

Forest Carbon Economy

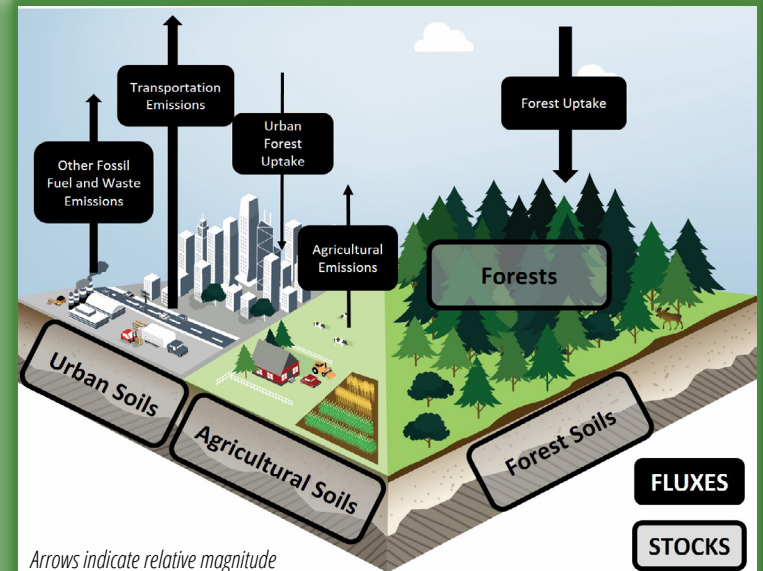
Active Forest Management and Products for an Emerging Decarbonized Economy



Carbon sequestration is the process by which CO₂ (e.g., fossil fuel emissions) is taken up by trees and other plants through photosynthesis and stored as carbon in biomass and soils indefinitely.

The **University of Maine FOrest Carbon Economy (UMaine FORCE)** is a university-wide multidisciplinary initiative that brings together university, industry, government, and community collaborators dedicated to advancing emerging science, technology, and policy for the advancement of forest carbon economy in Maine and beyond.

UMaine FORCE provides the framework for holistically assessing forest carbon and its potential to revolutionize Maine's economy and rural communities while providing solutions and understanding with global relevance and impact.



Terrestrial Carbon Cycle Elements for Maine
 The integration of actively managed forests and the products that they generate create an unique opportunity to re- envision future green economies. For a detailed analysis of the state of Maine's carbon budget, visit Umaine's Forest Carbon Climate Initiative website (crsf.umaine.edu/fcci).

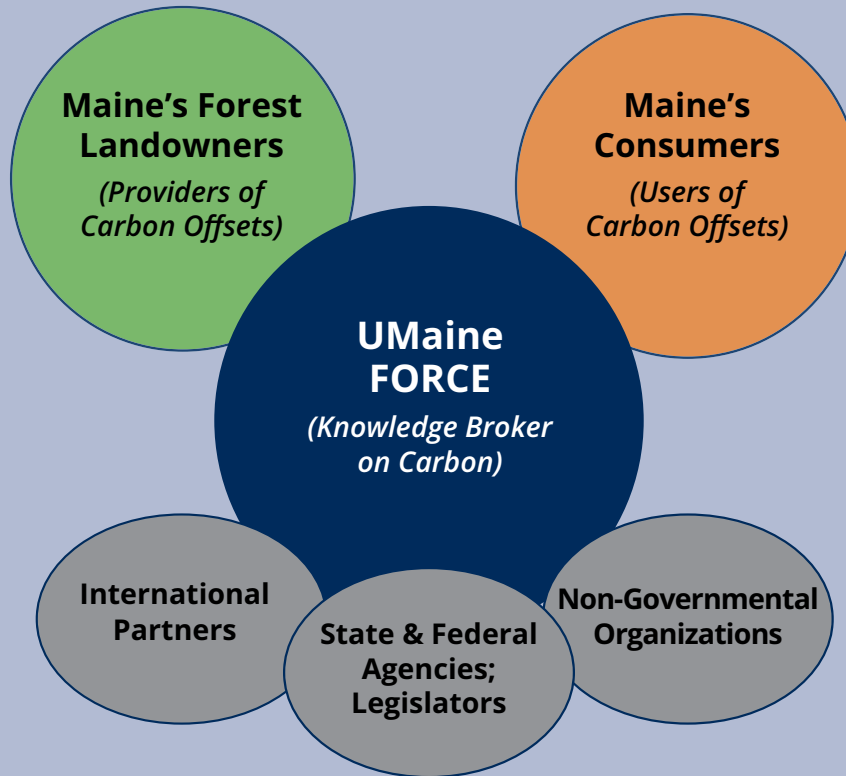
WHY A FOREST CARBON ECONOMY?

- ✂ Improvements in forest management will be critical in helping Maine be carbon neutral by 2045.
- ✂ Maine's forests annually sequester over 4 teragrams of carbon or nearly 70% of the state's annual carbon emissions making this state an ideal model for assessing the following:
 - ✦ What is the potential influence on long-term carbon storage if typical rotation ages were adjusted, more or less intensive practices implemented, and harvesting methods modified?
 - ✦ How do extensive, predominantly mixed-forest landscapes compare to single-species plantations or other land uses like agriculture carbon-storage capacity?
 - ✦ What is the contribution of long-lived forest products and emerging forest-dependent technologies like mass timber to Maine's forest carbon footprint?
 - ✦ How do we identify and implement socially acceptable, cost-effective, and efficient policies to incentivize landowners to invest in management that improves forest carbon sequestration?
 - ✦ What are the potential synergies and tradeoffs of managing forests for carbon sequestration and other ecosystem services such as fiber production, wildlife habitat, biodiversity preservation, recreational opportunities, and water quality?
- ✂ Opportunity to develop a comprehensive framework for holistically assessing forest carbon and its potential to revolutionize Maine's economy and rural communities, while providing sustainability solutions and understanding with global relevance and impact.

Supporting Maine's Carbon Economy by Focused Research, Education and Outreach Across Disciplines

Opportunities

- Maine's extensive working and well-managed forests
- Growing interest in carbon markets
- Maine's desire to be truly carbon neutral by 2045
- Strength of climate, carbon and forestry expertise at UMaine
- Need for a clear leader trying to bring research to this topic
- Ongoing efforts with Maine's Climate Council



Outcomes

- Recognized leader in an emerging global issue
- New economic opportunities for forest landowners and rural communities
- Sustained research and education programs
- Sound, science-informed policy
- Public support
- Green workforce
- Collaboration
- Resilient Maine Communities

UMaine FORCE seeks to advance and communicate state-of-the-art research on forest carbon capture, storage, accounting, and policy in an increasingly complex and dynamic environmental, social, and political landscape to improve forest ecosystems, quality of life, and the social and economic well-being of the people of Maine and beyond.



For more information on FORCE, contact:

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Maine Forestry and Agriculture Natural Climate Solutions Mitigation Potential

Interim report on the cost and effectiveness of various NCS approaches available at

crsf.umaine.edu/forest-climate-change-initiative/ncs



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