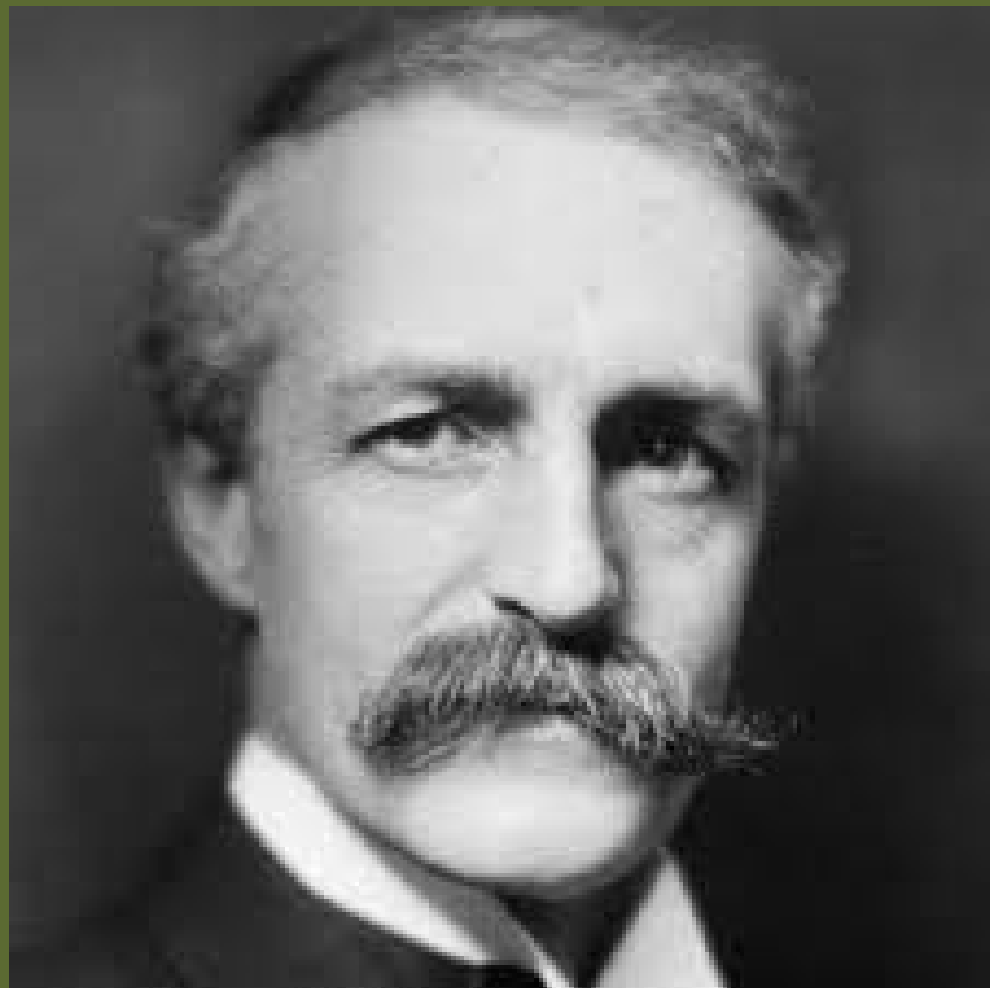




# Using Best Management Practices to protect water supplies and to prepare for climate impacts

Karl Honkonen  
Watershed Forester  
US Forest Service  
Eastern Region, State and Private Forestry



**The  
relationship  
between  
forests and  
rivers is like  
father and  
son. No father,  
no son.**

*Gifford Pinchot*



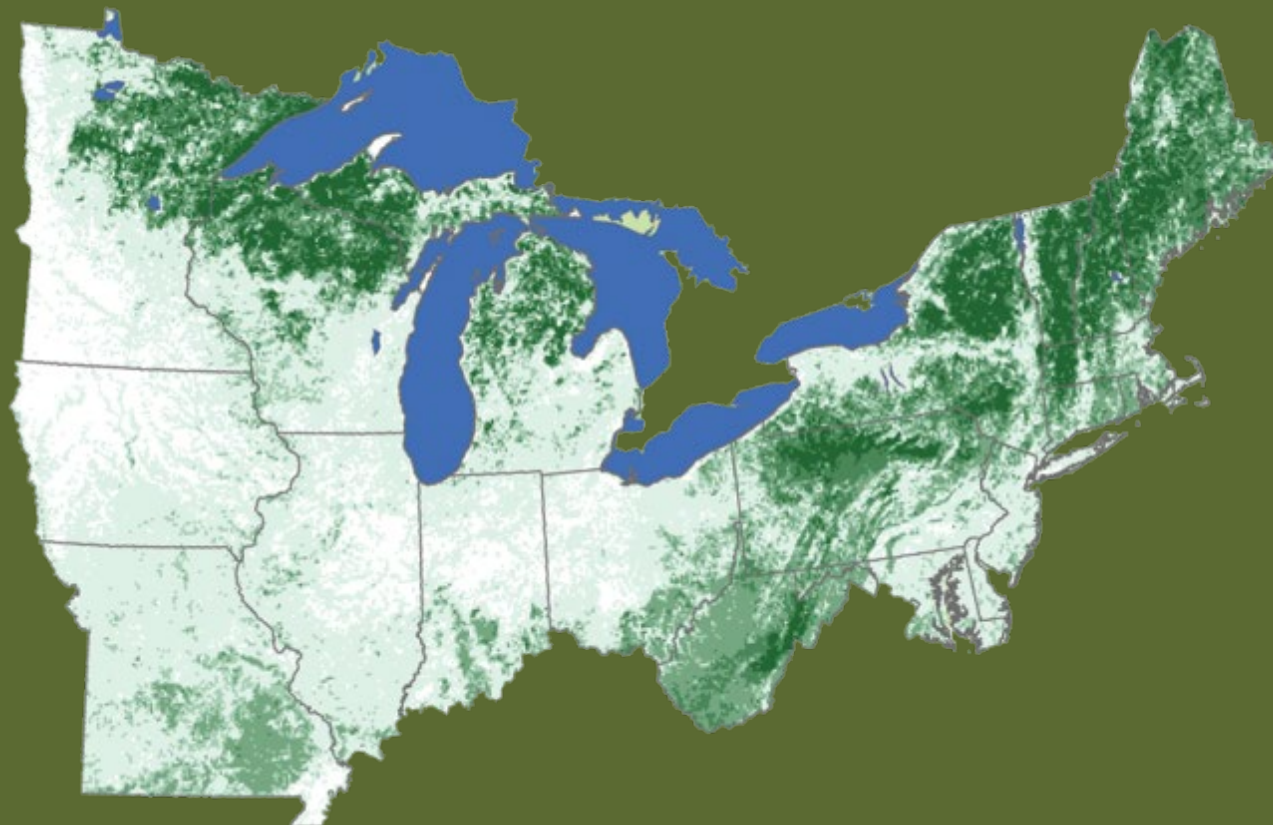
# Presentation Overview

- » Watershed Forestry 101
- » Maine Forest Service BMPs
  - » Q&A





## US Forest Service Eastern Region





## The roots of the Forest Service are in Watershed Management

Around 1900 America's settlers cleared forests at the rate of 13 square miles per day





**Wildfire commonly consumed 20 million acres annually.**







Water/watershed issues will  
be critically important in  
next decade and beyond





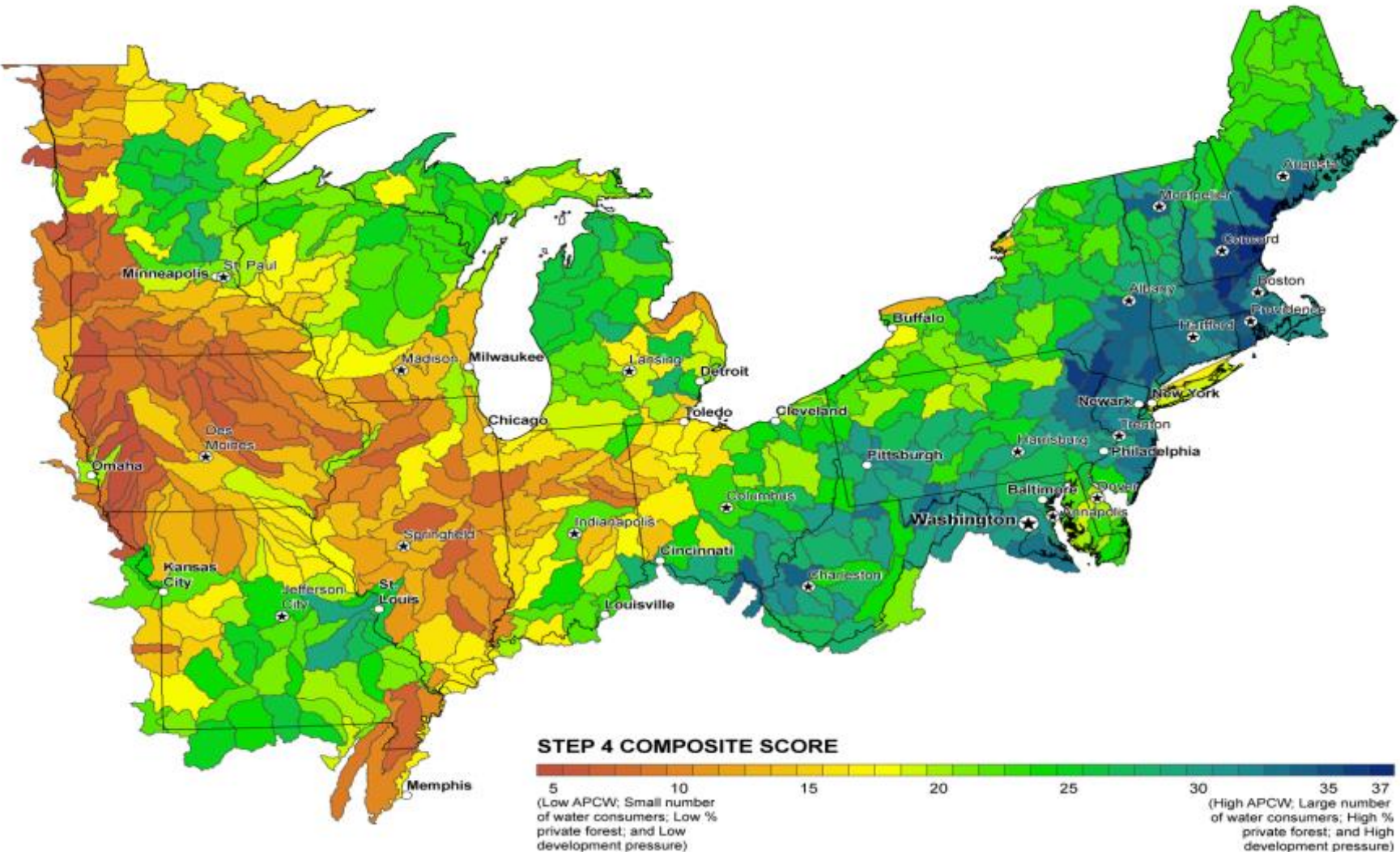
# Forests, Water and People

Identified  
private forests  
that are most  
important for  
drinking water  
supply and  
most in need of  
protection from  
development  
pressure



[www.waters.com](http://www.waters.com)







# **Whiskey is for Drinking, Water is for Fighting Over**



<http://www.nwfoodnews.com/2011/05/09/developing-a-water-conscious-culture/>





Our work with water  
suppliers is critically  
important







**The water we drink is our most direct and immediate connection to the environment.**



**Our challenge is to ensure that people understand that the faucet is connected to the forest.**



**Maine is the most forested  
state in the US at 90.7%  
(15.9M acres)**







## Maine is home to a World renowned cold water fishery







**Work with foresters &  
loggers to implement Best  
Management Practices  
(BMPs) to protect water  
quality**





# A BMP History

Principles of water resource protection

- documented by forestry research 1940

Clean Water Act - 1972

- Sites BMP's as means of NPS control
- Requires state BMP manuals
- Provides "Silvicultural Exemption" to permit requirement if BMP's are used

State BMP monitoring

- Sporadic, anecdotal, practice focused



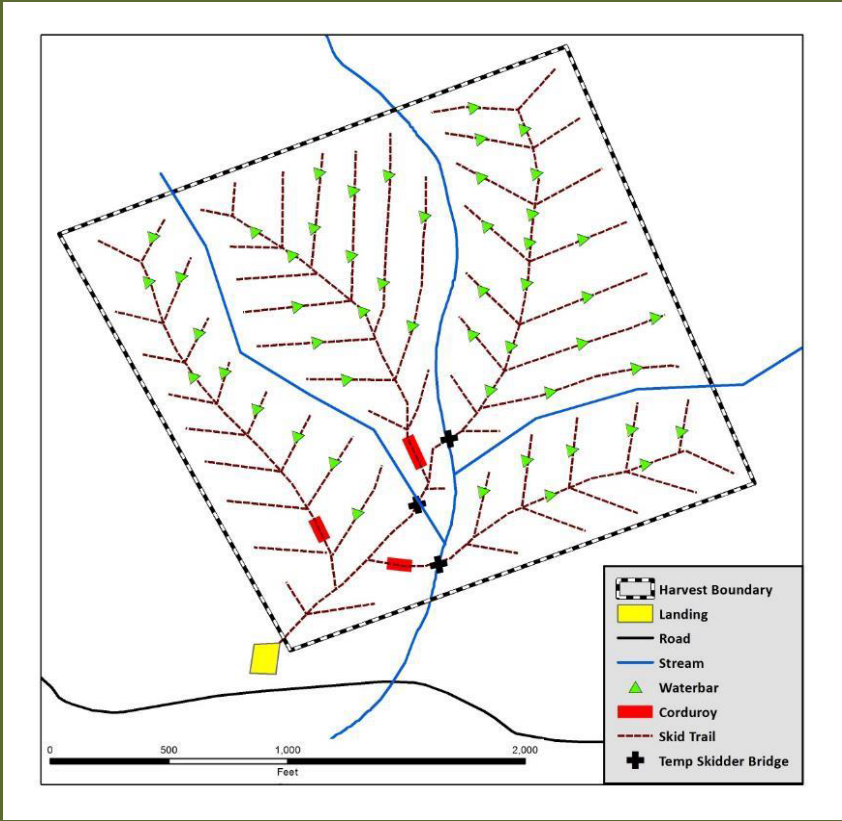
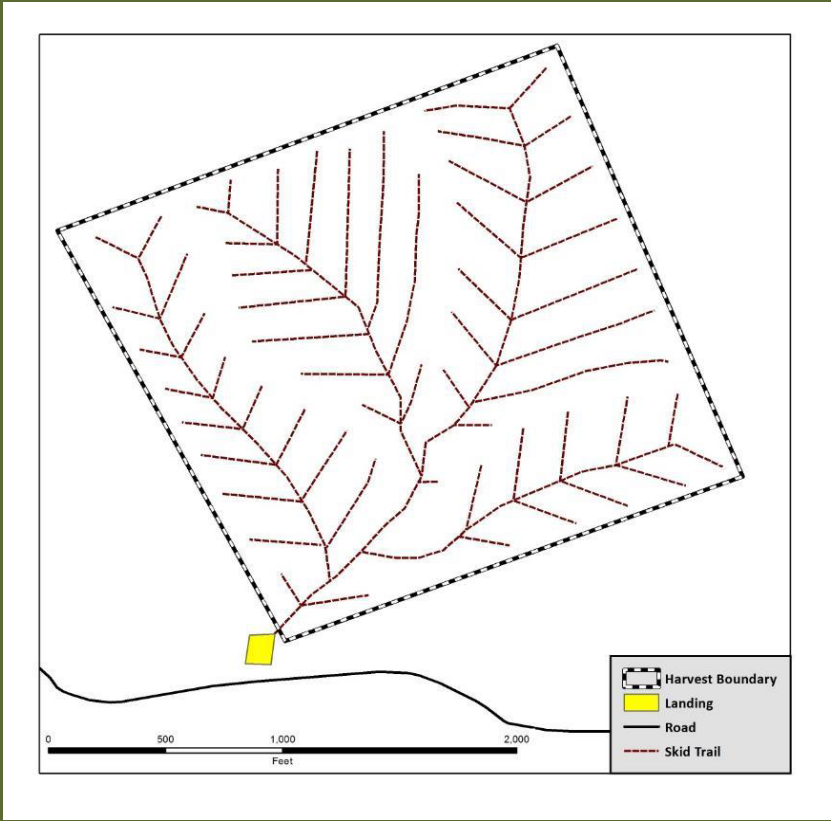
# BMP History

- EPA, responding to litigation attacking the silvicultural exemption, sites a need for:
  - Measured evidence vs anecdotal reports
  - Consistent baseline information
  - Comparability among states
- State concerns
  - Lack of funding and staff
  - Reluctance to standardize specifications
  - Potential for misuse of data

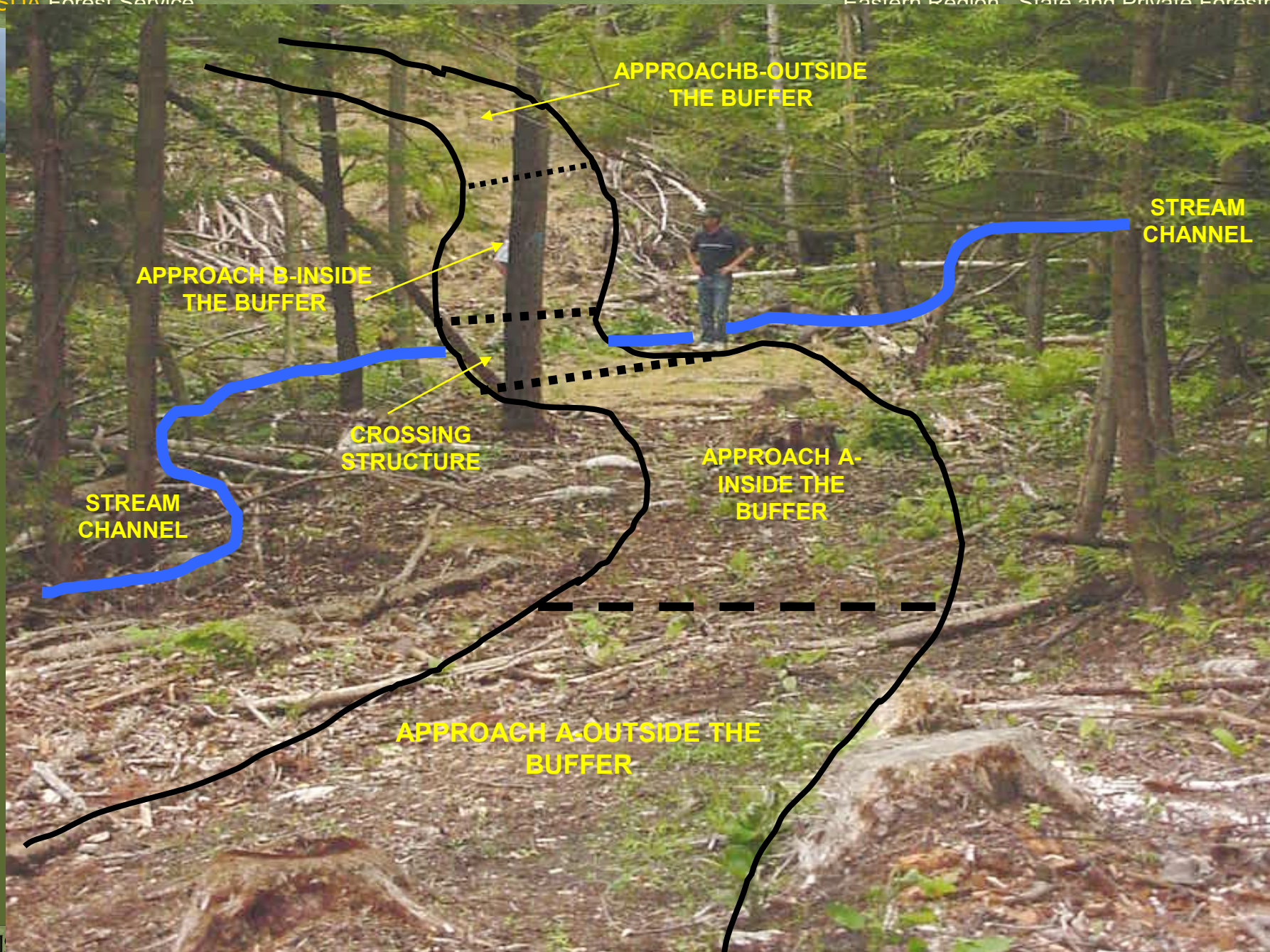




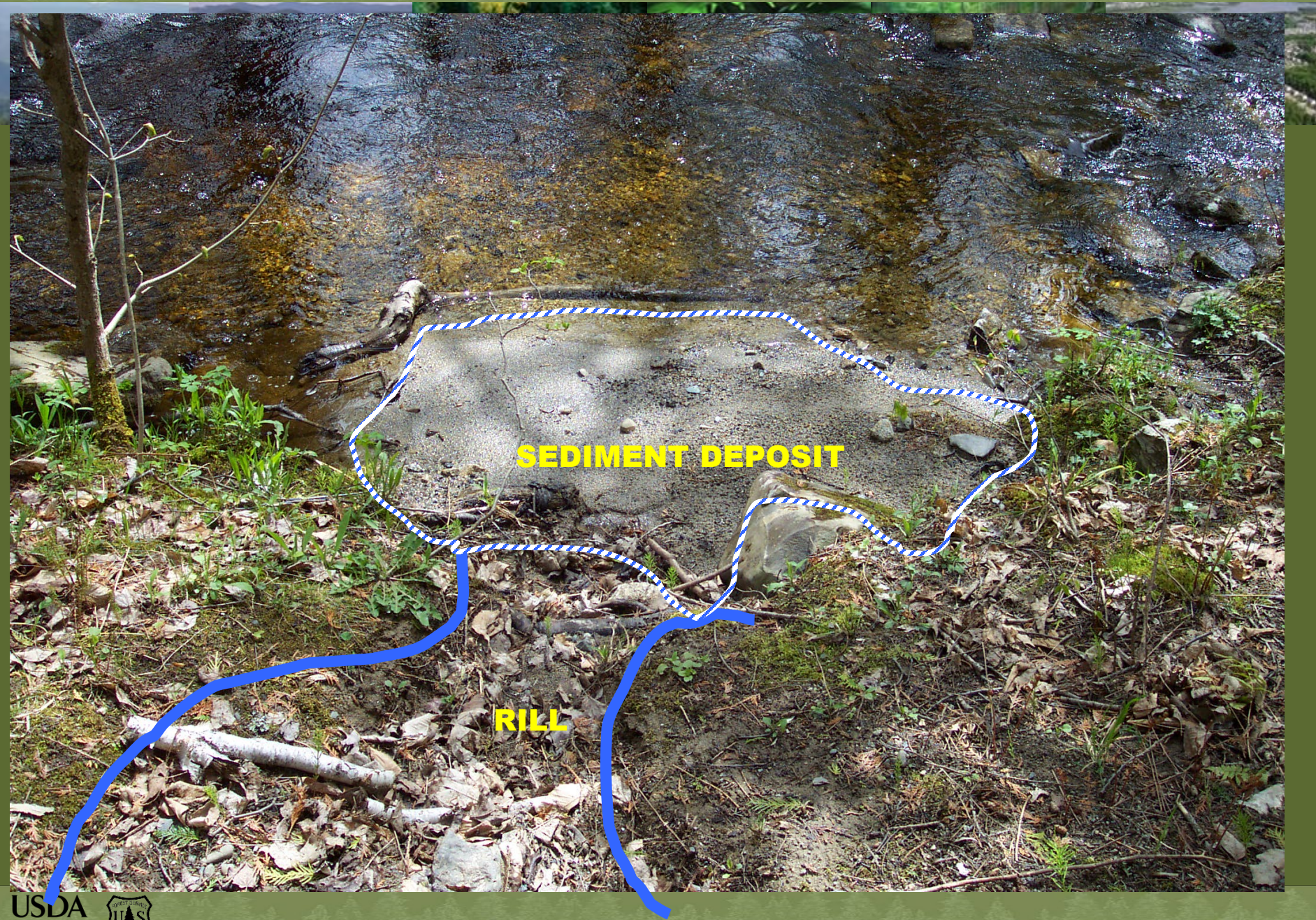
# Harvest layout











**SEDIMENT DEPOSIT**

**RILL**

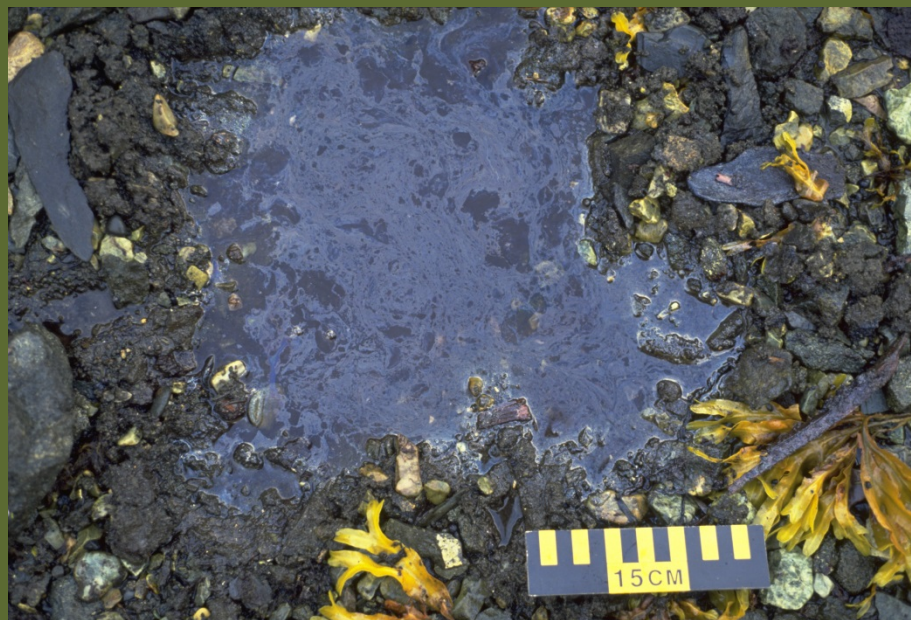




# Chemical Pollution

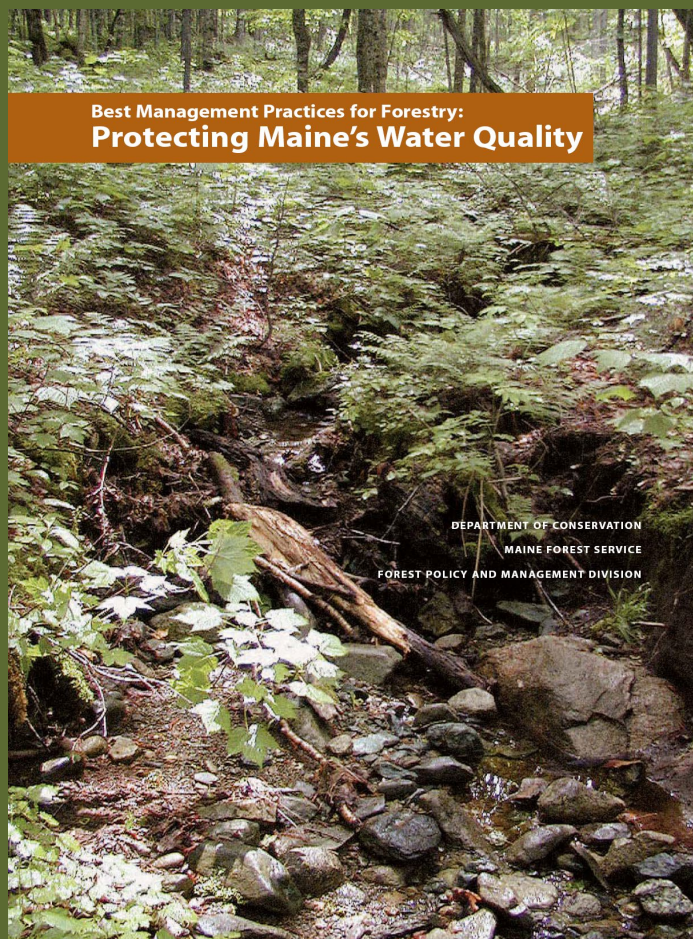


New Hampshire Department of  
Environmental Services



<http://response.restoration.noaa.gov/surface-oiling-descriptors-thickness>





- » Voluntary BMPs developed in cooperation with Forest Industry
- » BMP and topic specific trainings
- » Monitoring of BMP use and effectiveness
- » Technical assistance
- » Regulatory safety net



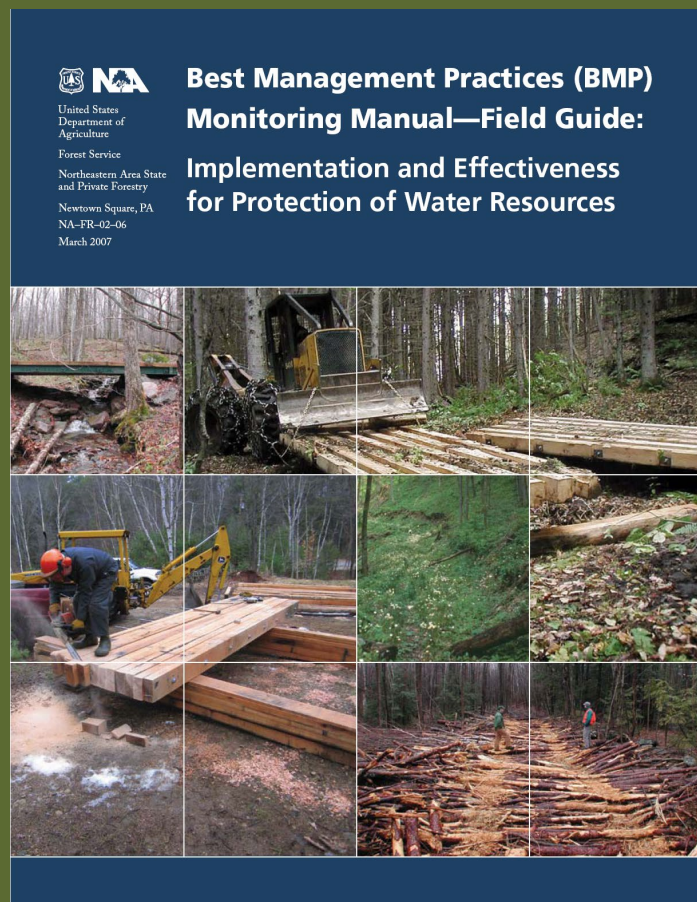
# The Seven BMP Principles

1. Define objectives and responsibilities
2. Pre-harvest planning
3. Anticipate site conditions
4. Control water flow
5. Minimize and stabilize exposed soil
6. Protect integrity of water bodies
7. Handle hazardous materials safely





# Monitoring







# Monitoring

» Based on measurable evidence and evaluation overall BMP effectiveness

If you come up with an idea that works it is a BMP!





# Water bar







# Log landing



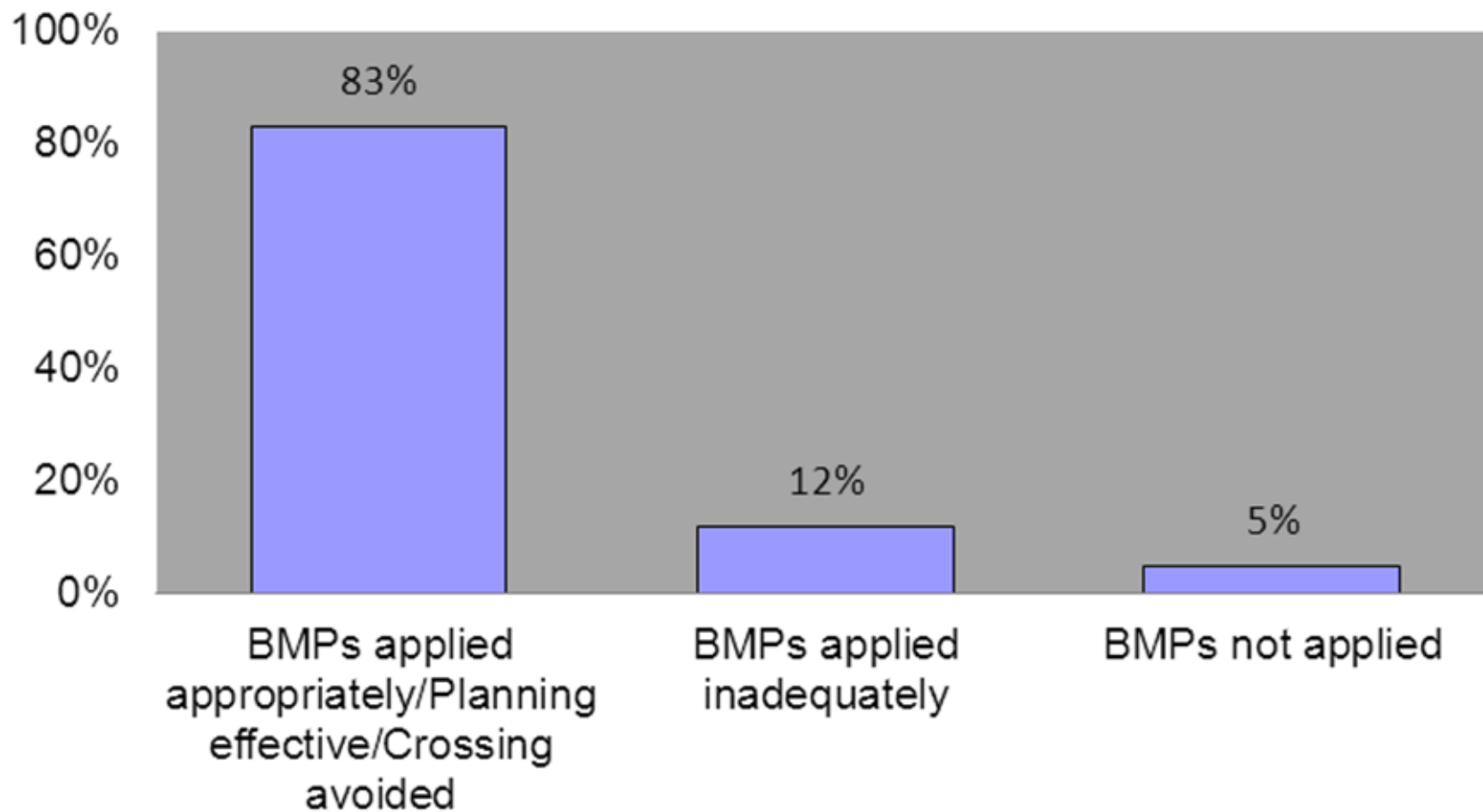


# BMP Protocol components

- » Stream crossings and approaches
- » Riparian buffer
- » Chemical pollution
- » Wetland Crossings
- » Haul road, log landing, rutted mineral soil in buffer/filter strip



### Overall BMP application all sample units

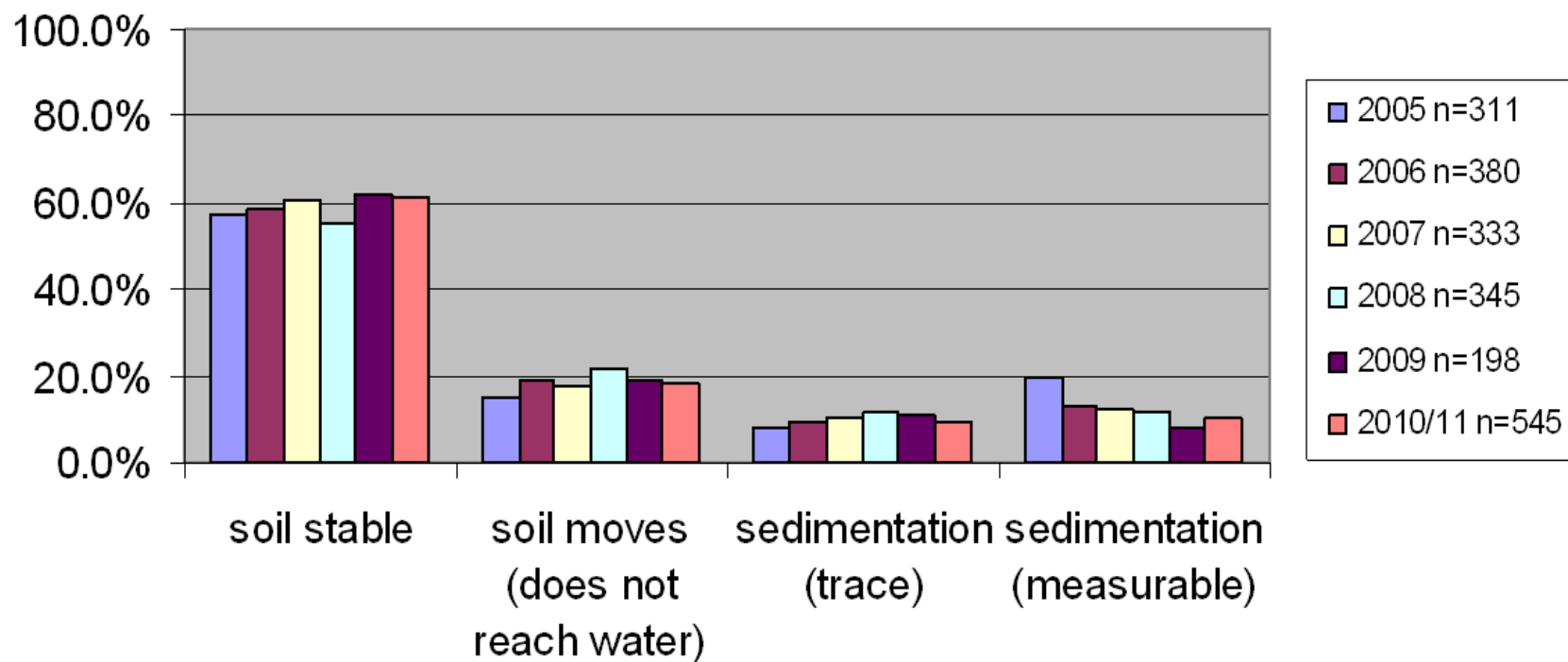






# Allows Progress to be Tracked

Soil Movement on Sample Units With Stream Crossings by Year





# Aquatic Organism Passage



[state.awra.org](http://state.awra.org)



[nwfc.org](http://nwfc.org)





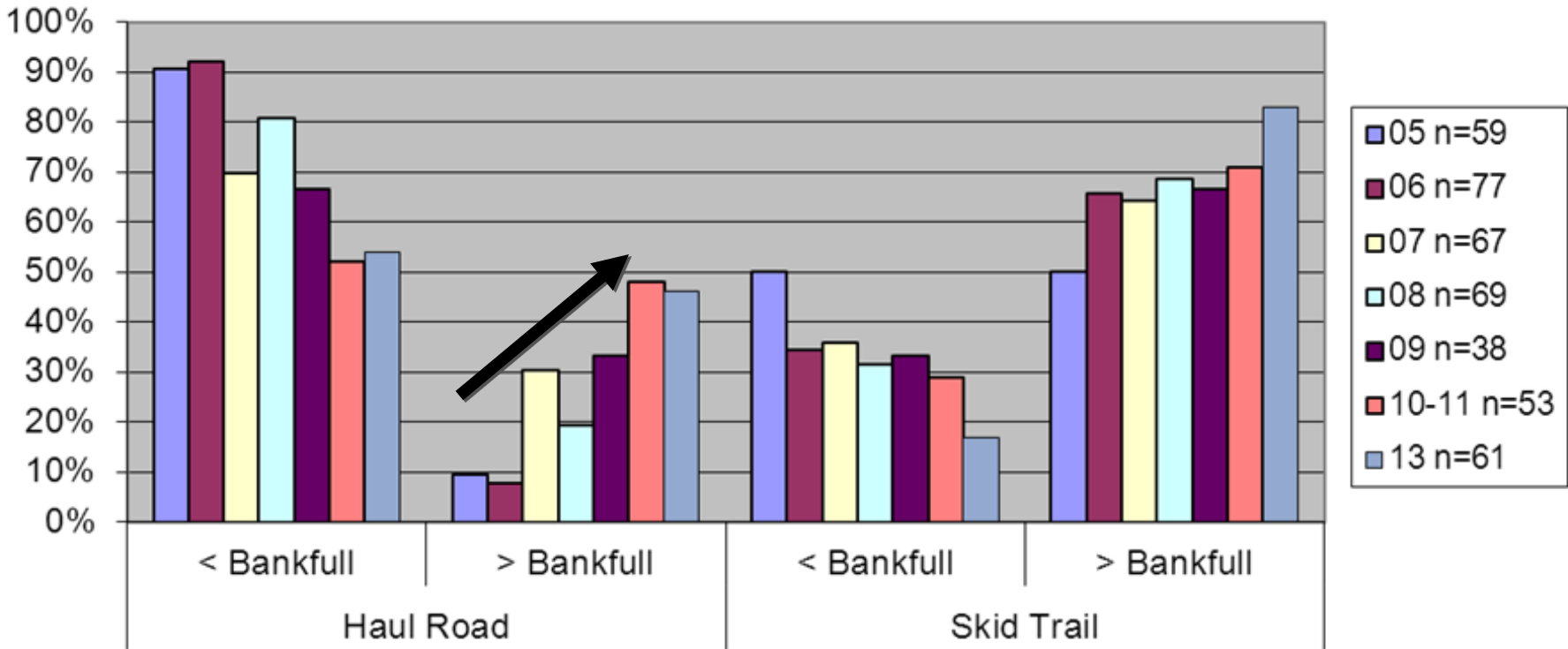
# Fish Passage Example

- » Fish Passage BMP added in 2004
- » BMP monitoring and other data showed progress but still a problem area
- » New training developed 2010





Structure Opening Width Relative to Bankfull Width by Year







# MA DCR BMP monitoring sample

2:47 PM Wed Oct 30 100%

**DWSP BMP Monitoring Protocol**

Timber Sale

Monitoring Date

Sample Site Designation

**General Information**

G7 Enter the answer code that best describes the status of harvesting in the sample unit at the time of on-site monitoring. Times can be approximated.

- ☐ 1. Harvest is currently active
- ☐ 2. Harvesting was completed less than 1 year ago
- ☐ 3. Harvesting was completed more than 1 and less than 2 years ago
- ☐ 4. Harvesting was completed more than 2 years ago
- ☐ 5. There has been no harvesting in this sample unit in conjunction with the current timber sale
- ☐ 6. Unknown

G8 Enter the number of whole acres, up to 999, in the sample unit being assessed, estimating as necessary.

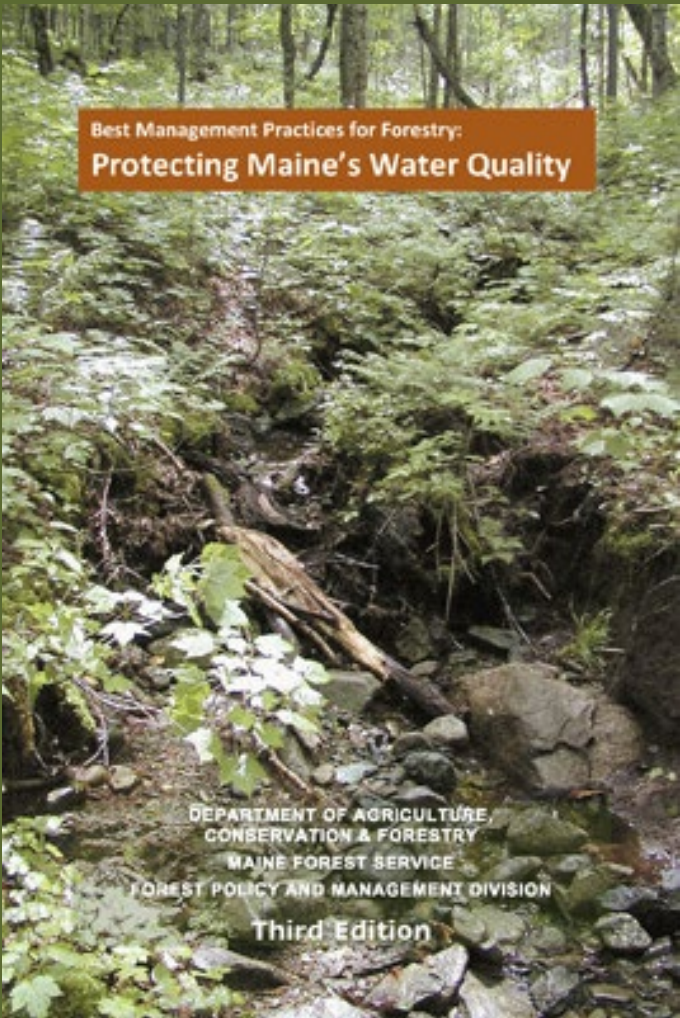
✓



# Protecting Water Quality through State Forestry Best Management Practices- NASF 2015

State	status	BMP manual	% compliance (2015)
Maine	Quasi-regulatory	2017	96
New Hampshire	Quasi-regulatory	2016	None reported
Vermont (AMPs)	Quasi-regulatory	2019	82
New York	Voluntary	2018	None reported
Massachusetts	Regulatory	2013	None reported
Rhode Island	Quasi-regulatory	2003	None reported
Connecticut	Quasi-regulatory	2012	None reported







QUESTIONS?

Karl Honkonen

[karl.w.honkonen@usda.gov](mailto:karl.w.honkonen@usda.gov)

USDA Forest Service

Eastern Region/State & Private Forestry

603-868-7616

<https://www.fs.usda.gov/naspf/>