



Blue Carbon as Buffer to Global Climate Change: Value to Increase with Installation of Polluter Pays Policy

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What is Blue Carbon?

Blue carbon is the carbon sequestered by coastal ecosystems, including seagrass meadows, salt marshes and mangrove forests. Coastal blue carbon ecosystems provide numerous ecosystem services, including stabilizing coastal sediment, nursery habitats for fish, refuge areas for migratory birds, and carbon sequestration. Known for their role in mitigating global climate change, coastal areas capture more atmosphere CO₂ than any other ecosystem. Due to this, these ecosystems value is of increasing interest to be used as a tool to combat global climate change and may be critical in future legislative action. Polluter pays principles would be drastically impacted by the amount of blue carbon sequestered and may lead to the conservation and implementation of more coastal wetland ecosystems.

What is Climate Change?

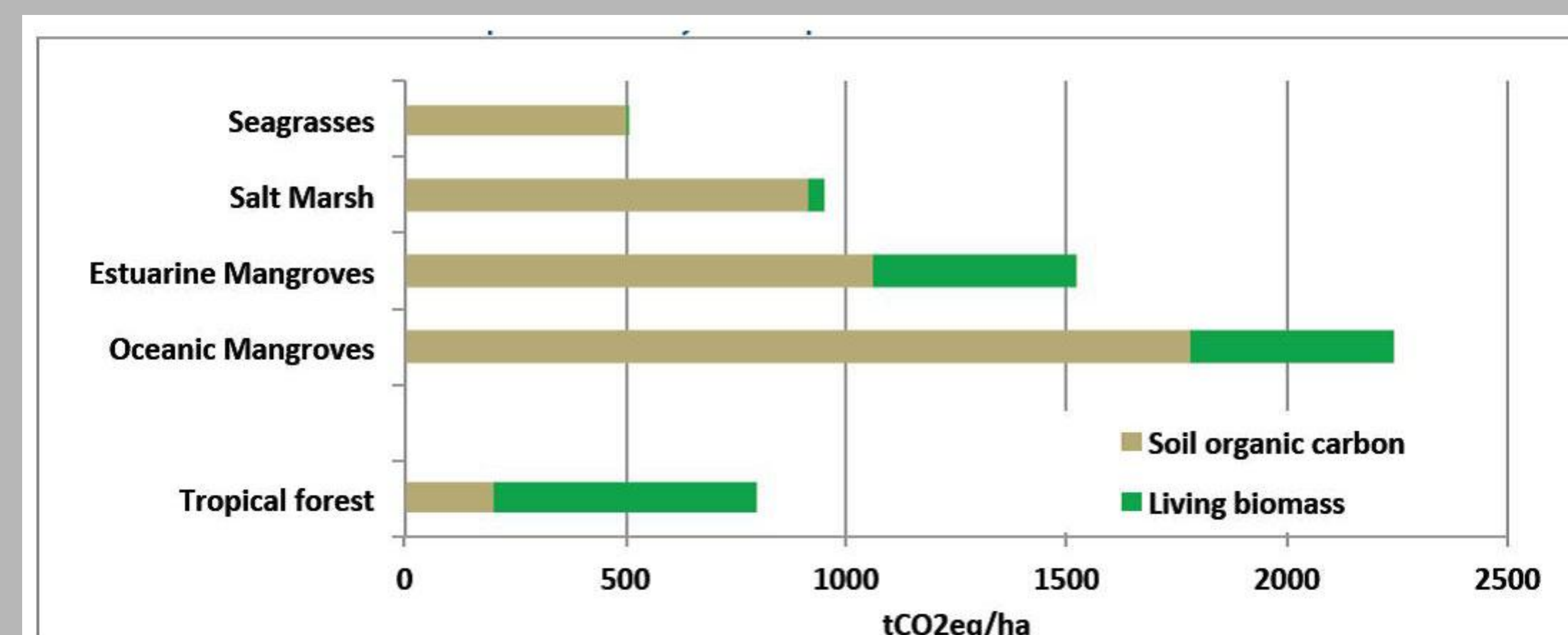
Climate change is described as the change in patterns of regional precipitation, wind, humidity, and seasons. It has become a significant environmental issue since the 20th century because of the escalation of CO₂ emissions. Climate change affects all classes of people, plants, and animals. Health risks, availability of water, and growth and production of food are essential aspects of life that climate change brings damage to. The change in climate contributes to an increase in atmospheric CO₂, and is generally associated with the increase in air temperature and the rise of sea levels.



VOSTOK ICE CORE DATA/J.R. PETIT ET AL.; NOAA MAUNA LOA CO₂ RECORD

Carbon Sequestration/Storage

- Coastal blue carbon is captured and stored the most effectively out of all carbon sinks
- Carbon sequestration is the process of capturing carbon from the atmosphere and transforming it into a state that can be stored; measured in carbon uptake per year (NOAA)
- Carbon storage is the long term confinement of carbon within organic material and is measured in total weight (NOAA)



*Data is per unit area, where tCO₂eq/ha is tons of carbon dioxide equivalents per hectare

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

Polluter Pays Principle

- The Polluter-Pays Principle (PPP) allocates costs for pollution prevention and control measures to encourage rational use of scarce natural resources and to avoid distortions in international trade and investment
- Cap and trade is an economic approach to controlling greenhouse gas emissions. A “cap” sets a limit on emissions whereas “trade” creates a market for carbon allowances
- Cap and trade creates an incentive for companies to decrease pollution output as the cap is lowered
- Carbon tax is a tax levied on the carbon content of fuels. It encourages the investment in green energy sources.

Conclusion

Implementing more coastal wetland ecosystems such as seagrass meadows, salt marshes, and mangrove forests that sequester atmospheric carbon (also called blue carbon) would be a considerable impact for global climate change and is encouraged by the Polluter-Pays Principle. The future of environmental health, including deterring the increase in air temperature and rising of sea levels, depends on the support of allowing companies to participate in a market of trading carbon allowances to encourage the limitation of greenhouse gas emissions. Additionally, creating and enforcing legislation to prevent the destruction of existing blue carbon ecosystems is absolutely vital; the devastation of these systems releases the stored carbon and contributes to instead of buffering global climate change.



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