Massachusetts Forests and Climate Change - Presentation to Massachusetts Legislators

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Outline of Presentation

1. Climate change background
2. How to address climate change
3. Intact forests absorb and store more carbon; logging reduces carbon storage
4. Progress toward protection of forests to mitigate climate change
5. MA forests are critical for carbon storage
6. Global Warming Solutions Act and MA forest management
7. Summary of public concerns
8. Recommendations
9. Why now?

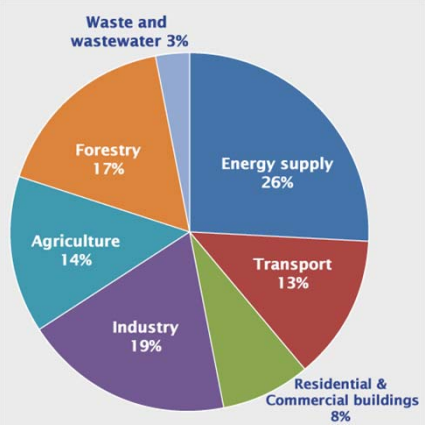
1 - Climate Change Background

- President Obama in his 2014 State of the Union address: *"No challenge poses a greater threat to future generations than climate change."*
- National Climate Assessment 2014:
  - "Climate change, once considered an issue for a distant future, has moved firmly into the present."
  - Climate change impacts are increasing
  - Rapid warming of the past half-century is due primarily to human activities:
    - Burning coal, oil, and natural gas
    - Forest clearing and some agricultural practices
  - We can act to limit the extent of damaging impacts
- Climate assessments becoming more dire with time

http://s3.amazonaws.com/nca2014/low/NCA3_Climate_Change_Impacts_in_the_United%20States_LowRes.pdf

1 - Sources of Global GHGs

Forestry is the third largest source of greenhouse gas (GHG) emissions – releasing more than transportation

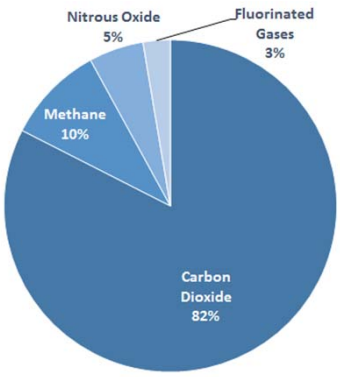


http://www3.epa.gov/climatechange/ghgemissions/global.html

2 - How to Address Climate Change

- Decrease GHG emissions – many ways
- Increase removal of GHG from the atmosphere – two viable ways:
  - Ocean acidification
  - Living plants
    - Take up sunlight and CO2
    - Make biomass and give off oxygen

2013 GHG Emissions – U.S.



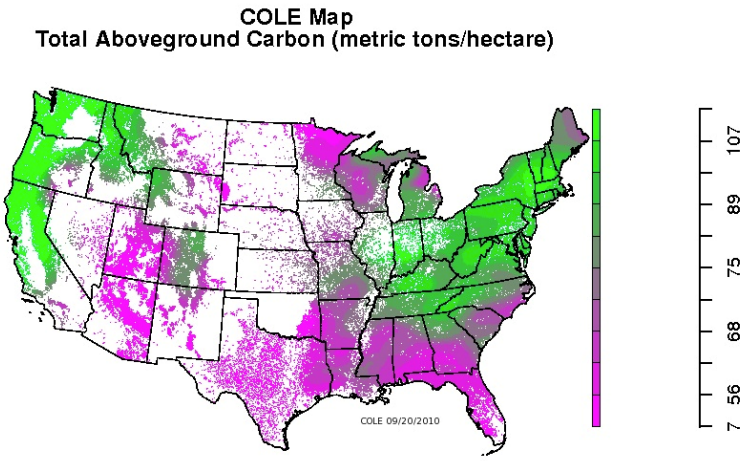
http://www.epa.gov/climatechange/ghgemissions/gases.html

2 - Not Just Tropical Rain Forests

America's forests sequester and store 12% of our GHG emissions each year

http://www.whitehouse.gov/sites/default/files/image/president27sclimateactionplan.pdf

2 – U.S. Forest Carbon Storage



http://www.ncasi2.org/COLE/

2 – Benefits of Intact Forests

- Carbon uptake and storage
- Cleaner air and water
- Less soil erosion
- Wildlife habitat
- Flood storage and water cycle moderation
- Shade and temperature moderation
- Nature and wilderness for humans
- Intrinsic value unrelated to human benefits

2 – Damage Caused by Logging: Deforestation

Windsor Jambs State Park, MA - 2008

2 – Dangers of Burning Wood

- Double-whammy damage to the climate
  - Logging and burning release carbon dioxide (CO2) from forest soils and trees
  - Logging destroys the trees that otherwise could have removed CO2 from the atmosphere
- Yes, we need to cut the burning of fossil fuels
  - Burning trees instead is not the answer
  - Burning wood to produce electricity releases more CO2 than coal
  - Burning wood also releases conventional air pollutants

http://www.usnews.com/science/articles/2010/06/11/wood-power-worse-polluter-than-coal
http://www.mass.gov/eea/docs/doer/renewables/biomass/manomet-biomass-report-full-lorez.pdf
http://energy.gov/energysaver/articles/wood-and-pellet-heating
http://www.huffingtonpost.com/ellen-moyer-phd/burning-trees-to-make-ele_b_1601275.html

2 - Biomass Power Plant - Burlington VT

2 – Increasing Threat: Burning Wood for Heat

Moyer recently received a flyer in the mail *"Spring Wood Pellet and Coal Prebuy!"*

Carbon awaiting release to the atmosphere

2 – Thermal Bioenergy

- What is it, in MA policy context?
  - State law added thermal energy, including pellet burners, to Alternative Portfolio Standard (not RPS but APS)[1]
  - Burning finished wood pellets in boiler to make steam for heat (so not talking about pellet or wood stoves)
- How much CO2 does it emit?
  - Burning wood emits more CO2 per unit energy than coal, oil, or natural gas[2]
  - Lifecycle emissions of wood chip and pellet manufacturing significant

1. https://malegislature.gov/Laws/SessionLaws/Acts/2014/Chapter251
2. http://www.researchgate.net/publication/241746647_Carbon_Accounting_for_Woody_Biomass_from_Massachusetts_(USA)_Managed_Forests_A_Framework_for_Determining_the_Temporal_Impacts_of_Wood_Biomass_Energy_on_Atmospheric_Greenhouse_Gas_Levels

2 – Manomet Carbon Modeling

Massachusetts Carbon Recovery Summary
Emissions from Continuous Operation

Years to Achieve Equal Flux with Fossil Fuels				
Harvest Scenario	**Fossil Fuel Technology**			
	Oil (#6), Thermal	**Coal, Electric**	**Gas, Thermal**	**Gas, Electric**
Mixed Wood	15-30	45-75	60-90	>90
Logging Residues Only	<5	10	10	30

Mixture of whole tree and forestry residue green chips: takes **15 - 30 years** for forest regrowth to re-sequester enough carbon so net biomass emissions are the ***same*** as from an oil burner. Pellet emissions are even higher because more wood is required per unit of heat energy.

http://www.mass.gov/eea/docs/doer/renewables/biomass/manomet-biomass-report-full-lorez.pdf

2 – DOER[1] Pushing Wood Pellet Heat

- Will distribute the funds collected in Alternative Energy Compliance Payments
- Installation of pellet burner triggers upfront payment of ten years of Alternative Energy Credits at time of installation
- Homeowner or business supposed to only buy qualified biomass fuels (pellets) over ten years
  - "Sustainability"
  - But how to verify?

1. Massachusetts Department of Energy Resources

2 – Other Drivers of Increased Logging

- We don't count economic benefits of forest services
- We subsidize logging
  - Allowing private entities to log public forests at public expense
  - Tax and credit incentives
- We use wood wastefully – e.g., single-use pallets
- We fail to reuse/recycle wood products
- Example – buy 10 reams of 8.5x11 copy paper at Staples:

0% recycled	$45.99
30% recycled	$56.99
50% recycled	$84.99
100% recycled	$125.80

2 – Myths to Justify Logging

MA citizens and experts refuted 22 phony excuses for logging, which prevented logging at Robinson State Park

- To treat fungus-infested red pine
- For forest health
- To create biodiversity
- To preserve existing biodiversity
- To promote age class diversity
- Because its trees are reaching "maturity"
- Because trees might fall and hurt people
- Because young trees are needed to continue the forest cycle
- To remove large diameter trees most susceptible to extreme wind
- To reduce risks from forest insects and diseases
- To reduce fuel buildup and risks of fire
- To benefit wildlife
- To enhance water quality
- To benefit the local economy
- To remove fire fuel buildup along boundaries with abutters
- To prevent forest takeover by red maple
- And don't worry – the logging will be done sustainably

http://www.huffingtonpost.com/ellen-moyer-phd/science-to-stop-logging_b_1799800.html

2 – Example in 2015: Westford Town Forest


PRESERVATION

Thinning trees to save the forest

By Alexander Silva

Forest Committee conducts its thinning operation near the intersection of Cold Spring and Forge Village Roads, it will be for the good of two town forest parcels.

Both parcels were donated to the town in the 1920s by Oscar R. Spaulding and were accepted at the Annual Town Meeting in February of 1926, but the forests haven't been properly maintained over the years, according to Town Forest Committee member Hugh Maguire. "Most of our town

SEE FOREST, 86

http://westford.wickedlocal.com/article/20150722/NEWS/150728502/13406/NEWS

2 - Forest Carbon Myths Used to Justify Logging

- Young forests absorb more carbon than old
- Wood products store carbon better than trees
- Logging promotes carbon absorption
- Fires and other disturbances make forests not good places to store carbon
- Temperate forests do not store much carbon
- Forests hurt the climate by absorbing the sun's energy
- Climate change will stress trees, which will then release carbon
- Allowing wood to rot in the woods will release more methane than if wood is removed
- It's better for the climate to use wood than steel or cement

http://www.slideshare.net/dougoh/forest-carbon-climate-myths-presentation/

3 – Reality: Intact Forests Absorb and Store More Carbon

- **Undisturbed, mature forests in the Northeast are carbon "sinks,"** continuing to absorb and store carbon from atmosphere for 400 years or more[1]
- **Large, old trees absorb and store more carbon than small trees**; one big tree can add as much carbon in a year as is contained in an entire mid-sized tree.[2]
- **Unlogged northern hardwood forests absorb 39% to 118% more carbon** in trees and vegetation than logged forests[3]
- At least **50% of total ecosystem carbon is stored in soils** in intact northeastern U.S. forests[4]
- **Protecting high-biomass forests from logging avoids significant carbon emissions** to the atmosphere.[5]
- **Eliminating logging on U.S. public lands would increase carbon storage by 43%** over current levels[6]

1. https://www.uvm.edu/giee/pubpdfs/Keeton_2011_Forest_Science.pdf
   http://web.natur.cuni.cz/fyziol5/kfrserver/gztu/pdf/Luyssaert_et_al_2008.pdf
2. http://pubs.acs.org/doi/pdfplus/10.1021/es902647k
   http://andrewsforest.oregonstate.edu/pubs/pdf/pub4835.pdf
3. http://www.uvm.edu/giee/pubpdfs/Nunery_2010_Forest_Ecology_and_Management.pdf
4. http://onlinelibrary.wiley.com/doi/10.1111/gcbb.12221/abstract
5. http://www.pnas.org/content/106/28/11635.full.pdf
6. http://naldc.nal.usda.gov/download/21039/PDF

3 – Logging Reduces Carbon Storage

- Old forests that are logged and converted to young forests **release large amounts of GHGs and can take 200 years or more to recover original carbon storage capacity**[1]
- Only **~23% of carbon in logged trees ends up in long-term storage**, mostly incorporated into buildings or buried in landfills[2]
- Wood products **manufacturing discards 45% to 60% of original carbon in trees as waste** that rapidly decomposes or is burned[2]
- Cutting and burning a forest for **biomass energy creates a carbon "debt" that is not offset by regrowth for 20 to 90 years or more**[3]
- Logging a forest **quickly releases ~30% of carbon stored in shallow forest floor soils** to the atmosphere[4]
- Also, the forest's deeper mineral **soils gradually continue to release carbon after logging**, may contribute to climate change over decades[5]

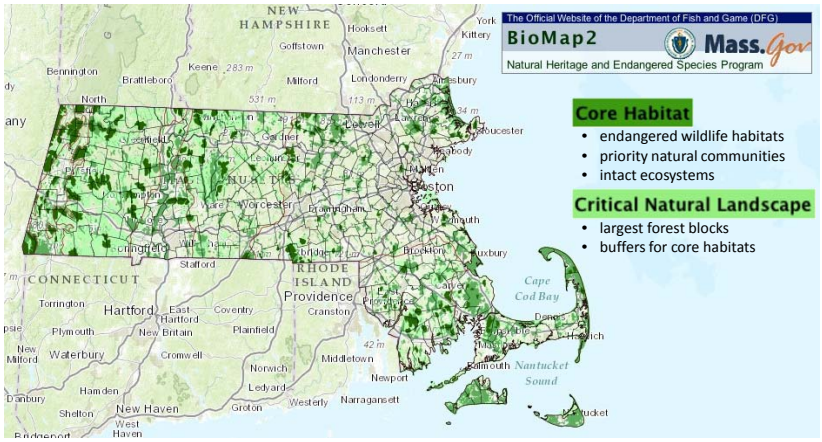
1. http://andrewsforest.oregonstate.edu/pubs/pdf/pub1046.pdf
   http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.335.6609&rep=rep1&type=pdf
2. http://andrewsforest.oregonstate.edu/pubs/pdf/pub2101.pdf
3. http://www.mass.gov/eea/docs/doer/renewables/biomass/manomet-biomass-report-full-lorez.pdf
4. http://soilslab.cfr.washington.edu/publications/Nave-etal-2010-SoilCarbon.pdf
   http://www.nrs.fs.fed.us/pubs/jrnl/2010/nrs_2010_johnson_001.pdf
5. http://www.eurekalert.org/pub_releases/2014-12/dc-ldf120214.php

4 – Progress Toward Protection of Forests to Mitigate Climate Change

- **2010 UN-REDD and REDD+** (Programme on Reducing Emissions from Deforestation and Forest Degradation)[1]
- **2013 President's Climate Action Plan** for the U.S.
  - Includes protection of forests[2]
- **2013 Northeast and Mid-Atlantic RGGI** (Regional Greenhouse Gas Initiative)
  - Offset allowances for "Improved Forest Management," to maintain or increase live carbon storage[3]
  - Facilitated by MA CO2 cap and trade law (M.G.L. c. 21A, § 22)[4] and budget trading program regulations (310 CMR 7.70)[5] and (225 CMR 13.00)[6]

1. http://www.usaid.gov/sites/default/files/documents/1865/2010-USG-SL-REDD-Strategy-Brochure.pdf
2. http://www.whitehouse.gov/sites/default/files/image/president27sclimateactionplan.pdf
3. http://www.rggi.org/docs/ProgramReview/_FinalProgramReviewMaterials/Forest_Protocol_FINAL.pdf
4. https://malegislature.gov/Laws/GeneralLaws/PartI/TitleII/Chapter21A/Section22
5. http://www.mass.gov/eea/docs/dep/service/regulations/770reg13.pdf
6. http://www.mass.gov/eea/docs/doer/rggi/225-cmr-13-final.pdf

5 – MA Forests: Extensive Carbon Storage Potential



Total of 3.1 million acres of forest land — 63% of State (8th most forested)

1.6 million acres of forested **Core Habitat** and **Critical Natural Landscape**

http://maps.massgis.state.ma.us/dfg/biomap2.htm
http://www.mass.gov/eea/docs/dcr/stewardship/forestry/assessment-of-forest-resources.pdf
http://www.mass.gov/eea/docs/dfg/nhesp/land-protection-and-management/forest-core.pdf

5 – MA Forests: High Carbon Storage Capacity

- High-biomass forests protected from logging **store more carbon, emit less GHG**[1]
- New England forests **among highest in U.S. for biomass and carbon density**[2]
- New England's **public forests have highest biomass density**[3]
- **MA has 41% of highest biomass density forests** in New England[3]
- Protecting MA forests as unlogged reserves **could significantly increase carbon storage**[4]

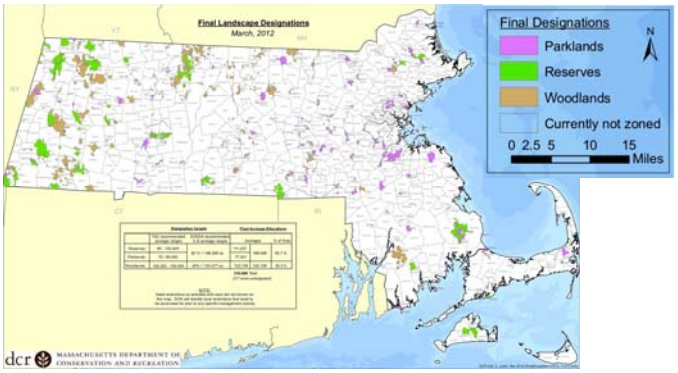
1. http://www.pnas.org/content/106/28/11635.long
2. http://www.cbmjournal.com/content/pdf/1750-0680-8-1.pdf
   http://www.researchgate.net/profile/Sandra_Brown10/publication/223252799_Spatial_distribution_of_biomass_in_forest_of_the_eastern_USA._Forest_Ecol_Manag/links/542ad48c0cf27e39fa9175a2.pdf
3. http://scholars.unh.edu/cgi/viewcontent.cgi?article=1075&context=nren_facpub&sei-redir=1&referer=http%3A%2F%2F
4. http://onlinelibrary.wiley.com/doi/10.1029/2010GB003947/full
   https://www.uvm.edu/giee/pubpdfs/Keeton_2011_Forest_Science.pdf
   http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3637820/pdf/1750-0680-8-4.pdf

5 – MA Forests: High Carbon Storage Stability

- Major natural disturbances are rare
  - Catastrophic windthrow every **1,000-3,000 years**[1]
  - Large-scale fires every **1,000 years** in northern hardwoods[2]
  - Long-lived species — white pines to **400 years**[3]

1. http://www.maforests.org/Lorimer%20and%20White%20-%20ES%20Habitat.pdf
2. http://harvardforest.fas.harvard.edu/sites/harvardforest.fas.harvard.edu/files/publications/pdfs/Parshall_JBiogeography_2002.pdf
3. http://bioscience.oxfordjournals.org/content/51/11/967.full

5 – But: MA Forests Poorly Protected



- Two departments manage most of State's 650,000 acres of public lands: Conservation and Recreation (DCR) (450,000 acres)[1] and Fish and Game (DFG) (200,000 acres)[2]
  - **Only 29% in Parklands and Reserves currently off-limits to logging** (189,000 acres)[3]
  - **0% is permanently protected from logging**[4]

1. http://www.massaudubon.org/our-conservation-work/advocacy/land-advocacy/protecting-forests-parks/massachusetts-state-forests-parks
2. http://www.mass.gov/eea/agencies/dfg/dfw/wildlife-habitat-conservation/land-acquisition-and-protection.html
3. http://www.mass.gov/eea/docs/dcr/ld/ld-map-final.pdf
   http://www.mass.gov/eea/docs/dcr/ld/acreage.pdf
4. http://www.mass.gov/eea/docs/dcr/ld/management-guidelines.pdf

5 – MA State Forest Logging Increasing

Quabbin before logging – 2005[1] Quabbin after logging - 2008[1]

- 2009: Intensive State forest cutting prompts **public protest and logging moratorium**
- 2010: DCR **Forest Futures Vision process** reviews non-watershed forest management
- 2012: DCR **modestly expands Reserves**, makes **no meaningful change in logging** on rest of lands
- 2013: STAC Report[1] and DCR Response[2] **defend watershed forest logging**, do not address public concerns
- 2014**: State moratorium lifted, logging restarts** in watershed forests and most other forest lands
- 2015: **Public concerns still not addressed**

1. Google Earth maps from http://www.maforests.org/QUABBIN_Google_Earth.pdf
2. "Review of the Massachusetts DWSP [Division of Water Supply and Protection] Watershed Forestry Program by the DWSP Science and Technical Advisory Committee [STAC]," November 2012 http://www.mass.gov/eea/docs/dcr/news/public-meetings/materials/watershed/review-of-mass-dwsp-watershed-forestry-progarm.pdf
3. "From Here Forward: Changes to the Department of Conservation & Recreation Division of Water Supply Protection's Watershed Forest Management Program," August 2013 http://www.mass.gov/eea/docs/dcr/news/public-meetings/materials/watershed/dcrstacresponse8-2013-3.pdf

6 – Global Warming Solutions Act (GWSA) and MA Forest Management

GWSA[1] (2008) requires the Department of Environmental Protection (DEP) to:

- Publish **a State GHG emissions inventory**[2]
- 2008-2010 GHG emissions inventory[2] includes:
  - Non-biogenic GHG emissions, e.g., "CO2 from fossil fuel combustion"
  - **Biogenic GHG emissions**, such as, "**CO2 from biomass combustion**," "landfill," "**forest sequestration**," and "land use change"

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1. (Chapter 298 of Acts of 2008) https://malegislature.gov/Laws/SessionLaws/Acts/2008/Chapter298
2. (Ch. 21N, Sec. 2(c)) http://www.mass.gov/eea/docs/dep/air/climate/ghg10ind.pdf

6 – GWSA and MA Forest Management

[DEP responsibilities continued]

- Establish statewide GHG **goals that will achieve emission reductions** of:
  - Between **10% and 25%** below statewide 1990 GHG emissions levels by 2020[3]
  - **80%** below statewide 1990 GHG emission levels by 2050[4]

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3. Ch. 21N, Sec. 4(b)
4. Ch. 21N, Sec. 3(b)(4)

6 – GWSA and MA Forest Management

[DEP responsibilities continued]

- **Collaborate with other State agencies to achieve** the GHG emission limits[5]
- **Oversee State agency efforts to address and diminish** the climate change impacts[6]
- **Monitor and regulate emissions** of GHGs with the goal of reducing those emissions. Adopt and enforce regulations to **require the reporting and verification** of statewide GHGs[7]
- Ensure GHG emissions sources **maintain comprehensive records** of all reported GHG emissions[8]

[continued on next slide]

5. Sec. 1(f)
6. Sec. 3
7. Ch. 21N, Sec. 2(a)
8. Ch. 21N, Sec. 2(a)(7)

6 – GWSA and MA Forest Management

[DEP responsibilities continued]

- Evaluate the **total potential costs and economic and noneconomic benefits of various reduction measures** to the economy, environment and public health, using the **best available** economic models, emissions estimation techniques and other scientific methods[9]
- Take into account the **relative contribution of each source or source category to statewide GHG emissions** and recommend a *de minimis* threshold of GHG emissions[10]

9. Ch. 21N, Sec. 4(d)
10. Ch. 21N, Sec. 4(e)
11. Ch. 21N, Sec. 4(f)

6 – State Agencies Disregarding Public Concerns

- Decisions on public lands logging programs are made primarily by logging advocates, with **little public involvement or responsiveness to public concerns about climate impacts**
- Example: Division of Watershed Protection's[1] 2012 STAC Report and 2013 DCR Response **failed to address impacts of watershed logging on GHG emissions, carbon storage, and GWSA compliance**[2]

1. A division of the Massachusetts Department of Conservation and Recreation
2. "Summary of, and Responses to, Comments Received on DCR's Division of Water Supply Protection's Science and Technical Advisory Committee's Report and DCR's 'From Here Forward' Response Document" (2013) http://www.mass.gov/eea/docs/dcr/watersupply/watershed/dcrresponsetocommentsonfromhereforward.pdf

6 – Public Comments on STAC Report

"As with most Massachusetts citizens, ***RESTORE was unaware that the STAC Final Report was even released, until it was too late to comment.*** *The fact that* ***DWSP only received comments from seven individuals and organizations to the STAC report within the deadline****, and the uncritical nature of the comments received, should have been a strong indicator that there was something very wrong with the public process.*

"The STAC Final Report not only does not make any recommendations that would reduce greenhouse gas emissions as called for in the GWSA, but its recommendations would certainly increase emissions. The only responsible policy for the Quabbin and other watershed forests from a climate change standpoint would be to stop all logging."

—Michael Kellett, RESTORE: The North Woods, Westford 3/15/13

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Comments on this and following slides from:
http://www.mass.gov/eea/docs/dcr/watersupply/watershed/c34dbd01-comments.pdf

6 – Public Comments on STAC Report

[STAC public comments continued]

"While DWSP refers to the 'threats' of climate change to warn of potential natural disturbances, they barely mention the need to offset carbon emissions or the carbon sequestration service provided by this enormous forest in the middle of our state. ***There should have been a full accounting of the carbon sequestration values lost and the carbon emissions associated with the commercial harvesting of trees*** *from our watershed forests. And that loss should be* ***reconciled with the mandates of the Global Warming Solutions Ac****t."*

—Claudia Hurley, Westfield 3/14/13

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6 – Public Comments on STAC Report

[STAC public comments continued]

"The plans to cut up to 25% of some areas of the Quabbin Watershed forests over 10 year periods, which will total many thousands of acres over 20 years (judging from past harvesting), will amount to a massive loss of carbon sequestration for the Watershed, and massive soil carbon release….

"The fact that the STAC Report does not even discuss this issue, and has not studied carbon storage or release from harvesting activities in the Watershed at all to my knowledge, at a time when we are rapidly increasing atmospheric CO2 concentrations…, when ***we need to reduce every possible source of CO2 emissions and increase every possible carbon sink****, when we need to* ***plant more forests, not cut down those we already have****, does not inspire confidence."*

—Eric Chivian, Cambridge, 3/15/13

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6 – Public Comments on STAC Report

[STAC public comments continued]

"I could find no reference in either the STAC report or the DWSP response to the question of climate change. In additional to energy conservation and efficiency, the most effective way to have any effect on global warming is to increase the sequestration of carbon in our forests.

*"The STAC/DWSP 'solution' is to continue and even expand clearcutting — the removal of sequestered carbon****. Given EEA's*** *[Office of Energy and Environmental Affairs]* ***official policies of requiring many project developers to consider the implications of their development on climate change, it is extraordinary that DCR would not have agreed to similar requirements when planning for forestry operations*** *on water supply lands."*

—Stephen H. Kaiser 3/15/13

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6 – Public Comments on STAC Report

[STAC public comments continued]

"The DCR has failed to produce a plan that complies with the Global Warming Solutions Act, although repeatedly requested to do so by the public….

"The STAC Report and the DCR Response are both completely lacking in addressing the requirements of the GWSA that all facilities implement a plan to significantly reduce their contributions to the primary cause of climate change and global warming. ***The proposal to resume the [logging] program on the DWSP lands must be challenged to the fullest extent, since it is based on a continuation of exactly the mindset that has created and perpetuates the climate crisis****."*

—Glen Ayers, Leverett, 3/15/13

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6 – Public Comments on STAC Report

[STAC public comments continued]

"The Quabbin is the largest, intact, and most important forest in Massachusetts….

"It is time to genuinely pursue the best "management" for this 1.9% of Massachusetts forests, and that is to simply let it grow in a reserve protected from logging, similar to the other tiny percentage of other Massachusetts forests (6%) that are in state reserves protected from logging.

"This simple step would ***save scarce public dollars and allow the forest to do what an uncut forest does best — filter the air and water, absorb carbon dioxide*** *(as mandated in the Massachusetts Global Warming Solutions Act)…."*

—Janet Sinclair, Shelburne Falls 3/14/13

6 – DCR Response to STAC Report Comments

- DCR and DEP noncompliant with GWSA on forest management:

  *"The **DEP has generated tables** for calculating the 1990 baseline from which progress on GWSA will be measured. DEP has chosen not to use the 'biogenic' emissions related to forest growth and sequestration as part of the baseline **because the required level of inventory for emissions and sequestration for forests is not available.** It would therefore be **impossible to show how any DWSP forestry practices compare to the objectives of the GWSA** because the DEP is not tracking this sector."*

http://www.mass.gov/eea/docs/dcr/watersupply/watershed/dcrresponsetocommentsonfromhereforward.pdf

6 – Public Subsidizes Climate Damage

- Considering the potential negative climate impacts of State logging programs, **taxpayers are paying to undermine GWSA compliance**
- Example: State costs greatly exceed projected State revenues for the **Western Connecticut Valley District logging program**, covering 15,582 acres of land (just 3% of State lands open to logging)

Total projected 10-year logging revenue to State:	**$545,820**
Total estimated 10-year logging costs to State:	**$1,693,000**
Total 10-year logging plan loss to State taxpayers:	**-$1,147,180**

- DCR **has not disclosed such information statewide**
- Subsiding logging, **even though State is cutting agency budgets and reducing access** to public land
- Management plan, updated in 2015, **provides no data showing how its logging program complies with the GWSA**

Western Connecticut Valley District Forest Resource Management Plan Draft Update, Department of Conservation and Recreation Division of State Parks and Recreation, July 30, 2015
http://www.mass.gov/eea/docs/dcr/stewardship/forestry/manage/wcv-resourcemanagement-final.pdf

7 – Summary of Public Concerns

1. MA forests are being logged, despite compelling evidence of negative climate impacts
2. A moratorium on State land logging was lifted without addressing the public concerns that prompted it
3. Municipal forests are also being logged, despite no proven benefits to the public
4. State pushing wood-burning for energy, damaging our forests and releasing carbon to the atmosphere
5. State agencies apparently not complying with GWSA mandate to assess and address logging impacts on climate change
6. Subsidies for State logging programs are undermining efforts to address climate change and costing taxpayers
7. Logging of State lands is planned and implemented by logging advocates, without meaningful involvement by climate scientists or the public
8. No State forest lands are permanently protected from logging

8 - Recommendations

1. Immediately reinstate the moratorium on logging on State lands until actions below are completed
2. Immediately institute a moratorium on logging on municipal watershed and other forest lands until actions below are completed
3. Immediately remove State incentives for wood burning
4. Ensure regulatory compliance of public agencies with the GWSA, regarding climate impacts of logging
5. Provide the public with a comprehensive comparison of the costs and benefits of forest preservation with those of forest logging – both financial and non-financial
6. Involve climate scientists and the public in decisions on the administration of public lands
7. Explore the potential for creating a system of permanent, publicly-owned forest preserves

9 – Why Now?

- Concern over global climate change continues to grow
- We exceeded 400 parts per million (ppm) of CO2 in March 2015
- 350 ppm is considered safe, and to get there we need to act aggressively
  - Immediately reduce GHG emissions - not later
  - Implement all available tools
- Logging is occurring now and its damage to the climate lasts a long time
  - It takes a minute to cut down a tree
  - It takes decades for a tree to grow back
- MA leads the country
  - What we do matters greatly

http://400.350.org/