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# FROM RISK TO RESILIENCE: An Advocate's Guide to Smarter Flood Protection in Florida

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FL.AUDUBON.ORG

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This guide provides a concise overview and practical starting point for advocates, while more comprehensive resources, including detailed policy tools and examples, can be accessed on the Audubon Florida website.

[fl.audubon.org/stopflooding](http://fl.audubon.org/stopflooding)

On the cover: Snowy Egret. Photo: St. Johns River Water Management District.

# Guide Overview

Flood protection and resilience are essential priorities for Florida’s communities as they face growing risks from urbanization, habitat loss, and the impacts of a changing climate. Flooding is not just a coastal issue, recent years have seen unprecedented inland flooding in many counties, underscoring the widespread nature of this challenge. With intensifying storms, sea-level rise, and shifting rainfall patterns, flooding has become a critical challenge that threatens public safety, economic stability, and environmental health. Addressing these challenges requires action at the local level, where governments have the greatest influence over land use and infrastructure decisions—two factors that are crucial for mitigating flood risks and building long-term resilience.

**This guide educates advocates on the primary causes of flooding and the key principles that underpin effective solutions. It provides practical tips for engaging with local governments and actionable steps to advance policies and initiatives that improve community resilience, reduce flood risks, and protect natural areas.**

## Section 1

### How Development Alters Florida’s Hydrology

Primary issues affecting flooding in Florida, emphasizing how development has altered natural hydrology, reduced water storage capacity, and increased runoff.

## Section 2

### Key Principles for Sustainable Flood Management

Three foundational principles that drive sustainable flood management solutions: protecting floodplains, green infrastructure, and climate change resilience.

## Section 3

### How to Influence Local Government Decisions

The most important strategies for successful collaboration with local government.

## Section 4

### Actionable Steps for Improving Flood Protection

Approaches that advocates can use to improve flood protection, environmental health, and community resilience.

## Section One

# HOW DEVELOPMENT ALTERS FLORIDA'S HYDROLOGY

Historically, rainfall in Florida spread naturally across the landscape, collecting in floodplains, infiltrating soil, and replenishing aquifers. This process sculpted Florida's ecosystems and supported its native flora and fauna. However, widespread conversion of natural areas for agricultural and urban uses has profoundly disrupted the natural flow of water in Florida.

Development has introduced impervious surfaces such as roads, buildings, and parking lots that increase runoff and reduce groundwater recharge. Vegetation loss further increases runoff by limiting evapotranspiration. Extensive drainage systems in built areas redirect water, increasing runoff and reducing groundwater replenishment. Collectively, these impacts have created several environmental and societal challenges that must be addressed to create a more sustainable future.



### Challenges posed by the built environment:

**Reduced Surface Storage:** Fewer places in the landscape to store water means large volumes of freshwater are quickly sent downstream. Natural areas become flooded, killing vegetation and displacing wildlife, until this water either evaporates or is lost to the ocean.

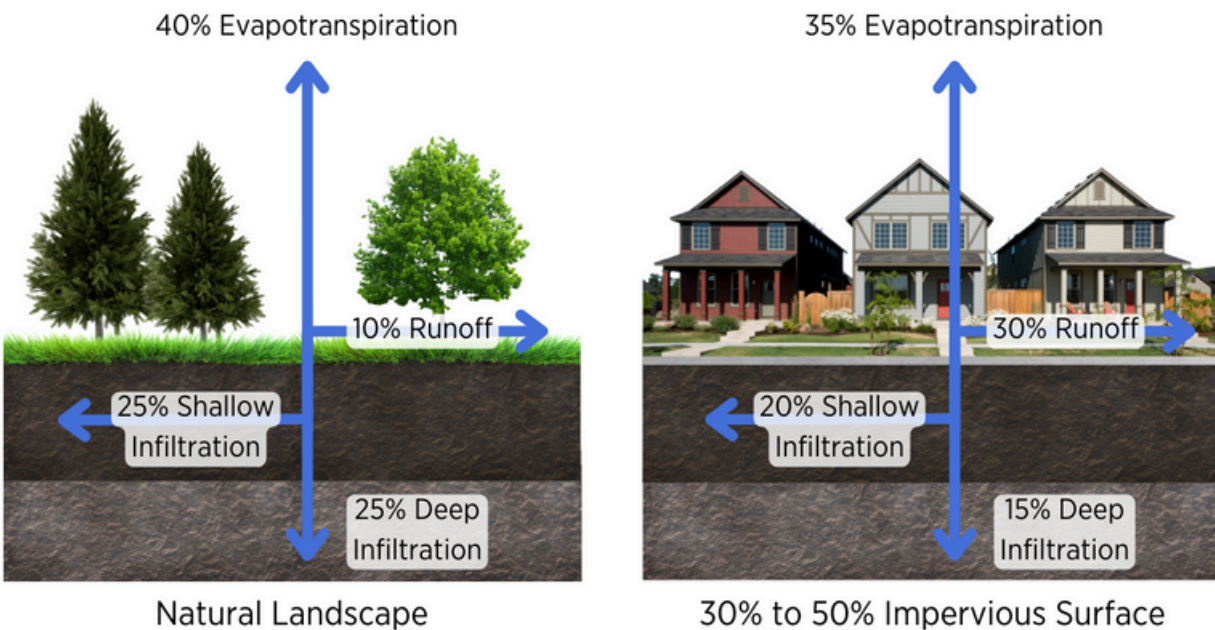
**Less Groundwater Recharge:** Hard surfaces and fast drainage systems reduce infiltration and groundwater recharge. Lower aquifer levels reduce flow to springs and wetlands, limit drinking water supplies, and open coastal wellfields to saltwater intrusion.

**Pollution Transport:** Stormwater systems redirect runoff rapidly, transporting pollutants into downstream waterways and environments. This process degrades water quality, promotes harmful algal blooms, and disrupts the normal use of water bodies by people and wildlife.

## Sea level rise and changing rainfall patterns complicate the issue.

Sea-level rise and changing rainfall conditions compound our water management challenges. Rising sea levels elevate groundwater tables, reducing the capacity of the land to absorb rainwater and threatening wellfields with saltwater intrusion. Higher tides cause “sunny day flooding” in coastal communities as saltwater backs up through drainage systems. Increased rainfall from more intense storms frequently overwhelms rigid, outdated systems. To address these challenges, future water management strategies must protect communities and vital infrastructure in the face of extreme weather events, unpredictable rainfall patterns, and rising sea levels.

- Conversion of Florida’s landscape has diminished water storage and increased runoff, resulting in ecosystem harm and reduced water supplies and quality.
- Sea-level rise and unpredictable rainfall demand flexible water management solutions for future resilience.



**Developed landscapes create more runoff and decrease groundwater supplies.**

## Section Two

# KEY CONCEPTS FOR SUSTAINABLE FLOOD MANAGEMENT

When advocating for improvements in flood protection and community resilience, it is essential to keep certain guiding principles in mind. These principles act as a framework to steer your thinking, guide the development of new ideas, and evaluate competing solutions. By grounding your advocacy efforts in these principles, you can ensure that the proposed policies and practices will have long-term benefits for both people and the environment.

## 1 **Protect Wetlands and Floodplains**

Wetlands play a crucial role in water storage by capturing and holding excess stormwater, which mitigates flooding and protects water quality. Floodplains, the low-lying areas adjacent to water bodies that are subject to periodic flooding, also serve an essential function in storing excess water during heavy rainfall events. When left undeveloped, these systems prevent harm to people and the environment.

In Florida, urbanization and development continue to encroach upon these crucial areas, exacerbating flood risks and disrupting natural hydrological processes. A study from the University of Miami found that 21% of housing built in Florida between 2001 and 2019 was within the 100-year floodplain. Policies that limit development in flood-prone areas are essential for safe and resilient communities.

## 2 **Prioritize Green Infrastructure**

Green infrastructure refers to a variety of practices that incorporate natural features or mimic natural processes to store and treat water. Green infrastructure projects often feature soil, plants, microbes, and other natural components. Examples of green infrastructure (also referred to as low-impact development) include bioswales, bioretention areas, native landscaping, pervious pavement, and water storage features like cisterns or rain barrels.

Green infrastructure creates less stormwater runoff, holds water within the landscape, and is an aesthetically pleasing component of our neighborhoods. Plus, it provides water quality and wildlife benefits not found with traditional concrete drainage systems – or gray infrastructure – that divert water away quickly without addressing any underlying environmental issues.

*An important distinction between water management choices can be put this way: Gray infrastructure transfers water and pollution to other sites, green infrastructure stores water and treats pollution on site.*

### 3 Use Resilient Strategies

Successful flood protection strategies must be able to handle future challenges like increased rainfall intensity, rising sea levels, and continued urbanization. Additionally, they should function effectively with minimal reliance on regular maintenance and avoid catastrophic failure if conditions exceed their design limits (a problem with seawalls and bulkheads). Floodplain preservation and use of green infrastructure are the first two guiding principles because they offer multiple benefits and are more robust to changing conditions than conventional gray infrastructure. As you review or recommend flood management strategies for your community, be sure they have the ability to provide long-term benefits under evolving environmental conditions and changing land-use patterns.

## Rethinking Risk: Why Minimum Standards Aren't Enough



Flooding near the Anclote River after Hurricane Milton.  
Photo: Southwest Florida Water Management District.

Hurricanes Helene and Milton underscored the need for communities to go beyond the minimum standards set by current regulations. The FEMA-designated 100-year floodplain, often used as a planning benchmark, is increasingly inadequate as storms grow more frequent and intense. FEMA floodplain updates are slow and lack the local detail needed to address modern risks, leading to harmful flooding from events once considered 1-in-500 or 1-in-1,000-year occurrences. Advocates should urge local governments to use updated, local data and consider larger buffers when thinking about floodplain protection.



Success Story  
**CASCADES PARK**

Photo: Blueprint Intergovernmental Agency

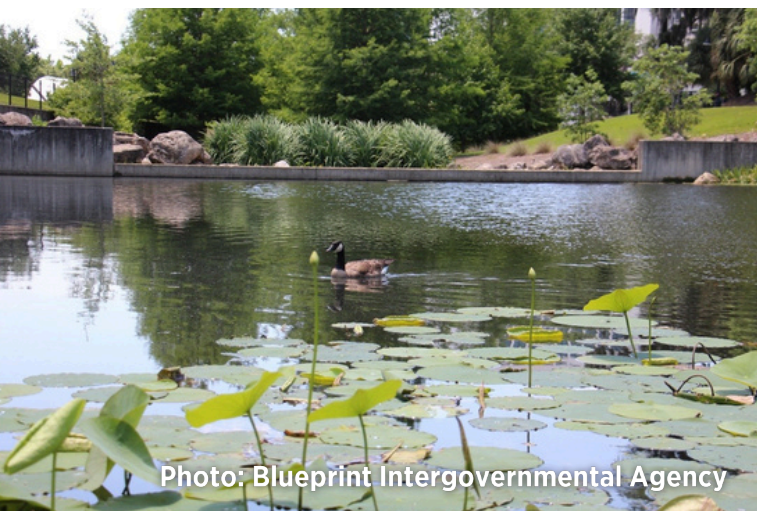


Photo: Blueprint Intergovernmental Agency

**Tallahassee's Cascades Park is an excellent example of effective, beautiful stormwater management that provides additional benefits for the community.**

Cascades Park stands as a hallmark of innovative urban planning and community enrichment in Tallahassee-Leon County. This 24-acre park serves a dual purpose, seamlessly blending critical stormwater management with recreational and cultural amenities that enrich the community.



Photo: City of Tallahassee



Engineered with an advanced system of basins and channels, Cascades Park mitigates stormwater runoff, protecting nearby neighborhoods and businesses while enhancing water quality. When the ponds reach their capacity during heavy rain events, stormwater runoff and rainwater begin to flood the park, with rising water filling the stream and lower sections of the amphitheater.

Photo: Blueprint Intergovernmental Agency

Beyond its functional role, Cascades Park has become a vibrant community resource. Its features include an amphitheater hosting concerts and events, multi-use trails for walking and cycling, interactive play areas for children, and lush green spaces perfect for gatherings. The park also honors local history, with monuments and interpretive displays that celebrate Tallahassee's rich heritage.



Photo: Blueprint Intergovernmental Agency



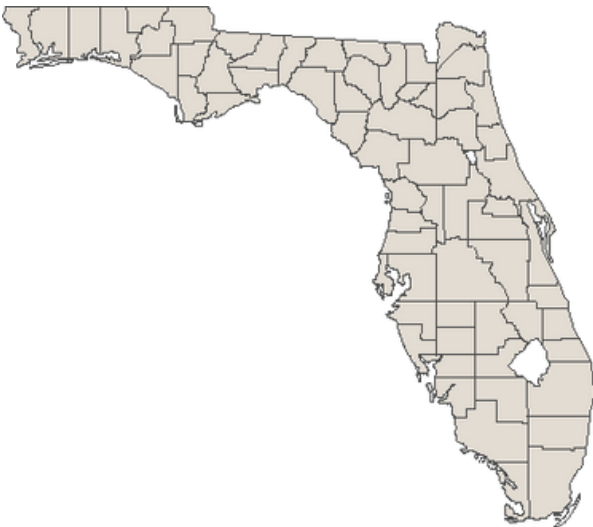
Photo: City of Tallahassee

## Section Three

# HOW TO INFLUENCE LOCAL GOVERNMENT DECISIONS

Effectively addressing flood management in Florida requires engagement with local governments, as they play a central role in regulating land use—the primary factor influencing flood risks. Local governments influence land use through comprehensive plans, zoning ordinances, building codes, and planning procedures. By advocating for policies that prioritize flood protection and resilience in land use decisions, advocates can help create safer and more sustainable communities.

### **Get Connected - Find the Appropriate Decision-Makers**



Each of Florida’s 67 counties has its own government, and there are 410 municipal governments (cities, towns, and villages) spread among the 67 counties. County governments generally oversee the unincorporated areas of a county (i.e., those that do not have a municipal government), but they may play a role in municipal government through interlocal agreements or setting minimum standards. Determining which government and department is responsible for a certain issue can often be done online or with a few phone calls. If you are having trouble, feel free to reach out to Audubon Florida policy staff for assistance.

### **Mastering the Art of Local Government Engagement**

The most important part of advocacy is being present. Few members of the public regularly attend government meetings or engage with staff and officials, so simply showing up and making your voice heard can be more impactful than you might expect. Regular attendance at local government meetings, community boards, or public hearings allows you to stay informed and build relationships with stakeholders, staff, and decision-makers. Being present also helps you learn about and react quickly to emerging issues or proposals. Successful advocacy is often the result of frequent and continuous engagement with knowledgeable staff and key decision makers.

## Build Relationships

Advocacy is not just about attending meetings; it's about building professional and polite relationships with local government staff and officials that build trust.

## Get to Know Key Staff

Take time to get to know the staff members who work on the issues most important to you, as they are often your most direct point of contact for information.

## Show Appreciation

When officials or staff respond to your inquiries or requests, always thank them—acknowledging their time and effort helps build rapport.

## Your 3-Minute Advocacy Plan

One of the most common aspects of local advocacy is speaking at public meetings. Public comments are often limited to 3 minutes, so have a plan and use your time wisely.

1

### Prepare Your Comments

Write out your comments beforehand and practice to ensure you can deliver them in under three minutes.

2

### Introduce Yourself

Start by introducing yourself and any relevant affiliations or credentials, establishing your connection to the issue at hand.

3

### Be Respectful and Constructive

Thank the hosts for their attention and frame your comments as a contribution to finding better solutions.

4

### Focus on Solutions

Avoid blaming or shaming. Instead, frame your concerns positively and focus on actionable solutions.

5

### State Your Ask Clearly

Always have a clear ask, state it at the beginning, and reiterate it at the end to ensure your message is heard.

For more tips on mastering local government advocacy, see the complete guide on our website.

## Section Four

# **ACTIONABLE STEPS FOR IMPROVING FLOOD PROTECTION**

This section provides a collection of actionable ideas and strategies for advocates looking to engage with their local government on flood control and resilience. These approaches offer a range of possible paths that can be tailored to the advocate's unique skills, interests, and goals, as well as their community's specific needs and circumstances. From working with staff on specific programs to advocating for policy changes or supporting regional initiatives, these steps highlight diverse opportunities to make meaningful progress. Whether you choose one approach or several, each action contributes to building safer, more resilient communities prepared to face the challenges of a changing environment.

- 1 Identify Risks and Priorities for Action with a Vulnerability Assessment**
- 2 Strengthen Flood Protection and Resilience in Comprehensive Plans**
- 3 Improve Stormwater Management through Green Infrastructure**
- 4 Position Nature-Based Solutions as Multi-Benefit Strategies**
- 5 Foster a Culture of Maintenance**
- 6 Identify Critical Areas and Preserve Them**
- 7 Promote Restoration Efforts to Reverse Past Impacts**
- 8 Reduce Insurance Premiums by Participating in the CRS**
- 9 Identify and Promote Funding Resources**
- 10 Advocate for Dedicated Resilience Staff**
- 11 Get Involved with Regional Efforts**
- 12 Adopt Proven Strategies and Share New Ones**

## 1

### Identify Risks and Priorities for Action with a Vulnerability Assessment

One of the most important steps toward improving flood protection at a local level is to perform a vulnerability assessment. Regional assessments may exist, but local assessments often involve more detailed information and produce more refined results. Further, local vulnerability assessments are required to receive funding for flood and sea level rise mitigation projects from the Resilient Florida Program. This program is detailed in section 380.093 of the Florida Statutes, where information on vulnerability assessment requirements and funding can be found. Vulnerability assessments will help your community and provide important information to guide your future advocacy efforts.

#### Hastings, FL

Vulnerability assessments can help identify critical areas that require flood protection as well as sites that are prone to frequent flooding. Reviewing the impacts of recent storms, like the flooding seen here from Hurricane Milton, can help communities make informed decisions.

Photo: St. Johns River Water Management District.



## 2

### Strengthen Flood Protection and Resilience in Comprehensive Plans

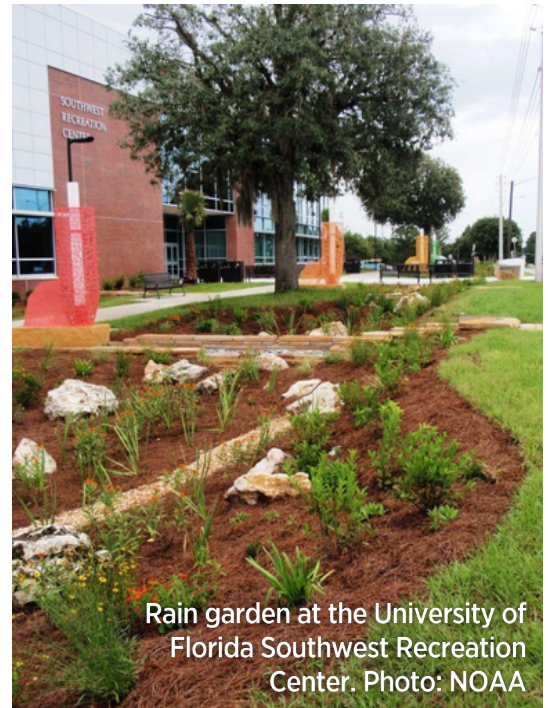
Florida law requires each local government to create a comprehensive plan that serves as their primary planning and guidance tool. Elements (sections of the plan) that provide the legal and policy framework for land use, development, and environmental protection should be reviewed and amended as needed to improve flood protection and resilience. Some elements are optional, and if they are missing from your government's comprehensive plan you can work with staff to create them and have them added. Audubon's resource site contains a guide for updating comprehensive plan elements to improve flood protection and resilience.

### 3

## Improve Stormwater Management through Green Infrastructure

Stormwater management is a key opportunity to prioritize green infrastructure over traditional gray systems, which rely on drains, pipes, and culverts to quickly move water away from developed areas. While these systems prevent localized flooding, they often worsen downstream flooding and pollution without addressing root causes. Green infrastructure, such as bioswales, rain gardens, and permeable pavements, offers a more sustainable solution by mimicking natural processes to store water onsite, filter pollutants, and recharge groundwater supplies.

Advocates can work with local governments to advance green infrastructure through updated ordinances, design standards, and incentive programs for developers. Retrofitting existing infrastructure, such as adding rain gardens to public spaces or green roofs to municipal buildings, is another effective strategy. Public education is also essential to build support for green infrastructure. By organizing workshops, sharing success stories, and promoting pilot projects that showcase real-world benefits, advocates can demonstrate the ecological, economic, and aesthetic advantages of green infrastructure, making it a compelling choice for the future of stormwater management in Florida.



### 4

## Position Nature-Based Solutions as Multi-Benefit Strategies

Advocates for nature-based flood protection should emphasize the wide range of benefits these solutions offer beyond mitigating flood risks. Natural systems not only manage stormwater but also provide essential ecosystem services such as improving water quality, supporting biodiversity, and enhancing air quality. These systems help mitigate rising temperatures, reduce urban heat islands, and boost resilience to extreme weather events like droughts and heatwaves, making them more adaptable to changing climates. Other benefits include increased property values and community aesthetics that come from enhanced green spaces. Positioning nature-based solutions as a multi-benefit strategy that also addresses climate resilience, environmental sustainability, and quality of life can build broader support from diverse stakeholders and strengthen the case for immediate action.

## 5

### Foster a Culture of Maintenance

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A proactive approach to maintaining stormwater systems and flood control structures is essential to provide consistent and effective flood protection, as highlighted by issues seen during the 2024 hurricane season. Advocates should urge local governments to embed maintenance into their planning efforts, establish dependable funding streams, and perform regular inspections and repairs. Policies requiring maintenance agreements for private stormwater systems can ensure accountability and sustained functionality, while modern tools like GIS mapping and maintenance tracking systems can improve efficiency. Public education and community involvement, through programs like neighborhood cleanups, storm drain labeling, and volunteer inspections, are equally important in fostering a culture of care and shared responsibility for infrastructure upkeep. Together, these efforts create more resilient communities and reliable flood protection.

## 6

### Identify Critical Areas and Preserve Them

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Advocates can work with local governments to identify properties that enhance flood protection and resilience, prioritizing wetlands, floodplains, and other areas based on community needs such as natural connectivity, rare habitats, or recreational value.

**Land acquisition and conservation programs** not only help reduce flood risks, they also improve water quality, maintain wildlife habitats, and offer recreational opportunities for the community. The Audubon resource website includes a “Land Conservation Strategies and Examples” document that offers tools for starting a successful program.

**Overlay districts** are tools that add extra regulations or requirements to specific areas. They can modify the land development code or zoning for a municipal government. Overlays restrict certain activities within the overlay area or pose additional requirements like increased buffers or water storage capacities. Overlays ensure unique considerations, such as environmental protection or flood resilience, are addressed in the designated area.

**Urban or rural boundary areas** can be established to add additional scrutiny to land use changes outside of areas already planned for significant population growth. The November 2024 election saw voters overwhelmingly approve amendments in Orange and Seminole counties that either established or strengthened such areas.

**Get important waters added to the Critical Wetlands list** of your water management district. Advocates should work with local governments to ensure waters and floodplains vital to flood management are presented to the water management district for inclusion on the Critical Wetlands acquisition list.

**7****Promote Restoration Efforts to Reverse Past Impacts**

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Advocates should actively seek opportunities for restoration projects that local government can support, focusing on initiatives that enhance flood resilience and improve natural ecosystems. Restoration projects, such as reestablishing wetlands, revitalizing floodplains, or restoring degraded streams, provide significant benefits by increasing water storage capacity, reducing flood risks, and improving water quality. For example, Jacksonville recently secured almost \$6 million in funding to restore floodplains along McCoys Creek and Hogans Creek that will reduce flooding while improving habitat and water quality. This funding was available through the National Oceanic and Atmospheric Administration from the Inflation Reduction Act.

**8****Reduce Insurance Premiums by Participating in the CRS**

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The Community Rating System (CRS) is a voluntary program of the National Flood Insurance Program (NFIP). Communities can participate in FEMA’s CRS program and reduce flood insurance premiums by adopting and enforcing floodplain management practices that exceed the minimum NFIP requirements. Flood risk mitigation efforts earn points in the CRS that translate into a discount for anyone insured through the NFIP. More points give a better rating and a higher discount – up to 45%. Ensure your community is engaged in the CRS program and is working to maximize their rating through high-scoring projects that protect floodplains and wetlands. Visit: <https://www.floridadisaster.org/dem/mitigation/floodplain/crs/>

## **Success Story: Pinellas County**

In 2021, Pinellas County was the first community in Florida to achieve a Class 3 Rating (1 is the best). This rating was estimated to save their community almost \$8 million in flood insurance premiums annually. In 2024, Pinellas County became one of the few communities in the nation to earn a Class 2 rating, providing a 40% insurance discount totaling around \$10 million in savings. Pinellas County earned points for the preservation of floodplain lands in Brooker Creek Preserve and Fort De Soto Park, improved floodplain development standards, as well as improved risk mapping, stormwater requirements, and watershed management plans.



## 9

### **Identify and Promote Funding Resources**

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Securing funding is often a critical step in implementing flood prevention and resiliency projects. Fortunately, there are numerous state and federal grant programs available to help local governments undertake initiatives such as floodplain and wetland restoration, stormwater management improvements, and infrastructure resilience. Advocates can play a key role by researching these funding sources and ensuring their local governments are aware of the opportunities. A list of potential grant opportunities is located on the Audubon resource website.

Additionally, local governments can fund conservation work by placing referenda on the ballot for voter approval, allowing citizens to directly decide on measures to support land preservation and environmental protection. These referenda usually authorize the local government to issue general obligation bonds (paid from increases in property or sales taxes) to finance environmental initiatives such as land acquisition and conservation programs. For example, four counties (Clay, Lake, Martin, and Osceola) either created or extended programs in the November 2024 election.

## 10

### **Advocate for Dedicated Resilience Staff**

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Many local governments in Florida have recognized the growing need for dedicated resilience staff to address the challenges of flooding, sea-level rise, and climate change. These professionals take a holistic approach to resilience planning, ensuring that government actions—such as land use decisions, permitting, and infrastructure investments—work together to enhance flood protection and community sustainability. Advocates can encourage leadership to hire dedicated resilience staff or, at minimum, assign resilience responsibilities to existing staff members. By emphasizing the benefits of having personnel focused on integrating various government actions into a cohesive resilience strategy, advocates can help ensure that flood protection and sustainability remain priorities in decision-making.

*Dedicated resilience staff serve as valuable points of contact for communities, coordinating efforts locally and regionally, and secure funding for resilience initiatives.*

## 11

### Get Involved with Regional Efforts

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Regional collaboration is essential for effectively addressing flood protection and resiliency challenges that often span beyond the borders of individual communities. Many regions in Florida have formed resiliency coalitions to share resources such as information, staffing, technology, and funding. These coalitions foster a coordinated approach to vulnerability assessments and resilience planning, tackling climate-related issues through both adaptation (adjusting to impacts) and mitigation (reducing greenhouse gases). In some areas, these coalitions work alongside the region’s Regional Planning Councils, which provide additional support in aligning efforts across jurisdictions.

Advocates play a pivotal role in encouraging their local governments to join and actively participate in these regional efforts. By highlighting the benefits of collaboration—such as access to additional resources, comprehensive flood control strategies, and increased funding opportunities—advocates can help ensure their communities are positioned to address climate impacts more effectively. Engagement in regional efforts allows local governments to pursue larger, more impactful projects that would be unattainable with local resources alone, ultimately creating safer and more resilient communities.

## 12

### Adopt Proven Strategies and Share New Ones

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Advocates can jumpstart their efforts by seeking out examples of successful resilience and flood protection initiatives implemented in other communities. These proven actions—such as restoration projects, policy changes, or innovative uses of funding—serve as models to adapt and replicate locally. The Audubon resource site is a good first step in this effort. Equally important is documenting any successful efforts of your own, no matter how small, and sharing them with others. By documenting and sharing effective strategies, advocates expand the reach of proven approaches, enabling communities across the state to strengthen their flood resilience.

*Advocacy is not a sprint but a marathon—an ongoing journey of learning, collaboration, and action. Each step you take helps create stronger, more adaptable communities ready to face the challenges of tomorrow. Together, we can ensure safe, resilient spaces for people while preserving the vital ecosystems that support birds and other wildlife.*



**Now, more than ever, we need advocates to inspire collective action and drive forward solutions that create safer, sustainable communities throughout Florida. By working with nature instead of against it, we can unlock resilient solutions that protect homes, support livelihoods, and ensure the health of ecosystems for generations to come.**

Lake Pierce in Polk County, FL. Photo: Chris Farrell



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**Find additional resources at  
[fl.audubon.org/stopflooding](https://fl.audubon.org/stopflooding)**

Cypress trees at Corkscrew Swamp Sanctuary in Naples, Florida. Photo: Sydney Walsh/Audubon