



# *Highlights of Revisions to the 2021 NC Forestry BMP Manual*



# Why Make Revisions?

- Strive for continuous improvement
- Observations from recurring BMP Monitoring
- Findings of 6-year paired watershed study...and other research
- Address emerging issues



# Big-Picture Snapshot



- About 75% of BMPs from 2006 remain functionally intact.
- Edits made for brevity/simplicity/clarity; focus on actionable measures.
- Some chapters were re-organized, and re-numbered.
- Simplified the page layout, reducing cluttered appearance.
- **New** Appendix of relevant research articles since 2006 (online only).
- Several of the photos were changed (and are in color, online).



# Ch.1: Why BMPs



- Most of content remains intact.
- **New** information awareness topic:

## “Part 6 - Connecting Resiliency with Forestry BMPs”

- Tailor BMP usage with observed/forecasted rainfall patterns & storms.
- The BMPs work...but often there just needs to be more of them installed.
- Consider risk of blow-down/wind-throw along waterways from storms.



# Ch.2: Rules Regs



- Reduced text, simplified discussion.
- Point reader to Appendix 10, citation of laws/rules/guidance.
- **New** information awareness topic:

## “Part 4 - Threatened and Endangered Species”

- NC is seeing more aquatic species listed for Federal protection.
- Some are coming with 4(d)-Rule requirements for forestry activities.
- Forestry BMPs are being acknowledged by regulators as viable way to protect certain species and habitat.



# Ch.3: Planning



- Reduced the checklist to 5 key steps, with sub-steps embedded.
- Added a screenshot from the online NC [Forest Preharvest Planning Tool](#).
- Information remains functionally un-changed.

## “Part 3 - Logging Systems Considerations”:

- **New:** *A harvest with intensive biomass utilization may require planned retention of enough leftover logging slash/laps/debris that can be used to stabilize skid trails, log decks, and skidder stream crossing approaches.*



# Ch.4: Streamside Management Zone



## Entire chapter was re-written.

- **New**: Standardizes recommended SMZ width = **50 feet**.
  - intermittent streams, perennial streams, perennial waterbodies.
- **New**: Sets a minimum SMZ width = **20 feet**.
- Still includes factors to consider for expanding or shrinking SMZ, with some edits made.
- **New**: Measure SMZ width distance immediately atop of ground surface (keeping it simple...)



# Ch.4: SMZ (con't)



- **New:** Consider leaving trees un-cut, or limit cutting in the SMZ.
- If timber will be harvested: Retain at least 50% BA, evenly spaced apart.
- **New:** Limited exceptions to cut more than 50%:
  1. Salvaging damaged timber.
  2. Controlling invasive/exotic plants.
  3. Removing planted pines to stimulate tree species diversity in SMZ re-growth.
- Keep decks, skid trails, roads, firelines at least 10 feet from stream edge.
- Wrap SMZ around head of stream, to include Ephemeral transition.



# Ch.4: SMZ (con't)

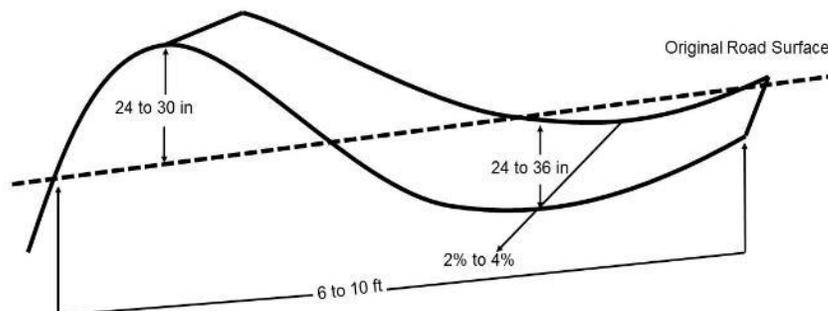


- **New**: Added considerations to think about wind-throw/blow-down.
- **New**: Added some BMPs for Hydrologically-Connected Ditches, and Ephemeral Streams
  - *Not requiring a SMZ...just recommending measures for erosion & sedimentation control and pollution prevention.*
- **Removed** BMPs for Braided Streams & Oxbows:
  - Replaced with “A Note On...” considerations and discussion.



# Ch.5: Control Runoff, Capture Sediment

- Former Ch.5 split into 3 new chapters.
- Most information remains intact.
- Some adjustments made to the spacing recommendations of structures.
- **New**: Added “Rolling Dip” as a BMP option to control runoff.
- **New**: Added BMPs for using Rolled Erosion Control Products:
  - Straw wattles / coir (coconut fiber) logs
  - Erosion control matting



# Ch.6: Stream Crossings



- Most information remains intact.
- **New:** For bridgemats, lay down curb logs on both sides if needed.
- **New:** Added BMPs for installing log bridges.
- **New:** For culverts, alternative sizing formula accepted (ex: 'Coweeta' table)
- × **NOTE:** "Brush Crossings" not acceptable in intermittent streams, perennial streams, or flowing ditches.
  - This is when brush/slash is placed into the waterway channel.
  - Applying brush on the approachways to the crossing is still recommended.
- Pole/Log Crossings are still acceptable in certain cases.



# Ch.7: Forest Roads, Skid Trails and Decks



- Most information remains intact.
- **New**: Discussion of different road standards, with photo examples.
- Moved former Appendix text on using gravel and geotextiles into the Chapter, to consolidate information.
- **New**: Explained difference between overland and bladed skid trails.



# Ch.8: Wetlands

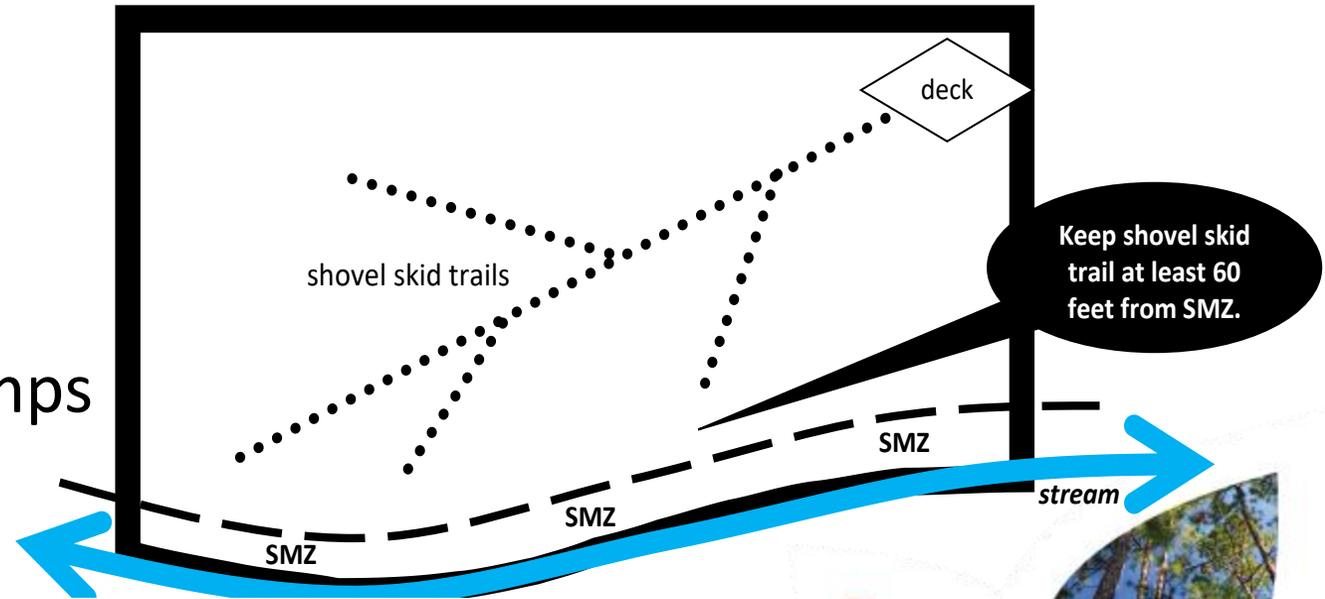


Entire chapter was re-organized, editing original content where needed.

- **New:** “Landowner Responsibilities”:
  - Examples of practices that can help maintain/justify the Sec.404 silviculture exemption
  - Examples of activities that likely are not exempted, and therefore should be avoided.

- **New:** BMPs for Shovel Logging.
- **New:** Supplemental Forest Management Considerations for Logging in Bottomland Swamps

*Shovel Logging BMPs and FM Considerations come from NCFS Forestry Leaflet #BF-4 of 2018.*



# Ch.8: Wetlands (con't.)



Roads: Consolidated and streamlined BMPs.

- Reference to the 2004 Corps of Engineers' guidance document

**New: Part 8 - Minor Drainage, entirely re-written.**

- More complete citation of federal rules related to minor drainage.
- Overall tone: light touch on the landscape ---> consider alternatives.
  - Minor Drainage is not advocated for; it is simply included as a practice.
- **New:** BMPs for Installing Minor Drainage (*E&SC measures, not ditch layout*)
- **New:** BMPs for Ditch Maintenance
  - Reference to the 2020 USEPA & USACE guidance memo



# Ch.9: Forest Management



Consolidates information previously in old Ch. 7-10.

Content streamlined for brevity.

- Pt.1 = Forest Management Chemicals
- Pt.2 = Equipment Fluids and Solid Waste
- Pt.3 = Fire Management
  - **New**: On prescribed fire, consider using stream as natural firebreak. Avoid plowing/blading a fireline so close to the stream.
- Pt.4 = Site Prep and Reforestation
  - BMPs were consolidated and streamlined.



# Ch.10: Site Rehab & Stabilization



- Overall content was consolidated and streamlined for brevity.
- Added factors to consider when planning site rehab, to accomplish multiple owner/management objectives.
- Seeding recommendations remain un-changed.



# Appendices

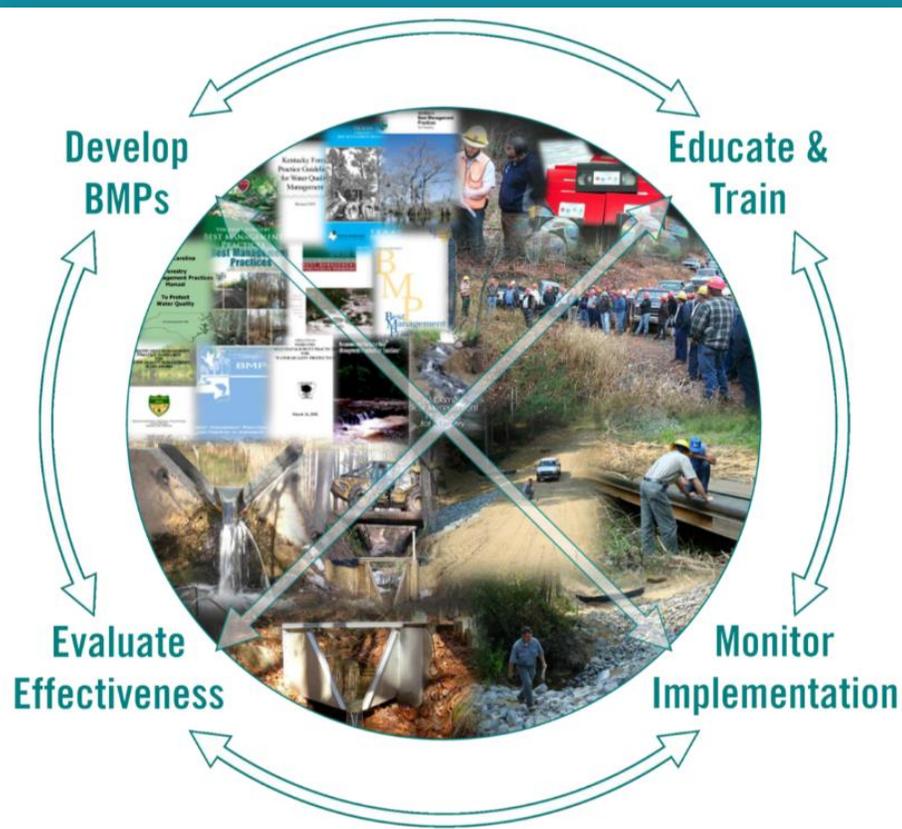


- Appendix 1: Agency Contacts (printed)
- Appendix 2: Conversion Factors and Calculations Used in Forestry (printed)
- Appendix 3: Web Resources for Mapping and Planning (printed)
- Appendix 4: Logging System Descriptions (printed)
- Appendix 5: Table for Round Culvert Sizing (printed)
- Appendix 6: Waste Product Recycling (printed)
- Appendix 7: Common Types of Forested Wetlands (printed)
- Appendix 8: Riparian Buffer Rule Leaflets (printed)
- Appendix 9 (**new**): Published Research on Forestry BMPs, Post-2006 ([Online Only](#))
- Appendix 10: Laws, Rules, and Guidance ([Online Only](#))



# Re-Cap

- ✓ 75% remains functionally same.
- ✓ Edits made for brevity.
- ✓ New information awareness on climate resiliency, and aquatic T&E species.
- ✓ **Totally Revised Chapters:**
  - (4) SMZ; (8) Wetlands.
- ✓ For E&SC: added Rolling Dip, and RECPs.
- ✓ New BMPs (and FM considerations) for shovel logging in swamps.
- ✓ New Appendix of BMP research studies.

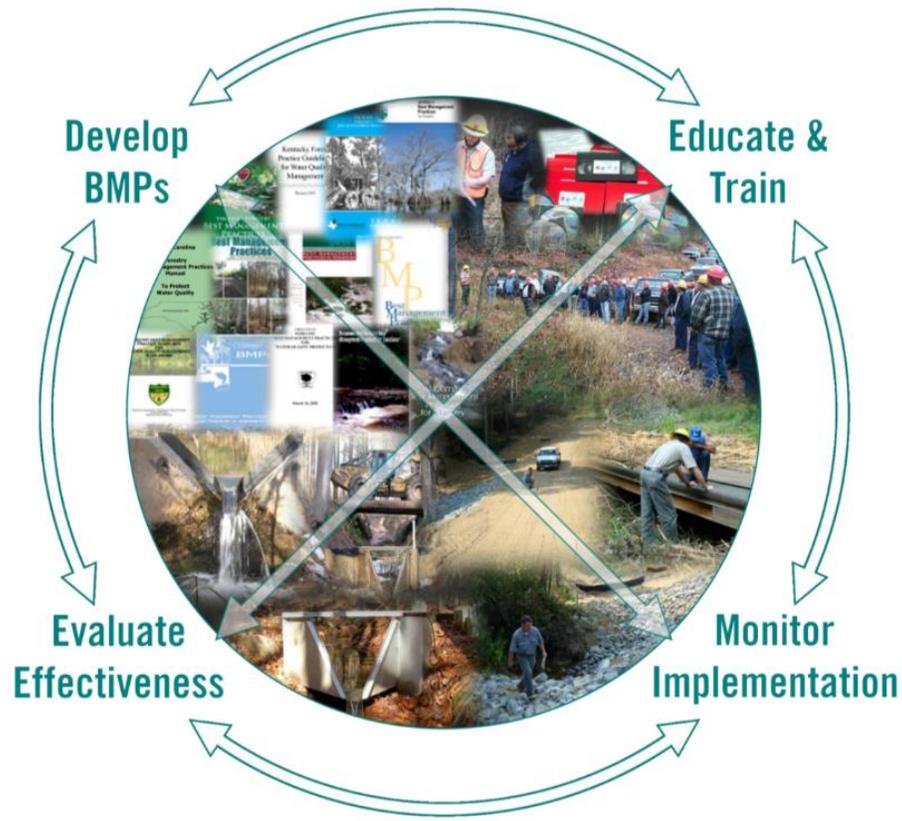


# Re-Cap (con't)



Overall Tone: Considerations for leaving a lighter touch on the landscape:

- Standardized 50' SMZ width (min. 20')
- Limit SMZ harvesting...
- Mitigate/Minimize windthrow in SMZ...
- Avoid digging firelines along streams...
- Focus on '*avoidance & minimization*' of wetland disturbances...
- Consider alternatives to minor drainage...



**Next Round of Statewide BMP Survey  
Implementation Monitoring, CY 2023.**



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