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
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

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