Integrating NASA CMS Products into Maryland's Greenhouse Gas Accounting

Presentation to NASA CMS Tri-State Working Group
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Outline

• Maryland’s Greenhouse Gas Reduction Act Overview

• Results of Presentation to Mitigation Working Group

• Other Carbon Work in Maryland
The 25% by 2020 Reduction Requirement = 34.36 MMtCO₂e*

Reductions expected by 2020 = 38.37 MMtCO₂e

* MMtCO₂e = Million Metric Tons of Carbon Dioxide Equivalents
The GGRA of 2016

- Reauthorized and enhanced GGRA of 2016 signed into law on April 4, 2016
- Builds from the recommendations of the MCCC
- Core elements of new law
  - 40% reduction by 2030
  - Must support a healthy economy and create new jobs
  - Maintains structure and safeguards from 2009 law
- Plan formulation begins now, finalized January 2019
Forestry and Sequestration Programs

Total Forestry and Sequestration
   – 4.55 MMtCO2e reduction (13% of total reduction by 2020)

Managing Forests to Capture Carbon
   – 1.8 MMtCO2e reduction

Planting Forests in Maryland
   – 1.79 MMtCO2e reduction

Other programs: biomass to energy, ecosystem markets, wetland and waterways restoration, increasing urban tree canopy, and Ag. Land conservation make up the remainder of GHG reduction
Mitigation Work
Group Meeting 5/11

• Professor Hurtt presented the NASA CMS to the Mitigation Working Group, consisting of State officials, industry representatives, advocacy groups and academics.

• Presentation was well received, members agreed that a spatial approach would improve upon existing methods

• Informal commitment made to use NASA CMS
• Potential Applications
  – Refining current projections of estimated carbon sequestration resulting from GGRA
  – Set reasonable targets to meet by 2030
  – Target locations with the highest sequestration potential for reforestation
  – Identify locations where forest may be currently under-performing, to target areas where modification of forest management may improve sequestration
• Representatives from agriculture are concerned about potential loss of Ag. Lands
• It appears we have been overestimating C sequestration from forest management (cumulative totals reported as annual)
• Next step is to have a technical meeting with MDE to discuss how best to incorporate CMS information into their model
Other Relevant Carbon Work in MD

• We have used the CMS forest cover layer in our ecosystem service valuation work.

• Soil carbon sequestration, particularly from agriculture, was also presented at the MWG meeting, need for more information.

• We have done an analysis on C sequestration from wetlands in Maryland, would love to have corroborating spatial data.
Forest Carbon Sequestration

Carbon Sequestration in Forests

Carbon Sequestration (Mg/ha)
- 0.18 - 0
- 0.0 - 0.5
- 0.5 - 1.0
- 1.0 - 1.5
- 1.5 - 2.0
- > 2.0

Salinity Zone
- Tidal Fresh (< 0.5 ppt)
- Oligohaline (0.5 - 5.0 ppt)
- Mesohaline (5.0 - 18.0 ppt)
- Polyhaline (> 18.0 ppt)
Net Carbon Sequestration in
Estuarine and Palustrine Wetlands

Carbon Sequestration (Mg/ha)
- < 4
- 4 - 3
- 3 - 2
- 2.0 - 1.0
- 1.0 - 0.0
- 0.0 - 0.5
- 0.5 - 1.0
- 1.0 - 1.5
- 1.5 - 2.0

Salinity Zone
- Tidal Fresh (< 0.5 ppt)
- Oligohaline (0.5 - 5.0 ppt)
- Mesohaline (5.0 - 18.0 ppt)
- Polyhaline (> 18.0 ppt)
Net Carbon Forests and Wetlands

Net Carbon Sequestration in Forests and Wetlands

Carbon Sequestration (Mg/ha)
- < -4.0
- -4.0 - -3.0
- -3.0 - -2.0
- -2.0 - -1.0
- -1.0 - -0.0
- 0.0 - 0.5
- 0.5 - 1.0
- 1.0 - 1.5
- 1.5 - 2.0
- > 2.0

Salinity Zone
- Tidal Fresh (< 0.5 ppt)
- Oligohaline (0.5 - 3.0 ppt)
- Mesohaline (3.0 - 18.0 ppt)
- Polyaline (> 18.0 ppt)
Climate Commission Web Site

http://www.mde.state.md.us/programs/Marylander/Pages/mccc.aspx

- Also a direct link from MDE Home Page
- Membership
- Meetings
- Working Groups
- Commission documents
- Interesting articles and documents from external sources
- More
Questions?