



Massachusetts Department of Fish and Game
Division of Ecological Restoration
 Invested in Nature and Community



Blue Carbon Calculator:

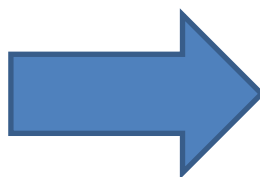
A Simple Methodology for Determining the Greenhouse Gas (GHG) Impact of Aquatic Ecological Restoration Projects

Coastal wetlands capture and bury carbon at high rates. This carbon is called blue carbon. Restored salt marshes are especially capable of sequestering blue carbon and reducing harmful methane emissions. The Blue Carbon Calculator is a first-generation tool to assess GHG impacts of aquatic ecological restoration projects, with a focus on coastal wetlands.

It's Simple!

1. Enter Expected Land Cover Changes

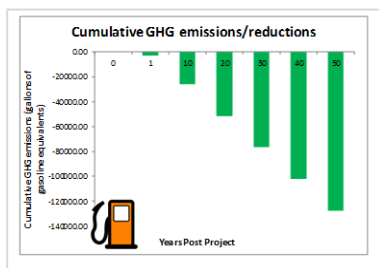
The user enters the land area for each type of land cover change resulting from a project.



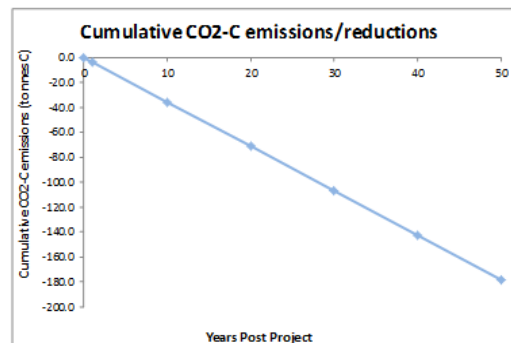
MA DEP Wetland Category	Wetlands Restoration	
	Wetlands Remaining Wetlands	
	Pre-Restoration Area (acres)	Post-Restoration Area (acres)
PHRAGMITES DOMINATED - WETLAND	3.2	
SALT MARSH - HIGH		3.2
SALT MARSH - LOW		8.8
BARRIER BEACH-BOG		
BARRIER BEACH-SALT MARSH		

2. See the Green House Gas Budget

Annual emissions resulting from each change in land cover are calculated based on internationally accepted data. Results appear on the "Calculator" worksheet.



Graphs showing cumulative emissions and reductions of GHGs calculated by the Blue Carbon Calculator.



Damde Meadows, a salt marsh restoration in Hingham, has major blue carbon benefits equal to capturing 120,000 gallons of gas over 50 years.



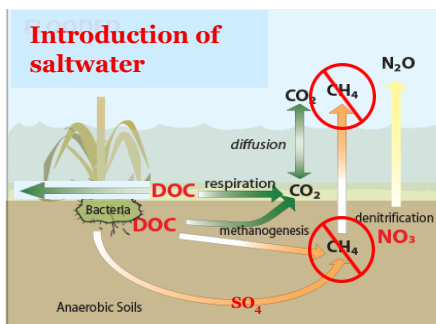
Pre-Restoration



Post-Restoration

How Does it Work?

As tides are restored, methane (CH₄) emissions decline as a site converts from a freshwater to a saltwater environment. Carbon is stored in the soils more readily under a healthy marsh condition.



Source: Figure adapted from <http://ca.water.usgs.gov/projects/2009-05.html>



Information derived from a contract with Abt Associates

For more information and to download the calculator visit: mass.gov/der