

## The Issue

Carbon dioxide is a gas that naturally exists in the Earth's atmosphere. Carbon dioxide and other gasses absorb infrared heat that would normally be radiating into space. Thus, the **Greenhouse Effect** warms the Earth's atmosphere to a livable temperature. However, the burning of fossil fuels and other human activities have contributed to an increase in the concentration of carbon dioxide in the atmosphere. The more carbon dioxide in the atmosphere, the warmer our planet.

## What is Blue Carbon?

Coastal **Blue Carbon** is a new term for carbon captured by living coastal and marine organisms and stored in coastal ecosystems.

Mangroves, sea grass beds and salt marshes take up atmospheric carbon and store it in their systems throughout their life cycle.

Also, these plants trap fine muddy sediments in their roots structures. These soils are generally low in oxygen so carbon that gets incorporated into the soils decomposes slowly and can persist for hundreds or even thousands of years.

## Why is Blue Carbon Important?

Aquatic plants like mangroves and sea grass store carbon more efficiently and faster than any terrestrial plant. Coastal habitats protect human well-being by preventing storm surge, shoreline erosion, and regulating water quality, all while providing a beautiful landscape for humans to enjoy. Mangroves, seagrass beds, and



salt marshes also provide critical habitats for animals like dolphins, manatees, and sea birds, providing an area for them to feed and raise young.

## Blue Carbon at Weedon Island

Weedon Island Preserve has 3,700 acres of land, including 2,600 acres of critical blue carbon habitat of mangroves, seagrass beds, and salt marshes. Conserving mangroves, seagrasses, and salt marshes at Weedon Island contributes to the reduction of atmospheric carbon dioxide. In order to reduce atmospheric carbon dioxide, we must preserve habitats like Weedon Island.

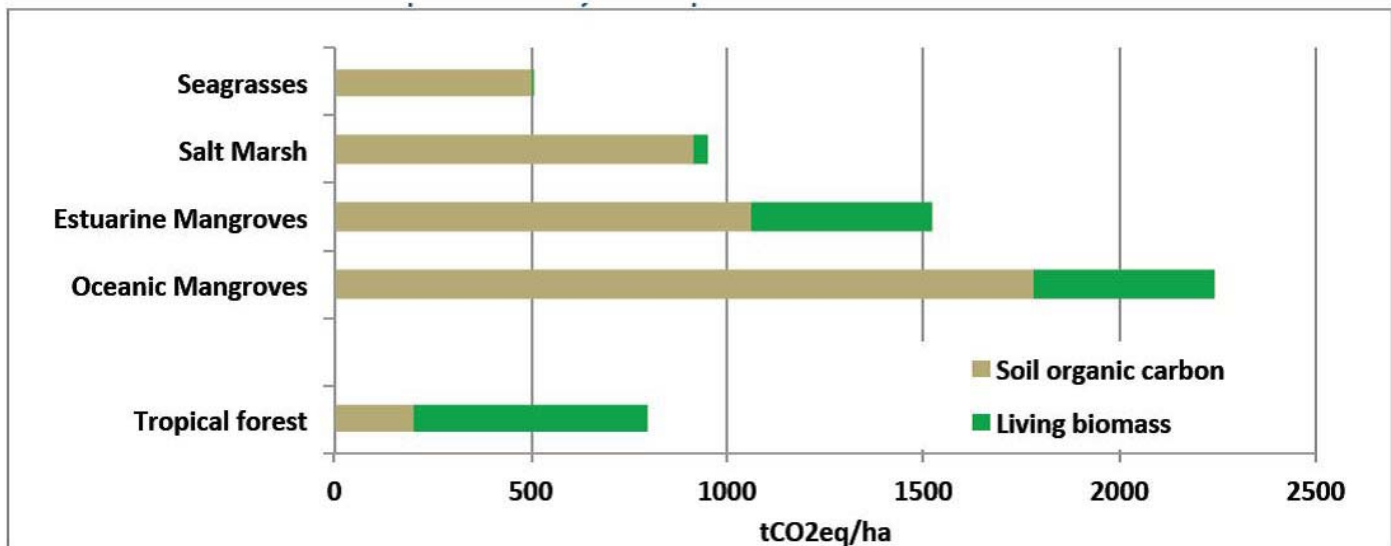
## Mangroves

As we have learned, mangroves are just one type of plant that helps to take out and store atmospheric carbon. Black, white and red mangroves are found at Weedon Island and throughout Tampa Bay.

Mangroves trap carbon in two ways - in their system and in the fine particles beneath the forests. Mangrove forests and their sediments are able to store up to four times more carbon than terrestrial forests!

## Seagrass Beds

Seagrass beds grow in shallow waters throughout Tampa Bay, and store up to three times more carbon than terrestrial forests. While most terrestrial forests store about 30,000 metric tons per square kilometer of carbon, seagrass beds can store up to 83,000 metric tons per square kilometer of carbon. Although they occupy less than 0.2% of the world's oceans, seagrass



\*Data is per unit area, where tCO<sub>2</sub>eq/ha is tons of carbon dioxide equivalents per hectare

Source: Murray, Brian, Linwood Pendleton, W. Aaron Jenkins, and Samantha Sifleet. 2011. Green Payments for Blue Carbon: Economic Incentives for Protecting Threatened Coastal Habitats. Nicholas Institute Report. NI R 11-04

meadows hold more than 10% of all carbon buried annually in the sea.

## Salt Marshes

Salt marshes take up carbon at a rate of fifty five times faster than tropical rainforests! Approximately half of the nation's salt marshes are located along the Gulf Coast including in Tampa Bay.



## What is Happening Now?

Research has shown that the Earth is losing critical blue carbon habitat at alarming rates. All over the globe mangroves,

seagrass beds, and salt marshes are being threatened by development and a lack of awareness. When these ecosystems are destroyed, their valuable ecosystem service of carbon storage is lost and they release all the carbon they have been storing for thousands of years. Restoration and preservation efforts throughout Pinellas County and Tampa Bay are working to maintain and enhance these critical coastal habitats.

## References

National Oceanic and Atmospheric Administration,  
<http://www.habitat.noaa.gov/coastalbluecarbon.html>

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