Managing Woodlands

for Forest Products and Clean Water

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Photo: WI Dept of Tourism

Today's Talk will cover

- Forest Management Options
- Forestry BMPs for Water Quality
- Monitoring the Effectiveness of BMPs

Forest Management Options

- Management Goals
- Active Management Systems (Silvicultural Systems)

- Passive Management

Forest Management Goals

- Wildlife Habitat

Photo: DNR File

Forest Management Goals

- Wildlife Habitat
- Recreation

Photo: Department of Tourism File

Forest Management Goals

- Wildlife Habitat
- Recreation
- Natural Scenic Beauty

Photo: Richard Oehler

Forest Management Goals

- Wildlife Habitat
- Recreation
- Natural Scenic Beauty
- Clean Water

Photo: Richard Oehler

Forest Management Goals

- Wildlife Habitat
- Recreation
- Natural Scenic Beauty
- Clean Water
- Forest Products

Photo: Carmen Wagner and Donald S. Abrham

Choosing to Manage

- Depends on:
  - What condition is your forest currently in?
  - What would you like to have for your forest?
  - Can you get there using forest management practices?

Active Management

- Relies on forest ecology and tree species behavior to achieve specific landowner objectives
- Sustainable forestry is the practice of managing forests to provide ecological, economic, social and cultural benefits for present and future generations
- Design to meet your management goals

Silvicultural Systems

- Group and Single-Tree Selection Systems
- Shelterwood System
- Clearcut System

Selection System

- Individual or groups of mature, unhealthy and other selected trees are harvested approximately every 8 to 15 years
- Remainder of trees left to regenerate naturally
- Results in diverse, all-aged forest with many species of different sizes and ages

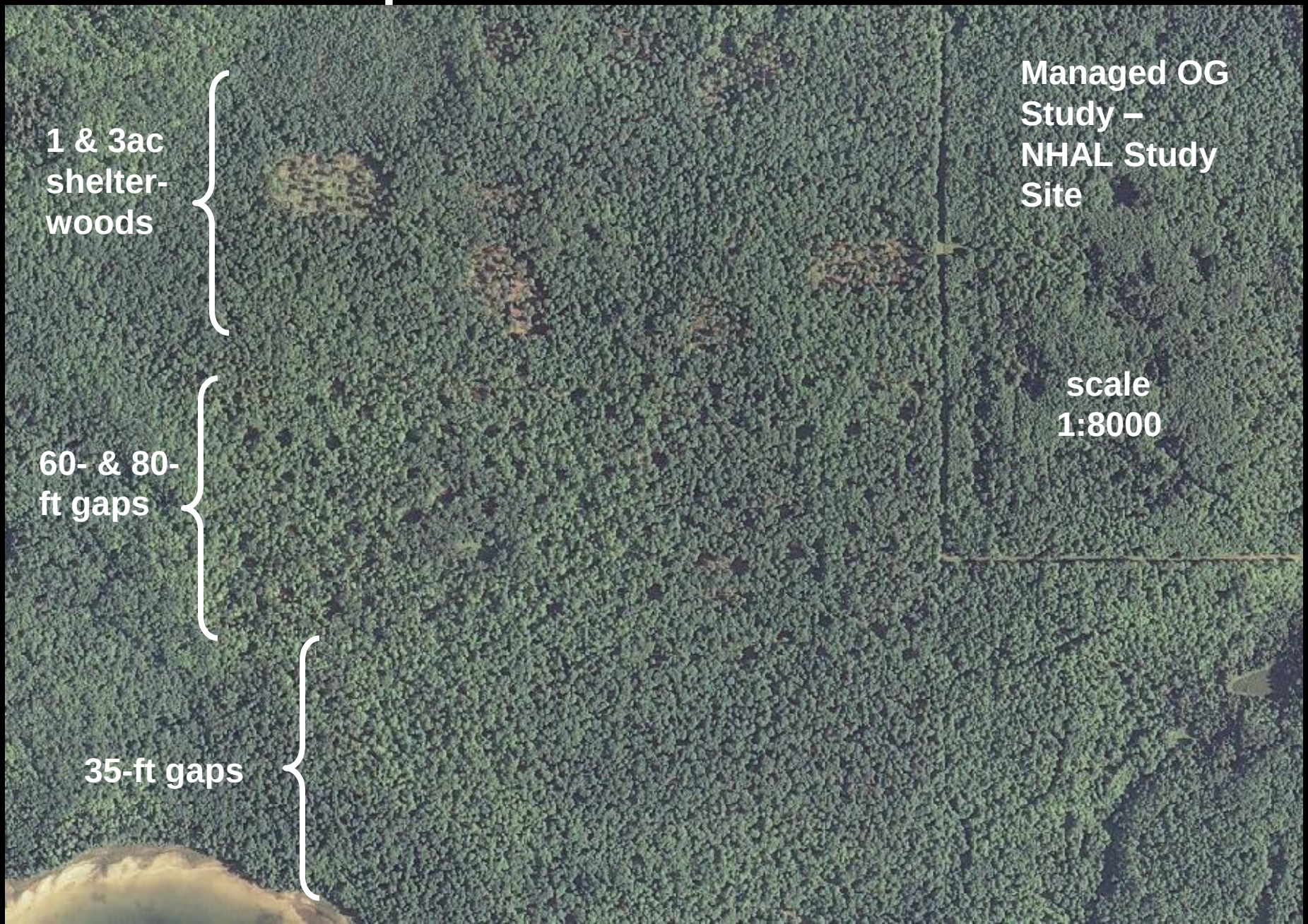
Selection System

- Works best in:
  - Northern Hardwood stands
  - Hemlock-Hardwood stands
  - Oak stands
- Mimics small-scale natural disturbances, such as lighting, fire, wind, ice storms and disease that kill trees, but provides space for young trees to grow

Selection Harvest

Group Selection Harvest

Group Selection Harvest



Shelterwood System

- Mature trees are cut in a series of two or more partial cuts
- Harvests stimulate germination and growth of new trees in shelter and shade of remaining trees
- Results in an even-aged forest

Shelterwood System

- Works best for:
  - White pine
  - White birch
  - Oaks
  - Northern Hardwoods
- Mimics large-scale natural disturbances, such as fire, wind, and insects that create large caps in forest canopy


Shelterwood Harvest
Photo: Carmen Wagner


Shelterwood Harvest
Photo: Kristin Lambert

Clearcut System

- Generally all trees are harvested at once
- Seed-tree method leaves individual trees or groups of trees to provide seed for regeneration
- Regeneration can be through natural or artificial seeding, sprouts, or planting
- Results in even-aged forest

Clearcut System

- Works best for:
  - Aspen
  - Jack Pine
  - Oaks
  - Spruce
- Mimics large-scale natural disturbances that perpetuate even-aged forests, such as fire and wind

Clearcut Harvest

Photo: Carmen Wagner


Clearcut with Reserves
Photo: Carmen Wagner

Seed Tree Harvest

Photo: Carmen Wagner

Passive Management

- “Let nature take its course”
- Allows development of “old growth” characteristics
- Passively managed forest will change over time
- Blend of passive and active management may most effectively meet some landowner objectives

Forestry BMPs for Water Quality

- Goals of BMPs
- Who Uses BMPs

- BMP Categories
- Review and Updates to BMPs

What is Water Quality?

- In lakes, streams and wetlands
  - Chemical properties
    - pH, DO, nutrients, pollutants
  - Physical properties
    - Turbidity, temperature
  - Natural characteristics and processes
    - Nutrient transport, stable channels, volume and speed of water

BMPs Designed to Protect:

- General Water Quality

Photo: Carmen Wagner

BMPs Designed to Protect:

- General Water Quality
- Water Temperature

Photo: Carmen Wagner

BMPs Designed to Protect:

- General Water Quality
- Water Temperature
- Nutrient Balances

Photo: Carmen Wagner

BMPs Designed to Protect:

- General Water Quality
- Water Temperature
- Nutrient Balances
- Habitat Diversity

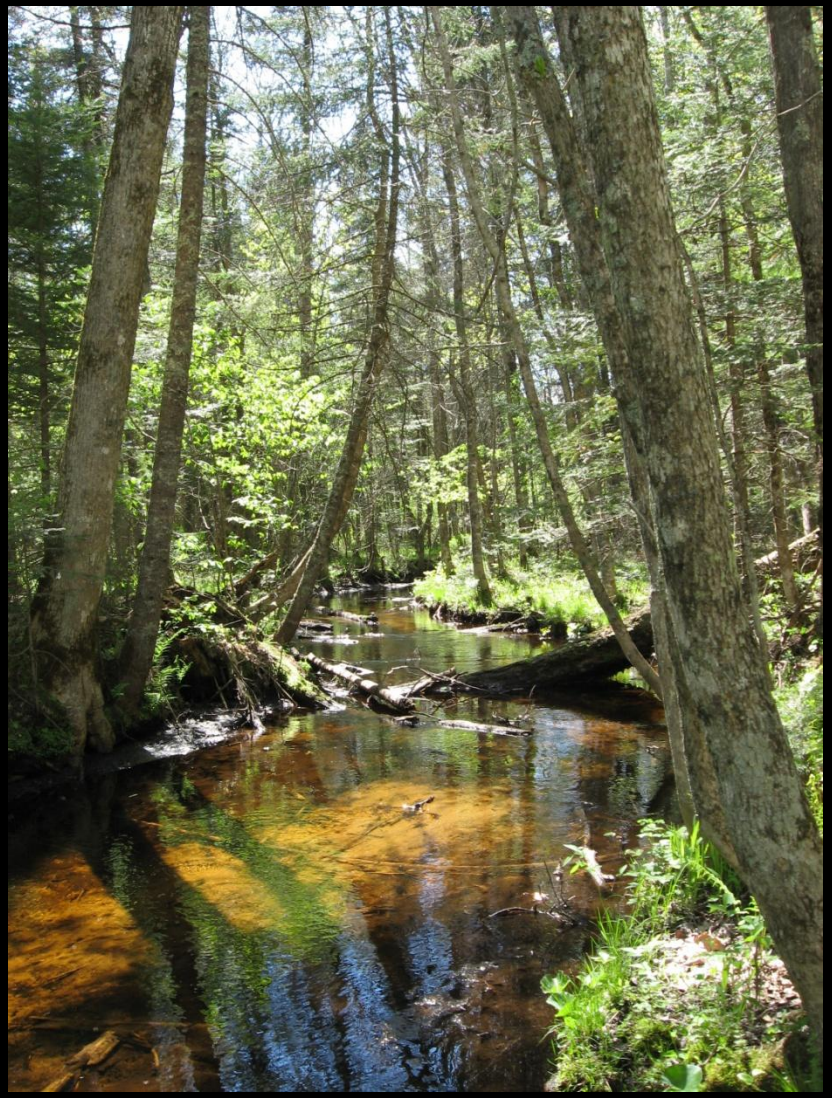


Photo: Kristin Lambert

BMPs Designed to Protect:

- General Water Quality
- Water Temperature
- Nutrient Balances
- Habitat Diversity
- Hydrologic Processes

Photo: Shelly Wrzochalski

Photo: Shelly Wrzochalski

Who Uses BMPs?

- County, State and National Forests – management commitment
- MFL Participants – agreement to follow sustainable forest management practices
- Cooperating Foresters & Master Loggers – code of conduct

BMP Categories

- Fuels, Waste and Spills

Photo: Carmen Wagner

BMP Categories

- Fuels, Waste and Spills
- Riparian Management Zones

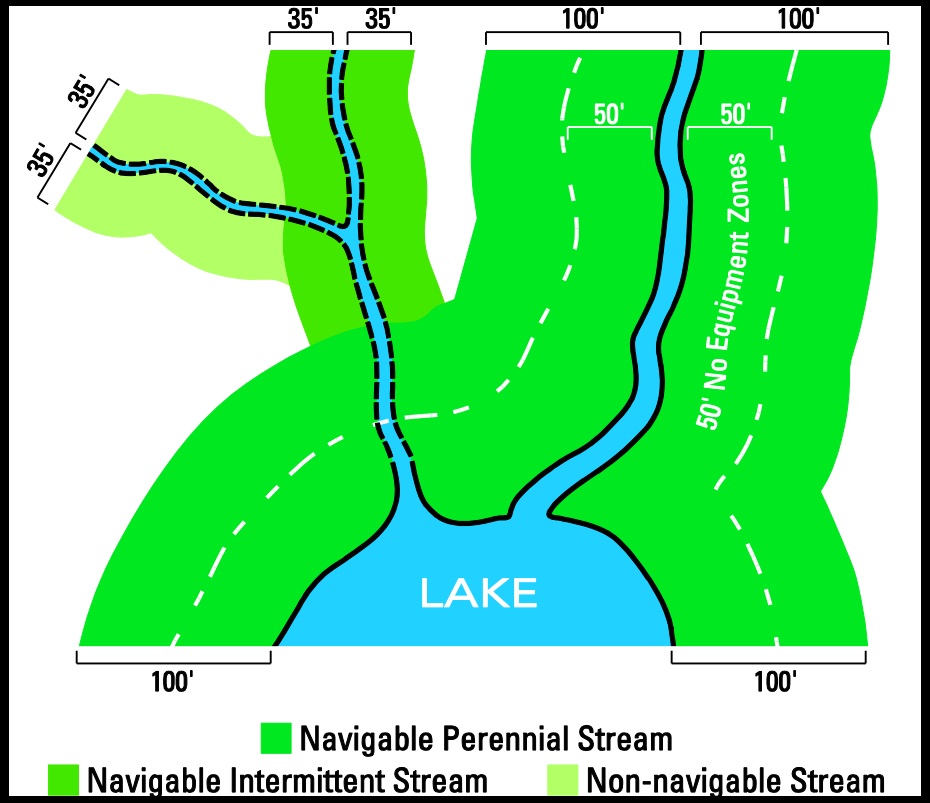


Photo: Carmen Wagner

BMP Categories

- Fuels, Waste and Spills
- Riparian Management Zones
- Forest Roads

Photo: Jim Halvorson

BMP Categories

- Fuels, Waste and Spills
- Riparian Management Zones
- Forest Roads
- Timber Harvesting

Photo: Paul Pingrey

BMP Categories

- Fuels, Waste and Spills
- Riparian Management Zones
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- Timber Harvesting
- Site Preparation and Tree Planting

Photo: DNR File

BMP Categories

- Fuels, Waste and Spills
- Riparian Management Zones
- Forest Roads
- Timber Harvesting
- Site Preparation and Tree Planting
- Prescribed Burning & Wildfire

Photo: DNR File

BMP Categories

- Chemicals

Photo: Jeff Martin

BMP Categories

- Chemicals
- Wetlands

Photo: Carmen Wagner

BMP Review and Updates

- 1995 – BMP Field Manual first released
- 1997 & 2003 – Reprinted
- 2009 – General review BMPs
  - 15 years since BMPs first developed
  - BMP FM out of print
  - Council on Forestry requested review in light of biomass harvesting concerns

BMP Review and Updates

- 2009 – Worked with Advisory Committee and Field Manual Subcommittee
- Winter 2010 – Public comment on proposed changes
- Spring 2010 – Final Recommendations from Advisory Committee, pending approval from Chief State Forester

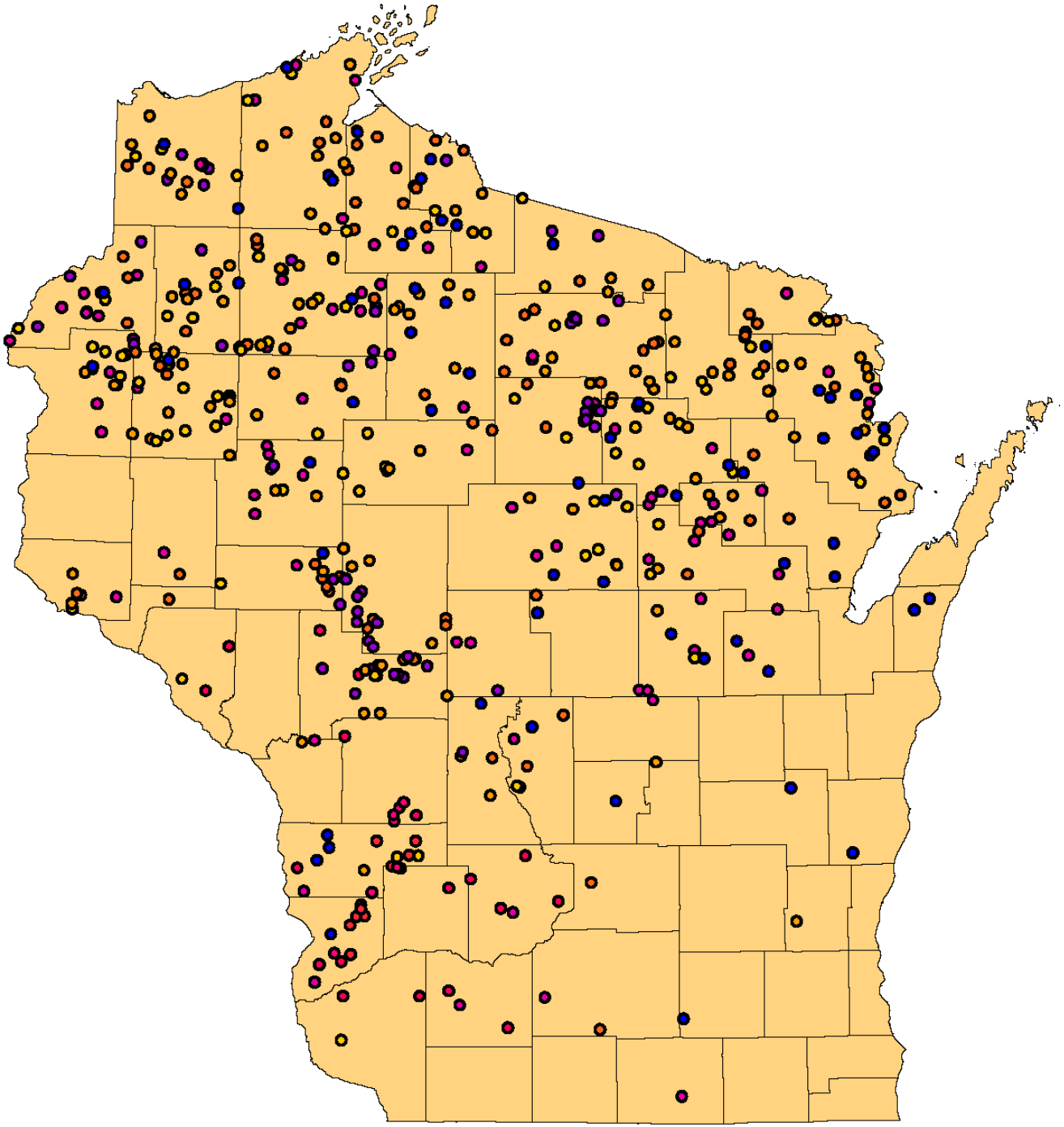
BMP Review and Updates

- Riparian Management Zones
  - Trout streams
  - Designating RMZ width based on stream width
  - Fine woody material
- Dry Wash Management Zone
- Wetland Filter Strips

Monitoring BMPs

- BMP Application
- BMP Effectiveness

- Research Study



BMP Application

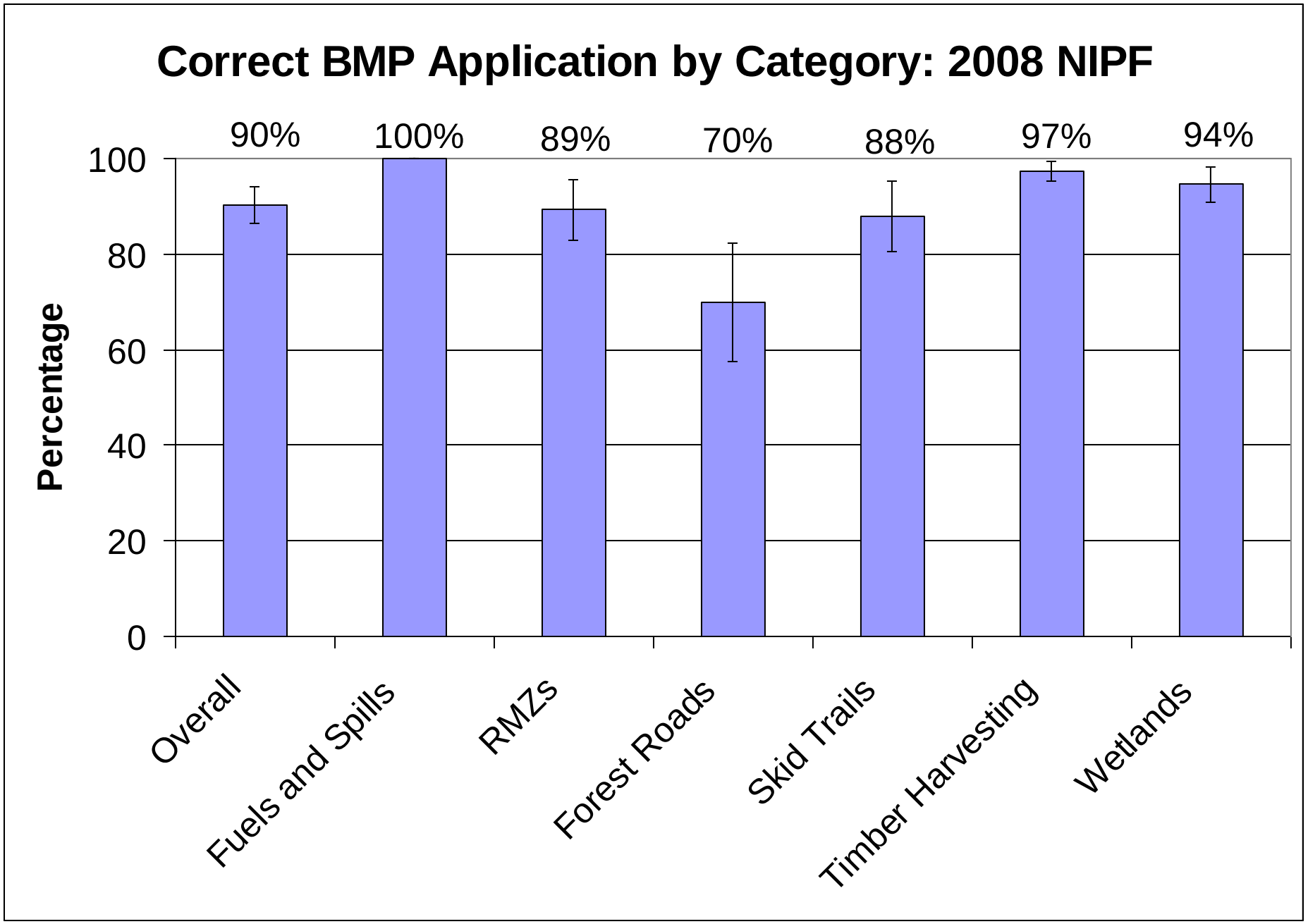
- Not Applicable
- Applied Correctly
- Applied Incorrectly
- Not Applied
- Insufficient Information

Correct Application of BMPs

Landowner	1995-1997	2002	2003-2008
Federal	92%	96%	95%
State	86%	100%	90%
County	86%	89%	93%
Industrial	91%	95%	94%
Non-Industrial	82%	81%	90 %

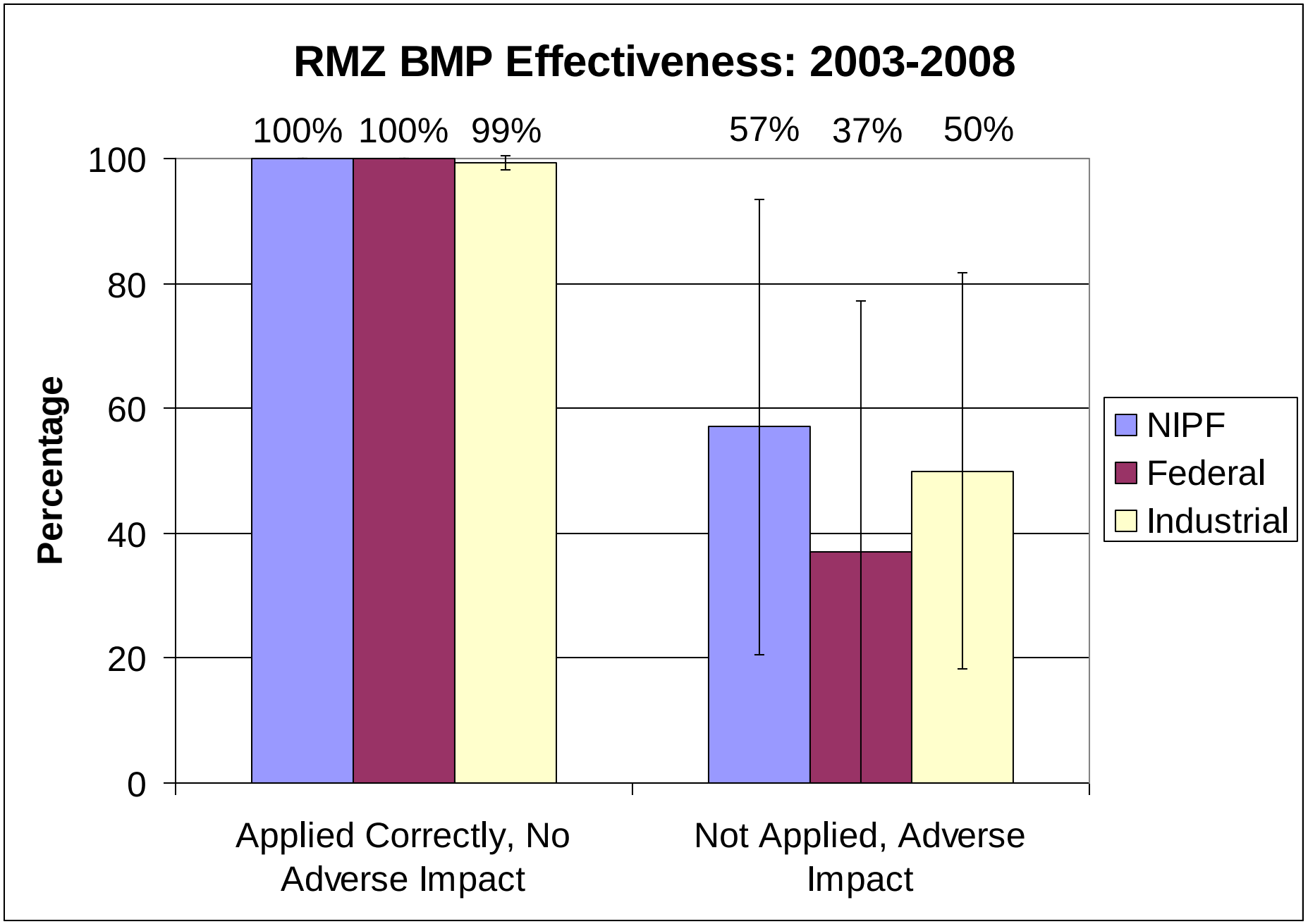
Correct BMP Application MFL vs. Non-MFL

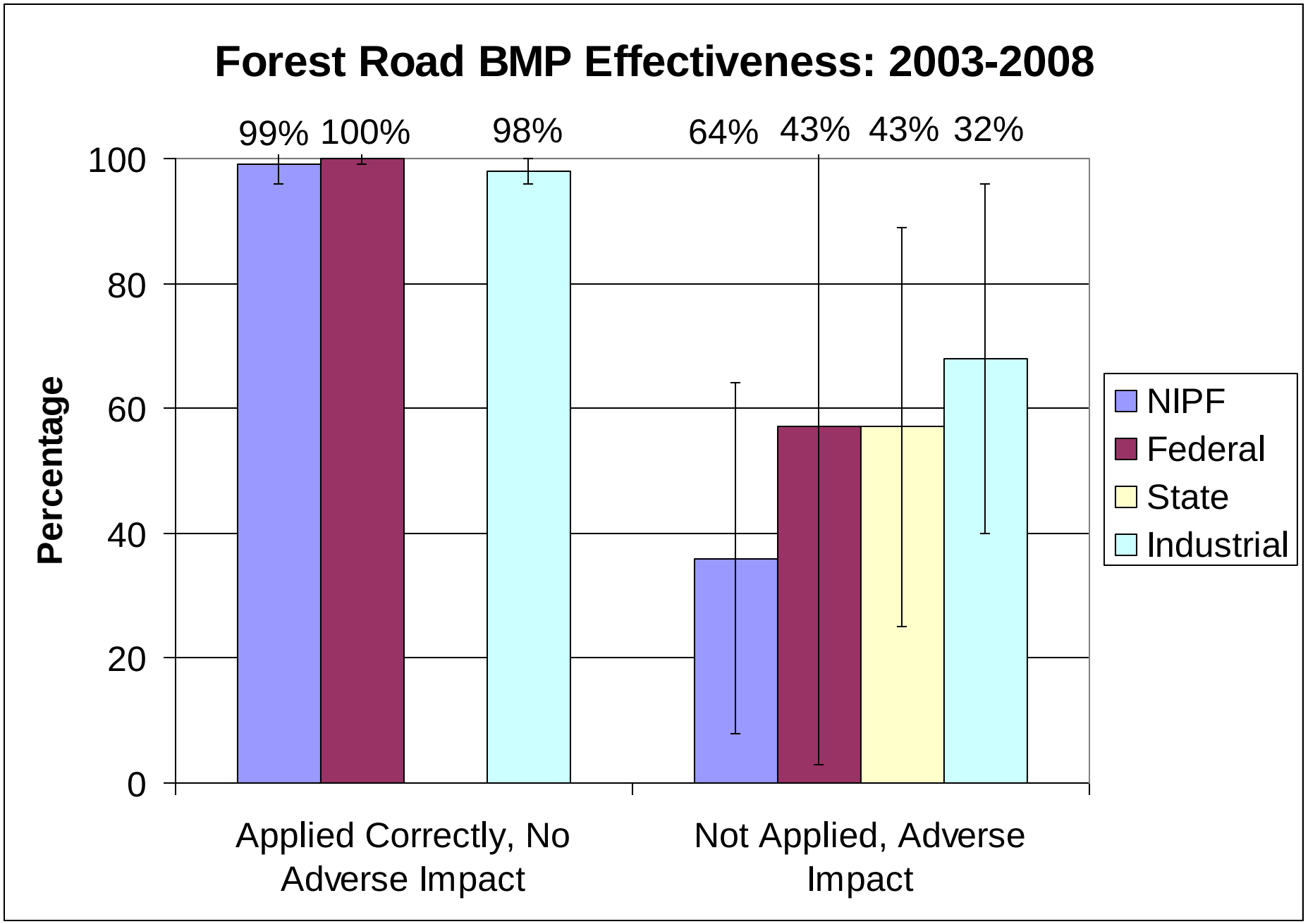
	NIPF	MFL	Non-MFL
1995-1997	82% ± 7		
2002	81% ± 9	91% ± 4	73% ± 14
2008	90% ± 4	92% ± 4	87% ± 8

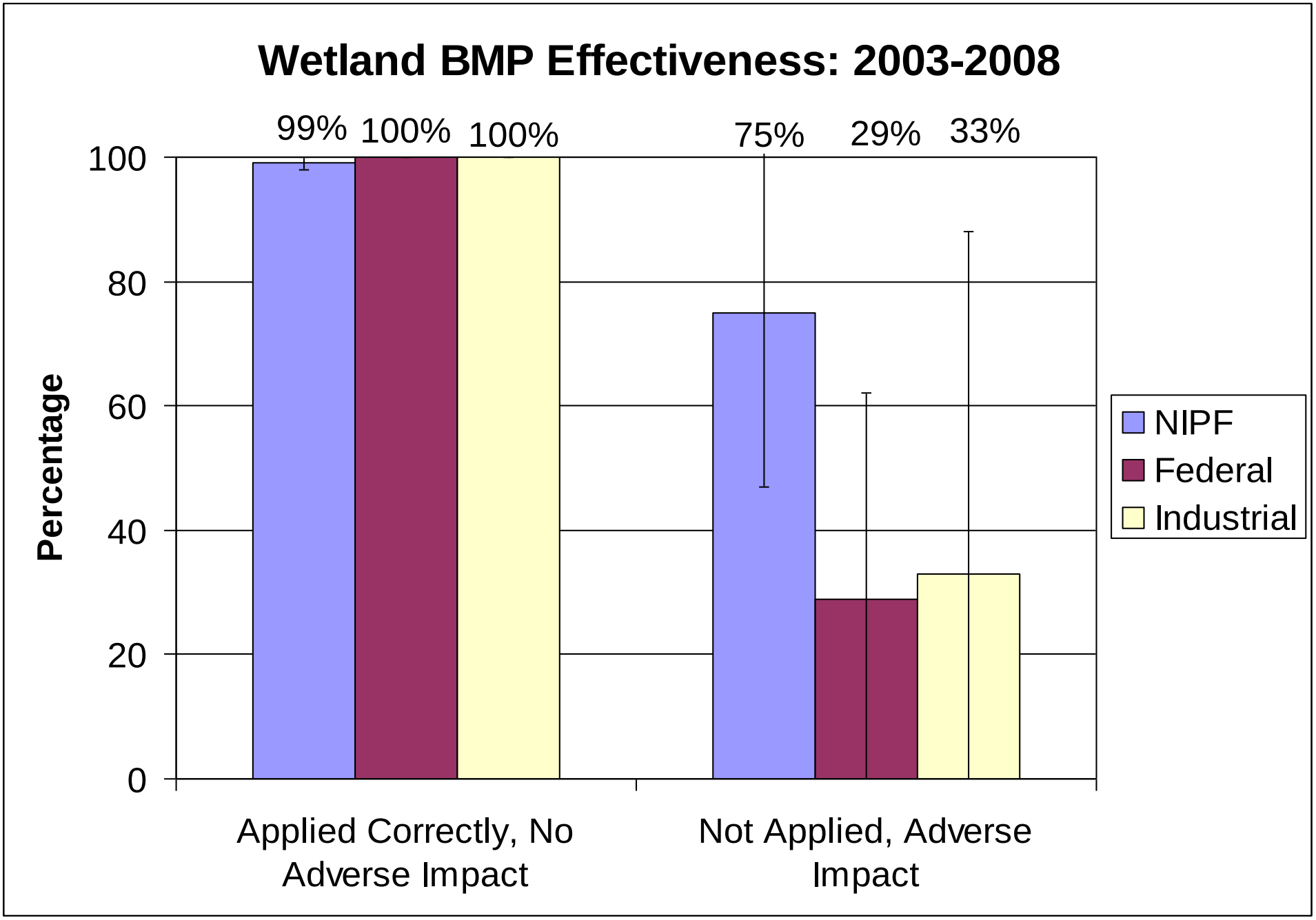

Correct BMP Application by Category: 2008 NIPF
Percentage
100
80
60
40
20
0
90%
100%
89%
70%
88%
97%
94%
Overall
Fuels and Spills
RMZs
Forest Roads
Skid Trails
Timber Harvesting
Wetlands

BMP Effectiveness

- No impact
- Short-term minor impact
- Short-term major impact
- Long-term minor impact
- Long-term major impact


RMZ BMP Effectiveness: 2003-2008
100%
100%
99%
57%
37%
50%
100
80
60
40
20
0
Percentage
NIPF
Federal
Industrial
Applied Correctly, No Adverse Impact
Not Applied, Adverse Impact


Forest Road BMP Effectiveness: 2003-2008
99%
100%
98%
64%
43%
43%
32%
100
80
60
40
20
0
Percentage
Applied Correctly, No Adverse Impact
Not Applied, Adverse Impact
NIPF
Federal
State
Industrial


Wetland BMP Effectiveness: 2003-2008
99%
100%
100%
75%
29%
33%
100
80
60
40
20
0
Percentage
NIPF
Federal
Industrial
Applied Correctly, No Adverse Impact
Not Applied, Adverse Impact

BMP Research Study

- Quantify the effectiveness of 100-foot wide RMZ on perennial streams
- Upstream control and downstream impact experimental design
- Monitoring pre-harvest and post-harvest
- Last year of post-harvest monitoring

Photo: Carmen Wagner

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Questions?

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