Using 106 and 319 Programs for Lake Restoration on the Fond du Lac Reservation

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Office of Water Protection
Fond du Lac’s Water Resources:
- 23 lakes
- 6 streams
- St. Louis River
- 47% of land base is wetland

Legend
Lake Type
- Green: Other Lakes
- Blue: Primary Fisheries Lakes
- Pink: Secondary Fisheries Lakes
- Yellow: Wild Rice Lakes

Roads
- Brown

Fond du Lac Boundary
- Gray

Streams
- Blue

St. Louis River
- Blue

Lake monitoring point
- Circle

Stream monitoring point
- Black

Third Lake
- Marked on the map
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<tr>
<th>StationName</th>
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<th>Parameter</th>
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True Color for FDL Fisheries Lakes

- Big Lake
- Joe Martin Lake
- Lac Lake
- Lost Lake
- Perch Lake N
- Pat Martin Lake
- Second Lake
- Spruce Lake
- Cedar Lake
- First Lake
- East Twin Lake
- Simian Lake
- Sofie Lake
- West Twin Lake
- Third Lake

True Color (Pt-Co Units)
Zooplankton Species Diversity vs Trophic State Index for FDL Fisheries Lakes

$y = -0.0102x + 1.0867$

$R^2 = 0.5212$

$P = 0.002$
Zooplankton Abundance vs Trophic State Index in FDL Fisheries Lakes

\[ y = 0.8944x - 12.282 \]

\[ R^2 = 0.3655 \]

\[ P = 0.02 \]
2 PCs explain 86% of variance in the data

Total Phosphorus explains most of the difference between lakes
319 Competitive Grant

- Relies heavily on FDL’s Tribal Non-Point Source Assessment and Management Report
- Made possible by 10 years of monitoring data on Third Lake
- Addresses both watershed and in-lake nutrient sources
- Education component
- Isolated basin
Project Goals

• Educate Band members and Third Lake homeowners and learn what they know about the lake
• Work with horse farm owner to reduce external nutrient inputs
• Apply alum to reduce internal nutrient recycling
• Targeted monitoring to note effects of nutrient reduction
• 90% reduction of phosphorus in the water column due to external and internal nutrient load reductions
First Year (2011)

• Public meeting
• Lake sediment coring
• Targeted monitoring
• Working with owner of horse farm
• Surveys
Lake Coring
Targeted Monitoring

• **Physical**: Secchi depth, general chemistry, color, alkalinity/hardness, nutrients, vertical profile of DO, temp, turbidity, and conductivity

• **Biological**: algae, zooplankton, aquatic vegetation, fish
Site Visit

Fond du Lac Reservation

Natural Resources Conservation Service

Horse Farmer
Next Year

• Alum treatment
• Continued monitoring
• Fish and aquatic plant assessments
• Brochure on our lake restoration efforts

Long-Term Goals

• Remove impairments
• Meet lake-specific nutrient criteria
• Fisheries management
Questions?