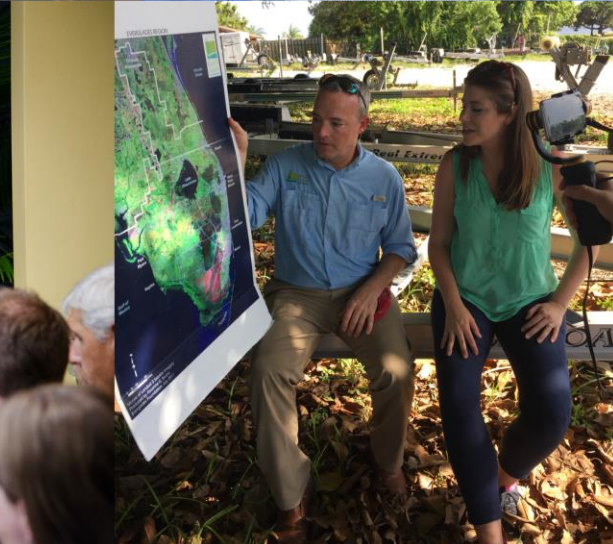


# Communicating Science to Policy-Makers

*Steve Davis*



# Some considerations...

- ← A good scientist does not always = a good science communicator
- ← Not all science is worth communicating to a non-scientist
- ← Focus on “things people care about”
- ← Then, if time allows, consider “things people should care about”



# Florida's Lower East Coast Water Supply





# Peat Soil Development and Loss

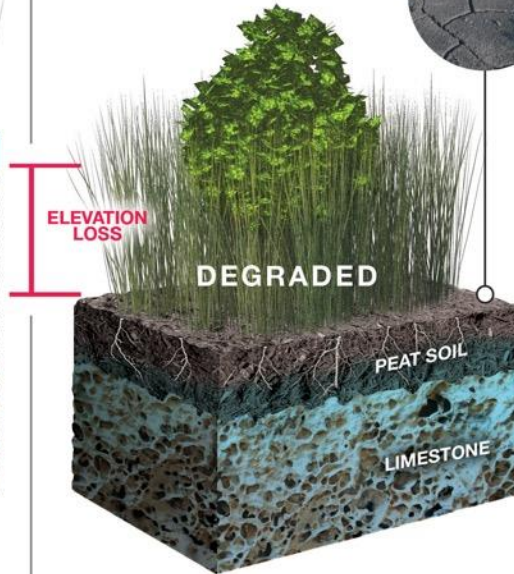
Peat soil, also called muck soil, blankets the limestone bedrock across much of the Everglades and is the foundation upon which key habitats exist.



Peat soil is made up of dead and partly decomposed plants and develops very slowly (over centuries to millennia!) in the presence of water.

When drained, peat soil degrades rapidly resulting in elevation loss and habitat change. Peat degradation also releases atmospheric carbon dioxide and polluting nutrients such as nitrogen and phosphorus.

Photo of dried peat soil in Everglades National Park in April 2015.  
Photo: Ben Wilson

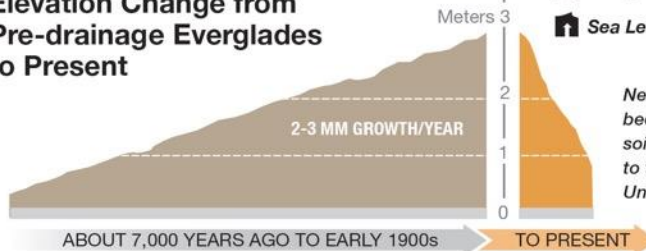


In addition to the impact of drainage...

- Drought exacerbates peat soil degradation.
- Fire burns peat soil down to the limestone bedrock.
- Phosphorus Pollution changes and degrades peat soils.
- Sea Level Rise catalyzes the rapid collapse of peat soils.

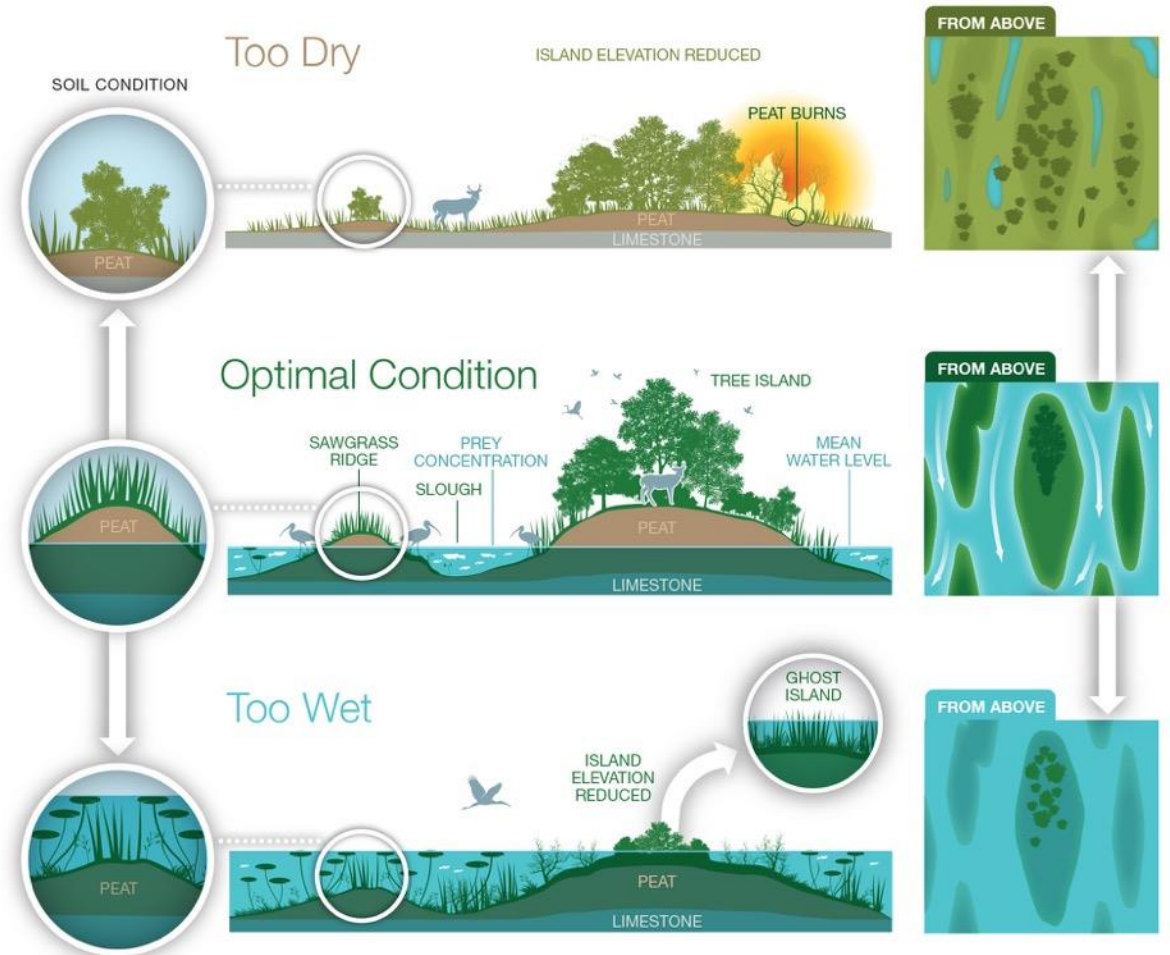
Nearly 3.5 billion metric tons of carbon dioxide have been lost to the atmosphere due to Everglades peat soil loss. To put this into perspective, this is similar to the annual CO<sub>2</sub> emissions of the European Union, a population of more than 0.5 billion.

## Peat Soil Development and Elevation Change from Pre-drainage Everglades to Present



# Water Conditions and Habitat Change

Illustration showing the relationship between water level, vegetation, and soil development as described above. The condition that is **too dry** (TOP) leads to a loss of soil elevation and flattening of the landscape that allows for sawgrass to encroach into former slough areas. An example of this is in northern WCA-3A. The **too wet** scenario (BOTTOM) has year-round flooding conditions that result in the conversion of sawgrass ridges to slough and drowning and loss of tree islands. This condition is best exemplified in southeastern WCA-3A. The **optimal condition** (MIDDLE) has a natural, seasonally fluctuating water level that maintains all three habitats.





# We consume (information) differently



Scientists



Policy-Makers

# 1. Know your audience

- ← Committees
- ← Voting record
- ← Constituents
- ← Priorities
- ← Hobbies



Sen. James Inhofe (OK)



U.S. Rep. Brian Mast (FL-18)



## FACT SHEET



Credit: Everglades National Park

# EVERGLADES RESTORATION: A 4-TO-1 RETURN ON INVESTMENT



## BACKGROUND

The Everglades Foundation has released a comprehensive study detailing the financial return on investment in Everglades ecosystem restoration. Conducted by Mather Economics, the study shows that the country—and the state of Florida in particular—stand to gain significant economic growth and new job creation as a result of America's Everglades restoration.

## ECONOMIC BENEFIT OF RESTORING AMERICA'S EVERGLADES

Projections show that investing \$11.5 billion in Everglades restoration will result in \$46.5 billion in gains to Florida's economy and create more than 440,000 jobs over the next 50 years! For every dollar invested in Everglades restoration, \$4 are generated in economic benefits.

## ECONOMIC GAINS BY SECTOR



### Water Quality: 28%

Enhanced availability of freshwater will protect the region's drinking water supply and cut down on costs of purification methods, such as desalination facilities.



### Real Estate: 35%

Property values are expected to increase for all 16 counties within the South Florida Water Management District, due to increased quality of drinking and recreational water.



### Fishing: 5%

Recreational and commercial fishing industries will see a significant rebound with the protection of territory and enhanced water quality.



### Open Space: 2%

Availability of trees and open space will help to offset impacts of sea level rise and global climate change.



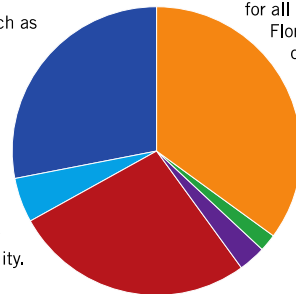
### Habitat and Hunting: 27%

Restoring the everglades will provide valuable ecosystem habitat. Native wildlife populations will flourish and lead to increased availability of hunting opportunities.



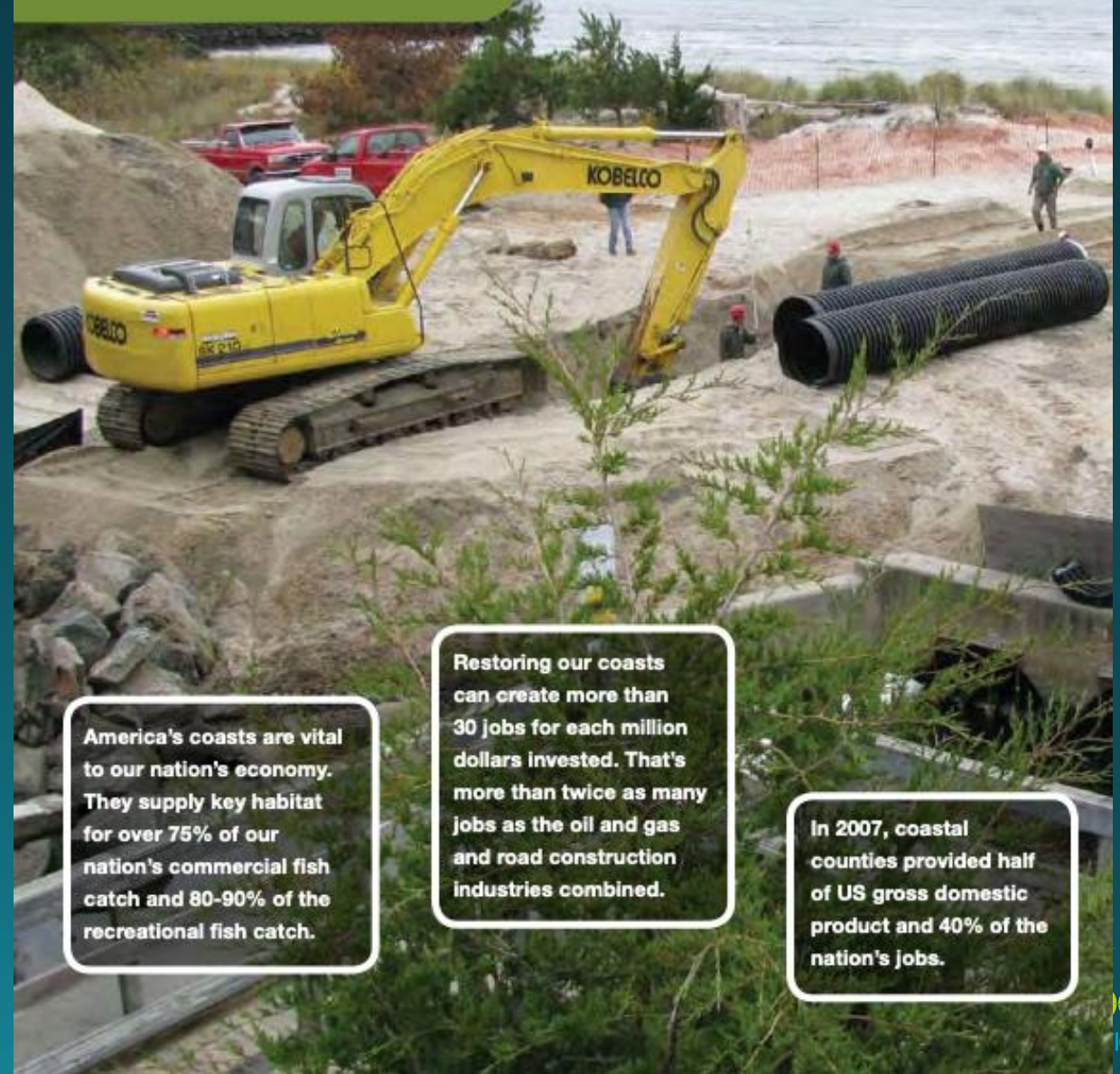
### Park Visitation: 3%

Restoration of the Everglades ecosystem will increase wildlife populations and allow for more recreational opportunities during park visitation for residents and tourists.



## Jobs & Dollars

**BIG RETURNS** from  
coastal habitat restoration



America's coasts are vital to our nation's economy. They supply key habitat for over 75% of our nation's commercial fish catch and 80-90% of the recreational fish catch.

Restoring our coasts can create more than 30 jobs for each million dollars invested. That's more than twice as many jobs as the oil and gas and road construction industries combined.

In 2007, coastal counties provided half of US gross domestic product and 40% of the nation's jobs.

## 2. Respect them and their time

- ← Be mindful of their position/title
- ← Respect their staff
- ← Dress the part
- ← Keep it brief, stick to allotted time  
(Don't be *that* person)
- ← Thank them (time, service, commitment to issue)
- ← PREPARE (takes more time than you think)



### 3. Don't obsess over intricacies and uncertainties

- ← This will bore them and waste time
- ← Get to the point and make your point
- ← Don't be afraid to have an opinion. Your credibility and best scientific judgment are important and can go a long way in influencing their opinion.

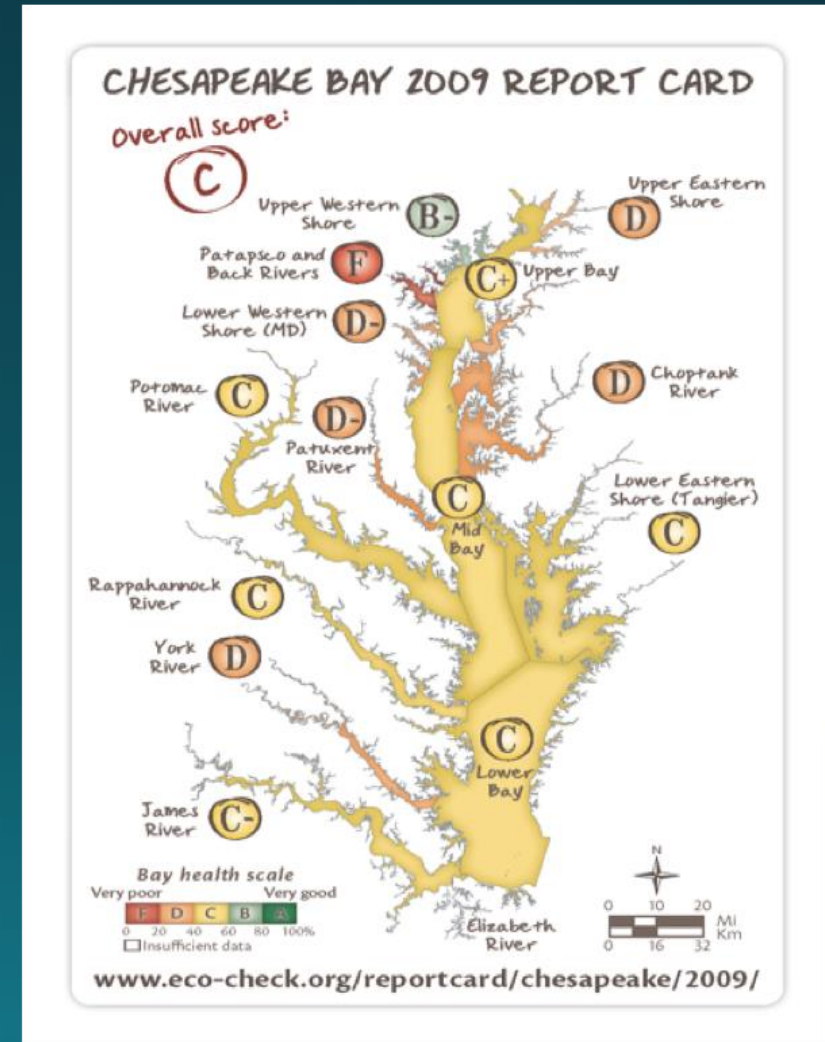
Don't obsess over the details, give them the big picture as much as possible





# 4. Use effective visuals and consider a leave-behind

- ← Photos and maps are best
- ← Infographics
- ← Fact sheets
- ← Report card






# Plume of polluted Lake Okeechobee water near Sanibel Island





# Why bridge Tamiami Trail?



A wide-angle photograph of a body of water, likely a bay or estuary. The water is a murky, greenish-brown color, indicating turbidity. In the foreground and middle ground, there are numerous small, dark, clumpy patches of seagrass or algae floating on the surface. The background shows a distant, low-lying shoreline with some trees and a few small structures. The sky is a pale blue with a few wispy clouds. A single bird is visible in the upper right corner of the frame.

How does seagrass die-off affect water quality?



# Sometimes a photo or map can't tell the entire story

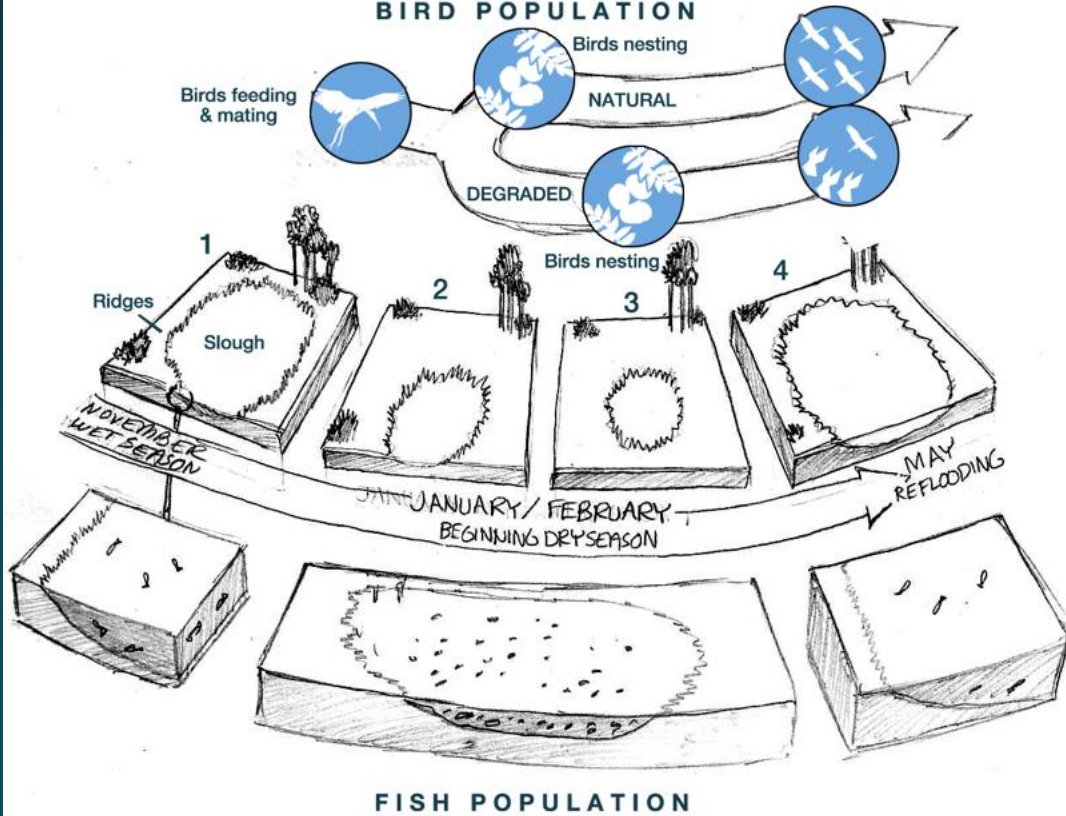
- ← Illustrations can serve as a perfect representation of the science
- ← They take a lot of time and can be costly
- ← Find a good illustrator!



# Ridge and Slough

Fish Concentration and Bird Food

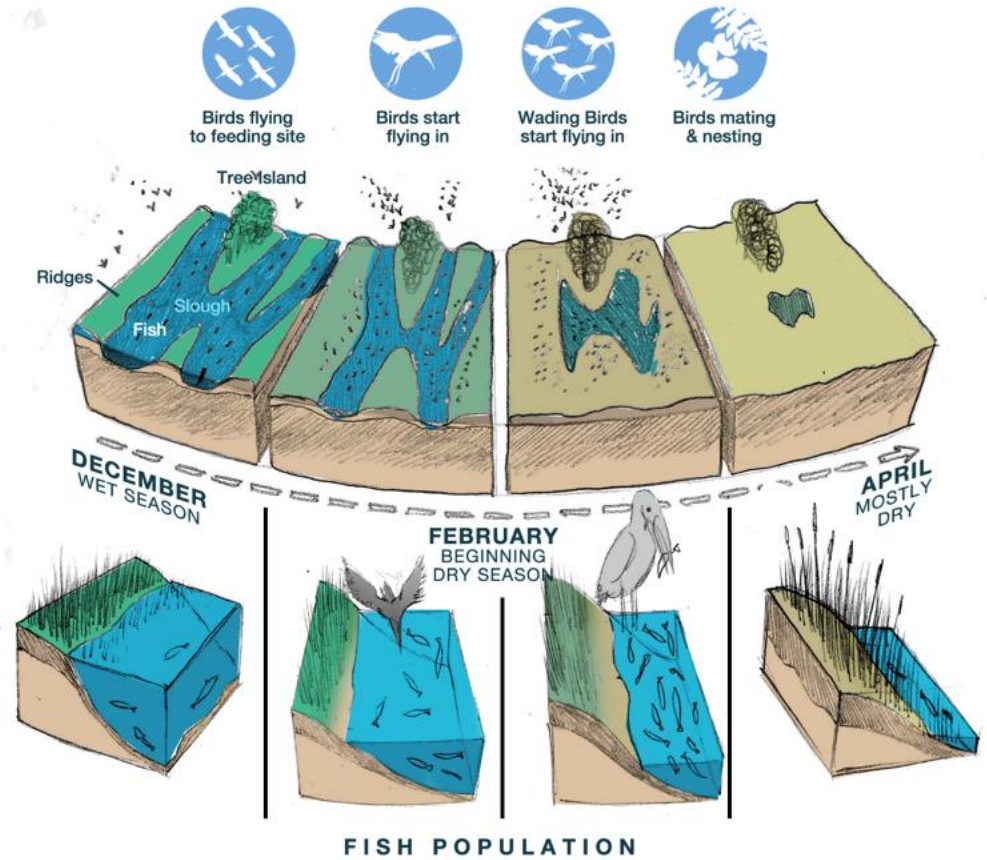
## BIRD POPULATION



# Ridge and Slough

Fish Concentration and Bird Food

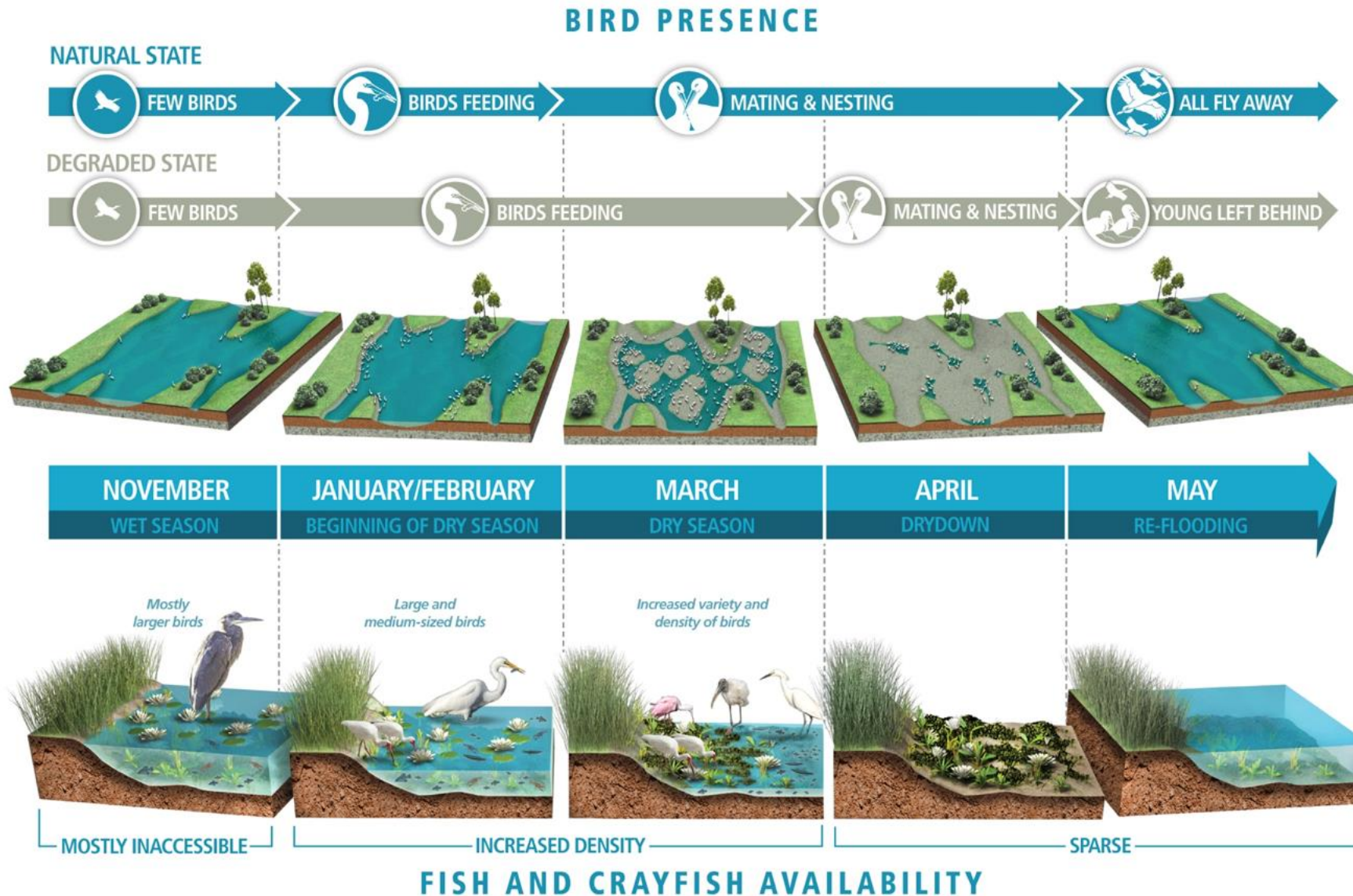
## BIRD POPULATION





# Ridge and Slough

## Fish Concentration and Bird Food



# Packaging and word choice matters

- Titles are like headlines
- Match your title to the audience...
  1. The impact of increased inundation and salinity on mangrove soil biogeochemistry
    - soil biogeochemists
  2. Sea-level rise and water management affect soil carbon dynamics and soil elevation
    - resource manager
  3. Coastal sustainability with rising seas
    - policy maker





EVER  
GLADES  
FOUNDATION