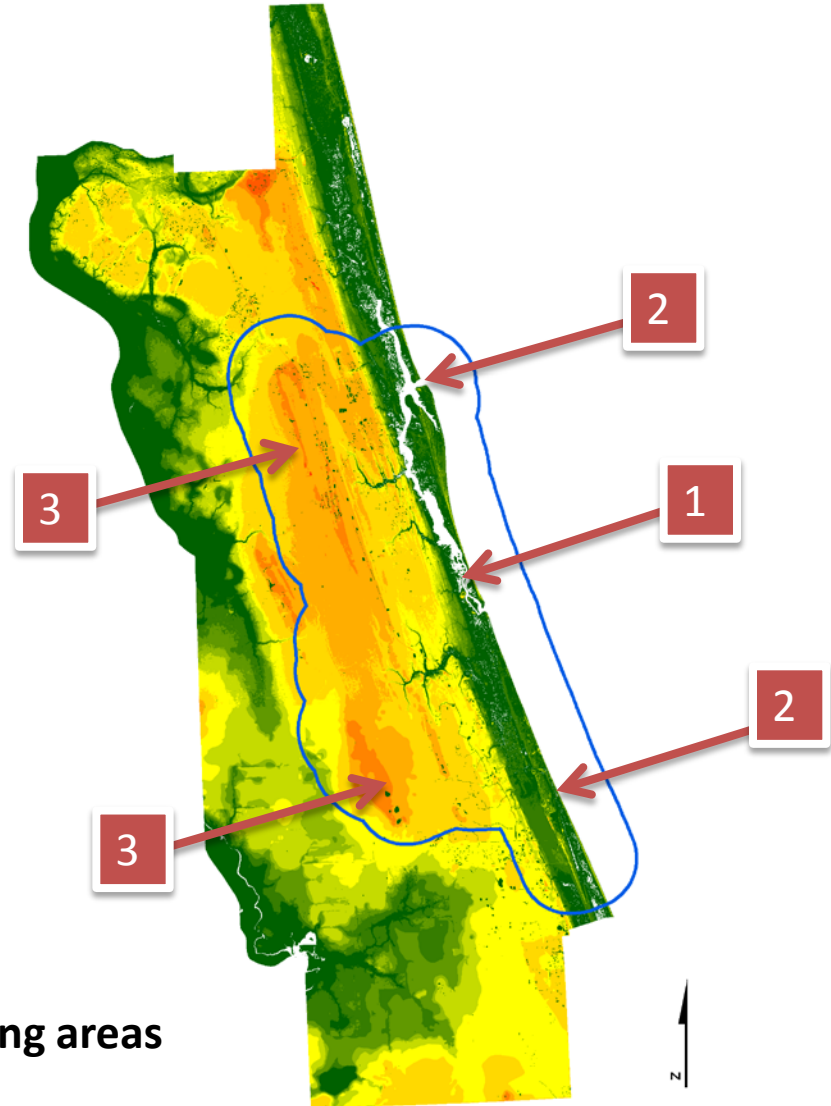


Adaptation Strategies

Integrated Planning and Design

Three Types of Areas for Adaptive Design

1. Coastal natural areas
1. Coastal development
1. Upland future development or conservation



Preserve Natural Lands and Systems

1. Coastal natural areas



Ecosystem Conservation
Coastal Land Acquisition and
Conservation Easements

Preserve Natural Lands and Systems

2. Coastal development

Living Shoreline
Restore Wetlands



Plan Infrastructure Investments

2. Coastal development

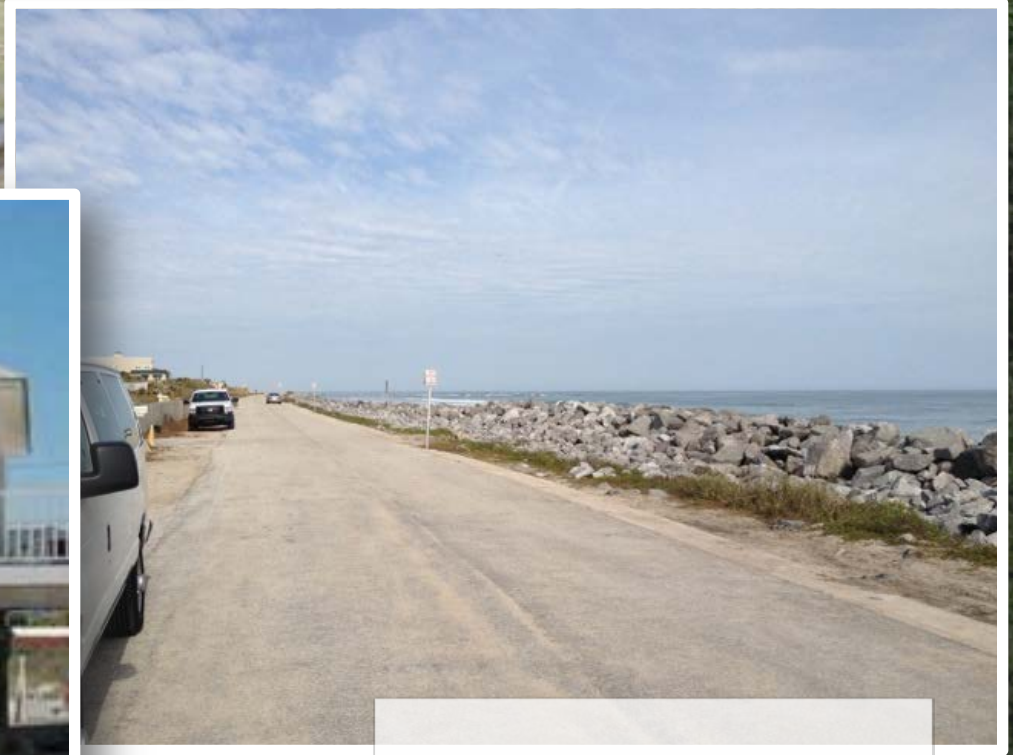


Beach Nourishment

Plan Infrastructure Investments

2. Coastal development

Elevating
Structures

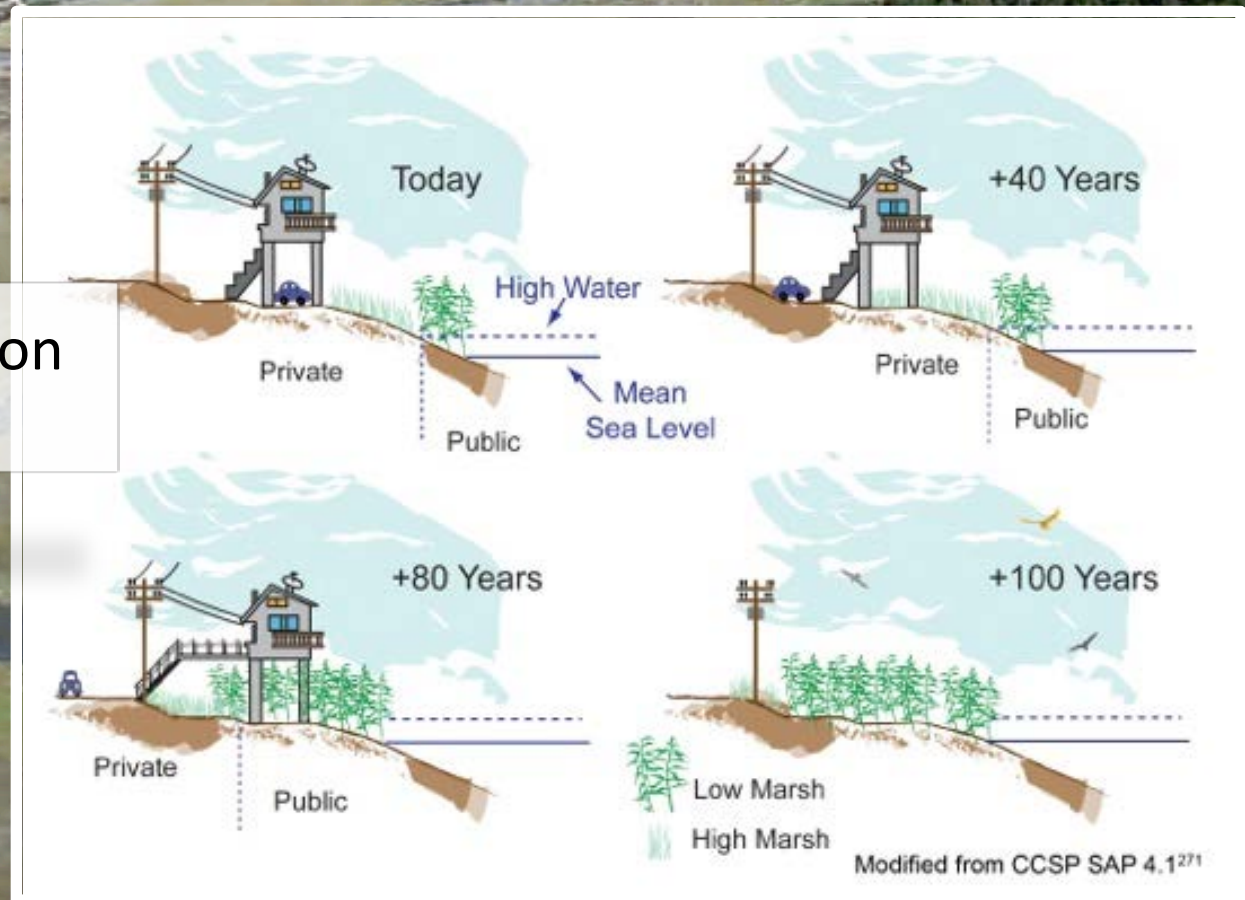


Seawalls and Riprap

Move Special Places

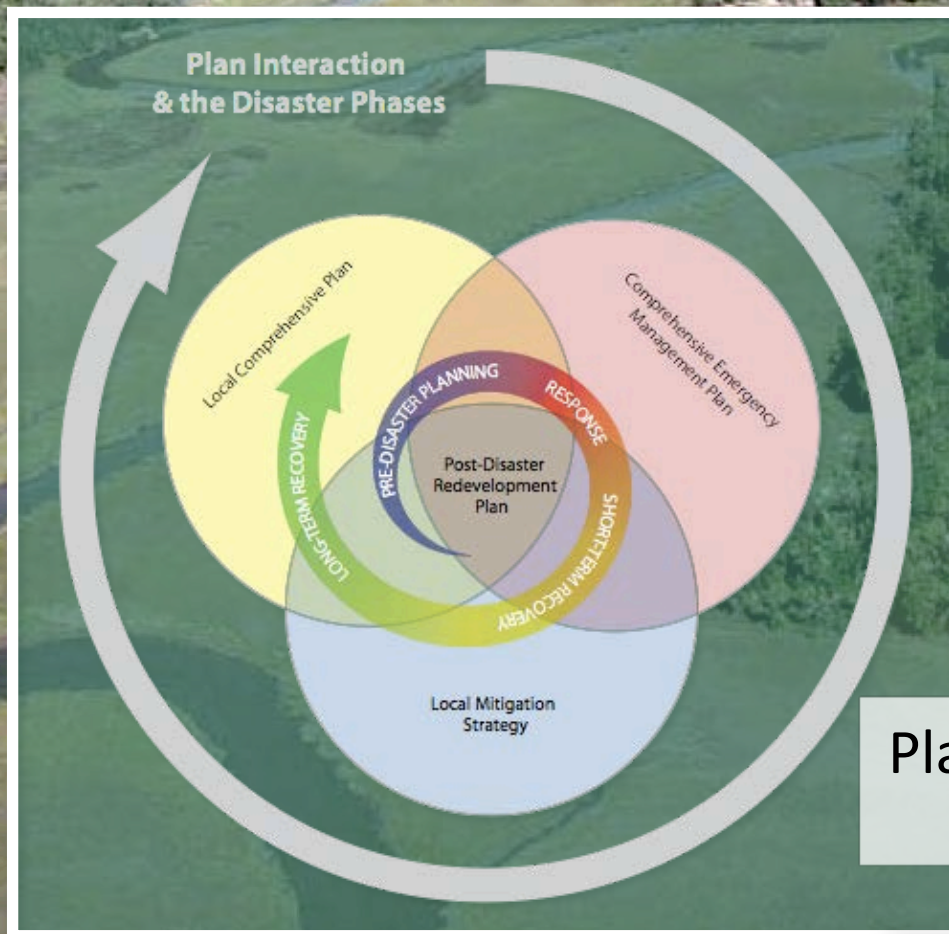
2. Coastal development

Planned Relocation
Rolling Easements



New Development on Higher Ground

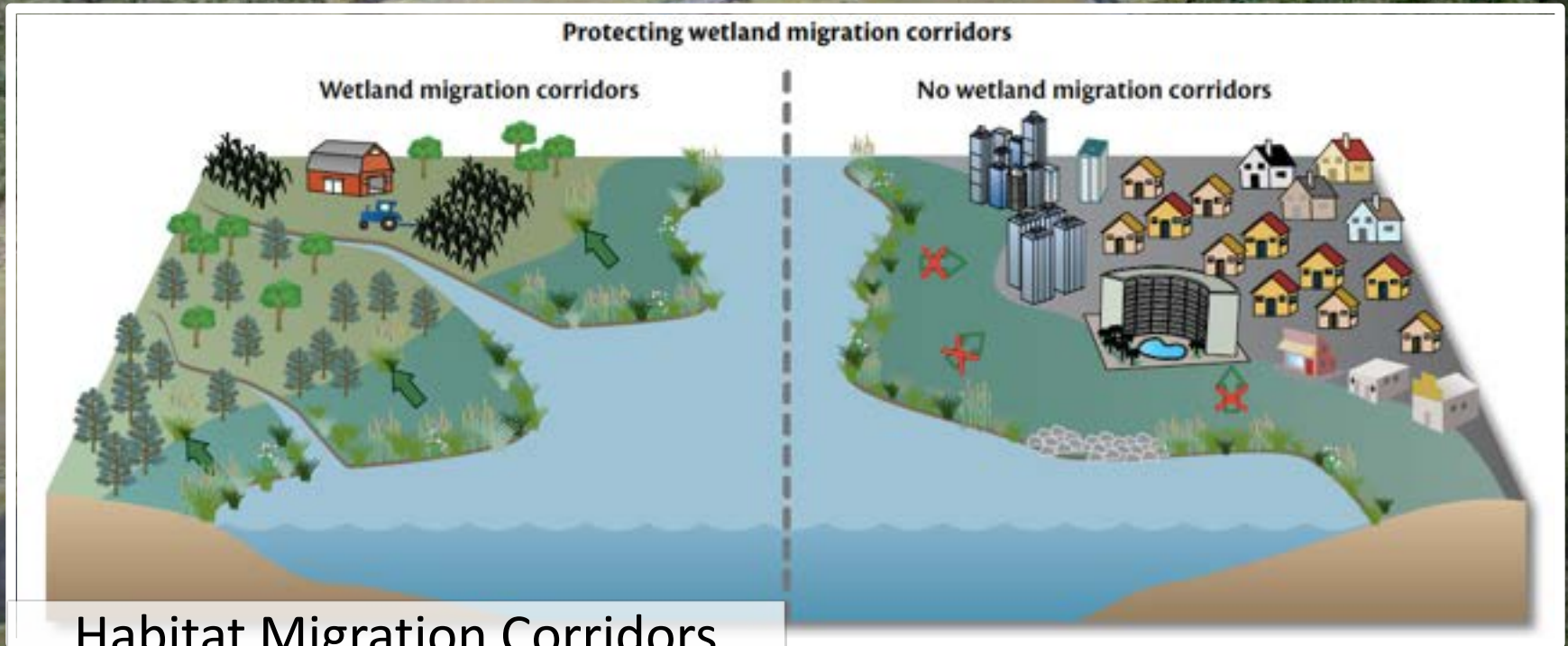
3. Upland undeveloped



Planned Relocation
Local Plans

Preserve Natural Lands and Systems

3. Upland undeveloped

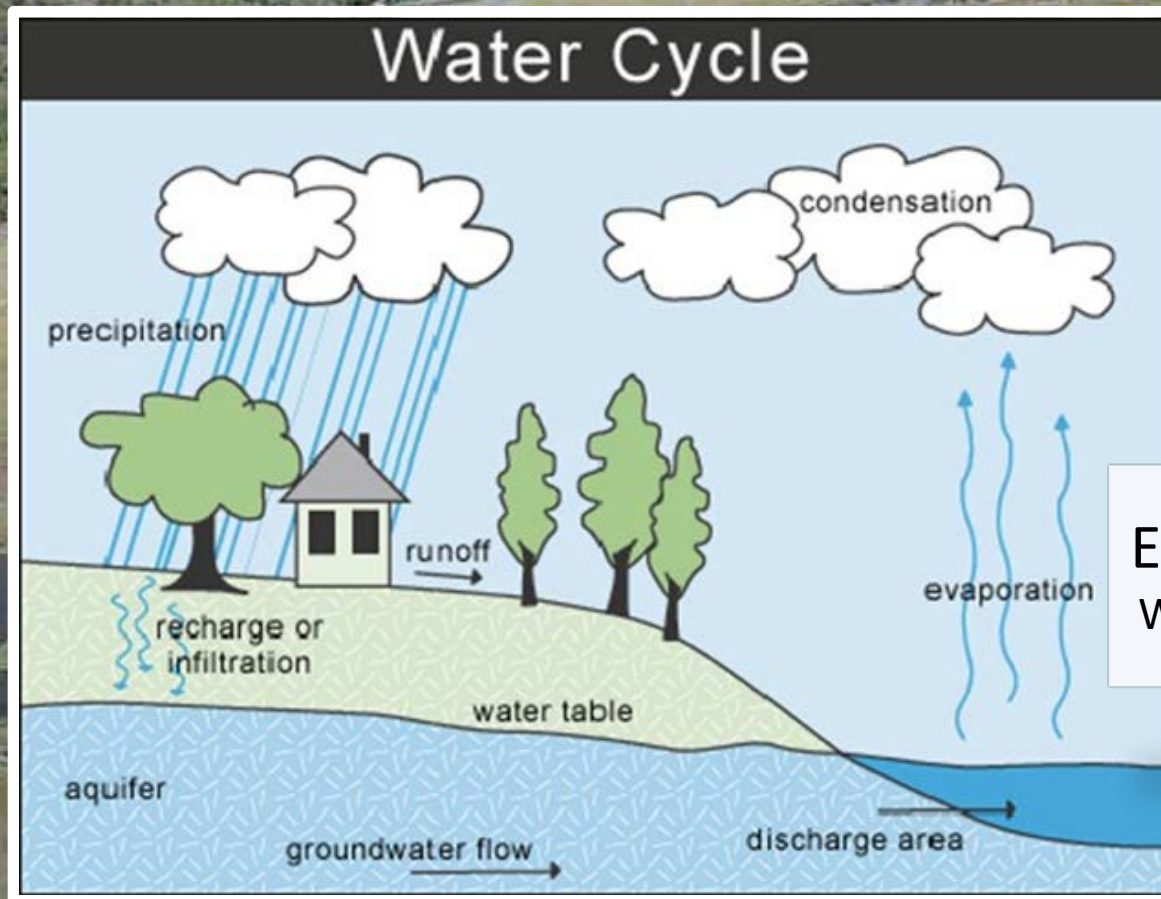


Habitat Migration Corridors

Upland Land Acquisition and
Conservation Easements

Preserve Natural Lands and Systems

3. Upland undeveloped



Ecosystem Services
Water Storage Easement

Adaptation Strategies Game

- Refer to handout



Summer Camp Curriculum

- Refer to handout



An aerial photograph showing a winding river or stream flowing through a vast, lush green landscape. The river meanders across a wide, flat area that appears to be a wetland or marsh, with varying shades of green and brown. The surrounding area is densely forested with tall trees, creating a dark green border around the central waterway. The overall scene is a natural, scenic view of a river valley.

Thank You!