

**Upper Red Lake River Subwatershed
Natural Resources Enhancement Issues Ranking**

Order	Issue	Severity	Ranking (1=high / 12=low)	Comments
A	River and ditch bank failures	high	1	
B	Ditches and tributary outlets to channels	high	1	
C	Filter strips along river; ditches and ag pipes	high	1	
E	Water quality is relatively good on the RLR within this subwatershed	low	2	
F	TMDL for turbidity; from lake to confluence of Thief River	moderate	2	
G	TMDLs, concerns for development issues	high	2	
H	Pasture lands along oxbows; fencing; need to create alternate water source	moderate	3	
J	Fish passage at Red Lake Dam at outlet to river	moderate	4	
L	Influenced by water level: USACE operating plan and climate conditions; ag vs. rec	moderate	5	
K	Need more recreational opportunities, Red Lake river corridor project	moderate	6	
I	Beaver damage	moderate	7	
D	Ag land tiling	moderate	8	
M	Patterned peatlands	low	9	
N	Numerous wetlands in eastern area (reservation)	low	9	

Upper Red Lake River Subwatershed Flood Damage Issues Ranking

Order	Issue	Severity	Ranking (1=high / 12=low)	Comments
A	Agricultural	high	1	
F	Inadequate ag drainage	high	1	
G	County ditch problems	low	1	
D	Smiley Bridge west to Thief River Falls on Red Lake River, residential flooding in spring	high	2	
E	Sherwood forest, spring flooding	high	2	
C	High landing flooding	moderate	3	
H	City of Thief River Falls water supply, source is Red Lake River	low	3	m
I	Red Lake River long periods of high flow	moderate	3	m
K	Flow controlled by USACE	high	3	j,k
L	Alternate supplies study? GW	moderate	4	
B	Good Lake impoundment, excess water	moderate	5	
J	Lack of flow/stage information at Kratka Bridge	low	6	
N	More info concerning ag land tiling	low	7	
M	High water tables in eastern parts	low	8	

**Lower Red Lake River Subwatershed
Natural Resources Enhancements Issues Ranking**

Order	Issue	Severity	Ranking (1=high / 12=low)	Comments
B	Tributary bank instability at outlets into rivers	moderate	1	
C	JD 60, south of CR11, Ricards buildings about to fail	high	1	
D	Bank sloughing in Crookston and Red Lake Falls	high	1	
E	Polk CD 1 outlet, last mile, west of Crookston	high	1	
F	Ditches outletting into natural streams, filling outlet streams with sediment	high	1	
A	Erosion assessment from reservation to Red; map eroded areas; applied for LCMR grant	high	2	
G	Turbidity: LRLR is impaired Water: cost of treating water is expensive; Burnham Crk to Red; the data available for the next assessment will extend impairment upstream through Crookston (303D)	high	3	
I	Source water protection	moderate	4	
K	Source water protection	moderate	4	
O	Low water: tubing	moderate	5	
P	Red Lake Corridor Group: need to investigate their work (Paige)	moderate	5	
Q	Fishing is important in LRLR	moderate	5	
N	Ottertail Dam, east of Crookston, fish passage in lower flows	moderate	6	
R	Safety near dams, especially above Crookston	moderate	6	
L	Wellhead protection plans Crookston, Red Lake Falls, Thief River Falls	moderate	7	
S	Wayside State Park at Huot	moderate	8	
T	Prairie remnants	moderate	8	
U	LRLR is a unique resource that needs to be recognized	moderate	8	
V	Old Treaty crossing at Huot	moderate	8	

**Lower Red Lake River Subwatershed
Natural Resources Enhancements Issues Ranking**

H	Outlet of Schirrik Dam, feedlot in Black River	low	9	
M	DNR to provide info: Beach Ridges, prairie grouse, deer	low	10	
J	Flowing well protection in Huot	low	11	

Lower Red Lake River Subwatershed Flood Damage Issues Ranking

Order	Issue	Severity	Ranking (1=high / 12=low)	Comments
A	Agricultural	high	1	
B	Overland flooding in Crookston: city dikes in poor condition	high	2	
E	Residential flooding in NE part of Crookston	high	2	
J	Bank sloughing in Crookston and Red Lake Falls	high	3	
G	JD 60 flooding	high	4	
H	Lateral 4 (2) of JD 60	high	5	
C	Overland flooding near RLC CD 13, Browns CR	high	6	
F	Inadequate E-W ditches in western half of subwatershed	high	7	
K	Public water supply in EGF and TRF	low	8	
O	Source water protection plans and wellhead protection plans need to be done or followed up on	moderate	9	
L	Flashy hydrograph (53)	moderate	10	
M	Groundwater not adequate for municipal supplies	low	11	
N	Gravel pit contamination of aquifers	low	12	
I	Surface water irrigators	low	13	
D	Huot Dam: 1946 (BC not positive) Today, Section 205 high flow cutoffs	moderate	14	practical

**Thief River Subwatershed Natural Resources
Enhancement Issues Ranking**

Order	Issue	Severity	Ranking (1=high / 12=low)	Comments
A	River and ditch bank failures	high	1	
C	Ditch 20 sloughing and erosion on laterals	high	1	
D	Active erosion Section 1 Northwood Twp; MC TH 54 and bridge on Moose River	high	1	
F	Ditch erosion	high	1	
G	Overall sloughing and sedimentation	high	1	
H	SD 83 sedimentation, bank erosion	high	1	
J	CD18/30 bank sloughing	high	1	
K	Sedimentation deltas Thief Lake, Agassiz, Elm Lake	high	1	
M	Channel and streambank erosion	high	1	
N	High total suspended soils and dissolved solids on the Mud River	moderate	1	
O	High fecal coliform at Thief Lake outlet; low DO from Agassiz NWR outlet to TRF; high TSS and TDS from Agassiz NWR outlet to TRF; high conductivity near TRF	high	2	
P	Low DO on the Moose River	moderate	2	
Q	Hydrogen Sulfide in TRF	moderate	2	
R	Generally poor water quality coming from impoundments	moderate	2	
U	Low flows	moderate	3	
X	Flashy hydrographs	moderate	3	
W	2002 Agassiz operation sediment releases	moderate	4	
AA	Agassiz update CCP	moderate	4	
BB	Thief Lake management plan update	moderate	4	
CC	Review Moose River impoundment operations	moderate	4	
T	Thief, Mud, Moose River Corridors	moderate	5	
V	Thief River Section 19, lost river channel rehab	moderate	5	
Y	Restore channelized Mud River	moderate	5	
EE	ATV corridors	moderate	6	
FF	Boat ramps	moderate	6	

**Thief River Subwatershed Natural Resources
Enhancement Issues Ranking**

GG	Preserve hunting	moderate	6	
JJ	Canoeing	moderate	6	
HH	Protection of fens	moderate	7	
II	Natural heritage elements	moderate	7	
L	Ag land tiling	moderate	8	
S	Beaver damage	low	9	
Z	Preserve Elm Lake deer wintering area	low	10	
DD	Grassland/brushland habitat maintenance	low	10	

Thief River Subwatershed Flood Damage Issues Ranking

Order	Issue	Severity	Ranking (1=high / 12=low)	Comments
B	Farmstead flooding	high	1	l
L	Farmstead ringdikes	high	1	b
M	Goodridge flooding	high	1	
A	Ag land flooding	high	2	c
C	Overland flooding	high	2	a
E	Ditch 20 system problems (maintenance)	high	3	f
F	Ditch 20 to 200	high	4	e
G	Flooding adjacent to Agassiz	moderate	5	g,j,o,s,u
J	Adjacent to Agassiz	moderate	5	g,j,o,s,u
O	Debris Agassiz	moderate	5	g,j,o,s,u
S	Thief River flows into Agassiz	high	5	g,j,o,s,u
U	Extended periods of high flow in Thief River (SD # 83); extended periods of low flow in TR; flashiness in flow from Agassiz to NWR	high	5	g,j,o,s,u
K	Downstream of Elm Lake	moderate	6	a,u
D	Inadequate outlets	moderate	7	e,f,a
N	Whole length of 200	moderate	8	
P	Better maintenance on public systems; extensive ditch systems draining non-productive lands	high	8	
Q	Beaver problems	high	8	
R	Channel maintenance on natural reaches	moderate	8	
T	Outlet of SD 83	moderate	9	
I	Impoundments: refer to URLR	low	10	p
H	Subwatershed has more control structures	low	11	
V	More info concerning ag land tiling	low	12	

Grand Marais Subwatershed Natural Resources Enhancement Issues Ranking

Order	Issue	Severity	Ranking (1=high / 12=low)	Comments
A	Bank failures on CD 2, JD 60; Grand Marais is silted in	high	1	ext. erosion
B	Wind and water erosion: worst wind erosion in winter	high	1	c,d
C	Loss of windbreaks	high	1	b,d
D	Conservation tillage	high	1	b,c
E	Extreme erosion in the ditched portion where the river is diverted directly to the Red River	high	1	a
F	Turbidity and TSS under periods of high flow and low DO under low flow	high	2	g
G	River will be listed on next MPCA List of Impaired Waters (TMDL)	high	2	f
L	Flashy hydrograph hinders waterfowl production along the Grand Marais	moderate	3	
H	Degraded fish and wildlife habitat, especially along the Grand Marais	high - west of 75 low - east of 75	4	j
J	Waterfowl and furbearer habitat could be more productive	moderate	4	h
K	Vegetation in flood plain is killed during high flows	moderate	4	j,h
Q	Native prairie	high	5	r
R	Calcareous fens	high	5	q
I	Prairie chicken and sharp tail grouse populations are on the rise	moderate	6	east 75
S	Small wetlands are missing (DU Study)	high	7	
M	Minimal opportunities for fishing, waterfowl hunting, canoeing, wildlife viewing	low	8	n,o
N	Waterfowl hunting is on the rise	low	8	m,o
O	Riparian corridor hunting is quite good	low	8	m,n
P	Limited trail systems	low	8	
T	Important non-game avian corridor	high	9	

Grand Marais Subwatershed Flood Damage Issues Ranking

Order	Issue	Severity	Ranking (1=high / 12=low)	Comments
A	Overall flooding, section by section	high	1	i
H	CD2, CD 66, CD 126, JD 60, CD 39, CD 25	high	1	a
I	Additional private ditching	moderate	1	a
L	Crop damage	low	1	a
B	Residential and ag flooding along the Grand Marais	high	2	d,g
D	Residential and ag flooding west of the Grand Marais east of #220	high	2	b,g
G	Residential flooding north of EGF, west of #220	high	2	b,d
P	City of Euclid	high	2	b
E	Roads and ag lands and bridges	high	3	
C	Emergency services cannot reach patients	high	4	
F	Lack of detailed mapping of flood damaged areas	moderate	5	FEMA working on
N	Sedimentation	high	6	m
M	Flashy hydrographs (high peaks)	high	7	n
O	Flow information	moderate	8	linkage to A easy to implement
K	Subsurface drainage (tiling)	low	9	
J	Benefited areas are much smaller than drainage areas	low	10	areas not paying benefits

Clearwater Subwatershed Natural Resources Enhancement Issues Ranking

Order	Issue	Severity	Ranking (1=high / 12=low)	Comments
B	Channelized reach of the Clearwater River and Ruffy Brook (seeking new channel); USACE project cut		1	
F	New development of homes at Walker Brook Lake		2	low priority in this category
G	Maple Lake and other lakes erosion of shoreline		2	g, j, t, u, v
J	Maple Lake suffers from poor water quality	high	2	
Q	Other Lakes: Cameron, historic sewage effluent; Badger and Mitchell, fish kills	high	2	g, j, t, u, v
S	ISTS compliance on area lakes		2	
T	Clearwater Lake mesotrophic now after going eutrophic in 1997 due to sewage, need to prevent future problems		2	g, j, t, u, v
U	Oak Lake is not able to sustain a viable fishery: water levels, excess nutrients		2	
w	Hill River Lake: fish kills		2	
A	Bank stabilization and erosion (e.g. Lost River, Greenwood) - RLWD to provide report		3	d
C	Sand/sediment transport; impacts wild rice pump intakes; spring; no sampling during flooding		3	a,d
D	Ditch bank sloughing and stabilization		3	a
E	Sediment from commercial wild rice production		4	
H	Ag erosion western half		4	i
I	Wind erosion on beach ridges		4	h
K	RLC Ditch 57 has low D.O.		5	
L	Citizens are concerned about TMDL regulations and their effect on wild rice and all other farming operations		5	o, p
O	Walker Brook and Walker Brook Creek naturally occurring TMDL		5	low priority in this category

Clearwater Subwatershed Natural Resources Enhancement Issues Ranking

P	Delisting of Clearwater for Fecal TMDL denied by MPCA, need to revisit		5	low priority in this category
M	Very high percentage of subsurface drainage; possible positive impacts on water quality (TSS, TP, less tillage, reduced runoff, increased infiltration); possible adverse N impacts		6	
N	Tiling has changed ag practices to no-till or near it		6	
R	Poplar Diversion: JD 73 outlets to Maple Lake, sediment plume; east and west flows in 73		7	
v	Upper Clearwater is a designated trout stream		8	

Clearwater Subwatershed Flood Damage Reduction Issues Ranking

Order	Issue	Severity	Ranking (1=high / 12=low)	Comments
A	City of Clearbrook Flooding		1	
B	City of Bagley, some homes on East end	low to moderate	1	
I	City of Mentor, flooding from Maple Lake outflow; also CD 14 sedimentation. All issues seem to be related		1	
G	Perceived lack of flow/ WQ data in Maple Lake area		2	
H	More stage/flow data		2	
C	Beavers plugging ditches, culverts and waterways	entire subwatershed	3	
D	Lack of maintenance of aging public ditch system	entire subwatershed	3	
E	Ditches by Anderson Lake		3	
L	Badger Creek flooding		3	
F	Wild rice paddies struggle for supply in some years with low water		4	Need to recognize: store floods in high years, struggle in dry years. How to help?
M	Clearwater Lake: outlet structure; potential for damages to road; N side of dam, discharge near wingwall		5	
J	Many wildlife lakes here; need to examine primary use: wildlife vs fisheries		6	
K	Crookston: 2 new wells in this area; need awareness of this		7	

Red Lakes Subwatershed Natural Resources Enhancement Issues Ranking

Order	Issue	Severity	Ranking (1=high / 12=low)	Comments
O	Red Lakes themselves	high	1	
P	Red Lake Nation coordination	high	1a	
A	Some erosion/runoff on Battle Creek	high	2	
B	Sedimentation and vegetative growth in ditch systems	high	2	
C	Long shore drift clogs rivers, impedes access	high	2	
D	Erosion problems on tributaries to Red Lakes	high	2	
F	Shotley Brook Dam failure	high	2	
G	Fish spawning impacted	high	2	
K	Fish cribs	moderate	3	
L	Good fishing on lakes	moderate	3	
M	Waterskiing	moderate	3	
E	Bartlett Lake eutrophication	high	4	
I	Brushland/grassland habitat	low	5	
J	Need for controlled burning	low	5	
N	Bog state recreation area	moderate	6	
Q	Trout stream	moderate	6	
H	Fish escapement	low	7	

Red Lakes Subwatershed Flood Damage Issues Ranking

Order	Issue	Severity	Ranking (1=high / 12=low)	Comments
A	Cabin flooding	high	1	
B	Corps operations	high	1	
K	Operation of dam	high	1	
O	Water release impacts to downstream Red River	high	1	a
G	Poor drainage high water table	moderate	2	
H	Impacts to wild rice	moderate	2	
L	Beaver problems	high	2	
I	Access to lakes from cabins	moderate	3	
J	Need for DNR dredging permits for lake access	moderate	3	
C	Shotley Brook Dam	moderate	4	
D	Tamarac River Dam	moderate	4	
N	Shotley Brook plugged frequently	moderate	4	
E	Ditch 10	low	5	f
F	Ditch abandonment	low	5	e
M	WCA issues of mitigation with so many wetlands	low	6	

Natural Resource Enhancements Issues Ranking

Categories, Issue Number and Ranking	Erosion and Sedimentation 1	Water Quality 2	Fish and Wildlife Habitat 3	Water-based Recreational Activities 4	Unique Water/ Land Related Resources 5	Other Natural Resource Issues 6
Erosion and Sedimentation 1		1	1	1	1	1
Water Quality 2	1		2	2	2	2
Fish and Wildlife Habitat 3	1	2		3	3	3
Water-based Recreational Activities 4	1	2	3		4	4
Unique Water/ Land Related Resources 5	1	2	3	4		5
Other Natural Resource Issues 6	1	2	3	4	6	

Flood Damage Reduction Rankings

Categories, Issue Number and Ranking	1 Flooding	2 Flood Damages	3 Drainage	4 Drought	5 Steam Flows	6 Lake Levels	7 Groundwater	8 Other Flood Damage Issues
Flooding 1		2	1	1	1	1	1	1
Flood Damages 2	2		2	2	2	2	2	2
Drainage 3	1	2		3	3	3	3	3
Drought 4	1	2	3		5	6	7	8
Steam Flows 5	1	2	3	5		5	5	5
Lake Levels 6	1	2	3	6	5		6	6
Groundwater 7	1	2	3	7	5	6		7
Other Flood Damage Issues 8	1	2	3	8	5	6	7	