

# Blue Carbon

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# Ecosystems in focus for climate change mitigation

Forest



Peatland



Mangroves



Tidal Marshes

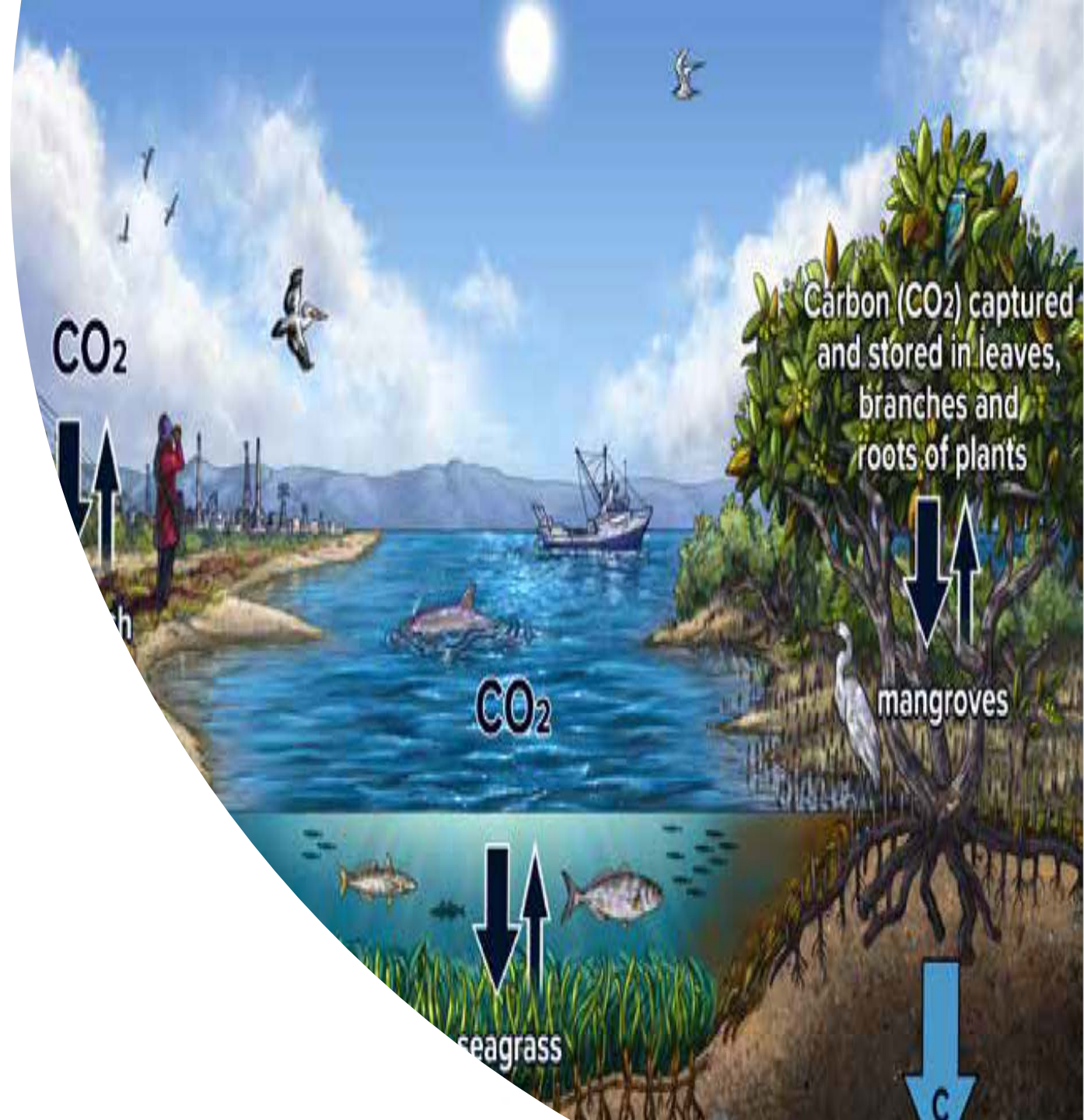


Seagrass



# Blue Carbon Ecosystems

- Plants hold as much carbon as the atmosphere.
- Soils hold 3-4 x as much carbon as the atmosphere.
- Mangroves, marshes and seagrasses are very high densities of carbon, continuously building stocks over thousands of years.
- Blue carbon ecosystems represent 2% of ocean area, yet sequester to the sediments 50% of carbon.
- Science (IPCC) accounts for burial of carbon on site but has yet to recognize sequestration offsite. Recognizing perhaps 50% of C sequestration benefit.



# Mangroves: Ecosystem Benefits

- Fisheries
- Coastal protection & erosion control
- Coastal water quality
- Livelihoods / food
- Cultural and spiritual value
- Biodiversity
- Carbon sequestration and storage

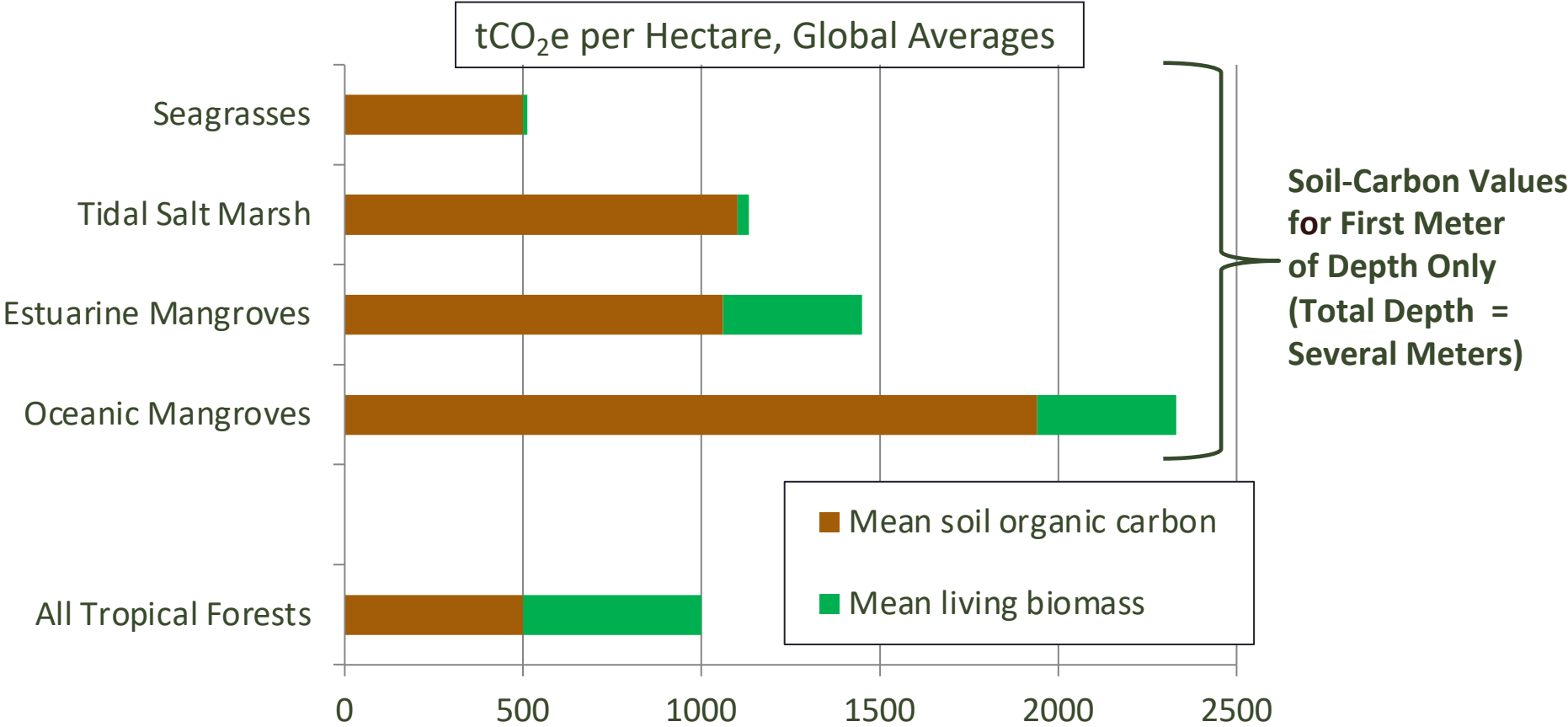
Mangroves important in life cycle of more than 75% of tropical fisheries.



# Coastal Ecosystems: Long-Term Carbon Sequestration and Storage



# Distribution of carbon in coastal ecosystems



Data summarized in Crooks *et al.*, 2011; Murray *et al.*, 2011, Donato *et al.*, 2011

# Destruction of Coastal Wetlands Causes Release of Biomass and Soil Carbon Stocks



Photo by Cath Lovelock

## In summary

- Coastal ecosystems are important to global carbon cycling
- The science on quantifying this is understood for some ecosystems but is evolving and expanding for others
- Managing for carbon manages for sustainability

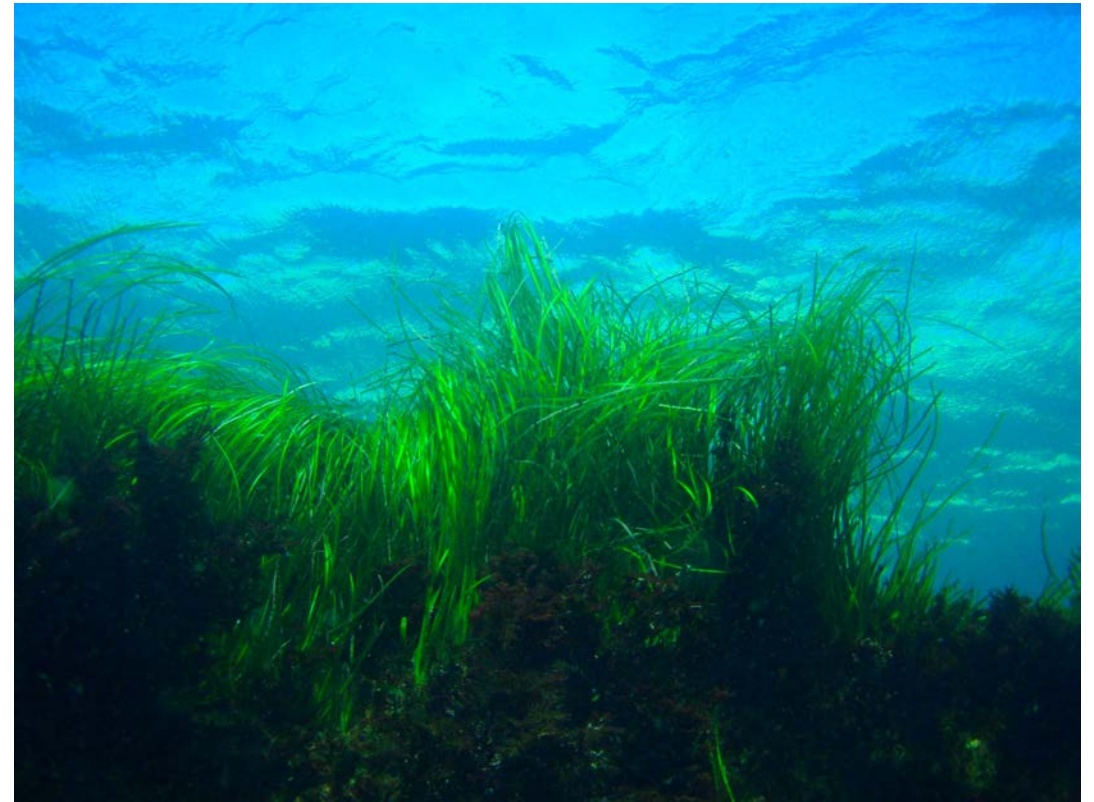


Photo Credit: Claire Fackler, NOAA