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# Camden County “Rise Ready” Coastal Resiliency Project

# The Nature Conservancy



Protecting nature. Preserving life.

Founded in the United States in 1951

More than a million members

More than 400 scientists

72 countries across six continents.

# CLIMATE CHANGE ON THE GEORGIA COAST

Increase in coastal hazards...

- King tide flooding
- Hurricane storm surge (2016 & 2017)
- Encroaching sea level rise
- Stormwater flooding
- Erosional banks & beaches

+

Increased coastal population &  
development

=

Increased vulnerability to both human  
communities and natural systems



## CORAL REEFS REDUCE 97%

of wave energy—  
acting as a barrier  
from storms

## NATURAL BARRIERS SAVE MONEY

and reduce impacts of  
storms, erosion and flooding  
to coastal communities

## MANGROVES REDUCE 66%

of wave height—easing  
erosion and flood risk

## OYSTER REEFS

save communities

# \$85,000

per year per hectare  
when used in place of  
artificial breakwaters

## CORAL REEFS

provide coastal protection  
from flooding for

# 63,000,000

## PEOPLE GLOBALLY

## A SINGLE MARSH

can generate

# 253 KILOGRAMS

of shrimp, and

# 170 KILOGRAMS

of blue crab per hectare

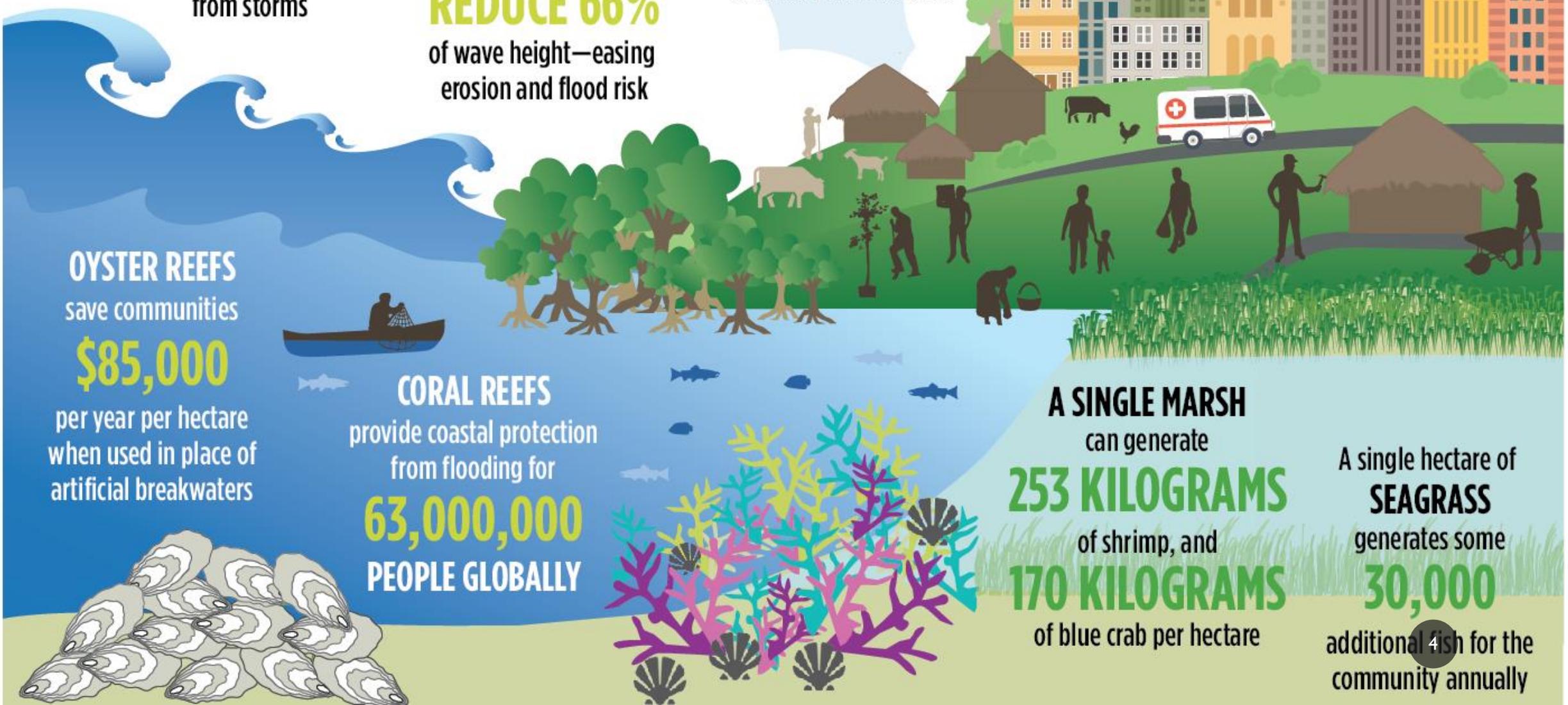
A single hectare of

# SEAGRASS

generates some

# 30,000

additional fish for the  
community annually



# ASSESSING RISK IN CAMDEN COUNTY, GA

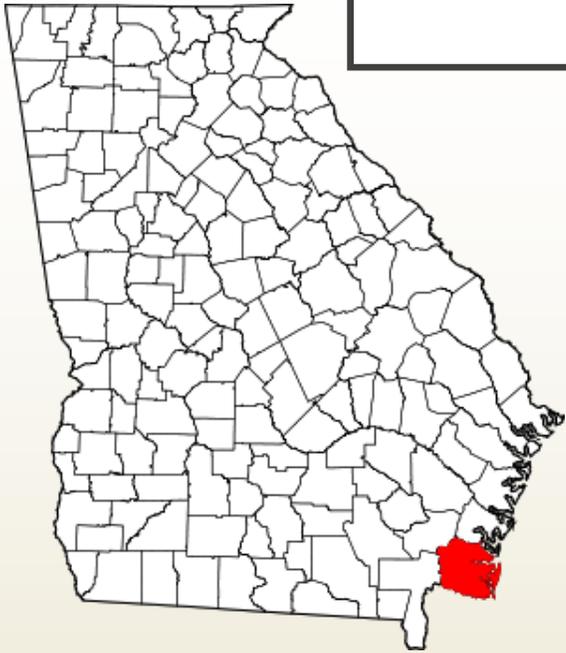
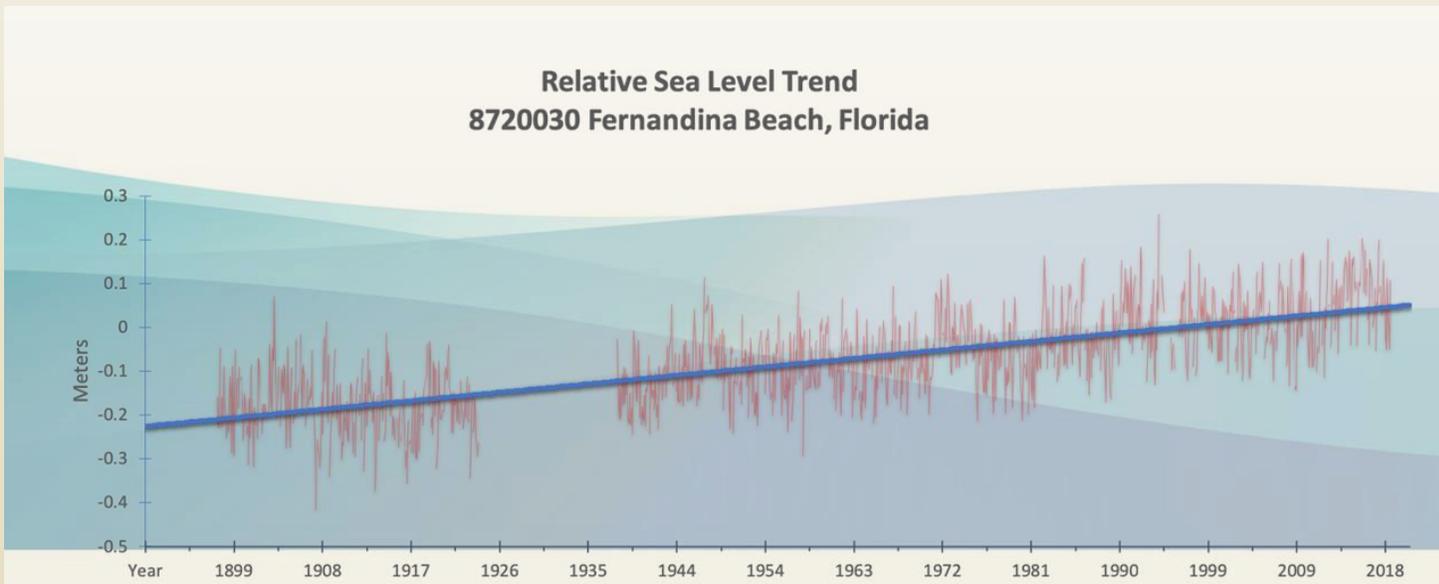


Photo Credit: Camden County



Photo Credit: Camden County



IDENTIFYING SOLUTIONS:  
CAMDEN COUNTY 'RISE READY' DECISION  
SUPPORT TOOL WITH 3 WEB APPLICATIONS



Flood Risk Awareness



Community Planning



Community Rating System  
Open Space Explorer

# TAKING ACTION: CREATING A CAMDEN COUNTY 'RISE READY' DECISION SUPPORT TOOL

GA DNR Coastal Incentive  
Grant 2 Year Award



Community Workshop, Tool  
Creation and Beta Testing



Tool Trainings and Community  
Outreach Events



# GEORGIA

[WWW.COASTALRESILIENCE.ORG/GEORGIA](http://WWW.COASTALRESILIENCE.ORG/GEORGIA)

The Nature Conservancy and partners are working in coastal Georgia to identify ways to reduce the risk of coastal hazards to its residents using natural infrastructure, living shorelines, and protected wetlands and floodplains. Together, entire barrier island saltmarsh and coastal floodplain have been placed into protection. Since implementing some of the first such sites in Georgia, we are using those pilot sites to promote the use of oyster and saltmarsh habitat instead of seawalls. Land protection in the Altamaha River Basin have enabled a more resilient coastal floodplain. In Camden, we are addressing community vulnerability and risk of flooding through Flood Risk Awareness and Decision Support.

Challenges

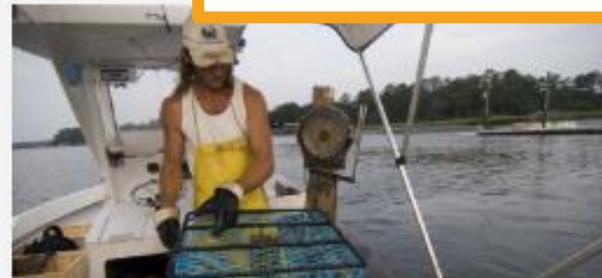
Natural Solutions

Project Partners

Tools

## Overview

Claiming a total land area of 5,863 square miles, the population of coastal Georgia is the fastest growing region of any in the state, outside of metropolitan Atlanta. It is home to the historic city of Savannah and three other coastal urban centers. These coastal economies are driven by the two ports (Port of Brunswick and Port of Savannah, which is the fastest growing port in the nation), three military bases, and



## Features:

- Project Description
- Link to tools
- Story Map
- Tutorial
- Links to recent articles
- Downloadable Factsheet

# CAMDEN COUNTY AND CITY OF ST. MARYS FLOODPLAIN MGMT. WEBSITES



GOVERNMENT

SERVICES

COMMUNITY

HOW DO I?



Camden County  
*Award-Winning Government* Georgia



Search...



Flood Awareness Tool Desktop  
Version

Flood Awareness Tool Mobile  
Version

[Home](#) > [Government](#) > [Departments A - F](#) > [Flood Protection](#) > [Flood Awareness Tool](#)

## FLOOD AWARENESS TOOL

Approximately 35% or 17,000 of Camden County residents live within the 100-year floodplain. Three coastal rivers flow through the County, and 50% of the land is classified as wetlands. Camden experiences the effects of sea level rise, storm surge, regular riverine flooding, and king tides. Two recent hurricanes (2016-2017), left hundreds of homes with flood damage. This will only increase as county growth is projected to increase in the coming years, putting more residents and properties at risk of flooding.

### What is the Flood Awareness Tool?



# FLOOD RISK & COMMUNITY PLANNING APPS

The screenshot displays a web application interface for flood risk and sea level rise planning. The main map shows a satellite view of a coastal area with various flood risk layers overlaid in shades of blue. The interface includes a navigation menu on the left, a search bar at the top right, and a detailed map legend on the right side.

**Georgia** Georgia

Find address or place

**Flood and Sea Level Rise**

Select a Region:  
Camden County

Select a Hazard:  
NOAA Sea Level Rise

Climate Year: 2025 2050 2075 2100

Sea Level Rise: Intern. Intern. High High

Click a photo icon on the map to visualize documented severe flooding at that location. The photo selected will be highlighted in red.

Opacity

**Map Legend**

**Water Depth**

- Low
- High
- View 1 more
- wastewater\_treatment\_plants

2018 Parcels (zoom to view)

**Protected Areas**

- Conservation Easment
- Unknown Easment
- Local City Park
- Private Conservation
- Military
- View 7 more
- Sea Level Rise Images

powered by esri

Airbus DS

flood slr layers | S

# FLOOD RISK & COMMUNITY PLANNING APPS

**Georgia** Georgia

Find address or place

### Flood and Sea Level Rise

Select a Region:  
Camden County

Select a Hazard:  
NOAA Sea Level Rise

Climate Year: 2025 2050 2075 2100

Sea Level Rise: Interm. Interm. High

Click a photo icon on the map to visualize what the selected scenario might look like at that location. The photo selected will be highlighted.

Opacity

#### Map Legend

Water depth (relative to Mean Higher High Water) of areas hydrologically connected to the ocean

- Low
- High

View 1 more

#### St Marys Future Land Use 2017

- Commercial Areas
- Rural Village Areas
- Conservation Areas
- Corridor/Gateway Areas
- Industrial
- Historic Areas
- Neighborhood Infill Areas
- Suburban Developing Areas

View less

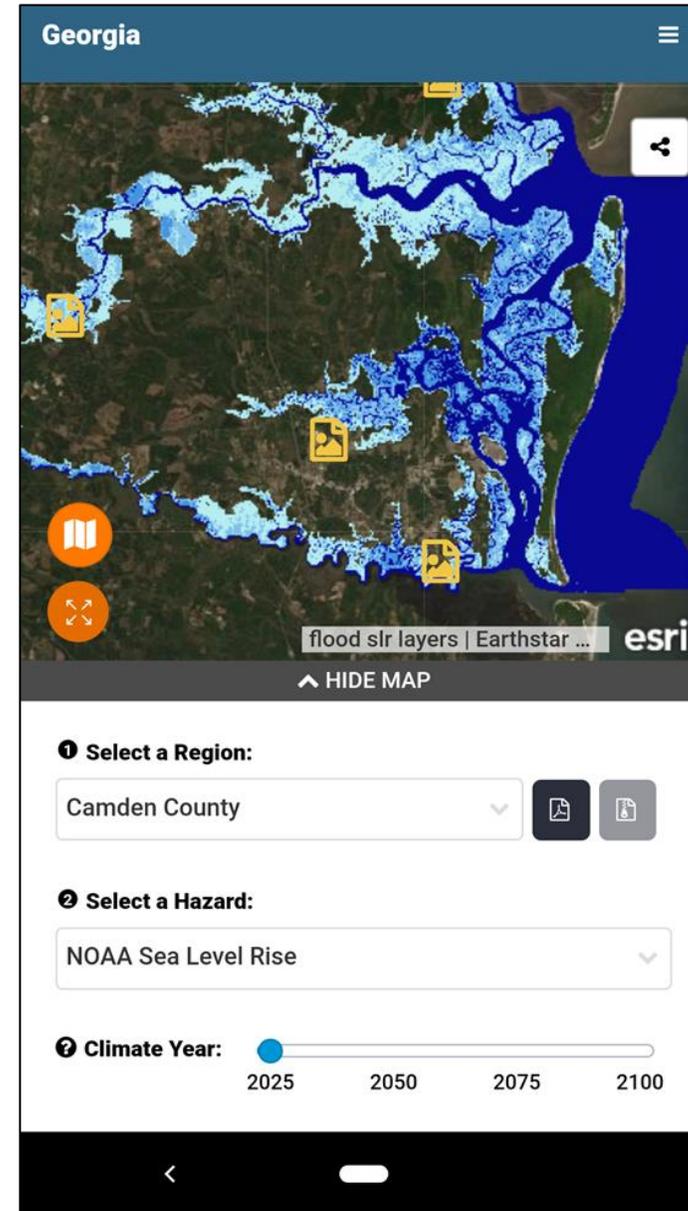
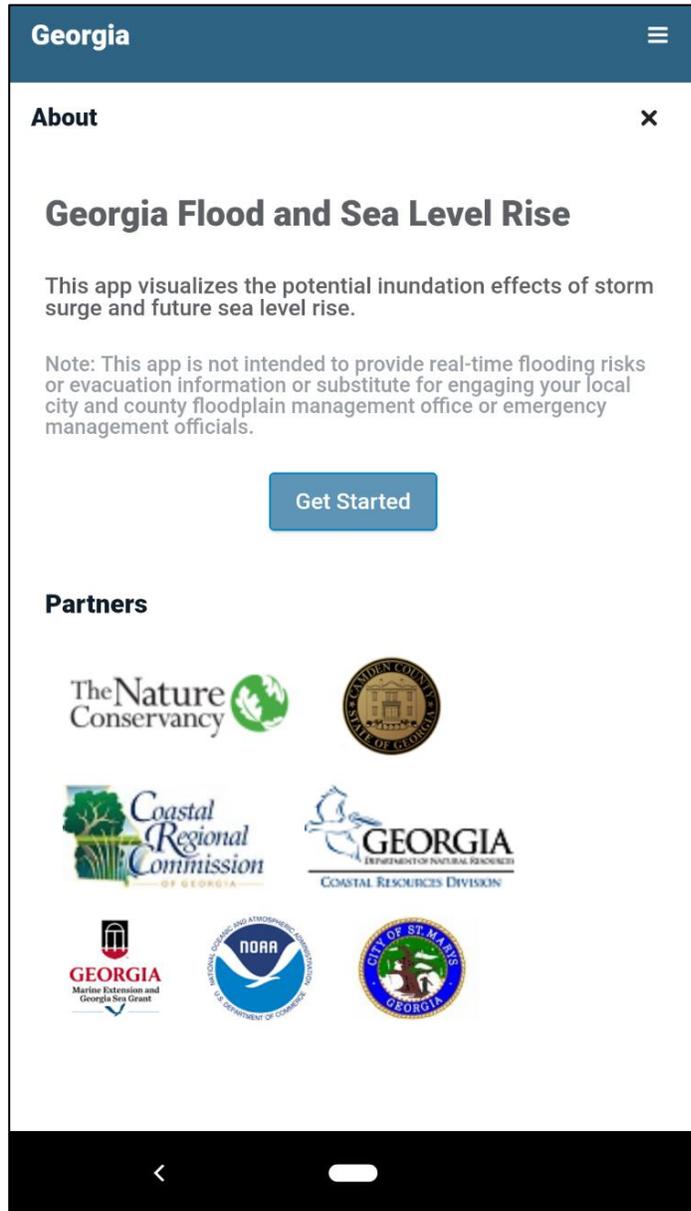
Sea Level Rise Images

100m  
300ft

flood slr layers | State of Florida, USDA FSA, GeoEye, Maxar

POWERED BY **esri**

# Mobile Friendly Version



# COMMUNITY RATING SYSTEM OPEN SPACE EXPLORER APP

## Community Rating System Explorer

The Nature Conservancy

Find address or place

GA, Camden Co

### +372 Credits

37,516 acres

of future potentially eligible open space if legally protected from development

Open Space Preservation – Activity 420 Credits

0 700 1,400 2,100 2,870

Current/Proposed: 1001 Future: 372

Show potential future OSP points between: 0 59

Export Resulting Parcel Table

### Reference Layers

- Impact Adjusted Special Flood Hazard Area
- Excluded Areas
- Critical Species Habitat Areas
- Wetland Restoration Potential

Parcel Number	056 001
Future OSP Acreage	4,657.2
Future OSP Credits	46
Tax Value	\$5.2 million
Owner	V/L BERTHA MINERAL TRACT
Owner Type	Private
Current Land Use	V/L BERTHA MINERAL TRACT

### Map Legend

- Community Boundary
- Future OSP Eligible
- NFOS Eligible
- Current/Proposed OSP

Topographic

+

-

📍

POWERED BY esri

Esri, HERE, Garmin, USGS, NGA, EPA, USDA, NPS | The Nature Conservancy

# The Flood Risk App

CAMDEN COUNTY, GEORGIA RISE READY TOOLKIT



©iStock

## What is the Flood Risk App?

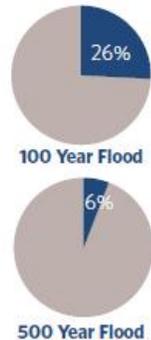
The Flood Risk App is part of the Camden County 'Rise Ready' coastal resilience toolkit. The online tool is designed to help planning officials, decision makers, and current and future residents make informed decisions to prepare for and reduce the impacts of flooding. Camden County promotes current and future residents using the Flood Risk App to:

- **Know Your Risk:** Understand general flood risk by bringing together local infrastructure and land use data with current and future flood risk data, including sea level rise estimations
- **Visualize Risk:** Comprehensive flood risk maps help bring awareness and promote smart land use planning, property purchasing, or renovation decisions
- **Reduce Risk:** Provides actionable steps to reduce flood risk, prepare for extreme weather events, and local resources that can help.

Visit the Flood Risk App online at <http://maps.coastalresilience.org/georgia>

**Note:** This app is not intended to provide real time flooding risks or evacuation information or substitute for engaging your local city or county floodplain management office or officials.

Figure 1:



## Know your flood risk

In Camden County, properties within the Federal Emergency Management Agency's (FEMA) 100-year floodplain have a 26% chance of flooding over the course of a 30-year mortgage (Figure 1). However, almost 35% of flood insurance claims in Georgia come from outside the FEMA 100-year floodplain, suggesting that decisions to reduce flood risk are relevant to all Camden County residents, regardless of floodplain designation.

The Flood Risk App uses the most current data and projections to visualize flood risk, which can help property owners make smarter flood insurance and mitigation decisions.

< Figure 1: Percentage risk to a property that is located in a floodplain during the lifetime of a 30-year mortgage.

Approximately 35% or 17,000 of Camden County residents live within the 100-year floodplain.

Three coastal rivers flow through the County, and 50% of the land is classified as wetlands. Camden experiences the effects of sea level rise, storm surge, regular riverine flooding, and king tides. Two recent hurricanes (2016-2017), left hundreds of homes with flood damage. This will only increase as county growth is projected to increase in the coming years, putting more residents and properties at risk of flooding.



## Visualizing flood risk

The Flood Risk App enables users to visualize the flooding risk posed by a variety of sources:

**Sea Level Rise:** Sea level rise will increase flooding impacts from other sources, such as storm surge and king tides. These risks should be considered when making decisions about flood insurance needs, building requirements, and future land use. The App incorporates future sea level scenarios (Figure 2) using three sea level rise projections (intermediate, intermediate high, and high) over four future timeframes (2025, 2050, 2075, and 2100).

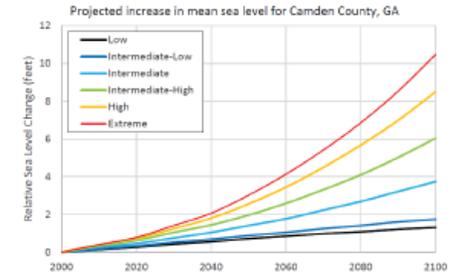


Figure 2: Future sea level rise scenarios for Camden County, GA, based on regional projections by the National Oceanic and Atmospheric Administration.

**Storm Surge:** When hurricanes push water onto land above and beyond predicted tides, this is called storm surge. The app displays the extent of anticipated flooding based on various hurricane categories. There are also maps that combine future sea level rise scenarios with storm surge data (Figure 3).



Figure 3: Visual demonstrating the combined impact of storm surge and sea level rise on flooding. Illustrations: © Vin Reed/Vin Design

## How to reduce personal flood risk

After using the flood risk app to understand your current and potential future flood risk, there are a variety of steps property owners and developers can take to reduce impacts to themselves and their property.

1. Consider how your risk might change over the life of your property ownership. What type of flood insurance or permitting is most appropriate?
  - Build responsibly by obtaining a permit to raise homes above minimum flood height standards by contacting your local community planning offices:
    - City of St. Marys Community Development** [www.stmarysga.gov/department/community\\_development](http://www.stmarysga.gov/department/community_development)
    - Camden County Office of Planning and Development** [www.co.camden.ga.us/74/Planning-Development](http://www.co.camden.ga.us/74/Planning-Development)
    - Camden County Office of Floodplain Management** [www.co.camden.ga.us/160/Flood-Management](http://www.co.camden.ga.us/160/Flood-Management)
  - Purchase flood insurance based on your current and future flood risk, not just based on DFIRMs (Digital Flood Insurance Rate Maps), to facilitate recovery. Visit FEMA's Flood Smart website ([www.floodsmart.gov](http://www.floodsmart.gov)) or your local insurance agent to learn more.
2. Are there opportunities to keep open greenspace or remove or limit impervious surfaces to capture flood waters? Consider leaving buffers between buildings and waterways, and especially along eroding banks.
3. Consider green alternatives and nature-based solutions, such as living shorelines in lieu of bulkheads. Protecting and restoring open space in floodplains, marshes and wetlands provides more areas for flood waters to be absorbed. Preserving dune systems protects communities from storm surge impacts. For more information, visit the TNC's Coastal Resilience ([www.coastalresilience.org](http://www.coastalresilience.org)) website.
4. During an emergency event, please consult the Camden County Emergency Management at [www.camdencountyga.gov](http://www.camdencountyga.gov) or Georgia Emergency Management Agency (GEMA) at <https://gema.georgia.gov/>. The Camden County Hurricane Guide is available at [www.camdencountyga.gov/ema](http://www.camdencountyga.gov/ema).

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**DO YOU KNOW YOUR LOCATION ON THE FEMA MAP?**

## NEXT STEPS



- Implementation of on the ground nature-based projects in Camden Co (informed by tool & Camden Co Resiliency Implementation Workplan)
- Update of tool data in 2023, with inclusion of City of Kingsland data (CIG award for Kingsland CRS program).
- CRS Open Space Explorer expanded to new communities Georgia coastal counties (Glynn County, City of Brunswick, Jekyll Island, City of Kingsland).

THANK YOU!

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The Nature  
Conservancy



Protecting nature. Preserving life.