We need to concentrate more on adopting a plan that protects the urban built environment by using nature to improve ecosystem services. This plan should highlight critical and sustainable steps to reduce the high cost of increasing electricity to cool residents in response to managing forecasted 3-day-100-degree heat waves.  The simple idea is to look toward nature for an answer of how to quicken up carbon sink.

The Modern Carbon Cycle**[[1]](#footnote-1)**  looks at the “exchange of CO2 occurring over the scale of months to a few centuries that are important for the cycling of C over **years to decades** with the focus on human influence starting from Industrial Era (1750).”

*“The contemporary global carbon (C) cycling involves the exchanges of C within and between the atmosphere, the oceans, and biosphere. The C may be transferred from one reservoir to another in* ***seconds*** *(e.g., the fixation of atmospheric carbon dioxide (CO2) by photosynthesis) or* ***over millennia*** *[e.g., the accumulation of fossil carbon (coal, oil, gas) through deposition and diagenesis of organic matter (OM)].*” (**emphasis added)**

But the Recarbonization of the BiosphereEcosystems and the Global Carbon Cycle go one step more. By doubling down on greening, with the added **requirement of regular maintenance routines**, the level of carbon sinks and biodiversity will increase and help offset current levels of heat island effects.

“*Ever* ***increasing amounts of carbon dioxide (CO2)*** *are added to the atmosphere by fossil fuel combustion but the biosphere is a potential C sink. Thus, a comprehensive understanding of C cycling in the biosphere is crucial for identifying and managing biospheric C sinks.* ***Ecosystems with large C stocks*** *which must be protected and* ***sustainably managed*** *are wetlands, peatlands, tropical rainforests, tropical savannas, grasslands, degraded/desertified lands, agricultural lands, and urban lands. However, land-based sinks require long-term management and a protection strategy because C stocks grow with a progressive improvement in ecosystem health*.”[[2]](#footnote-2) (**emphasis added)**

This means greening and using green infrastructure (GI) as much as possible in all landscapes and hardscapes can energize to the point of creating: 30 to 50% protected forest, local GI, wetlands, **sediment replacement**, and 520 miles of natural shoreline in NYC. Evidence and attribution of the enhanced land carbon sink describe the model we need to adapt.[[3]](#footnote-3)

*“Continued long-term land carbon sequestration is possible through the end of this century under multiple emissions scenarios,* ***especially if nature-based climate solutions and appropriate ecosystem management are used.*** *A new generation of globally distributed field experiments is needed to improve understanding of future carbon sink potential by measuring belowground carbon release, the response to carbon dioxide enrichment, and long-term shifts in carbon allocation and turnover.”* (**emphasis** added)

1. Ussiri, D.A., Lal, R. (2017). The Modern Carbon Cycle. In: Carbon Sequestration for Climate Change Mitigation and Adaptation. Springer, Cham. <https://doi.org/10.1007/978-3-319-53845-7_6> [↑](#footnote-ref-1)
2. [Recarbonization of the Biosphere: Ecosystems and the Global Carbon Cycle Boo](https://link.springer.com/book/10.1007/978-94-007-4159-1)k (2012), [↑](#footnote-ref-2)
3. Ruehr, S., Keenan, T.F., Williams, C. *et al.* Evidence and attribution of the enhanced land carbon sink. *Nat Rev Earth Environ* 4, 518–534 (2023). <https://doi.org/10.1038/s43017-023-00456-3> [↑](#footnote-ref-3)