BMP Update
FIT Meeting
Nolan Kriegel
3-2-2022
Brief History

• 1972 – Clean Water Act and its revisions include silvicultural activities.
  • Control Non-Point Source Pollution to the “Maximum Extent Practical”.

• Each state is responsible in both developing standards for water quality and monitoring forestry activities to ensure compliance of those adopted standards.

• These standards are known as the Best Management Practices for Water Quality and have been implemented in Wisconsin since 1995.
  • Wisconsin conducts its BMP program in a 5-year rotation:
    • 1st year: County and State
    • 2nd year: Federal and Large Landowners (Industrial)
    • 3rd year: Non-Industrial Private Forests (NIPFs) – both MFL and non-MFL
    • 4th year: Special Projects
    • 5th year: Special Projects
Federal and Large Landowners
2019 Recap

• Sales closed out in 2018
  • Federal sites eligible: 436
  • Large landowner sites eligible: 207

• Final sites monitored
  • Federal – 35 sites
  • Large landowner – 19 sites

• Acreage
  • Federal – 1217
  • Large landowner – 1938

• Extreme Weather
  • Federal – 19 sites
  • Large – 1 site
2019 Recap

Team Information

- 12 Monitoring Teams
  - 4-7 sales over 2 days
- Impressive turnout of volunteers
  - 5 county foresters
  - 19 DNR Employees
  - 15 Forest Service Employees
  - 1 University Staff
  - 10 External Forestry Professionals
2019 Recap
Timber and Harvest Information

Dominant Timber Types

- Aspen: 16
- Spruce/Fir: 6
- Pine: 6
- Maple/Basswood: 7
- Oak/Hickory: 18
- Bottomland Hardwoods: 6
- Swamp Conifers: 4
- Other: 1

Silviculture Prescription

- Selection Harvest: 14
- Clearcut: 21
- Clearcut with Reserves: 7
- Shelterwood: 6
- Salvage: 3
- Other: 1

Legend:
- Large
- Federal
2019 Recap
Timber Sale Water Resources

Monitoring Sites Containing Water Resources

<table>
<thead>
<tr>
<th>Water Resource</th>
<th>Large</th>
<th>Federal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lakes</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Springs/Seeps</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Streams</td>
<td>7</td>
<td>15</td>
</tr>
<tr>
<td>Wetlands</td>
<td>18</td>
<td>32</td>
</tr>
</tbody>
</table>
2019 Recap
RMZs

Sites Containing a RMZ Specified Water Resource

<table>
<thead>
<tr>
<th>RMZ Distance</th>
<th>Number of Sites</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large Federal</td>
<td>4</td>
</tr>
<tr>
<td>Increased</td>
<td>1</td>
</tr>
<tr>
<td>Meets</td>
<td>2</td>
</tr>
<tr>
<td>Decreased</td>
<td>1</td>
</tr>
<tr>
<td>RMZ Not Used</td>
<td>1</td>
</tr>
</tbody>
</table>

Categories:
- Lakes
- > 3 ft. Wide or DTS
- 1-3 ft. Wide
- <1 ft. Wide
2019 Recap
Season of Harvest

Season of Harvest in Monitored Timber Sales

Number of Sites

<table>
<thead>
<tr>
<th>Season of Harvest</th>
<th>Large</th>
<th>Federal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exclusive Winter</td>
<td>13</td>
<td>4</td>
</tr>
<tr>
<td>Exclusive Spring</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>Exclusive Summer</td>
<td>6</td>
<td>1</td>
</tr>
<tr>
<td>Exclusive Fall</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>Multiple Winter</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Multiple Spring</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Multiple Summer</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Multiple Fall</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Unknown</td>
<td>2</td>
<td>4</td>
</tr>
</tbody>
</table>

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2019 Recap
BMP Application Rates

Total Application for BMPs on Federal and Large Landowners

Correct Application of BMPs on Different Monitoring Categories
2019 Recap
Historical BMP Application Rates

BMP Correct Application Rates Throughout History

Monitoring Years

- 1995-1997
- 2006
- 2014
- 2019

Federal
Large
Linear (Federal)
Linear (Large)
2019 Recap
Historical BMP Application Rates

Correct BMP Application Rates in Monitoring Categories on Federal Lands Throughout History

Correct BMP Application Rates in Monitoring Categories on Large Landowners Throughout History
2019 Recap
BMP Effectiveness Rates

Water Quality Impacts with Different BMP Application Categories

<table>
<thead>
<tr>
<th>Impact Type</th>
<th>Applied</th>
<th>Not Applied</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Adverse Impact</td>
<td>99.5</td>
<td>99.3</td>
</tr>
<tr>
<td>Minor Short Term Impact</td>
<td>0.4</td>
<td>0.7</td>
</tr>
<tr>
<td>Minor Long Term Impact</td>
<td>11.5</td>
<td>11.3</td>
</tr>
<tr>
<td>Major Short Term Impact</td>
<td>0.1</td>
<td>0.0</td>
</tr>
<tr>
<td>Major Long Term Impact</td>
<td>0.1</td>
<td>0.0</td>
</tr>
<tr>
<td>Federal</td>
<td>46.7</td>
<td>4.4</td>
</tr>
<tr>
<td>Large</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Percent
2020 Recap
COVID Complications

• Volunteers make monitoring possible
• Couldn’t train in-person
• Hotel stays are typical for monitoring team members

• Approval for single person monitoring came late fall
• Many landowners prefer early fall visits to avoid deer hunting
• Most visits occurred after gun-deer season, but before snowfall

Result: Fewer sites, spread over 9 months.
Non-Industrial Private Forestland 2020 Recap

- Sales filed County Cutting Notices in 2019
  - 4872 Sales on NIPF
- Final Sales Monitored
  - 19 Sales
    - 15 MFL Sales, 4 non-MFL
    - 13 were in fall 2020, rest in summer 2021
- 957 Acres Monitored
  - 50.4 acres average
- Storm Events
  - 5 out of 19 sites
2020 Recap
Timber and Harvest Information

**Dominant Timber Types**

- Aspen: 3
- Spruce/Fir: 1
- Pine: 4
- Maple/Basswood: 7
- Oak/Hickory: 17
- Bottomland Hardwoods: 1
- Swamp Conifers: 0

**Silviculture Prescription**

- Selection Harvest: 13
- Clearcut: 2
- Clearcut with Reserves: 2
- Shelterwood: 1
- Salvage: 2
- Other: 0
- Seedtree: 3
2020 Recap
Water Resources

Monitoring Sites Containing Water Resources

<table>
<thead>
<tr>
<th>Water Resource</th>
<th>Number of Sites</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lakes</td>
<td>2</td>
</tr>
<tr>
<td>Springs/Seeps</td>
<td>1</td>
</tr>
<tr>
<td>Streams</td>
<td>9</td>
</tr>
<tr>
<td>Wetlands</td>
<td>13</td>
</tr>
</tbody>
</table>
2020 Recap
RMZs

Sites Containing a RMZ Specified Water Resource

- Lakes
- > 3 ft. Wide or DTS
- 1-3 ft. Wide
- <1 ft. Wide

<table>
<thead>
<tr>
<th>RMZ Distance</th>
<th>Increased</th>
<th>Meets</th>
<th>Decreased</th>
<th>Not Used</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Sites</td>
<td>1</td>
<td>4</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

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2020 Recap
Season Restrictions

Table 2. Season of Harvest

<table>
<thead>
<tr>
<th>Season of Harvest</th>
<th>NIPF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Winter</td>
<td>13</td>
</tr>
<tr>
<td>Spring</td>
<td>0</td>
</tr>
<tr>
<td>Summer</td>
<td>1</td>
</tr>
<tr>
<td>Fall</td>
<td>1</td>
</tr>
<tr>
<td>Unknown</td>
<td>4</td>
</tr>
</tbody>
</table>

- More winter harvests than public lands
- Could indicate strong landowner preference
## 2020 Recap
### Forest Road Information

<table>
<thead>
<tr>
<th>Road Characteristics</th>
<th>NIPF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sites with Roads Present</td>
<td>13</td>
</tr>
<tr>
<td><strong>Road Building</strong></td>
<td></td>
</tr>
<tr>
<td>Existing</td>
<td>12</td>
</tr>
<tr>
<td>Improved</td>
<td>8</td>
</tr>
<tr>
<td><strong>Road Use</strong></td>
<td></td>
</tr>
<tr>
<td>Active</td>
<td>10</td>
</tr>
<tr>
<td>Inactive</td>
<td>4</td>
</tr>
<tr>
<td><strong>Roads with Drainage Structures</strong></td>
<td></td>
</tr>
<tr>
<td>New</td>
<td>4</td>
</tr>
<tr>
<td>Existing</td>
<td>1</td>
</tr>
</tbody>
</table>
2020 Recap

BMP Application Rate

BMP Application Rates

- Not Applicable: 69.7%
- Applied Correctly: 28.5%
- Applied but Incorrectly: 1.8%
- Not Applied Where Needed: 0%
- Insufficient Information: 5.8%

Total Application for BMPs on NIPF

- BMP Applied: 94.2%
- BMP Applied Correctly: 94.2%
- BMP Not Applied Where Needed: 5.8%
2020 Recap
BMP Application Rates by Monitoring Category

Correct Application Rates by BMP Monitoring Category Since 2008

- Fuels, Waste, Spills
- RMZs
- Forest Roads
- Timber Harvesting
- Wetlands

Percent

- 2008
- 2015
- 2020

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2020 Recap
BMP Effectiveness

Effectiveness on Protecting Water Quality in Different BMP Application Categories

Impact Severity within BMP Application Categories

Fuels, Waste, Spills
RMZs
Forest Roads
Timber Harvesting
Wetlands
All

Fuels, Waste, Spills
RMZs
Forest Roads
Timber Harvesting
Wetlands
All

No adverse impact
Minor Short Term
Minor Long Term
Major Short Term
Major Long Term
2018-2020 BMP Application Summary

2018-2020 BMP Application Rates by Monitoring Category

- Fuels, Waste, Spills
- RMZs
- Forest Roads
- Timber Harvesting
- Wetlands
BMP Application History

BMP Correct Application for Landowners Throughout Wisconsin's History

- 1995-1997
- 2002
- 2003-2008
- 2013-2015
- 2018-2020

Percent

- County
- State
- Federal
- Large
- NIPF
- combined
- Linear (combined)
2020 Recap
Qualitative Observations

Overall Evaluation (Qualitative)

<table>
<thead>
<tr>
<th>Overall Application of BMPs for Water Quality</th>
<th>Overall Impacts on Water Quality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Negligence</td>
<td>0</td>
</tr>
<tr>
<td>Poor</td>
<td>0</td>
</tr>
<tr>
<td>Average</td>
<td>0</td>
</tr>
<tr>
<td>Good</td>
<td>6</td>
</tr>
<tr>
<td>Excellent</td>
<td>13</td>
</tr>
<tr>
<td>Severe</td>
<td>0</td>
</tr>
<tr>
<td>Moderate</td>
<td>0</td>
</tr>
<tr>
<td>Slight</td>
<td>1</td>
</tr>
<tr>
<td>Negligible</td>
<td>5</td>
</tr>
<tr>
<td>No Visible</td>
<td>13</td>
</tr>
</tbody>
</table>

Number of Sites

Overall Application of BMPs for Water Quality

Overall Impacts on Water Quality