

319 Small Watershed Focus Grant Application- Interview – Group C

Pelican River Watershed District, Becker County, MN

<p>Element 1: Identification of causes of impairment and pollutant sources or groups of similar sources that need to be controlled to achieve needed load reductions, and any other goals identified in the watershed plan.</p> <p>Campbell Creek- TSS Reduction needed for High Flow-32.5 ton/day. See below Chart for more details. North Floyd (Mud) – Protect goal- 90 lbs/yr TP Big Floyd – Protect 57lbs/yr TP Little Floyd – Protect 63 lbs/yr TP Pelican River- <i>E.coli</i> 111.8 org/100ml (concentration) or 47% Detroit – Decreasing trend, 679lbs/yr, 10-year 203lbs/yr TP</p>	<ul style="list-style-type: none"> • Pollutant sources, causes, load reductions, and goals are identified. See following plans: <ul style="list-style-type: none"> ○ PRWD 10-year WMP (2020) – Identified Issues in other plans and studies, Table 3-1 ○ Otter Tail WRAPS (2020) ○ Becker County LWMP (2017) ○ Becker County Comprehensive Plan ○ City of Detroit Lakes SWPPP ○ MN DNR LPSS ○ NRCS Small Watershed Plan for Upper Pelican River (PL-566) 2007 ○ MN Non-point Priority Funding Plan ○ MPCA Strategic Plan, MN Nutrient Reduction Strategy
<p>Element 2: An estimate of the load reductions expected from management measures. Element 3: A description of the nonpoint source management measures that will need to be implemented to achieve load reductions in element b, and a description of the critical areas in which those measures will be needed to implement this plan</p> <p>We will develop a targeted plan for priority/critical areas using existing data, studies/plans, watershed analysis tools, models (HSPF, PTMApp, etc), and on-the-ground verification to select the most appropriate practice (cost/benefit/landowner willingness) to meet the load reduction goals.</p>	<p><u>Campbell Creek TSS– Potential Mgmt. Practices</u></p> <ul style="list-style-type: none"> • Identify and target additional critical agricultural erosion and sediment transport areas and implement appropriate BMP’s. • Identify potential wetland restorations to reduce peak flows • Develop and implement a streambank stabilization plan to reduce channel and bank erosion. <p><u>North Floyd TP- Potential Mgmt. Practices</u></p> <ul style="list-style-type: none"> • Assess internal phosphorous loading and potential Alum Treatment • Continue shoreline management protection and improvements. • Reduce tributary inputs (Campbell Creek) <p><u>Pelican River (Headwaters to Hwy 10) TP Probable Impairment Risk (MPCA Priority Class A).</u></p> <ul style="list-style-type: none"> • Rice Lake Wetland Restoration Project Upper and Lower Structures (600-1200 lbs/yr reduction). • Continue stormwater mgmt. for new and redevelopment. <p><u>Pelican River (Hwy 10 to Detroit Lake) <i>E. coli</i>, <i>DO</i> and <i>IBI</i> impairments Potential Mgmt. Practices.</u></p> <ul style="list-style-type: none"> • Rice Lake Restoration Project – may improve DO and IBI scores. • More investigation of sources of <i>E. coli</i> may be required.
<p>Element 4: An estimate of the amounts of technical and financial assistance needed, associated costs, and/or the sources and authorities that will be relied upon to implement this plan.</p>	<p><u>Campbell Creek</u></p> <ul style="list-style-type: none"> • Identify and Target critical ag BMPs - \$250,000; Becker SWCD, NRCS, University of MN, MPCA, BWSR, landowners • Streambank Stabilization Plan/Implementation - \$900,000 (\$200-\$300/linear ft); MN DNR, MPCA, Becker SWCD, NRCS, Landowners • Cost-Share AG Program - \$50,000; NRCS, Becker SWCD, PRWD, MPCA Landowners • Potential restoration of altered wetlands in nutrient contributing areas (structures, culverts, easements) (\$50,000), NRCS, MN DNR, BWSR, Becker SWCD, Township. <p><u>Floyd Lake</u></p> <ul style="list-style-type: none"> • North Floyd Sediment Study and Alum Treatment (\$400,000); BWSR, MPCA, Wenck (District Engineer)

	<ul style="list-style-type: none"> Continue cost share for shoreline BMP's, raingardens, and other BMP's. (\$5,000/yr), Becker SWCD, BWSR <p><u>Pelican River</u></p> <ul style="list-style-type: none"> Wetland Restoration Project – Rice Lake Wetland – two structures (\$2.5 Million), City of Detroit Lakes, Detroit Township, BWSR, PRWD, MPCA; Landowners. Upper structure easements, engineering plans, permits are obtained. Stormwater management practices in Industrial Park Area (\$200,000 - \$400,000); City of Detroit Lakes, MPCA, landowners. <p><u>Detroit Lake</u></p> <ul style="list-style-type: none"> Cost-Share Program for shoreline and stormwater management BMP's (\$5,000/yr)
<p>Element 5: An information and education component used to enhance public understanding of the project and encourage the public's early and continued participation in selecting, designing, and implementing the nonpoint source management measures that will be implemented.</p>	<p><u>General Public Information/Education Component</u></p> <ul style="list-style-type: none"> The water resource current health for public use (drinking, fishing, swimming, boating, hunting, etc.), protection and enhancement measures needed to maintain or improve conditions for these activities, ways we can work together to implement the needed activities, and associated costs. Education will be performed through not only media (radio, newspaper, Facebook, website), but interactively through District Staff presenting at meetings of local service groups, lake associations, youth groups, environmental groups, government (City Council, County Commission), and other stakeholder groups. The District has actively participated in school events to teach youth about the effects of pollution and runoff into our waters. Civic Engagement/Citizen and Technical Advisory Committees. The District will collect stakeholders (landowners, producers, water resource users such as businesses, recreationalists, riparian owners, LGU's, non-profits) input to guide management actions and select projects based on their priorities, landowner willingness to participate, cost benefit, and effectiveness. Environmental Justice. It is important to preserve and protect Detroit Lakes water quality for use of the mile-long public beach and park area which serves as clean and healthy environment for all members of our community and surrounding area.
<p>Element 6: Schedule for implementing the nonpoint source management measures identified in this plan that is reasonably expeditious</p>	<p>TBD – 4-year cycle; up to 16 years.</p>
<p>Element 7: A description of interim measurable milestones for determining whether nonpoint source management measures or other control actions are being implemented.</p>	<p>The milestones will be the completion of the targeted practices within the implementation timeframe.</p>
<p>Element 8: A set of criteria that can be used to determine whether loading reductions are being achieved over time and substantial progress is being made toward attaining water quality standards.</p>	<p>Completion of targeted practices and on-going water quality monitoring. The process of implementing the plan will be iterative. Using effectiveness monitoring strategies, the intention is to reassess this plan every two years, to make sure interim milestones are being met, and that funds are being maximized with the most efficient management practices.</p>
<p>Element 9: A monitoring component to evaluate the effectiveness of the implementation efforts over time, measured against the criteria established under item h immediately above</p>	<p>The District currently has an intensive monitoring program conforming to MPCA's SOP's to identify and target sources of pollution and impairments in District Waters. The District recently</p>

	revised its 10-year plan to efficiently target pollution and increase the dataset available for assessment of District waters. The District evaluates its monitoring program on a yearly basis and amends it as needed to capture the most accurate and necessary data.
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Upper Pelican River Watershed Area. (Upstream of Detroit) - Prioritization- critical economic value, headwaters, high quality protection area

HUC 12- 090201030701 Headwaters Pelican River

- **Streams**

- **Campbell Creek (09020103-543)- Campbell Lake to Floyd Lake - 3.8-mile segment**

- A. TSS TMDL Impairment**

- Pollutant Sources

- Moderate

- Poor Riparian Vegetation Cover
 - Bank Erosion/Excessive Peak flow
 - Channelization

- Low

- Livestock Grazing in Riparian Area
 - Upland Soil Erosion
 - Upstream Influences
 - Farmed through headwaters streams
 - Poor shoreline buffer
 - Internal sources

- Protection and Restoration Goals

- DO – Threatened (Borderline Impairment)
 - TP, TSS – High Restoration Effort

- **Lakes**

- **North Floyd (Mud) 03-0387-01**

- 281 acres
 - 34 ft
 - Meets all standard
 - Trends
 - Stable: TP, Chl-a
 - Load reduction
 - 90lbs/yr (**79% nearshore**, 19% tributary, 2% atmospheric)
 - High LPSS
 - High LBCA
 - Priority Class C

- **Big Floyd – 03-0387-02**

- 881 acres
 - 34 ft
 - Meets all standard
 - Trends
 - Stable for TP, Chl-a, Secchi
 - Load reduction
 - 57 lbs (22% nearshore, **71% tributary**, 7% atmospheric)
 - Highest LPSS
 - Highest LBCA
 - High Lake of Biological Significance
 - Protection Priority Class A

- **Little Floyd- 03-0386-00**
 - 210 acres (**39% nearshore**, 18% Tributary, 43% atmospheric)
 - 32 ft
 - Meets all Standards
 - Trends
 - Stable for TP, Chl-a, Secchi
 - Load Reduction
 - 63lbs/yr
 - High LPSS
 - High LBCA
 - Outstanding LBS
 - Priority Class C

Strategies- Mutually beneficial solutions for landowners and water quality goals – prioritize and target most critical areas through knowledge and observations – target most vulnerable streambank areas.

- Work with MPCA to reduce nutrients and pollutant loading to lakes and streams (p g4-1 4.1.1.A.1)
- Identify and target critical agricultural erosion and sediment transport areas in the North Floyd and little Floyd sub watersheds.
- Develop and implement a stream bank stabilization plan for Campbell creek to reduce TSS and TP loading from Campbell Creek to the Floyd Lakes
- Monitor existing agricultural BMP's in the Floyd-Campbell to evaluate BMP phosphorous removal efficiency
- Enforce MN Buffer Law
- Support SWCD efforts to identify and target critical erosion areas in the District and to promote the use of erosion control management BMP's
- Assess internal phosphorous loading in North Floyd and perform Alum treatment or other appropriate practice to reduce loading

Practices completed – Example of brining LA and Landowner/producers together – review existing conditions, monitoring data. Toured area. Result: Lakeshore owners – responsible for shoreline management, stormwater runoff/limit impervious surface, fertilizer reduction, ISTS; Ag Stakeholders – riparian buffers, over 25 BMP practices installed in a 1/2 mile stream segment area. Partners: Landowners, NRCS, Becker SWCD, (\$250,000 grant 75% cost-share; 25% - landowner and PRWD) Floyd Shores. Project effectiveness monitoring – some reduction in TSS, but not the results we expected. Further monitoring – bank erosion/peek flows, channel incision through non-farmed creek segments. (WRAPS, MN DNR).

Streams

- **Pelican River 09020103-771 - Headwaters to Hwy 10; 9.91-mile segment**
 - A. NO IMPAIRMENTS**
 - Protection and Restoration Goals
 - TSS – Protect
 - TP – Enhance (probable impairment Risk)
 - DO – Low Restoration Effort
 - **MPCA Protection Prioritization**
 - **Protection Priority Class A**
- **Pelican River 09020103-772 - Hwy 10 to Detroit Lake - 0.987-mile Segment**
 - A. Fish, Macroinvertebrate IBI, DO, E. coli Impairments
 - Pollutant Sources – Bacteria – Reduction Goal – 111.8 org/100ml (concentration) or 47%
 - Moderate
 - Wildlife

- Low
 - Poor Shoreline Buffer
 - Internal Sources
 - Bank erosions/excessive peak flow
 - Poor Riparian vegetation cover
 - Failing Septic Systems
 - Livestock overgrazing in Riparian
 - Fertilizer and manure runoff
 - Pollutant Sources- DO (No restoration goal has been established)
 - Low
 - Poor Shoreline Buffer
 - Internal Sources
 - Bank erosions/excessive peak flow
 - Poor Riparian vegetation cover
 - Failing Septic Systems
 - Livestock overgrazing in Riparian
 - Fertilizer and manure runoff
 - Channelization
 - Upstream Influences
 - Farmed through headwaters streams
 - Poor shoreline buffer
 - Internal sources
 - **Protection and Restoration Goals**
 - NO₃, TSS – Protection
 - TP – Enhance
 - DO, E. coli – High Restoration Effort
 - Rice Lake should address DO, and IBI scores
 - Flow regime instability, loss of physical habitat, and low DO are major cause of low IBI scores
- **Lakes**
 - **Detroit 03-0381-00**
 - 3055 acres
 - Depth of 82ft
 - Meets all standards
 - WLA of 34 lbs/day
 - Trends- Little DL
 - Improving for TP and Secchi
 - Stable for CHL-a
 - Trends – Big Detroit
 - Degrading for TP
 - Chl-a and Secchi are stable
 - Trends – Curfman
 - Stable for TP, Secchi, and Chl-a
 - Load Reduction
 - 203lbs/yr (17% nearshore, **77% Tributary**, 7% Atmospheric)
 - Highest LPSS
 - Highest LBCA
 - High Lake of Biological Significance
 - Protection Priority Class A
- **Detroit Lake Strategies**
 - Work with MPCA to reduce nutrients and pollutant loading to lakes and streams
 - Rice Lake Wetland Restoration Project (600 LBS TP reduction); Upper and Lower structures.
 - Enforce Buffer Law
 - Support SWCD efforts to identify and target critical erosion areas in the District and to promote the use of erosion control management BMP's

- Identify areas that need Stormwater BMP's
- Upgrade water-related infrastructure in the City to increase the efficiency of phosphorous removal
- Evaluate opportunities for capital improvement projects that reduce stormwater volume and peak flows.
- Continue effectiveness monitoring

Completed: Rice Lake Wetland Upper Structure Permit- September 2020; Applied for BWSR Grant and MPCA loan; Regional Stormwater Facilities (Highway 34, Middle School, 8th Street Industrial Park, Lakeshirts, Lori Avenue- PRWD funded). City of DL and Private Sector large basins – BTD, Storage Sheds, North Shore Drive, MN DOT Highway 10 – series of treatment ponds and near shore raingardens, fish passage improvements), MN DNR fish spawning habitat improvements.

Proven Collaboration and partnerships

- **MPCA**
 - Diagnostic Studies (Pearl, Detroit, Sallie)
 - Grants and low-interest Loan Funds for project implementation
 - Extensive Monitoring program conforming to MPCA protocols
- **MNDNR** – Fish passage (Dunton Locks, Becker County Dry Dock, Shoreline restoration grants (\$45,000 Detroit Overlook). South Shore Water Access; FRANK WMA
- **Landowners** – more than 35 easements for Rice Lake Project, special protection areas, etc.
- **COLA's**
 - Education/Outreach events – Monitoring Workshops, Shoreline BMP's, Booklets/flyers, social media posting/development
 - Relationships with Lake Detroiters, Floyd Shores Association – Speak at annual meetings, enlist members for citizen monitors, stakeholder input, development projects, Area Project Tours
- **Becker SWCD/NRCS**
 - Project collaboration- Campbell Creek Ag BMP's (>25 BMP's), Shoreline Restorations, AIS mgmt. and education collaborations,
- **Becker County** – Parks and Rec, Road Authorities, Planning and Zoning (Memorandum of Understanding – assist with shoreline permitting)
- **City of Detroit Lakes** – Urban stormwater management, Memorandum of Understanding – Stormwater mitigation and shoreline permitting), shared costs of regional stormwater management systems.
- **Academic institutions**
 - University of MN ARC – Nutrient Loading from Rice Lake Wetland, 2 Master Theses, Campbell Lake Sediment Study
 - Concordia College – Flowering Rush Phenology/Ecology Study, Long Lake WQ testing, Zooplankton analysis, Student Field Trips,
 - Mississippi State University – Flowering Rush Control Research
 - North Dakota State University – Limnology Field Trips
 - Detroit Lakes Public Schools
- **Service Clubs**
 - Rotary, Kiwanis, Lions, etc.

Funding/Match Capacity. Pelican River WD is a local unit of government with taxing authorities. In the past the District as set up funding mechanisms for grant matches and for repayment of loans. The District understands a 40% match is required for the grant funds.

Staff Capacity – 3 full time employees (2 technical, 1 education/financial), 2 -3 seasonal interns and doesn't rely on other capacity or grant funds to fund these positions.

Aggregated HUC-12	Stream Reach WID	Waterbody	Pollutant	Flow Regime	Designated Class								Estimated Load Reduction		
					Loading Capacity	Wasteload Allocation					Load Allocation			Margin of Safety	
						WWTPs	Construction/Industrial Stormwater	NPDES Feedlots	Straight Pipe Septic	MS4s	Total LA	Existing Load			
Upper Pelican River 0902010307-02	09020103-772	Pelican River, Highway 10 to Detroit Lk	E. coli	Very High	319	0	0	0	0	12	275	237.8 org/100 mL	32	47%	
				High	162	0	0	0	6.3	139	16				
				Mid-Range	94	0	0	0	3.7	81	9				
				Low	50	0	0	0	2	43	5				
				Very Low	24	0	0	0	0.94	21	2.4				
	09020103-543	Campbell Creek, Campbell Lk to Floyd Lk	TSS	Very High	14	0	0.01	0	0	0	13	91.2 mg/L	1.4		67%
				High	6.9	0	0.01	0	0	0	6.2		0.7		
				Mid-Range	4.6	0	0.005	0	0	0	4.1		0.5		
				Low	2.9	0	0.0029	0	0	0	2.6		0.29		
				Very Low	1.7	0	0.0017	0	0	0	1.56		0.17		

Total Suspended Solids	Flow Condition					
	Very High	High	Mid-Range	Low	Very Low	
	[tons/day]					
Loading Capacity	14	6.9	4.6	2.9	1.7	
Wasteload Allocation	WWTP	0	0	0	0	0
	NPDES Feedlots	0	0	0	0	0
	Straight Pipe Septic	0	0	0	0	0
	Construction/Industrial Stormwater	0.014	0.007	0.005	0.003	0.002
	Total WLA	0.01	0.01	0.00	0.00	0.00
Load Allocation	Total LA	13	6.2	4.1	2.6	1.6
Margin of Safety (MOS)	1.4	0.69	0.46	0.29	0.17	
Existing Load	47	15	13.3	9.9	0.74	
Load Reduction	32.5	8.1	8.8	7.1	0.0	
Percent Load Reduction	70%	54%	66%	71%	0%	
90th Percentile Concentration	91.2					
Overall estimated percent reduction	67%					