Forest Biomass Harvesting BMPs for South Carolina

What are BMPs?

- Recommendations to protect environmental quality and minimize impacts from forest operations.
- Focus on water quality, though includes other issues.
- Reduce regulatory violations.
- Reduce need for additional regulations.
- Highly successful and effective program.
Defining Biomass

- Above-ground woody material used for energy production.

How is Biomass Different?

- *Trick question* – not all biomass harvesting is different.
- Some biomass harvesting will be indistinguishable from conventional logging.
- Biomass BMPs intended to address sites where intensity and frequency of removal is greater than normal.
Why Needed?

- Removal of more woody material than conventional harvesting may increase risks to
  - Water quality
  - Site productivity
  - Wildlife and biodiversity
- Address public concerns as biomass markets develop.
- Want BMPs in place as renewable energy policies and regulations develop.
- Resource for those considering biomass opportunities.

Potential Impacts from Biomass Harvesting

- Water Quality
- Site Productivity
- Wildlife and Biological Diversity
Potential Impacts

Water Quality
- Less material/ground cover after harvest
- Greater exposed soil from more intense removals
- Risk from more frequent site entry

Potential Impacts

Site Productivity and Soil Nutrients
- Compaction from more intense operation
- Higher levels of nutrient removal
Potential Impacts

Wildlife and Biological Diversity
- Availability of coarse and fine woody debris and snags
- Organic material for soil input

Forest Biomass Harvesting
Supplemental BMPs
Water Quality - SMZs

Protect the SMZ

• Do not remove understory or other biomass from the primary SMZ on perennial or intermittent streams other than allowed under existing BMPs.
• Avoid piling or placement of chips or fine material in SMZs, and prevent such material from entering water bodies.

Water Quality - Harvesting

Minimize exposed soil and potential for erosion

• Use alternate methods of stabilization such as seed, mulch, hay bales, silt fence, or erosion control fabric where debris is not sufficient to prevent erosion.
• Avoid removal of stumps, roots, leaf litter, and forest floor for biomass.
Water Quality - Harvesting

Maintain stability on steep slopes and erodible sites.

- Limit biomass removal on slopes greater than 20% to reduce the risk of erosion
- Avoid biomass removal that exposes mineral soil on steep slopes (>30%) or highly erodible sites.

Wetland Roads

- Federally mandated BMPs for silvicultural wetland roads also apply to biomass harvesting.
Site Productivity and Soil Nutrition

Minimize soil compaction

- Conduct biomass harvests in conjunction with normal logging to minimize site entry and disturbance.
- Use existing roads, skid trails, and landings to minimize compaction.

Minimize nutrient depletion

- Limit removal on sites with shallow soils, very sandy soils, or low soil fertility.
- Avoid leaving piles of residual fines that impede regeneration or concentrate nutrients.
- Leave leaf material on site to the degree possible.
Site Productivity and Soil Nutrition

Minimize nutrient depletion

• Consider fertilizer, ash, or lime where nutrient depletion is a concern.
• Identify vulnerable soils and adjust harvesting accordingly.

Wildlife and Biodiversity

Protect biological diversity

• Avoid sensitive areas such as springs, seeps, and unique habitats.
• Retain sufficient leaves, limbs, and debris to provide organic input.
• Where appropriate, use biomass harvesting as a method of vegetation control to enhance habitat for rare, threatened, and endangered species.
Wildlife and Biodiversity

**Maintain snags and woody debris**
- Retain 3 snags/acre where available and compatible with OSHA requirements and safety.
- Leave down woody debris in a variety of size classes. It is recommended that at least 1 ton/acre of coarse woody debris be left.

Wildlife and Biodiversity

- Plan biomass harvesting to maintain a variety of habitat types and age classes on managed property.
Silvicultural Considerations

Development of markets for woody biomass has the potential to impact silvicultural decision making.

- Use of otherwise non-merchantable material?
- Timber Stand Improvement or Crop Tree Release?
- Earlier thinnings?
- Site prep costs?
- Fuel reduction?
- More silvicultural options?

“Forestry professionals and landowners will be faced with making the best choices to meet their objectives and goals for each site, and determining how biomass harvesting may be incorporated into their ongoing management decisions for long-term forest management.”
Application of Biomass BMPs

- Identification of sites where Biomass BMPs apply.
- Some recommendations impossible to rate or verify during a site visit.
- Referral to regulatory agencies for enforcement remains the same.
- Biomass BMPs intended to supplement - not replace - regular BMPs.

Next Steps

- Finalize Biomass Harvesting BMPs
- Monitor and adjust as necessary
Questions?