

Council on Forest Engineering  
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# Evolution of BMP Implementation in Maine

Pat Sirois,  
Maine SIC Coordinator

Tom Gilbert,  
Water Resource Specialist, Maine  
Forest Service



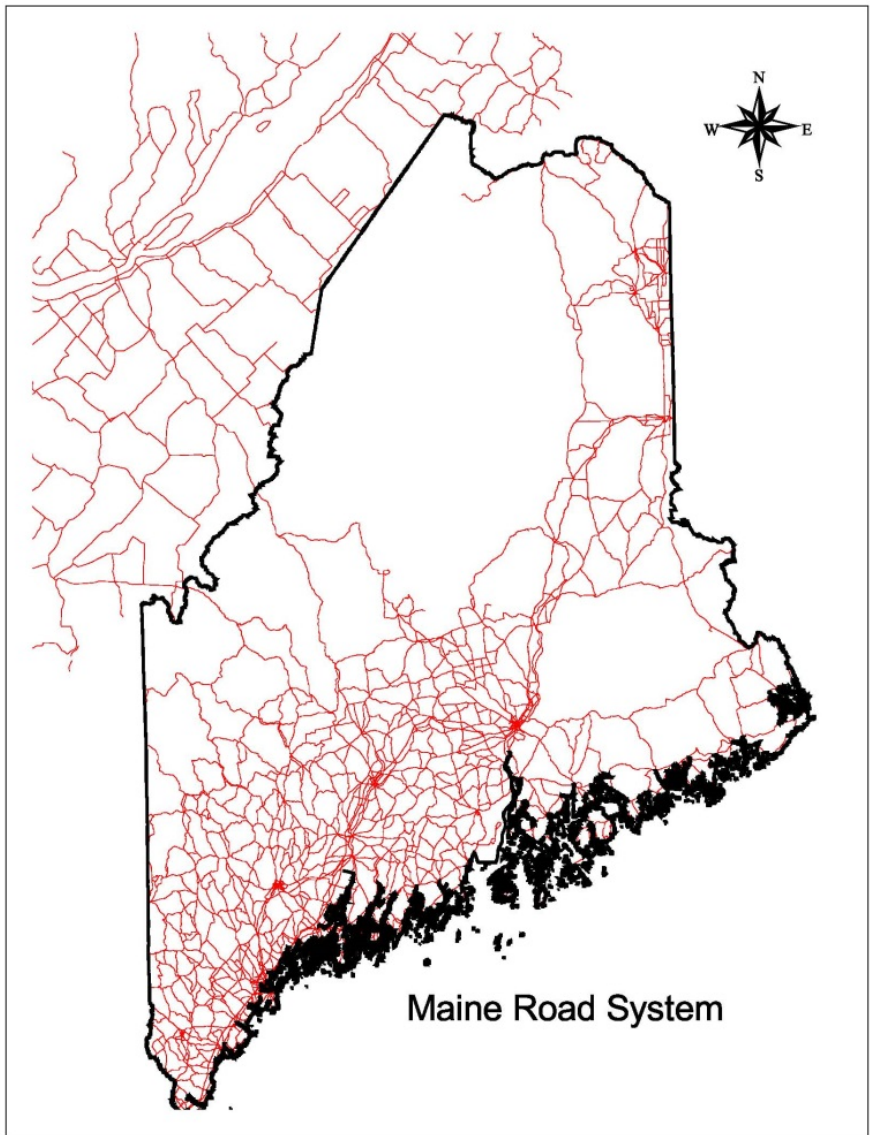
# BMPs – BIG Picture

BMP Training

Partnerships – FIN, CLP, MFS, Project Share

Monitoring – Certified LO's, FS Mills, CLP, MFS





# BMP Training History

- 1998 – SIC conducts survey of BMP training offered statewide.
- 1999 – SIC/MFS/FORAT developed BMP Level I training for statewide initiative.
- Instructors guide developed and train the trainer offered for consistency in program delivery in content and philosophy
- 2000 -- SFI Participants sponsor 12 training sessions statewide.
- 2001 – Level II BMP training developed and piloted



# Training professionals

- Roughly 3000 loggers/foresters
- Adult education requires repetition of messages
- Information stresses outcomes vs prescription
- Stream connectivity for aquatic organism introduced in 2004
- Over 3200 individuals received BMP training since 2000.











# Aquatic Organism Legislation in 2011

- Atlantic Salmon Listing
- Surveys of public road crossings show alarming condition
- Survey of native brook trout habitat shows 90% of the remaining habitat in lower 48 exist in Maine.
- Forest industry exempted
- Public roads, state and municipal are targeted





# FIN

SFI committee initiates the Fisheries Improvement Network (FIN) with partners:

ME's Private Commercial Landowners

MFS

Project Share – initiated 1994

US F&W

ME IF&W

MFPC

USDA

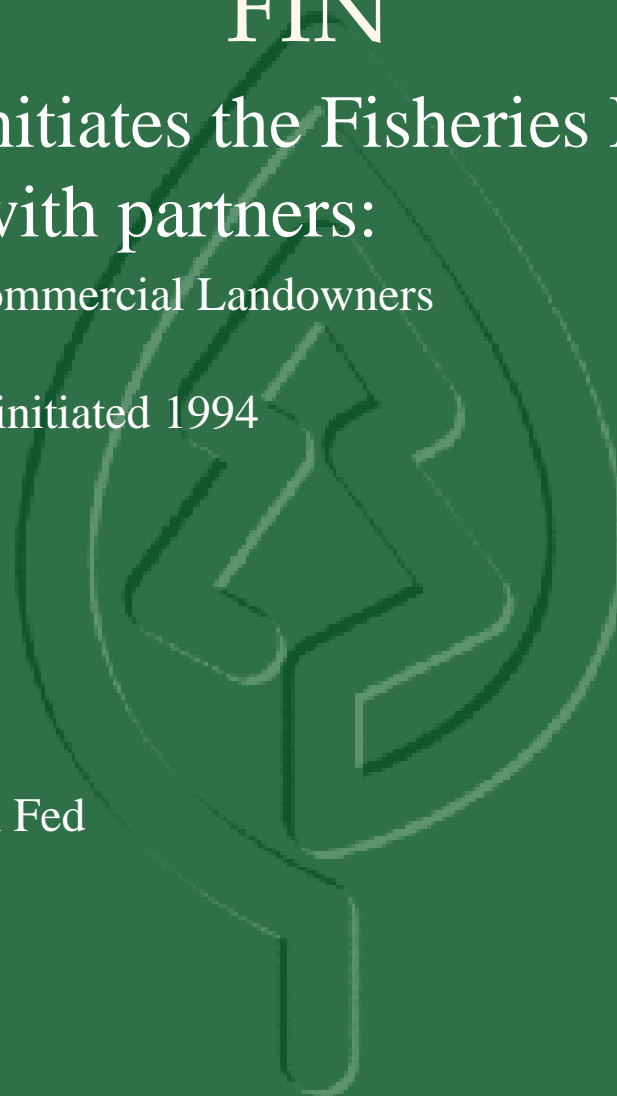
CLP

SWOAM

Atlantic Salmon Fed

TNC

Me Audubon



# FIN Goals

## Information exchange between partners

- Surveys and locations of problem crossings
- Habitat value relative to problem crossings
- LO's near term operational plans and roads affected
- Share innovations for low cost stream x-ing techniques
- Field trips to gain common understanding:
  - Survey methodology
  - Fish baring streams
  - Severity of barriers



# Stream Smart Training Introduced

ME Audubon – Public Roads  
SFI/MFS – Forest management roads





# Restoration efforts increase both on public and private roads





# Rules of Thumb (4 S's)

Span the stream

Set elevation right

Slope matches stream

Substrate in the crossing

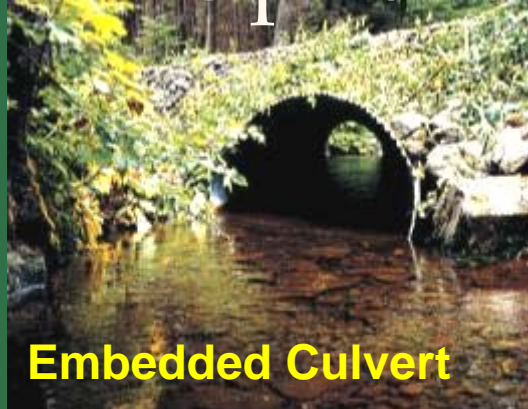




# Achieving the Outcome - Many Options



**Bridge**



**Embedded Culvert**



**Dirigo Arch**



**Temporary Bridge Deck**



**Mini-Bridge**



**Bottomless Arch**



**Nuprin Arch**





# The Outcome



# BMPs monitored by several angles

- Certified lands, whether SFI or FSC monitor for BMPs
- All 1600 CLP trained loggers are monitored for BMPs during field recertification
- SFI Fiber Sourcing facilities monitor for BMPs within supply basket
- Maine Forest Service monitors for BMPs statewide







# Forestry BMP Use and Effectiveness in Maine



# A Brief BMP History

## Clean Water Act

- Provides “Silvicultural Exemption” to NPDES permit requirement.
- Sites BMP’s as means of NPS control.
- Appropriate BMPs must be used and effective in preventing adverse effects to water quality.

# BMP History

- EPA sites a need for:
  - Measured evidence vs anecdotal reports
  - Consistent baseline information
  - Comparability among states

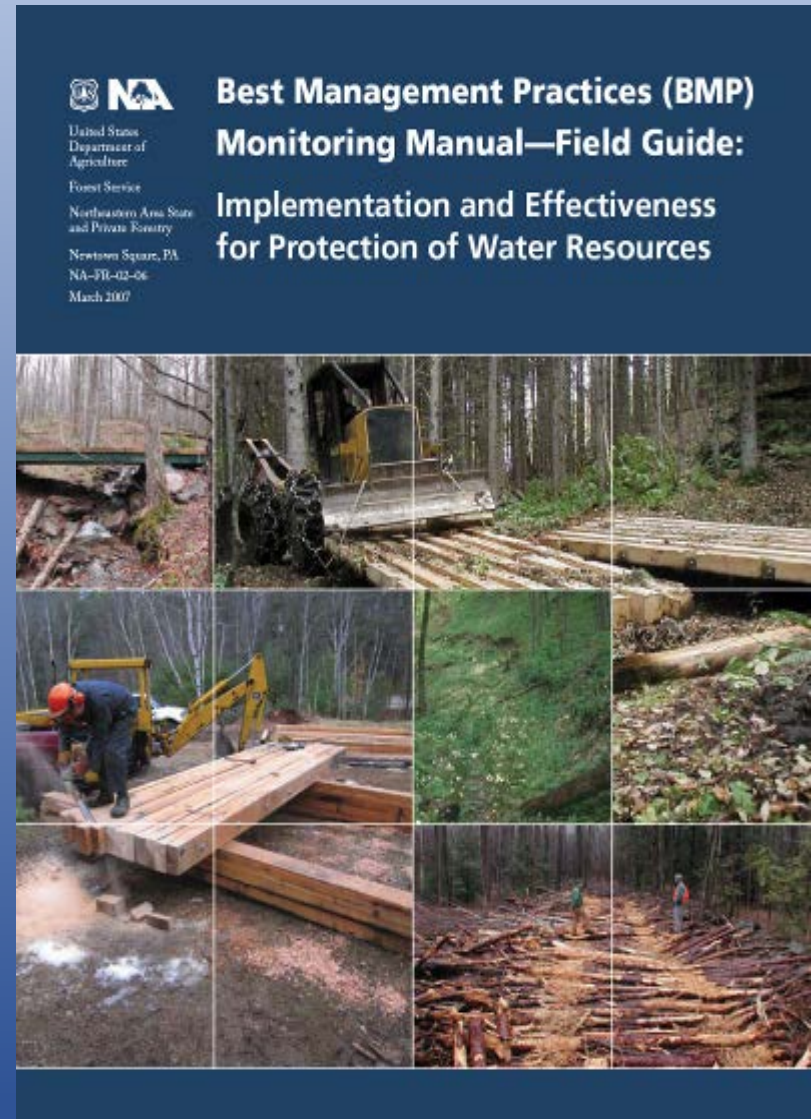
Prior State BMP monitoring efforts were

- Sporadic, anecdotal, practice focused



# Northeast Regional Protocol

- Based on principles of water resource protection
- Standardizes monitoring method for comparability among states
- Relies on measurable evidence as opposed to anecdotal assessment
- Assess effectiveness, not the installation of individual practices



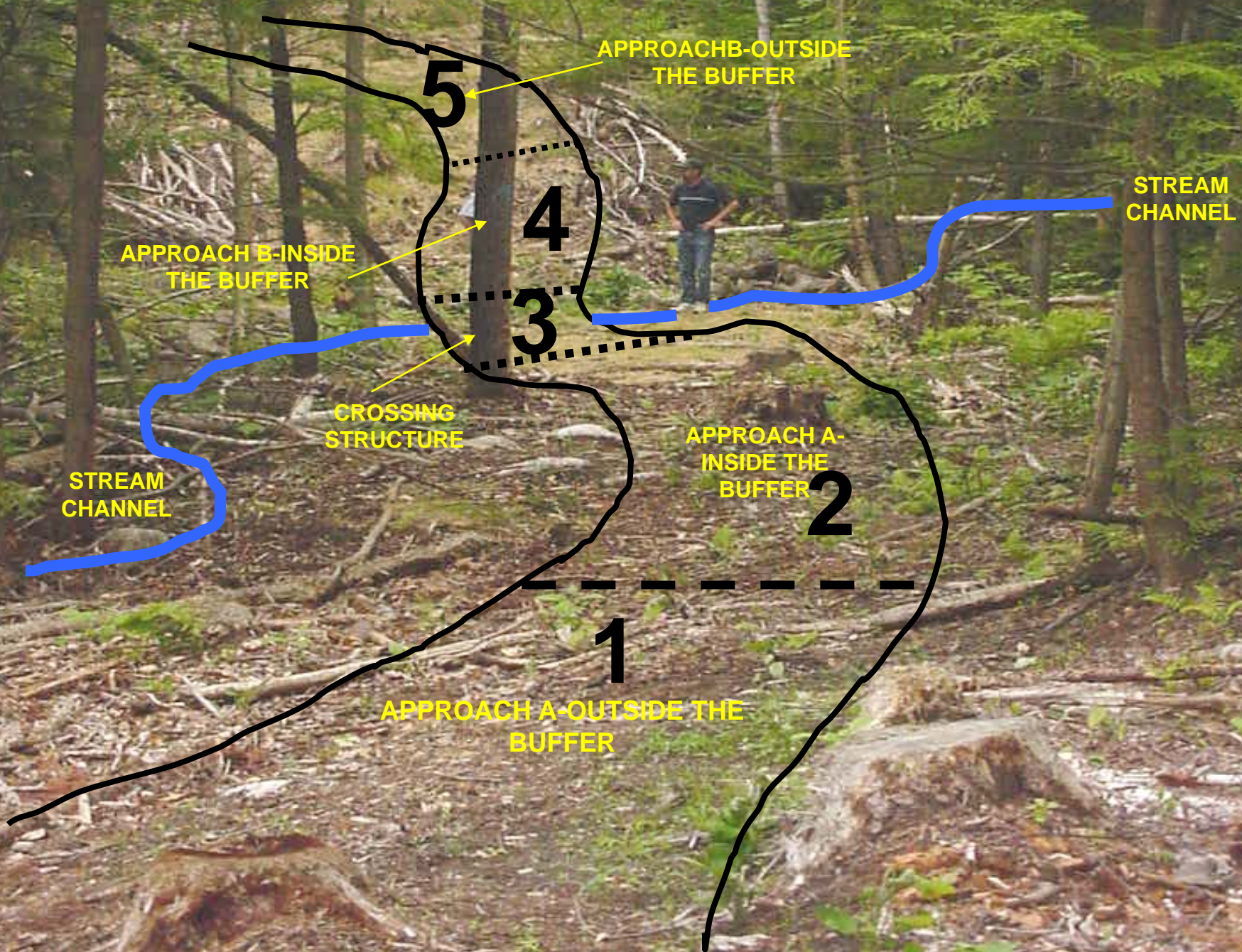
# Random Sampling

- MFS has conducted random, statewide monitoring of BMPs on timber harvesting operations since March 2000 to assess the use and effectiveness of BMPs in Maine.
- Random samples are drawn from approx. 5,000 annual timber harvest notifications.
- Data was collected on 134 timber harvests and analyzed for the 2014-2015 report.

# Benefits

- Documents CWA compliance with standard report to EPA;
- Records measurable evidence to respond to criticism;
- Identifies potential improvements, facilitating focused training;
- Permits State Forester control of BMP specs, monitoring team, sample design and quality control;
- Permits logger selection of efficient, economical practices based on effectiveness, not rules.







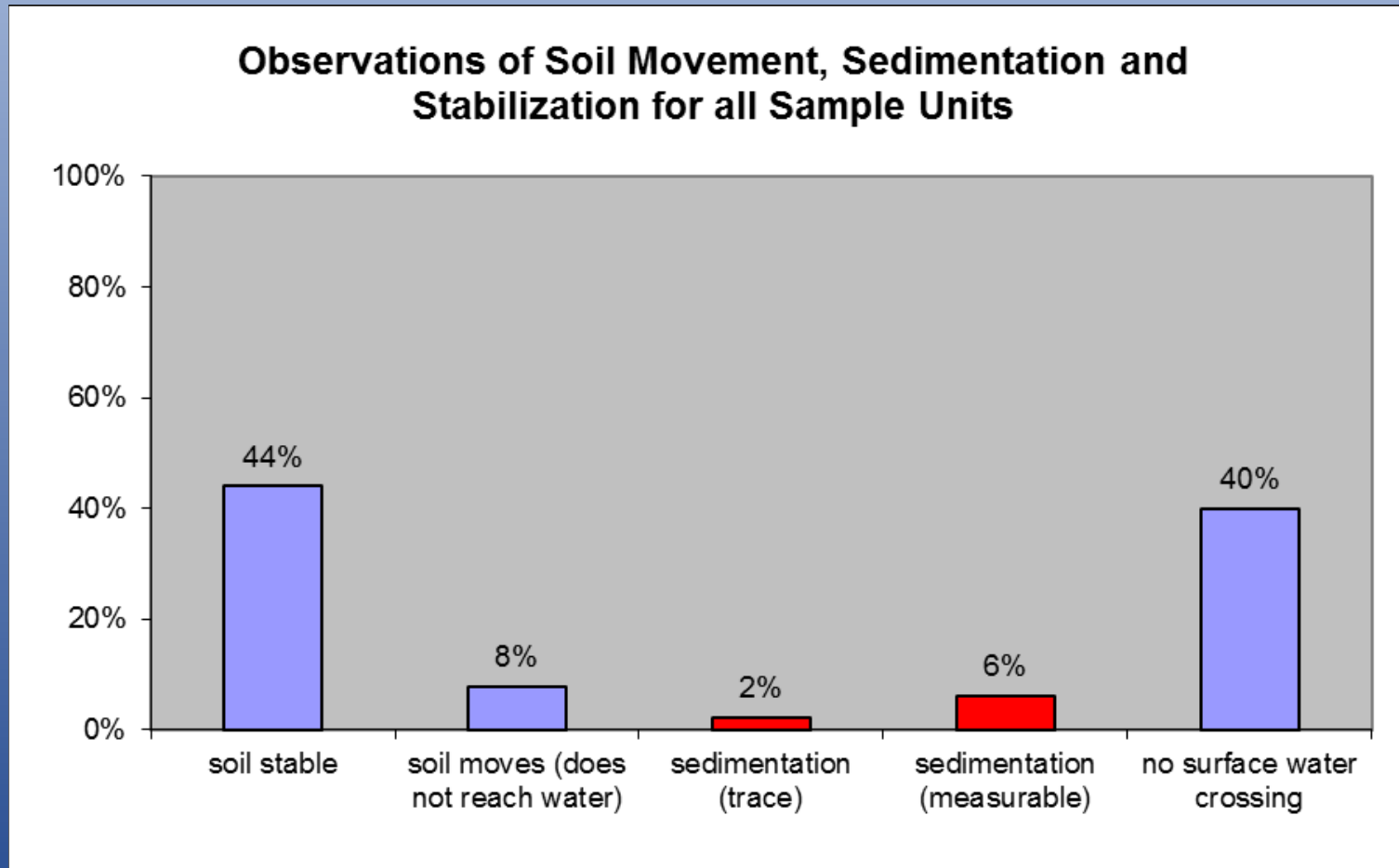
# Data collection 2014-2015

- 134 Sites Evaluated
  - 670 observations of soil movement
  - Each observation included for analysis in 2014-15 BMP report



# The Big Picture

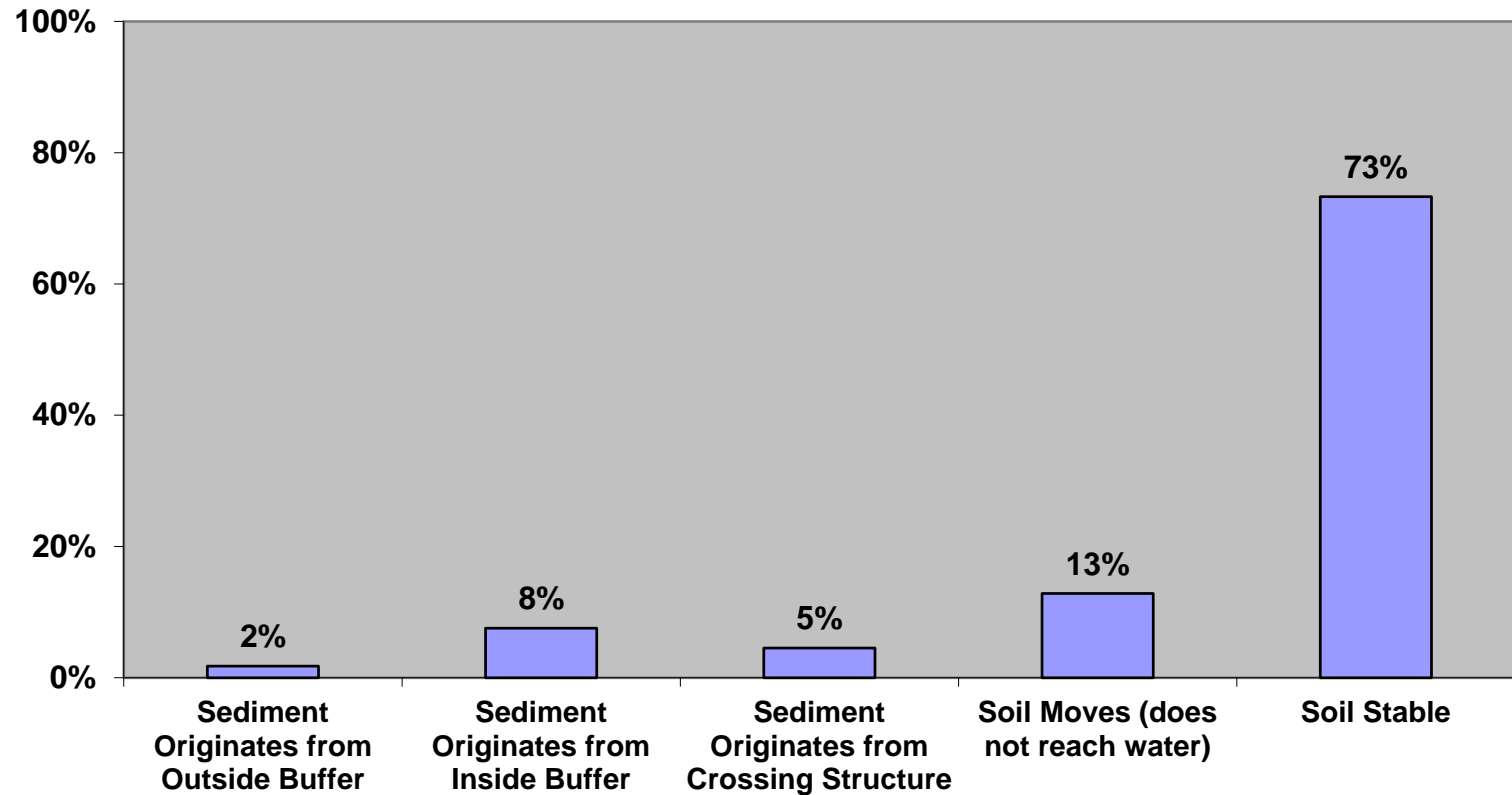
**92% of observations showed no sediment reached a waterbody**





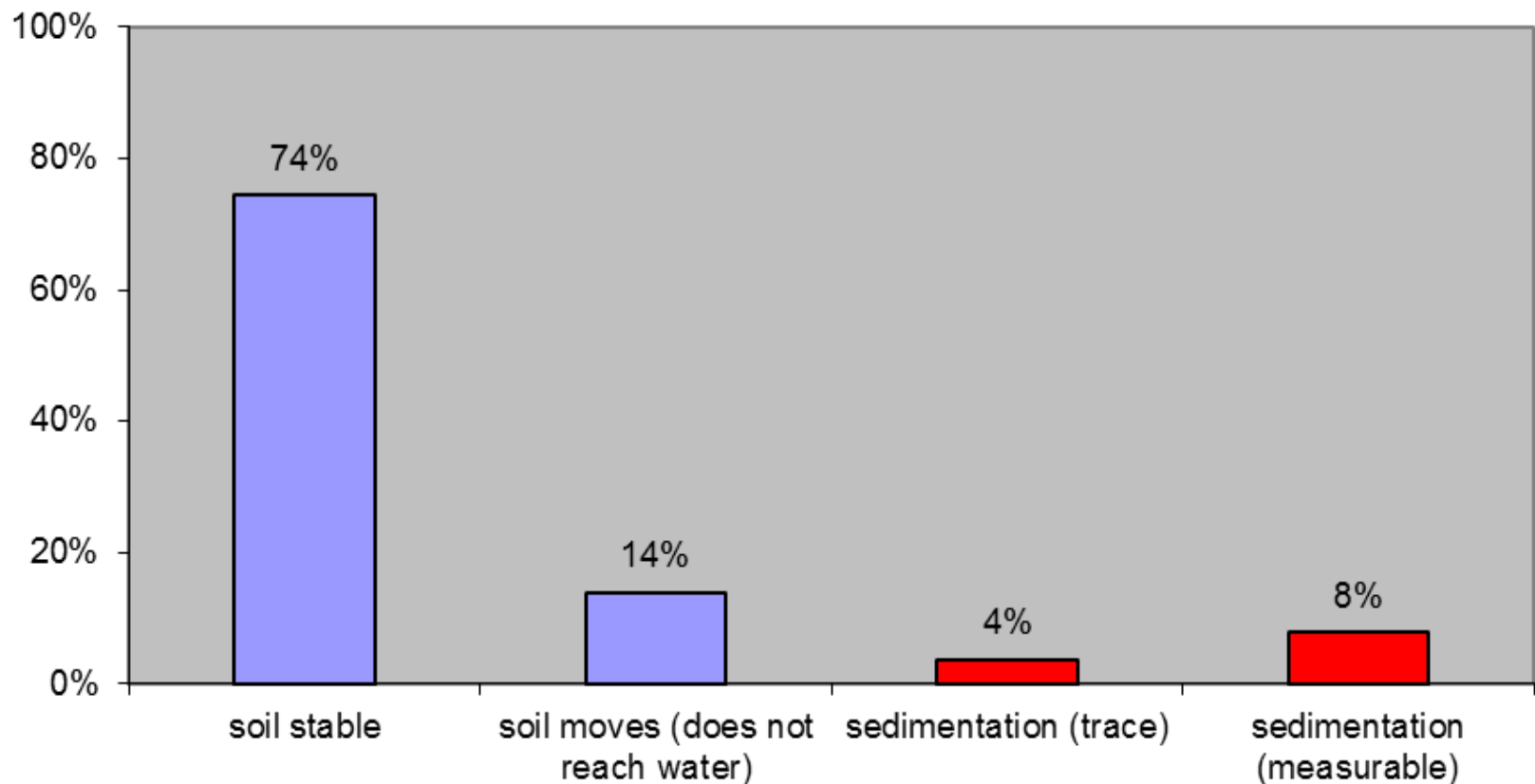
# Where is sediment coming from?

**Soil Stabilization and Origin of Sediment**



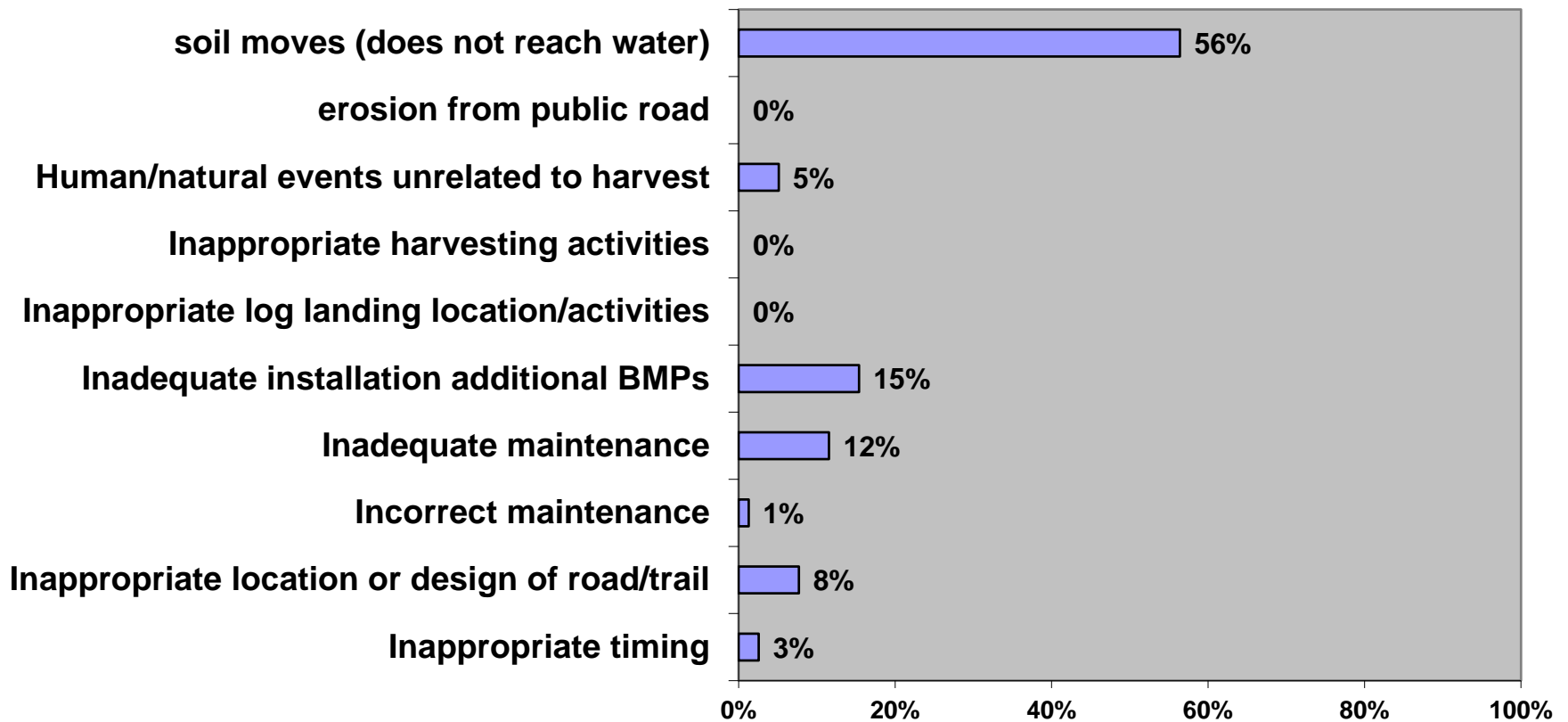
# How much from the approaches?

**Soil Stabilization, Movement and Sedimentation from the Approaches**



# Cause of Sedimentation from approaches

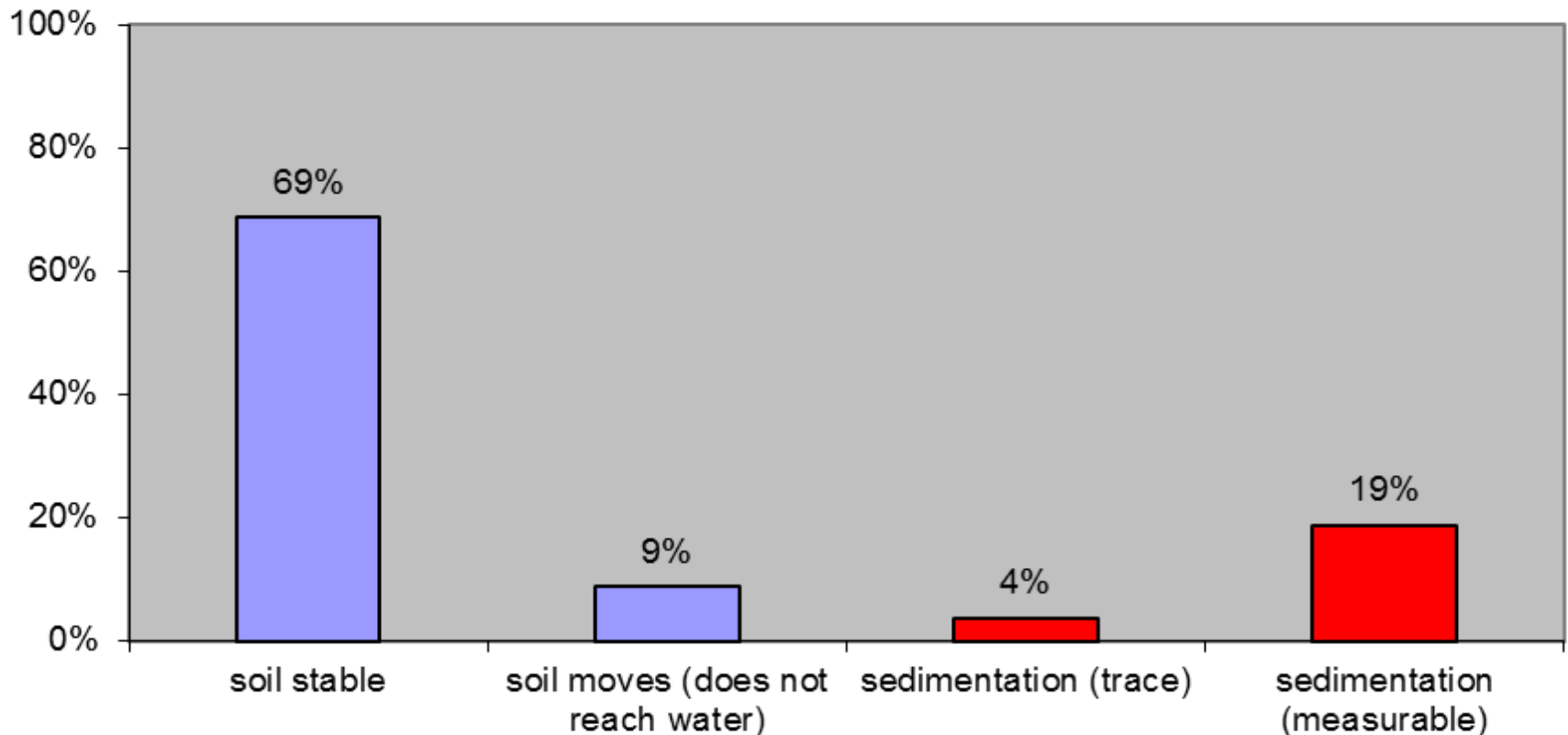
## Cause of Soil Reaching the Water from the Approaches





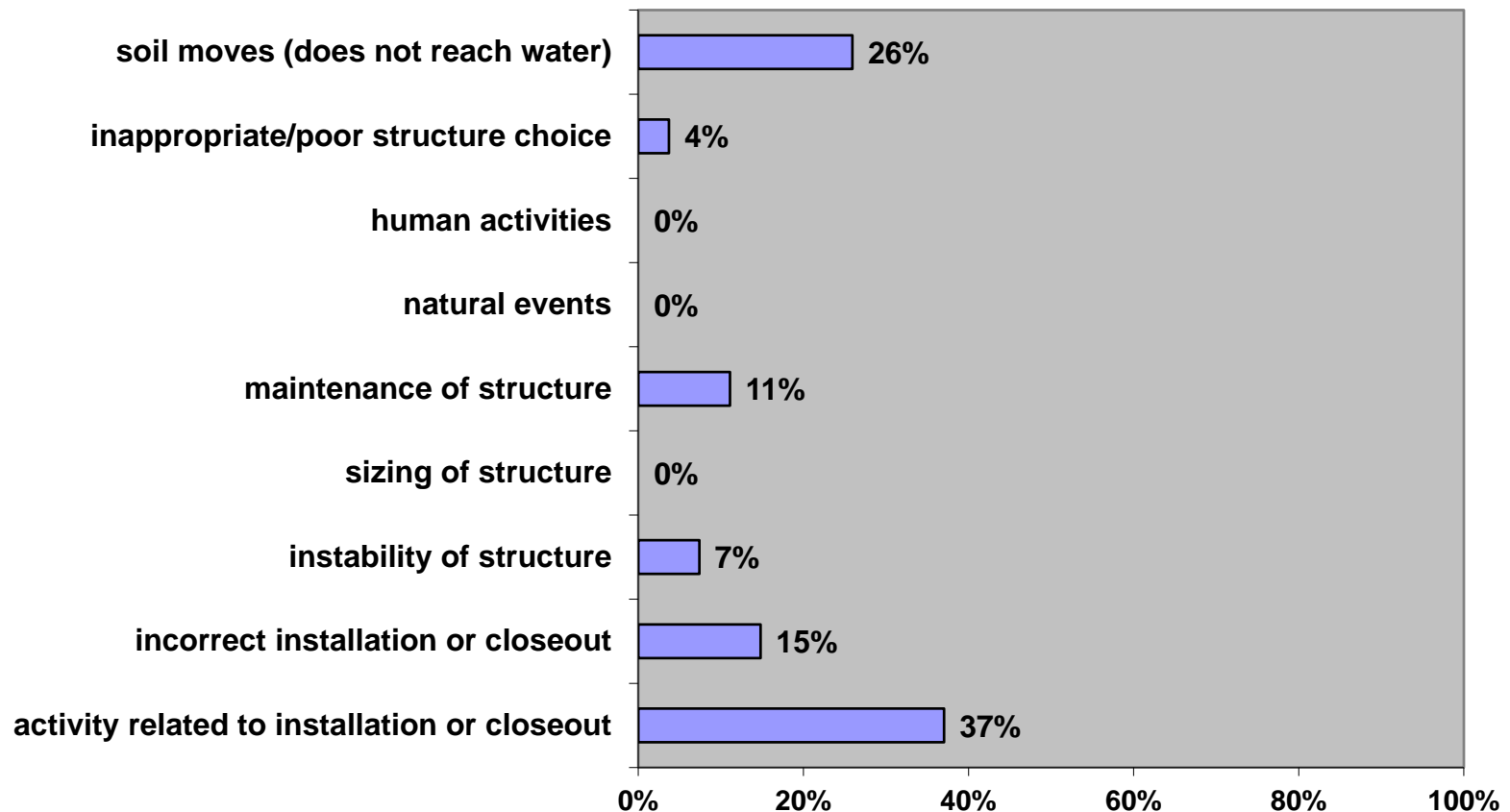
# How much from the crossing?

**Soil Stabilization, Movement and Sedimentation from the Crossing Structure**



# What activities led to sedimentation?

## Activities Related to Sedimentation at Crossings



# Conclusions

- Most harvesting is not negatively affecting water quality
- Most loggers are properly using BMPs
- Sedimentation originating from inside the approach and crossing structure are particular concerns



# Training areas

- Stress proper application and maintenance of BMPs as site conditions change (approaches)
- Proper installation and closeout of crossings to minimize sediment input (crossings)

# ***Questions??***

**Tom Gilbert  
Water Resources Specialist  
Maine Forest Service  
22 State House Station  
Augusta, ME 04333  
Desk: 207-287-1073 | Cell: 207-441-5282  
thomas.gilbert@maine.gov**