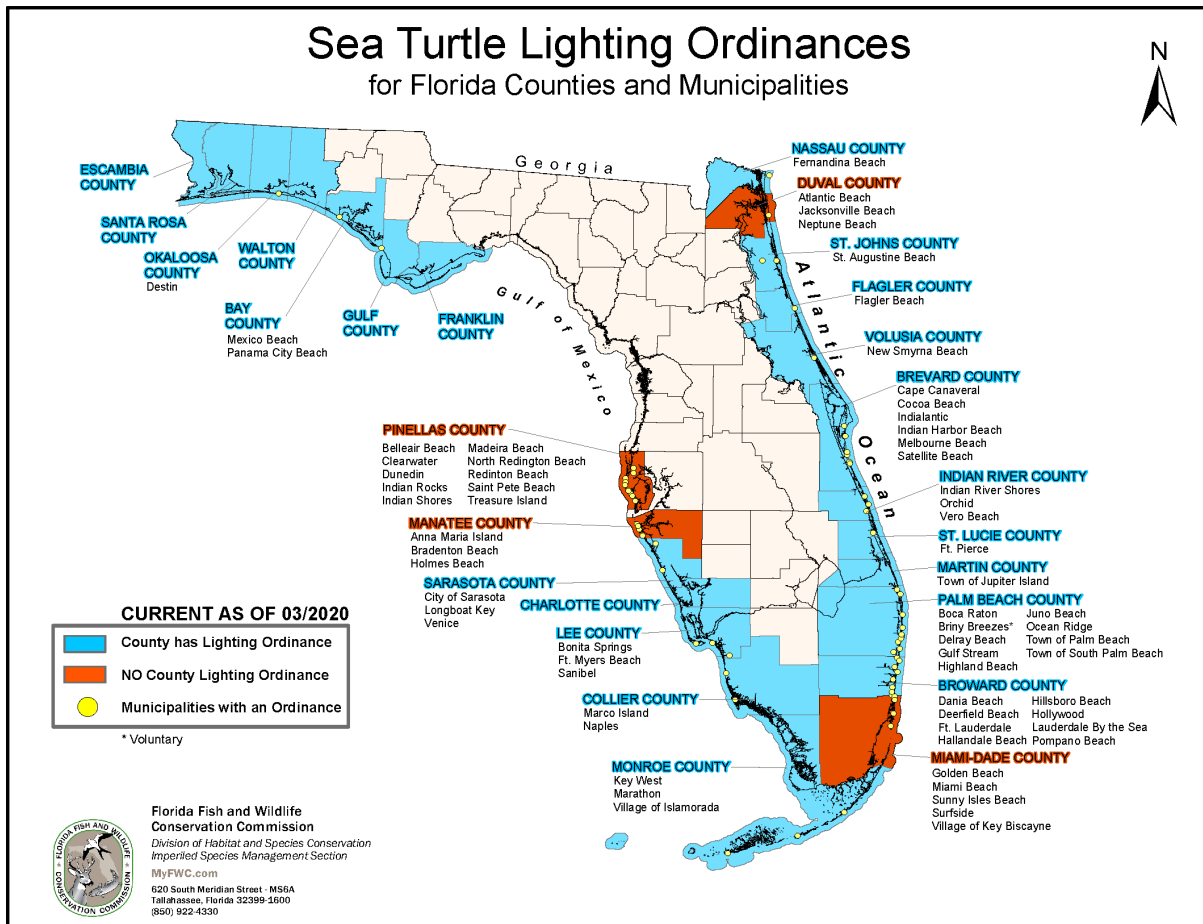# Final Project

4/26/2021

Rationale & Research Questions

Primary Research Question: Is there a relationship between sea turtle protection policies (light pollution ordinances) in Florida [cities? Counties?] and the amount of radiance those [cities? Counties?] output?

Additional Research Questions

- How does radiance change before these light ordinances go into effect and after? I.e. how does radiance change with time?

- How does average radiance over time vary across cities/counties?

Rationale The state of Florida provided model lighting ordinance for local governments to develop their own light pollution policies largely to control beachfront lighting to protect hatching sea turtles. Policy implementation is important, but the radiance data can show if the policy has affected the amount of radiance in these Florida counties/municipalities. The amount or change in radiance, perhaps as a result of implementing the policy, is what will impact sea turtle protection.

Sea Turtle Lighting Ordinances
for Florida Counties and Municipalities

N

Georgia

Gulf of Mexico

Atlantic Ocean

ESCAMBIA COUNTY

SANTA ROSA COUNTY

OKALOOSA COUNTY
Destin

WALTON COUNTY

BAY COUNTY
Mexico Beach
Panama City Beach

GULF COUNTY

FRANKLIN COUNTY

NASSAU COUNTY
Fernandina Beach

DUVAL COUNTY
Atlantic Beach
Jacksonville Beach
Neptune Beach

ST. JOHNS COUNTY
St. Augustine Beach

FLAGLER COUNTY
Flagler Beach

VOLUSIA COUNTY
New Smyrna Beach

BREVARD COUNTY
Cape Canaveral
Cocoa Beach
Indialantic
Indian Harbor Beach
Melbourne Beach
Satellite Beach

PINELLAS COUNTY
Belleair Beach   Madeira Beach
Clearwater   North Redington Beach
Dunedin   Redinton Beach
Indian Rocks   Saint Pete Beach
Indian Shores   Treasure Island

MANATEE COUNTY
Anna Maria Island
Bradenton Beach
Holmes Beach

SARASOTA COUNTY
City of Sarasota
Longboat Key
Venice

CHARLOTTE COUNTY

LEE COUNTY
Bonita Springs
Ft. Myers Beach
Sanibel

COLLIER COUNTY
Marco Island
Naples

MONROE COUNTY
Key West
Marathon
Village of Islamorada

INDIAN RIVER COUNTY
Indian River Shores
Orchid
Vero Beach

ST. LUCIE COUNTY
Ft. Pierce

MARTIN COUNTY
Town of Jupiter Island

PALM BEACH COUNTY
Boca Raton   Juno Beach
Briny Breezes*   Ocean Ridge
Delray Beach   Town of Palm Beach
Gulf Stream   Town of South Palm Beach
Highland Beach

BROWARD COUNTY
Dania Beach   Hillsboro Beach
Deerfield Beach   Hollywood
Ft. Lauderdale   Lauderdale By the Sea
Hallandale Beach Pompano Beach

MIAMI-DADE COUNTY
Golden Beach
Miami Beach
Sunny Isles Beach
Surfside
Village of Key Biscayne

CURRENT AS OF 03/2020

- County has Lighting Ordinance
- NO County Lighting Ordinance
- Municipalities with an Ordinance

* Voluntary

Florida Fish and Wildlife Conservation Commission
Division of Habitat and Species Conservation
Imperiled Species Management Section
MyFWC.com
620 South Meridian Street - MS6A
Tallahassee, Florida 32399-1600
(850) 922-4330

Rationale for Data

- The [GoogleMaps] dataset was chosen because it allows. . .

- The counties/municipalities for this project were chosen based on their Seat Turtle Protection Ordinance adoption date. Making sure that the dates are covered by the [GoogleMaps] light radiance dataset

- The radiance data covers from 1994-2011

Dataset Information

Data Wrangling

Time Series Analysis

Generalized Linear Modeling

Spatial Analysis

Summary & Conclusions

Analysis Summary

Conclusions