REIGNITE YOUR POTENTIAL
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Parks Helping to Build Resilient Communities

Heather Tedlow, Interpretive Nature Coordinator
Miami Dade County Parks, Recreation and Open Spaces
Miami EcoAdventures

Welcome to the 2021 FRPA Conference!
August 30 - September 2

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WELCOME!
CONFERENCE REMINDERS

- CEU attendance will be taken by the collection of Evaluations at the end of class. You MUST fill out an evaluation if you would like CEU credit
- The Evaluations help FRPA gather feedback for speakers and future education. Everyone is encouraged to complete one.
- Please leave seating in all classrooms and General Sessions as it is upon entry as these are in place per safety protocols.
- Follow current Conference mask, safety, and physical distance protocols at all times.
- Keep your personal pen handy to cut down on sharing writing devices (and germs!).
- Respect the comfort of others by judging your interactions based on what color wristband they have chosen.

Learning objectives

1. Outline the critical role parks play in helping rebuild communities is emergency situations.
2. Summarize the effects of climate change on your community.
3. Describe how natural areas play a role in combating the negative effects of climate change and how conserving green spaces keeps communities safe and resilient.

What does the word resilient mean to you?

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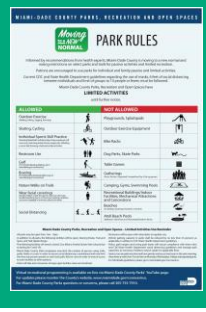
Parks Help Rebuild Communities in Times of Emergency

Covid-19:

- Mental and Physical Health
- COVID Testing Sites
- Food Distribution Sites
- Vaccination Sites



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Parks Help Rebuild Communities in Times of Emergency

Extreme Weather Events- On the Front-Line:

- Distribution site for emergency supplies for the community.
- Staging and deployment area for emergency vehicles and personnel.
- Parks are one of the first areas to open after the storm to help provide child care.
- Park employees are distributed to help at evacuation shelters and call centers.
- Parks employees help the police with public safety after a storm by directing traffic while traffic lights are out.

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Threat of Extreme Weather Events will Increase Due to the Climate Crisis

Parks Help provide solutions for climate risks and help to mitigate the effects of climate change. We help keep the communities we serve more resilient.

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Why Discussing Climate Change is Important to Me

King Tide Event at Crandon Marina, Miami, FL

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What is Climate Change?

- 97% of actively publishing climate scientists agree that global warming trends ARE happening and EXTREMELY LIKELY due to human activity
- Industrialization of our civilization → burning of fossil fuels→ excess carbon dioxide (CO_2)
- 80% of carbon emissions comes from the burning of fossil fuels: coal, oil, and gas. 81% of the energy used in the US comes from fossil fuels. Carbon Dioxide is main greenhouse gas that is driving climate change.

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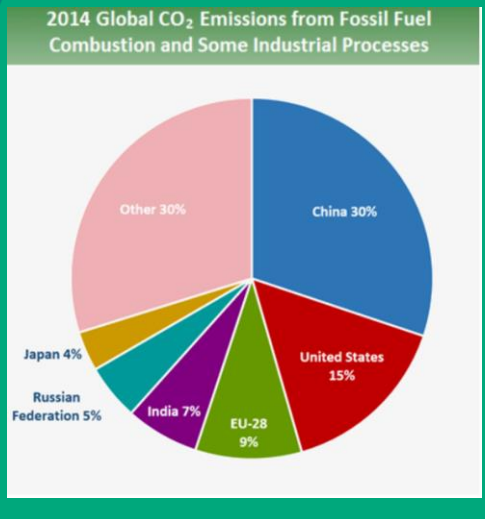
Why is this happening?



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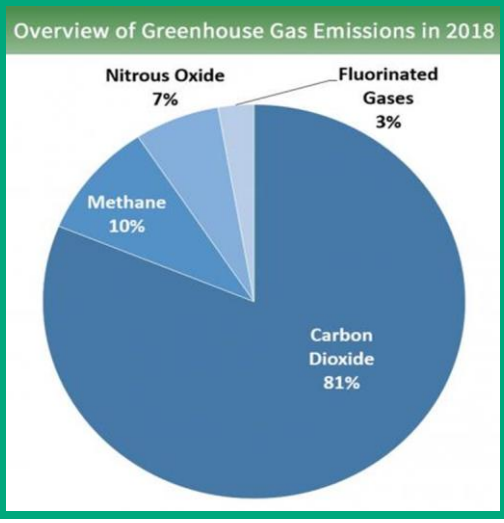
What's the Issue?



THE EARTH IS GETTING HOTTER!

- The last 5 years have been the hottest on record, leading to serious impacts to our planet.
- The main driver of the climate crisis is carbon dioxide.

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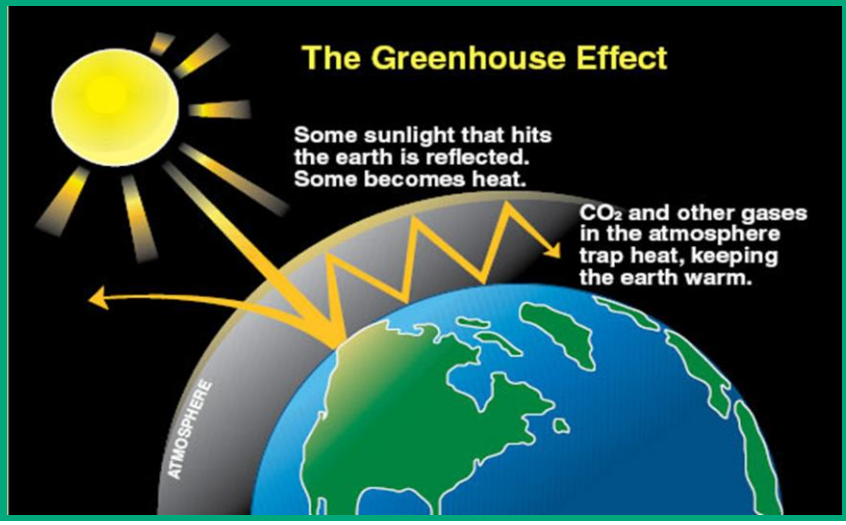
Green House Gas Effect



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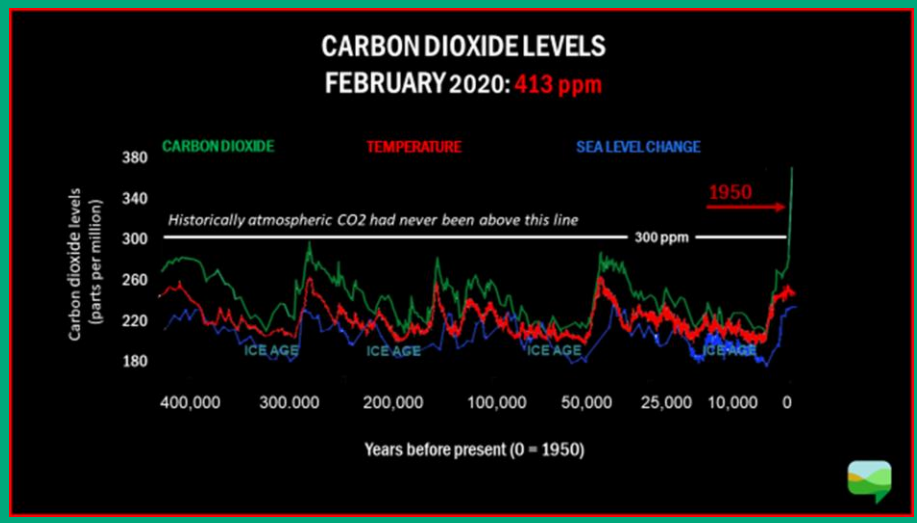
Historical Carbon Dioxide Levels



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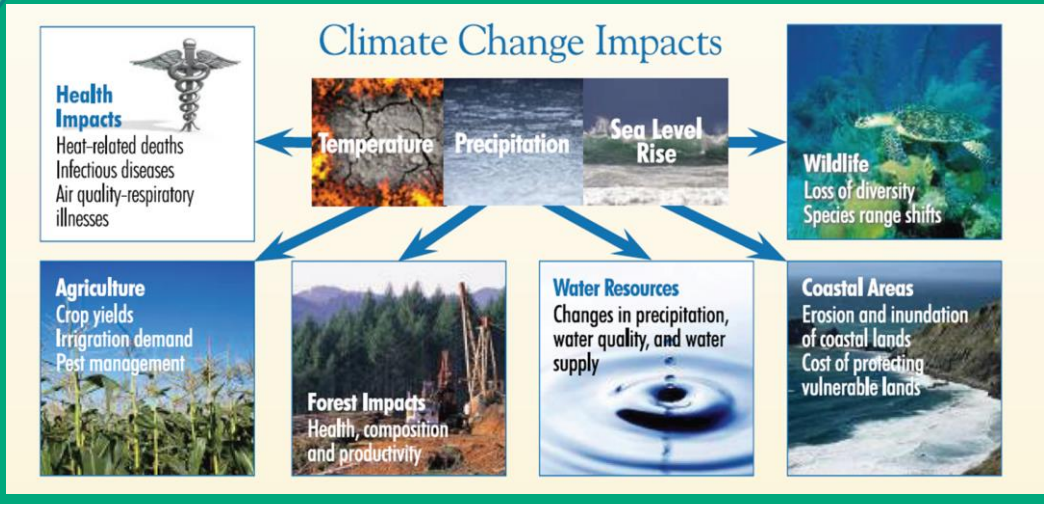
Impacts of Climate Change the Planet



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Sea Level Rise-Melting Ice

SEA ICE
Frozen seawater & icebergs

LAND ICE
Ice sheets & glaciers

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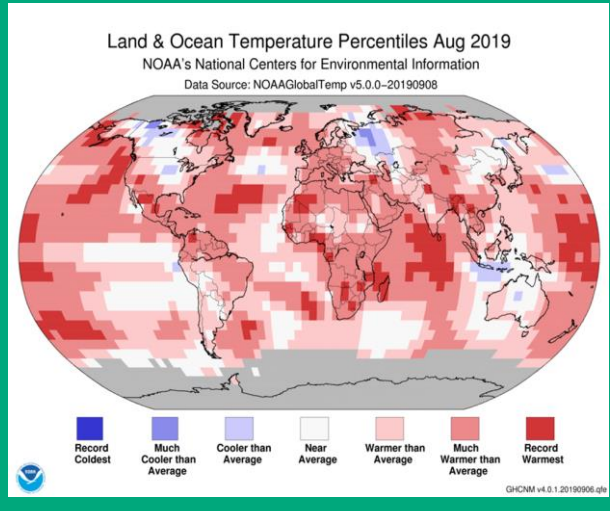
Sea Level Rise-Warming Oceans

- As water warms, volume expands, and as volume expands, seas rise
- Oceans have absorbed about 93% of excess heat caused by greenhouse gas
- Oxygen concentrations are declining.
- Oceans currently absorb more than a ¼ of the CO_2 causing ocean acidification which can lead to impacts to calcium-carbonate building organisms.



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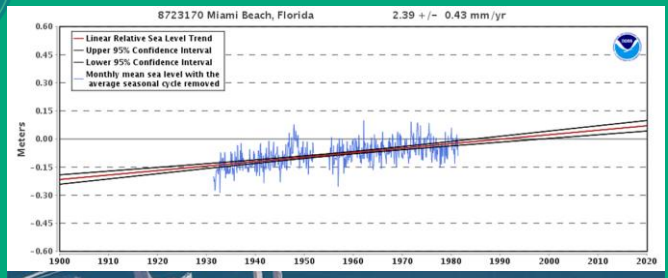
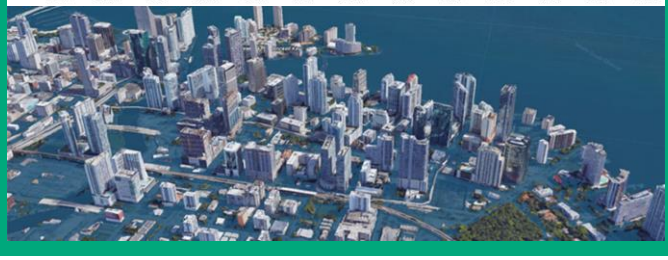
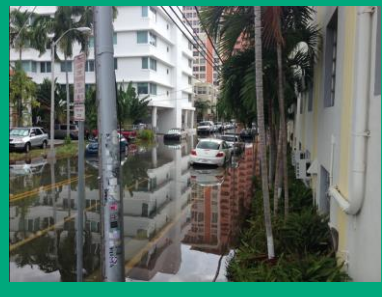
Sea Level Rise-Housing





- By 2050 ~2+ feet of sea lev el rise
- By 2100, A rise of as much or more than 8-10 feet cannot be ruled out.



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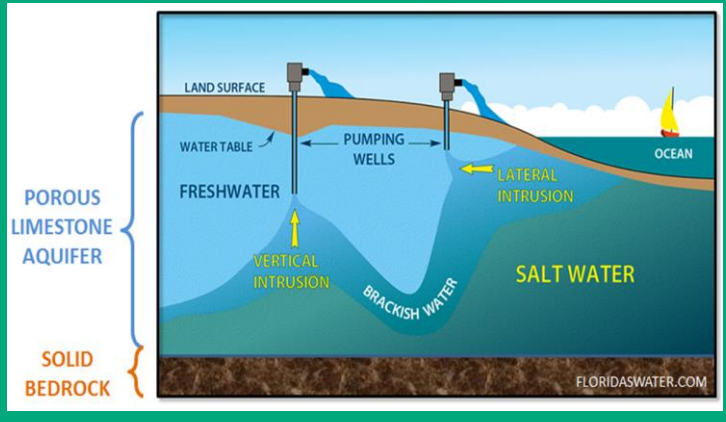
Sea Level Rise- Water Availability



- The 3,000-square mile Biscayne Aquifer supplies potable water to about 5.8 million residents in South Florida and the Florida Keys.
- As the sea level rises, saltw ater pushes inland like a parabolic curve – the deeper you go the more saltw ater there is and it moves inland.
- With saltw ater intrusion, M iami's drinking w ater will be more expensive and will negatively impact low -income communities.
- Salt w ater intrusion can also effect terrestrial plants and animal. Salt w ater can kill salt intolerant plants and contaminate freshwater resources utilized by animals.

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Extreme Weather Impacts

Climate change has been linked to changes in severe weather

- Tropical cyclones
  - Drivers
    - Increased sea surface temperatures
    - Sea level rise
    - Rising global temperatures/
    - Expanding tropics
  - Impacts
    - Heavier rain
    - Stronger winds
    - Higher storm surge
    - More areas at risk
    - Storms forming closer to mainland

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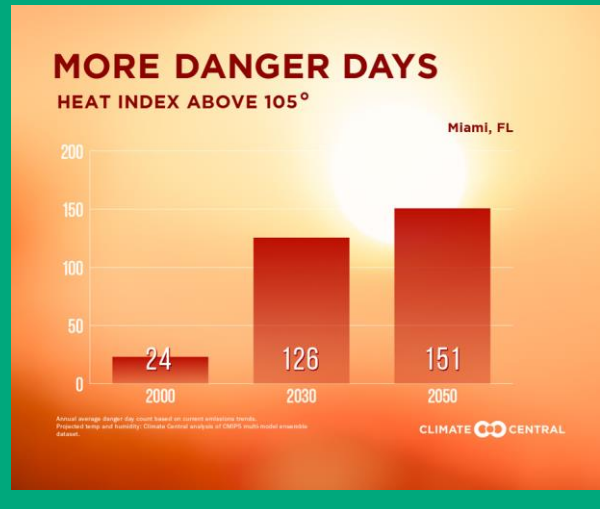
Extreme Heat-Human Health

Heat-related stresses:

- Stroke
- Dehydration
- Kidney disease
- Respiratory disease
- Cardiovascular failure



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Food Security

- Climate change will limit our access to food and can affect the quality of our food.
- Changes in temperatures can affect growing seasons an the av ailability of water.
- Extreme weather patterns can affect the health of liv estock.
- Bacteria and pathogens that cause foodborne illnesses tend to thriv e in warmer temperatures. This will lead to increases in food spoilage and contamination.
- Food deliv ery can also be impacted.
- With less food av ailability, food costs will rise.

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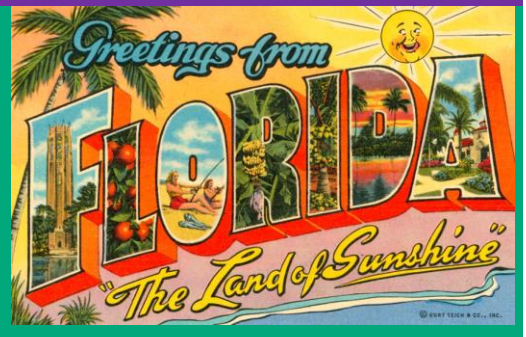
Economic Impacts

- Extreme Heat & Humidity
- Increased Vect or-borne Diseases
- Extreme W eather Events
- Beach Erosion
  - Nearly 61% of Florida's sandy beaches are eroding.
- Coral Reef Bleaching/ Death
- Florida's fisheries
- Coast al protection from storm surge
- Tourists spent $2 billion during beach visits in 2012-2013.
- Number 1 reason why tourists choose to visit Florida- Beaches at 26%. Theme parks came in 2nd at 24%.



Florida's massive tourism industry could lose $178 billion annually
by 2100, according to The Union of Concerned Scientists.

FL economic drivers: #1 Tourism #2 Agriculture- Both will be impacted by climate change.

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Solutions: Mitigate or Adapt

Mitigate: Address the CAUSES of climate change

Adapt: Adjust to the EFFECTS of climate change

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PARKS ARE SOLUTIONS! Mitigation

Parks Conserve Natural Areas

- One of the most important roles that parks play in keeping communities resilient is conserving natural areas and green spaces.
- The green infrastructure is one of the best defenses against climate change impacts.
- Coastal ecosystems, in particular, provide the mainland with some of the best protection against wind, waves, flooding, erosion, and storm surge.

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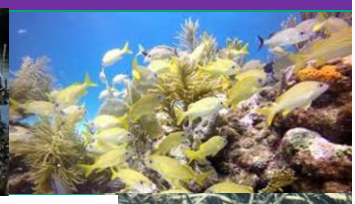
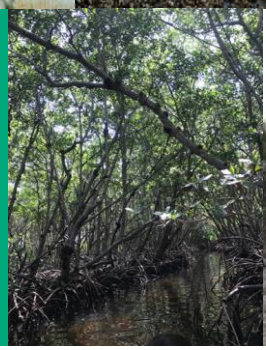
Coastline Protection





- Coral reefs
- Sea Grasses
- Sand Dunes/Healthy Beaches
- Mangroves
- Oyster reefs
- Marshes

No resident in Florida is more than 90 miles from a beach, so we are all connected to the coast!



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Coastal Benefits

- Habitat for unique plants and animals
- Biodiversity
- Buffer against flooding, waves, and wind
- Aesthetically pleasing/ Tourism opportunities
- Biomedicine (coral reefs)
- Natural Filters / Improve Water Quality
- Carbon Sequestration/ Blue Carbon
- Homes to recreationally and commercially important fish and shellfish
- Retain nutrients
- Rookeries (mangroves)
- Replenish Sand (sand dunes)




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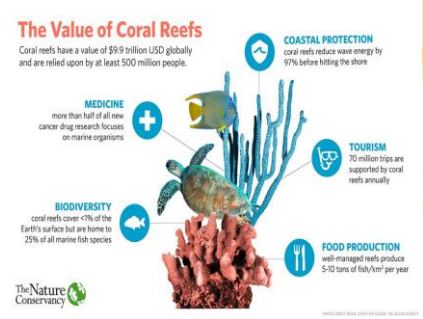
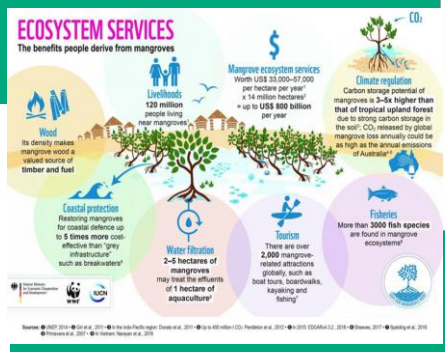
Ecosystem Services





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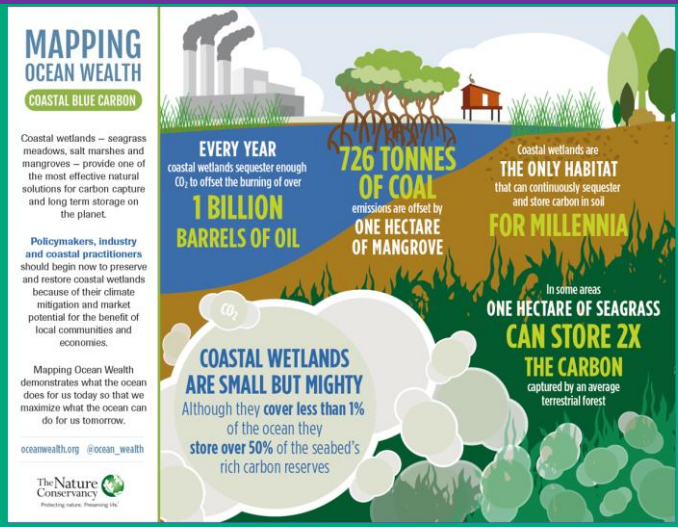
Blue Carbon



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Green Infrastructure-Living Shore Line VS Grey Infrastructure

- One of the biggest threats to the protections that living shorelines provide is development.
- When we develop on our coastlines, we remove green infrastructure and replace it with grey infrastructure, or seawalls.
- Seawalls do not provide the protection that living shorelines do. They are used to slow erosion, but they in fact, increase erosion.
- They are costly to build and repair.
- Seawalls do not provide proper habitat and tidal zone flow.
- Green Infrastructure provides the best benefit.

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Preserving Forests/ Native Landscaping

- Native plants **are adapted to the local climate** and soil conditions where they naturally occur. These important plant species provide nectar, pollen, and seeds that serve as **food** for native butterflies, insects, birds and other animals.
- Native plants **do not require fertilizers** and require fewer **pesticides** than lawns.
- Native plants require **less water** than lawns and help prevent erosion.
- Native plants can significantly **reduce water runoff** and, consequently, flooding.
- Native plants help **reduce air pollution**.
- Native plantscapes do not require mowing. Excessive carbon from the burning of fossil fuels contributes to global warming. Native plants sequester, or remove, carbon from the air.
- Native plants provide **shelter** and **food** for wildlife.
- Native plants promote **biodiversity** and stewardship of our natural heritage.
- Native plants are beautiful and **increase scenic values.**

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Preserving Forests and Tree Plantings

- According to a NASA Climate study, by planting more than a half trillion trees we could capture about 205 gigatons of carbon (a gigaton is 1 billion metric tons), reducing atmospheric carbon by about 25 percent.
- That's enough to negate about 20 years of human-produced carbon emissions at the current rate, or about half of all carbon emitted by humans since 1960

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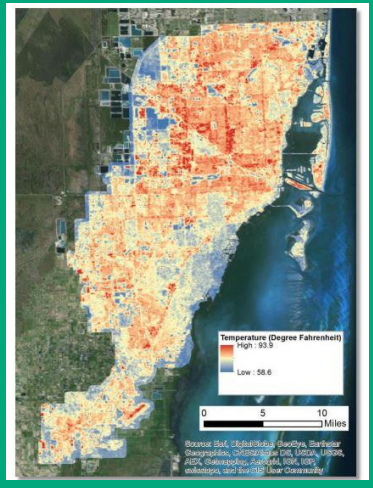
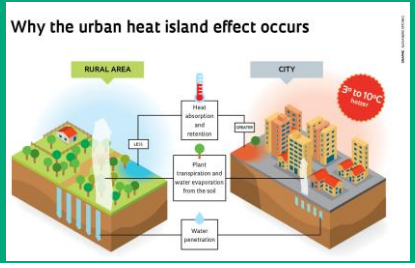
Urban Heat Island Effect



- Heat islands occur in urbanized areasw here streets, buildings, and other infrastructure absorb and re-emit the sun's heat.
- Day time temperatures in heat islands can reach 1-7 degrees F higher and night time temperatures can reach 2-5 degrees F higher than outlying areas.
- Parks help to mitigate the urban heat island effect by conserving green spaces and tree canopy that help to keep city temperatures down.



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Park Planning

Plans new parks and for growing parks systems can be used as a framework to plan to mitigate against climate change.

Parks Master Plan: 50 year plan to create an interconnected system of parks, public spaces, natural and cultural places, greenways, water trails, and streets. This plan strengthens resilience by ensuring environmental stability and protection, economic growth, and equitable access to parks. It address issues such as health, traffic, flooding and sea level rise, and public safety.

Park Landscape Pattern Book: Framework that promotes green infrastructure, contributes to the preservation and promotion of history, builds on design heritage and conservation value, and serves as a guide toward environmental sustainability.

Conservation Plan: Provides the necessary guidelines to improve the coordination of conservation and sustainability efforts for its own use, for use across other County departments, with state and federal agencies, as well as with private sector organizations.

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Park Planning

Park Resilience Design Guidelines: Used as a framework for park planners and designers to plan parks in response to climate change effects such as sea level rise, tidal flooding, rain events, and increasing surface temperatures. (finalizing)

Recreation Plan: Connects the community to parks taking into account community need/want and how we acquire land, design our parks, operate our facilities, program in our parks, and prioritize capital improvements and development.

Water Recreation Access Plan: Extension of the Open Space Master Plan to create a connected blueway system. This plan is guided by the principals of climate resilience and environmental protection to provide equitable, safe, and healthy water access for all citizens. (finalizing)

Sea Level Rise Studies: Develop a report with flood/ sea level rise mitigation strategy for coastal parks

Park Procurement

- What we purchase to use in our parks can make a difference in slowing the effects of climate change.
- Most plastic materials are made from fossil fuels (oil and gas). The process of extracting the fossil fuels, making plastic materials, and then transporting these materials releases billions of tons of greenhouse gases.
- By reducing or eliminating plastics from the procurement process, parks can lead the way in more sustainable purchases.
- It also helps eliminate plastic pollution in our parks and natural areas creating a healthier environment.
- Phase out these items from procurement process.
- Put some responsibility on outside vendors. Hold them accountable.

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Other Solutions that can be Supported by Parks

Solar Power

- Florida calls itself the Sunshine State. But when it comes to the use of solar power, it trails 19 states
- At the same time it's one of our strongest job creators

Parks

- Solar Park buildings/ LEED Certified buildings.
- Solar energy is an essential part of addressing the climate crisis by weaning the electric grid from fossil fuels

Personal Benefits

- Federal Solar Tax Credit: 26% deduction from your federal taxes (personal benefit).

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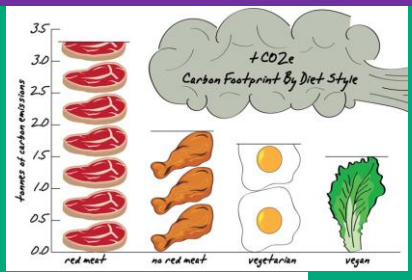
Other Solutions that can be Supported by Parks



Food education programs, community gardens, supporting local vendors, and community composting in parks

- About 11% of all the greenhouse gas emissions that come from the food system could be reduced if we stop wasting food.
- In the US alone, the production of lost or wasted food generates the equivalent of 37 million cars' worth of greenhouse gas emissions

Personal Benefit to Plant based meals

- Studies show that people on vegetarian or vegan diets are at a lower risk of certain diseases including cancers, type 2 diabetes, hypertension, obesity, and ischemic heart disease

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Other Solutions that can be Supported by Parks

Education Programs

- Natural Areas tour/Environmental Education
- Rain Barrel Workshops
- Native Plant Workshops

UF IFAS Extension UNIVERSITY of FLORIDA

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Personal Solutions = BEhavioral Change

- Research ways on how you can lower your carbon foot print and commit to some individual goals. THERE ARE SO MANY OPTIONS!
- Talk about the issues and educate others.
- Stay responsibly informed about the issues.
- Sign up for a new sletter from your local Office of Resilience
- Join a local environmental organization, group or club
- Write a letter or email to an elected official expressing your concerns about climate change for your region
- Consume sustainably and responsibly.
- Support climate-conscious businesses and organizations.
- Participate in a beach cleanup or coastal restoration project.
- Support local, state, and federal parks!

NO ACT IS TOO SMALL! USE: Your Voice, Your Wallet, and Your Vote

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Parks = Resilience

1. **Outline the critical role parks play in helping rebuild communities is emergency situations.**
   - COVID-19
   - Hurricanes
2. **Summarize the effects of climate change on your community.**
   - Housing availability
   - Water availability
   - Food availability
   - Human health
3. **Describe how natural areas play a role in combating the negative effects of climate change and how conserving green spaces keeps communities safe and resilient.**
   - Carbon sinks
   - Reversal of urban heat island effect
   - Tourist drivers
   - Storm protection

How are you going to IGNITE your organization's or your personal resilient potential?

Heather Tedlow

Interpretive Nature Coordinator
Miami Dade Parks, Recreation and Open Spaces-EcoAdventures
Heather.Tedlow@miamidade.gov
305-662-4124
@miamidadeparks
@miamiecoadventures


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