10. 0. Tier One Action Plan: District-wide Activities

Certain District activities generally have been undertaken throughout the District and are considered to have District-wide benefits and consequences. Such District-wide programs will be continued or expanded as follows:

10.1 Education

The District's Managers take a very long view regarding the ultimate solution of lake water quality problems. It is clear that awareness of problems, their causes, and their solutions must be more widely understood by the public in general, and those who use and love lakes in particular. Accordingly, District staff and managers have been heavily involved in various educational programs, including *publications (reports, brochures, news articles), teacher education, student training, curriculum planning, serve as clearinghouse for best-management-practices (BMP) information, public presentations to service groups and governmental organizations, preparation and dissemination of materials targeted to Realtors, land-owners and developers, consultations with lake associations and their representatives, and continued support of, and interaction with, the Becker County Coalition of Lake Associations.* Staff and Manager in-service training activities are considered to be important functions. In addition to continuing these established activities, the District will undertake the following:

A. reach out to secure Involvement of additional volunteers for monitoring and advisory functions;

B. upgrade the District's web site in such a way that users will have interactive access to District data bases and reports, goals, plans, educational information, and calculators for such things as impervious surface, runoff, and rip-rap specifications;

C. implementation of awards and/or demonstration sites programs to focus attention on superior efforts by public and private groups in the area of water quality protection;

D. establish an educational forum series to provide patrons and government officials with current information on septic management, stormwater control, buffers, and other best management practices.

10.2 Monitoring

A sustained and systematic water quality monitoring program has been a part of the District's strategy since 1995 because the District's Managers believe that their decisions should be driven by a sufficient data base. Managers need good information in order to understand any water quality or other change taking place in District lakes, so as to choose from among alternative remedial measures to correct problems, and to evaluate the adopted measure.

The District currently monitors 19 lakes, and 18 stream sites on a regular basis. Emphasis has been given to tracking phosphorus levels and loads, but a good deal of information is necessary to supplement phosphorus analyses, including land use changes, impervious surfaces, hydrological modeling, and groundwater attributes. Also, starting in 1997, the District began collecting data on shoreline development characteristics in order to assess changes in shoreline conditions which may have a bearing on water quality. The specific data collected in any given year varies somewhat, depending upon special information needs, weather conditions, available equipment, and staff. Data needs change over time as our understanding of lake water quality processes expand.

The District intends to continue its basic water monitoring program, though additional monitoring activities are planned as follows:

A. Additional automated monitoring stations will be acquired, and equipment will be upgraded;

B. Shoreline, impervious surface, and land use change monitoring will be expanded, and adapted to complement the Becker County tax parcel information system;

C. The GIS capabilities will be upgraded and reconfigured to allow more seamless interaction with County and City systems, as well as with the District's website;

D. The water quality situation on additional lakes will be characterized;

E. Additional citizen volunteers will be recruited to help with on-going monitoring efforts;

F. The District will continue to coordinate its monitoring efforts with DNR and PCA, and with those of the Becker County Coalition of Lake Associations;

G. Additional groundwater measurements and monitoring will be added as needed.

10.3 Best Management Practices to reduce phosphorus and sediment

District Managers are well aware that much damage to water quality occurs as a result of poor management practices employed in the watersheds which drain to lakes. Central to the District's management strategy is the reduction of phosphorus and sediment loads both to the lakes and within them. The District's well-established policy and habit is to promote best-management practices wherever possible. These include agricultural as well as urban practices, and those employed by private developers as well as public entities. Sometimes financial incentives have been given to support conversion or improvement of cropping or livestock practices, or the re-establishment of natural vegetation. The managers are convinced that these programs are successful in reducing and treating runoff and discharge on-site, and will be continued.

As reported in Section 8, recent research has revealed that the immediate shorelines of lakes, streams and wetlands, contribute much more to lake water quality problems than had previously been understood. The Managers have responded with somewhat stricter rules and a permit system that focuses on proposed changes near these shorelines (see below). Also, there is growing evidence that alterations near wetlands may also degrade wetland ecosystems, causing a reduction in their capacity to protect downstream lake water quality. Accordingly, Managers believe that more should be done, and intend to promote the establishment of buffer zones along lake and wetland shorelines, and streams and ditches as follows:

A. Establish, purchase and maintain buffer zones along ditches for which a redetermination of benefits is undertaken.

B. Provide landowners with financial and technical support for their establishment of buffers along shorelines of lakes, wetlands, ditches and streams.

C. Encourage and provide financial support for the designation and maintenance of permanent buffer easements along shorelines whose impact zones containing wetlands, steep slopes, or bluffs, or whose adjacent waters contain emergent native aquatic plant species.

10.4 Regulation

It is understood that certain shoreland and land management activities contribute to the deterioration of lake water quality. In a 2003 revision of its Water Management Rules, the District adopted a permit system in order to require, or at least encourage the adoption of "best management practices" for managing runoff from building sites. The requirements for permits are especially strict in shoreland areas. With respect to these rules, the District will continue to strictly enforce its own rules, using District staff and qualified professional consultants; in addition, Managers will revise rules as we learn more about development impacts on water quality and the means to reduce them. In particular, it seems likely that rules offering greater protection of groundwater, priority wetlands and shorelines, and habitats related to water quality enhancement, should be strengthened.

The District regularly reviews and offers advice to other agencies concerning their own rules and their applicability to specific development proposals, or lake water quality protection in general. The logic of this cooperation and oversight has to do with the Managers practice of coordinating regulatory efforts of multiple agencies, and avoiding duplication of our own rules. Managers will continue to work closely with State, County, City and Township officials to strengthen their regulations, especially with respect to providing special protection to sensitive shoreline areas, and stormwater management, and will continue to participate in interagency review of major development projects. Of course, the District may need to revise its own rules in response to changes in other agency regulations to eliminate gaps or duplications.

10. 5 Lake Management Planning

The District accepts the premise that lake management plans should be a developed for each of its lakes. At present, lake management plans are prepared by private individuals, and have no legal standing. It seems possible that the legal standing situation may change, but in any case lake management plans generally include detailed assessments of the lake, including physical, chemical, and biological conditions in the lake. They also focus on the character of the lake's watershed, its land use, its contribution to lake problems, and other lake-watershed interactions. The perceptions and preferences of lakeshore residents and other lake stakeholders (such as fishermen, snowmobilers) are emphasized, and these groups, working together with agencies who have some management responsibilities, review conditions, consider carrying-capacities, set goals, and describe actions that will be taken to reach those goals. One likely outcome of such plans is the identification of special protection areas in sensitive lakeshore areas.

Such planning efforts already are strongly supported by the North American Lake Management Association, the Minnesota Lakes Association, the Becker County Coalition of Lake Associations as well as various Minnesota state agencies. There is some chance that the concept may obtain some legal status as a result of changes in state statutes.

The District has made some attempts to use this tool, most recently working with the Becker County Coalition of Lake Associations in promoting Minnesota's "Sustainable Lakes Management Planning Model". However, while there has been some success in developing plans for a few lakes within Becker County, so far no District lakes have been involved. It seems likely that one reason for that is that the District and other agencies have usurped some of the goal-setting and task identification that would be included in such plans (as in the cases of water quality, shoreline protection, and fisheries management). Another shortcoming is that zoning authorities have been unwilling to identify special protection zones.

The District wishes to encourage this level of planning as follows:

A. promote the concept through lake associations and other interested citizens, including lake residents, fishing and other organizations.

B. encourage counties and cities to adopt special protection zones

C. provide leadership in establishing lake management planning committees comprised of stakeholders

D. provide data and technical support in interpreting data; provide technical support for fulfilling additional data needs as determined by the lake management planning committees;

E. provide financial support in printing and distributing the plans, and in implementing them.

10.6 Septic System Management

Residential developments near most District lakes utilize septic systems to dispose of household sanitary wastes. The installation and operational standards for these systems are regulated by the State of Minnesota; supervision and inspections are provided by Becker County, and in a few instances by the City of Detroit Lakes.

Data concerning the specific lake water quality impacts of such systems is not readily available. It is known that if installed and operated properly, such systems can be used safely because phosphorus ions attach readily to clay and other particles found in soil so that phosphorus in soluble form does not move readily with groundwater. However, there are some exceptions to that general rule; in particular, it appears that soil can be saturated with phosphorus compounds, as may be the case in and around septic drainfields, or in overly fertilized soils. In such cases phosphorus may not only be carried by groundwater, but can even be leached from soil and carried into streams and lakes.

It also seems likely that many systems currently in use are not properly operated or maintained. Moreover they may not meet current state standards for their use. The District continues to be concerned about the likelihood that phosphorus from septic origins is entering some lakes. Accordingly, the District will...

A. continue to encourage rigorous enforcement of the highest standards of installation and maintenance of septic systems

B. continue to encourage periodic county surveys of septic system compliance in shoreland zones

C. refuse to permit the installation of septic systems in shore impact zones, or on steep slopes draining directly to public waters

D. promote alternative approaches for waste management in shoreland zones; one possible example of such an alternative would be to establish a utility that would facilitate collective treatment and/or maintenance of such systems.

10.7 Ditch Management

The Managers re-affirm their intent to fully comply with the letter and spirit of the drainage laws; and in accordance with District's Mission and past practice, they also will maintain and further develop the ditches in such a way as to minimize their past, present and future adverse impacts on the District's lakes. In practice this means the District will continue to inspect ditches regularly, and will take necessary steps to remove obstructions which impede discharges and cause problems for benefited properties. The District also will continue to supervise the addition of discharges to the system, or any devices that might restrict them, including culverts.

A large portion of the District's ditch management activities have focused on beaver control. It seems likely this will continue, as will the Managers' policy of attempting to remove beaver dams during periods of low water in order to minimize the downstream damage done by high velocity and quantities of discharges when dams are removed.

The District continues to struggle with the status of the urban sections of Ditches 13 and 14, and will undertake to reach a mutually satisfactory resolution with the City of Detroit Lakes. It also seems likely that a change in the status of the ditch as permitted by 2003 amendments to MN Stat. 103E may need to be a part of any changes in the management of the Ditched wetlands near Rice, St. Clair and Campbell lakes.

11.0 Action Plans for Lake Water Quality Management Areas

In order to more efficiently and completely address the different specific problems facing different lakes, the District has identified eight Lake Water Quality Management Areas.

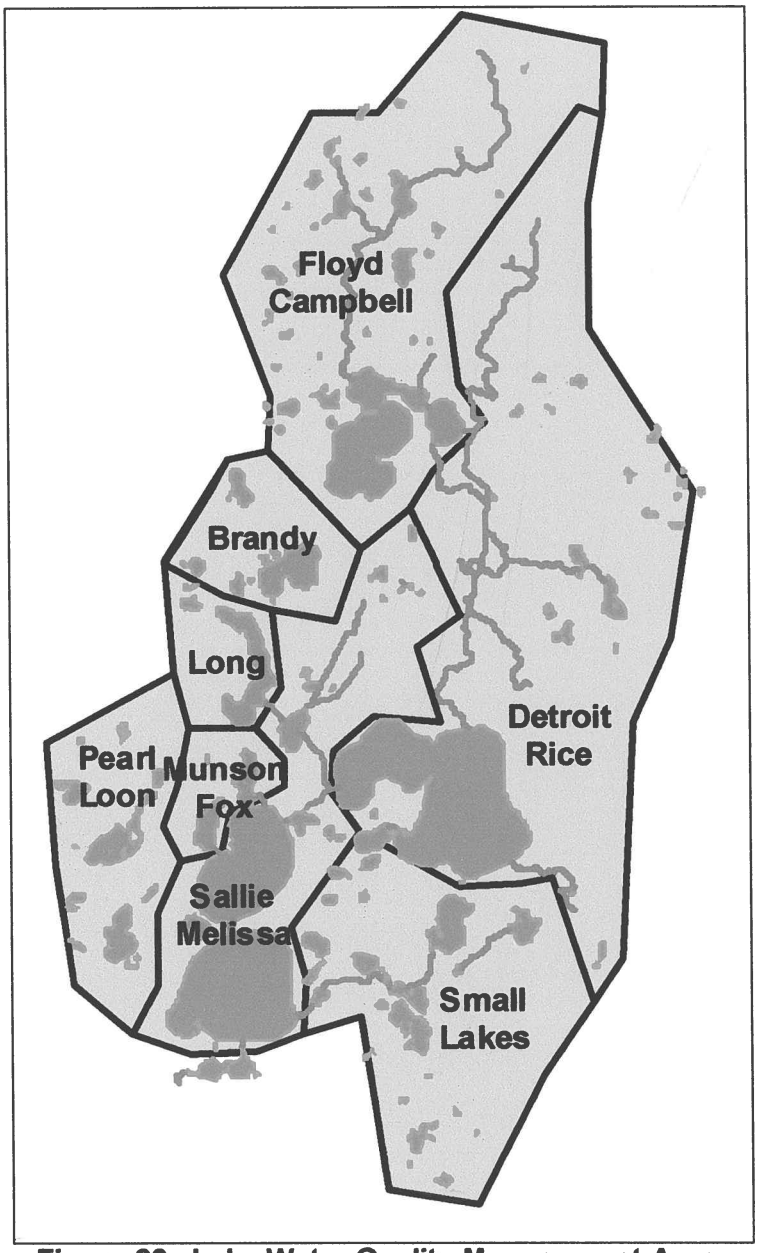


Figure 28, Lake Water Quality Management Areas

Basis for defining LWQMA's

While all boundaries are based upon subwatershed (drainage) areas, subwatersheds were included in a particular case based upon several criteria which received different weights for different LWQMA's. The general rule was that areas should either have some functional connections, or should be relatively homogeneous in terms of lake characteristics.

The following specific criteria were given consideration.

- Physical attributes
- Water Quality attributes or problems
- Subwatersheds contributing to nutrient loads
- Development characteristics
- Contiguity

Attributes of LWQMA's

Long – small lakeshed, little surface water contribution, heavily developed, impacted by industrial sites (airport and gravel pits) good, possibly declining water quality

Munson/ Fox – small lakesheds, little surface water contribution, heavily developed, moderate water quality

Brandy/Oak - poor water quality, small lakesheds, heavily impacted by nearby agricultural and industrial development (gravel pits, landfill);

Southern Lakes – numerous small lakes, of variable water quality; some surface connections, but mostly groundwater controlled.

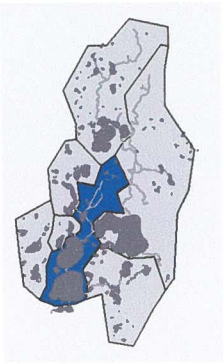
Sallie/Melissa – large, heavily developed, at risk lakes, with definite problems associated with upstream nutrient sources

Detroit/Rice - large, heavily developed at-risk lakes, with definite problems associate with specific upstream nutrient sources

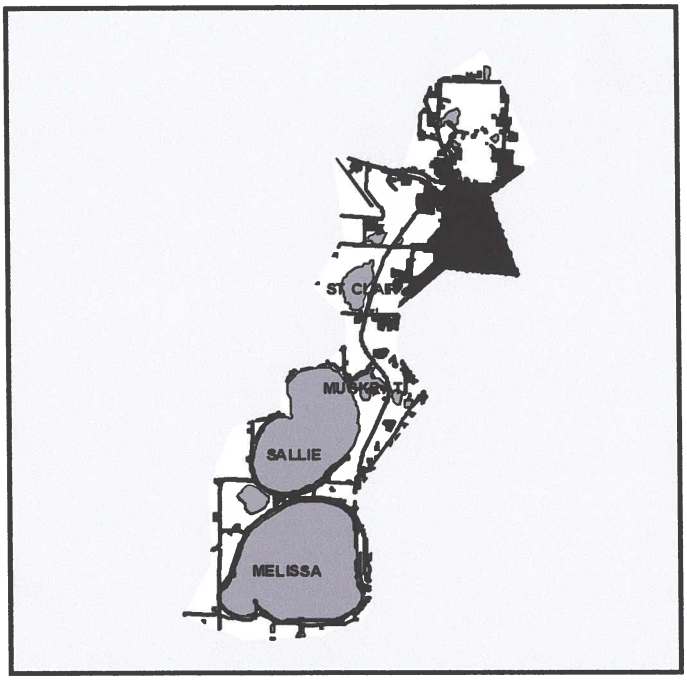
Floyds – heavily developed, variable quality lakes, with definite problems associated with specific upstream nutrient sources

Pearl/ Loon small, developing lakes, fair quality, small lakesheds without major upstream nutrient sources.

11.1 Sallie-Melissa Lake Water Quality Management Area Plan



This LWQMA has 11,400 acres; in addition to the immediate shoreline (basin) areas which drain to its lakes, this drainage area includes the Pelican River downstream from Little Detroit Lake, Ditch 14, and a small area of wetlands and small lakes draining through Lind Lake to Lake Melissa. It also receives nutrients and runoff from the Detroit/Rice LWQMA.



Sallie-Melissa LWQMA: Impervious surfaces (in black)

SALLIE/MELISSA LWQMA

Water Quality Area Attributes	
Area	11400 acres
% urban/residential/commerial	13
% cultivated, grassland, pasture	34
% forested	18
% water	30
% wetland (hydric soils)	5
% Impervious (estimate)	27
% steep slopes	14

The area contains a mixture of sandy, gravelly soils; it's topography is mostly gently rolling, with a few areas of slopes exceeding 15%. There are numerous wetlands, many of those associated with Ditch 14 have been drained or partially drained.

A relatively large part of the area is urbanized; it is estimated that almost 27% of the non-lake area is in impervious surface.

Sallie and Melissa are the main lakes in the area. Taken together they account for about 90% of the surface water in this LWQMA. These are relatively deep lakes, and support important game-fish opportunities for lakeshore residents and others. Both lakes offer a broad range of other recreational opportunities.

SALLIE/MELISSA LWQMA GENERAL ATTRIBUTES

	Muskrat	St. Clair	Sallie	Melissa
DNR Lake ID	360	382	358	476
Status	Reservoir	Ptly drn	Lake	Lake
Surface area (acres - GIS)	62	137	1256	1820
Shoreline Length (feet)	8,982	10,426	29,300	38,280
Shoreline length (miles)	1.7	2	5.5	7.3
Shoreline Ratio (acres/mile)	37	69	226	251
Fetch (feet)	2616	4150	10525	12185
Volume (acre feet)	365	938	20772	32906
% more than 20 feet	0.0%	0.0%	16.7%	24.6%
% more than 30 feet	0.0%	0.0%	0.9%	6.5%
Average Depth	5.75	5	16.34	18
% less than 15 feet deep	96	100	43	51
% less than 10 feet	82	100	42	38
Maximum Depth	17	7	52	32
Mixing Pattern	Dimictic	Polymictic	Polymictic	Dimictic
Outlets	1	1	1	1
Inlets	1	2	2	2
Inflow (annual acre feet)	28000	3500	28000	28000
Residence time in days	5	98	271	429
Shoreline with moderate or major modification (%)				
vegetation			77	91
land			59	19
littoral			5	8
No Shoreline modification			23	8
% of Shore Impact Zone Parcels with				
structures			24	33
retaining walls			38	65
weed rollers				1
sand blankets			8	2
rip rap			20	31
Watercraft			209	387
Personal Watercraft			29	65
Lake acres per water craft			6.0	4.7
1st Tier Residences	4	2	183	440
2ndTier Residences	5	5	63	155
Lake acres / 1st tier residential		69	7	4
1st tier residential / shore mile		1	33	61

Muskrat and St. Clair are both subject to winter-kill, so have little (Muskrat) or no (St. Clair) importance to local fishermen. Other recreational activities are also minor.

The District's earliest cottage development is associated with the shores of Lake Sallie and Melissa. Relatively small lots characterized much of this, so shoreline development is fairly dense, and modifications to the shoreline are extensive. Relatively little shoreline remains undeveloped, though there are a few important large tracts which will presumably be developed at some point. Intensification of development is associated with upgrading existing summer cottages to year-round use, and additional development of vacant land. Second Tier development also is occurring.

Recent residential development along the south side of Muskrat, and near the western shores of St. Clair are indicative of the pressure directed toward shoreline in this vicinity. .

Though much of the LWQMA lies in Lakeview Township, about 70% is either within the City of Detroit Lakes or its two-mile extra-territorial zone. Therefore new plats and other development are subject to the authority of the City.

Lake Water Quality Issues

Eutrophic St. Clair's poor condition is largely the result of its use as a receiving pond for partially treated sewage effluent for over 50 years. Very thick, phosphorus-enriched sediments cause more or less continuous severe algae blooms, An alum treatment in 1998 provided some relief, and reduced loadings from the lake to downstream areas, but it is unlikely that this reduction will persist.

SALLIE/MELISSA WATER QUALITY MANAGEMENT AREA
WATER QUALITY SUMMARY - TROPHIC STATUS INDEXES

	Muskrat		St. Clair		Sallie			Melissa		
	TP	Secchi	TP	Secchi	TP	SEC	Chla	TP	SEC	Chl-a
averages										
1970's					*87*					
1980's					*61*	*48*	*61*	*52*	*44*	*53*
1990's	*59*	*46*	*61*	*63*	*59*	*47*	*52*	*55*	*45*	*43*
2000's	*56*	*45*	*66*	*60*	*56*	*48*		*50*	*47*	
1994-2004 TSI	51		62		52	51		47	46	
Trophic Status	Borderline Eutrophic		Eutrophic		Borderline Eutrophic			Mesotrophic		

Because it is a small lake, Muskrat is heavily impacted by upstream nutrient sources from Ditch 14 and Little Detroit. Because of improving conditions in Little Detroit, and as a result of the St. Clair Alum treatment, nutrient loads to Muskrat have declined in most recent years. Moreover, in these years, Muskrat has absorbed a portion of the nutrients before they reach Lake Sallie.

From a water quality prospective, Sallie and Melissa both are vulnerable lakes. Sallie currently is borderline *eutrophic*, though it has improved greatly since the early 1970's when it was subjected to very high nutrient loadings from upstream sources, mainly through Ditch 14. In recent years upstream loadings have continued to decline, presumably because of favorable runoff conditions and the St. Clair alum treatment.

Sallie has continued to experience gradually improving conditions, though it is still subject to continuous moderate-to-severe algae blooms in July and August. These appear to be brought on by internal circulation patterns whereby nutrient-enriched water from the bottom is brought to the surface where it stimulates algae growths.

Melissa's condition is classified as mesotrophic. It is strongly affected by conditions in Lake Sallie – discharges from Lake Sallie during the late summer algae blooms carry nutrients and algae into Melissa through the Pelican River at Shoreham.

Atmospheric sources and shoreland runoff provides significant amounts of phosphorus in all of these lakes.

PHOSPHORUS CONCENTRATIONS AND SOURCES TO LAKES

	Sallie	Melissa	Muskrat	St. Clair
Average Annual Loads from upstream, 1995-2004 (pounds)	*1800*	*2300*	*1800*	*?*
Estimated Average Annual Atmospheric Load (pounds)[1/]	*83*	*118*	*7*	*68*
Estimated Average Annual Load from shoreland (pounds) [1/]	*242*	*316*	*74*	*86*
Mid-Summer total phosphorus in surface water (ppb)	*46*	*28*	*30*	*69*
Mid-Summer bio-available phosphorus in surface water (ppb)	*10*	*8*	*7*	*13*

[1/]Atmospheric and Shoreland loadings are based upon PCA's phosphorus models

Nuisance aquatic plants remain a problem for Muskrat, Sallie and Melissa. The exotic Flowering Rush is of particular concern, though there are also occasional problems with Curly-Leaf Pondweed. These plants interfere with boating and swimming, cause some damage to shorelines, and invade desirable native plant populations.

Since the 1960's a succession of District Projects (the latest being Project 1-B) have employed mechanical harvesting as a means of reducing these and other aquatic plant problems. It is now believed that harvesting has exacerbated the spread of Flowering Rush, so alternative means of management, especially herbicides are under investigation. The current project also has a popular road-side pickup component involving carrying away aquatic plant debris gathered by property owners.

A Plan for the Sallie/Melissa LWQMA

The District's goal for the Sallie-Melissa LWQMA is to lower Lake Sallie's trophic status index to less than 50 on the Carlson scale. In order to accomplish this, the District will focus on reducing the frequency and severity of mid-summer nuisance algae blooms on Sallie. Because summer nutrients, including those contained in algae are exported from Sallie to Melissa, it is anticipated that reducing Sallie's summer problem will have a positive effect on Melissa.

The District will adopt some or all of the following strategies to obtain this goal.

A. Reduce nutrients from upstream sources, including those from Little Detroit Lake, Lake St. Clair, and the Ditch 14 wetlands between St. Clair and the Pelican River. Measures may include phosphorus inactivation, bio-manipulation, as well as stormwater and shoreland BMP's.

B. It is understood that if external loading sources can be reduced, it is possible that phosphorus may be depleted from lake sediments; nevertheless aggressive measures to reduce internal loading will be considered. The District will obtain additional data on the internal loading in Lake Sallie; alternatives will be evaluated, including a no-action option. A thorough study of sediments will be required.

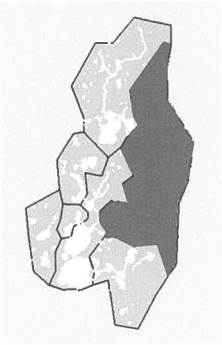
C. Attempts to control exotic aquatic plants and other nuisance species will be further evaluated, and working with the DNR and citizens' groups, an aquatic plant management plan will be developed. Herbicides and other measures will be considered as a full or partial replacement for mechanical harvesting. It may be necessary to re-formulate Project 1-B to ensure that it provides a useful administrative mechanism for continued aquatic plant management.

D. The District will advocate for more control and increased treatment of urban stormwater discharged to Ditch 14 wetlands and watercourses. Discharge amounts and rate controls can reduce flushing through these areas, and treatment reduces phosphorus entering the surface water which flows to Lake Sallie, and maintains healthy ecosystems, thereby increasing their capacity to absorb phosphorus.

E. There is reason to believe that ground water carrying nutrients may be entering Lakes and Ditch 14; additional data collection is warranted, and some mitigation of sources may be implemented.

F. The District will continue to work with the City of Detroit Lakes in an attempt to further reduce phosphorus discharges from the Detroit Lakes Waste Water Treatment Plant to St. Clair.

11.2 Detroit – Rice Lake Water Quality Management Area Plan



For visitors to Becker County, Big and Little Detroit Lake (along with Curfman), represent "flagship" lakes because of their location relative to the City of Detroit Lakes, their size, their history, and other factors. Their LWQMA has 24,511 acres; in addition to the immediate shoreline (basin) areas which drain to Detroit Lakes, this drainage area includes portions of the Pelican River and its tributaries which flow to Big Detroit. Much of this drainage is through Ditch 13, which passes through drained wetlands and Rice Lake. Some private ditches have been connected to the main Ditch. Detroit-Rice also receives some flow from the Floyd/Campbell LWQMA. The lake receives some surface discharges via Sucker Creek, and from another small wetland along the eastern shore of Big Detroit.

Detroit-Rice LWQMA Watershed Attributes

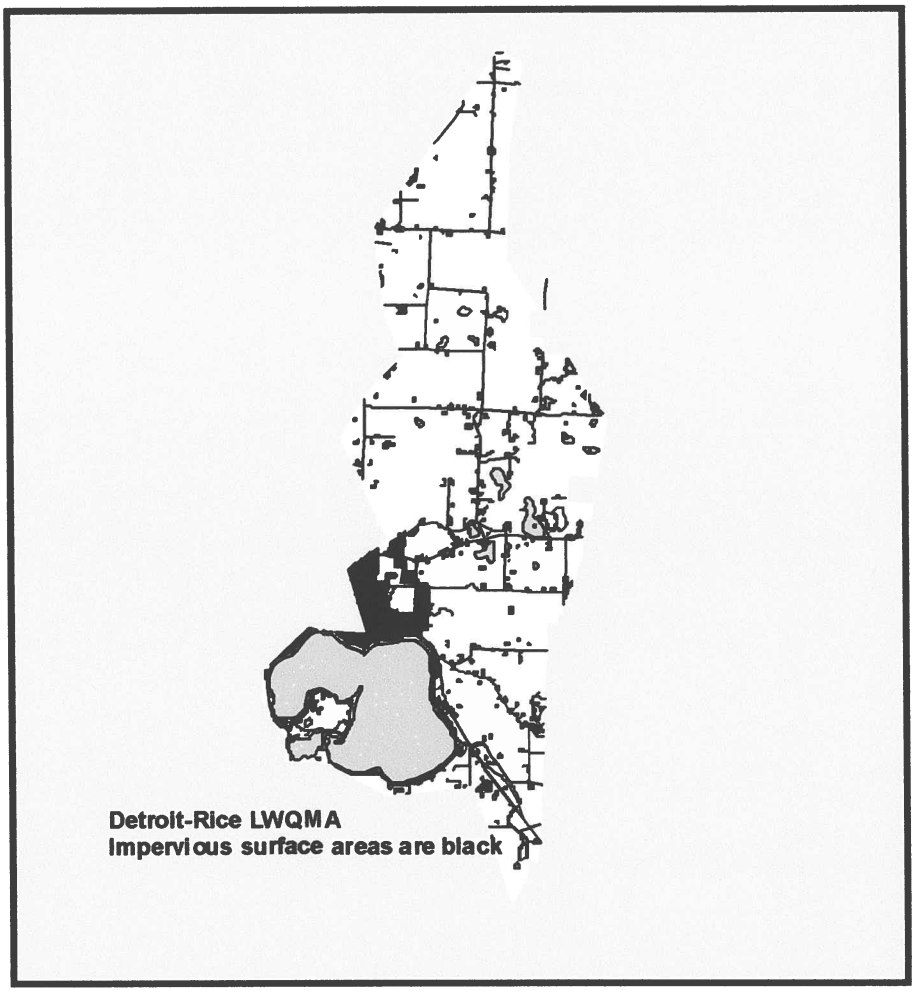
Watershed Area (acres)	24,511
Watershed/ water ratio	5.9
Watershed Land Use	
% urban/residential	8
% cultivated, grassland,pasture	37
% forested	38
% water, wetland	14
% wetland	3
Linear feet of roads	500,724
% Impervious	5
% Steep slopes	44
% of land with hydric soils	31
% of land is drained wetland	9

The area contains a mixture of sandy, gravelly soils; it's topography is highly varied, with a large portion in slopes exceeding 15%. Hydric soils cover almost one-third of the land area, and there are numerous wetlands, many of those associated with Ditch 13 have been drained or partially drained.

Though this area contains a portion of the City of Detroit Lakes, more than 90% is in forest, wetland, grassland or cropland. About 5% of the land area is impervious, but near Detroit Lake itself, that figure is closer to 15%.

Detroit Lake accounts for 85% of the surface water of the LWQMA. Comprised of two main basins, Big Detroit is much bigger and deeper; Little Detroit reaches only 16 feet of depth. Both are heavily used for a broad range of summer and winter recreational pursuits. Curfman is considered a separate lake, but it is connected to Big Detroit. Relatively little is known about the other four lakes in area.

Detroit-Rice LWQMA



Much of the Detroit shoreline has been developed for more than 75 years. Shoreline development is fairly dense, and modifications to the shoreline are extensive. Relatively little shoreline remains undeveloped, though there are a couple of important large tracts which will presumably be developed at some point. Originally ringed with summer homes and resorts catering to the summer visitors, nearly all the residences are now used for year-round purposes, and the resorts are rapidly being converted to high density residential or commercial purposes. In addition to upgrading existing summer cottages to year-round use, the size and numbers of structures has rapidly increased. Second and third tier development also characterizes much of the shoreland zone of Detroit as well as Curfman. Patrick, Leitheiser, and Schultz lake currently are largely undeveloped.

Since 1993 nearly all of the shores of Detroit and Curfman have been a part of the City of Detroit Lakes. Other annexations to the north, and exercise of certain authorities over its two-mile extra-territorial area, have given the City of Detroit Lakes zoning and subdivision control of most of this LWQMA as far north as Little Floyd Lake.

Detroit/Rice Lake Water Quality Management Area

GENERAL ATTRIBUTES OF LAKES

	Big Detroit	Little Detroit	Curfman	Patrick	Leit-heiser	Rice	Schultz
DNR Lake ID	381a	381b	363			Drained	
Status	Lake	Lake	Lake	Lake	Lake	Lake	Lake
Surface area (acres - GIS)	2076	941	111	51	20	220	89
Shoreline Length (feet)	40,900	25,295	9,239	7,564	4500	15934	10,025
Shoreline length (miles)	7.7	4.8	1.7	1.4			1.9
Shoreline Ratio (acres/mile)	268	196	63	36			47
Fetch (feet)	13140	9620	3200	2660	1100	600	3800
Volume (acre feet)	37589	8003	1309				
% more than 20 feet	25.5%	0.0%	8.1%				
% more than 30 feet	9.0%	0.0%	0.0%				
Average Depth	18.4	8.5	11.38				
% less than 15 feet deep	40	90	58				
% less than 10 feet	38	73	52				
Maximum Depth	82	16	21				
Mixing Pattern	Dimictic	Polymictic	Polymictic				
Outlets	1	1	1				
Inlets	4	1	0				
Inflow (annual acre feet)	6000	6000	NA				
Residence time in days	2287	487	NA				
Shoreline with modification (%)							
vegetation	80	93	38				
land	24	13	9				
littoral	66	87	46				
No Shoreline modification	19	6	50				
Shore Impact Zone Parcels with							
structures	42	18	5				
retaining walls	80	35	2				
weed rollers	8	4	0				
sand blankets	10	14	4				
rip rap	34	21	0				
Watercraft	337	270	39				
Personal Watercraft	64	48	9				
Lake acres per water craft	6.2	3.5	2.8				
1st Tier Residences	236	158	35				
2ndTier Residences	96	320	31				
Lake acres / 1st tier resid	9	6	3				
1st tier resid / shore mile	30	33	20				

Lake Water Quality Issues

Big and Little Detroit Lakes enjoy relatively good water quality. Indeed, Little Detroit Lake has exhibited some improvement over the last decade, presumably because sanitary sewers now serve almost all lakefront properties, and most stormwater has been diverted from that basin; moreover, it is buffered from the majority of upstream nutrient sources by Big Detroit.

BIG AND LITTLE DETROIT
WATER QUALITY SUMMARY - TROPHIC STATUS INDEXES

	Big Detroit			Little Detroit		
Annual Averages	TP (ug/l)	Secchi (ft)	Chl-a (ug/l)	TP (ug/l)	Secchi (ft)	Chl-a (ug/l)
1970's		*46*				
1980's	*49*	*44*	*51*	*55*	*47*	*51*
1990's	*51*	*46*	*50*	*50*	*45*	*45*
2000's	*51*	*44*	*53*	*49*	*42*	*48*
1994-2004 TSI		**48**			**45**	
Trophic Status		**Mesotrophic**			**Mesotrophic**	

Big Detroit itself is a little worse off, and though there is little evidence that general water quality conditions are deteriorating, the lake is at risk. In particular, it absorbs a very large upstream phosphorus load from the Pelican River, and it has mid-summer episodes of moderate to severe algae blooms. There is some evidence that internal loading from bottom sediments contributes to this condition now, and with the build-up of phosphorus-laden sediments in the lake's bottom, that situation could worsen.

There is some concern that internal loading on Big Detroit would increase problems for Little Detroit as nutrient-enriched surface waters migrate to the smaller basin.

Upstream loads to Big Detroit are especially troublesome, because they contain a fairly high biologically active phosphorus component. Drained Rice lake seems to be the main culprit here, though untreated urban stormwater is also believed to be a significant source. The designation as a City park, gives partial protection to the watershed of Sucker Creek, a designated trout stream which discharges to Big Detroit.

PHOSPHORUS CONCENTRATIONS AND SOURCES TO DETROIT LAKES

	Little Detroit	Big Detroit
Average Annual Loads from upstream, 1995-2003 (pounds)	*?*	*3500*
Estimated Average Annual Atmospheric Load (pounds)	*63*	*143*
Estimated Average Annual Load from shoreland (pounds)	*209*	*413*
Mid-Summer total phosphorus in surface water (ppb)	*20*	*30*
Mid-Summer bio-available phosphorus in surface water (ppb)	*7*	*7*

Both lakes are heavily impacted by intensive shoreline development. This circumstance involves near-shore activities, including increased imperviousness, drainage alterations, and the removal of native shoreline vegetation, which tend to promote nutrient runoff. Of special concern are the occasional overflows of a major stormwater system to Little Detroit. Changes to shoreline habitat such as ice-ridge alterations and the addition of rip-rap and retaining walls have negative long-range impacts on the physical and biological habitat.

Big and Little Detroit also are both impacted by the presence of exotic and other aquatic plants. In the last 30 years, Flowering Rush has invaded many shoreline areas, and continues to spread. There are also extensive beds of Curly Leaf Pondweed; its growth habit causes large floating weed masses to form and then float to shore in early summer, A native algae species, Chara, grows in thick beds in some shallow areas. Taken together these three plants interfere with boating and swimming, cause damage to shorelines, and tend to reduce the productivity of more desirable aquatic species.

Since 1989 District Project 1-C has harvested aquatic plants from Big and Little Detroit, and Curfman. The Project also has a road-side pickup component which involves carrying away aquatic plant debris gathered by property owners. By 1995 most of the harvesting efforts focused on the control of Curly-leafed Pondweed and Flowering Rush. With respect to Flowering Rush there is reason to believe that

harvesting has exacerbated the spread of the exotic, so alternative means of management, especially herbicides, are under investigation.

Little is known about the other lakes in this LWQMA. Curfman is heavily developed, an important fishery, and has been heavily impacted by Flowering Rush. It is really an embayment of Big Detroit. Rice Lake was drained in the early part of this century; most likely permanently. Leitheiser, Patrick and Schultz, each less than 100 surface acres, all have some associated residential development.

A Plan for the Detroit-Rice LWQMA

The District's main goal for the Detroit-Rice LWQMA is to decrease the trophic index of Big Detroit by about 5%. The District also seeks to maintain recent improvements in Little Detroit's water quality.

The District will adopt some or all of the following strategies in the Detroit-Rice LWQMA:

A. Manage the Rice Lake area, and its associated wetlands, in such a way as to reduce bio-available external phosphorus loads to Big Detroit. It is anticipated that such an improvement would reduce summer algae blooms, and improve clarity for Big Detroit, and may have some advantage to Little Detroit as well.

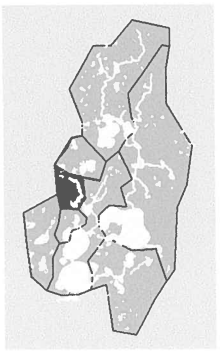
B. Investigations of Big Detroit's internal loading problem will continue with the expectation that some amelioration of that situation may be possible. Reduction of present or future internal loadings aimed at reducing summer algae blooms and improving clarity for Big Detroit could also have some advantage to Little Detroit.

C. Attempts to control exotic aquatic plants and other nuisance aquatic species will be evaluated and, working with DNR, Lake Detroiters, and the City of Detroit Lakes, an aquatic management plan will be developed. Herbicides and other measures will be considered as a full or partial replacement for mechanical harvesting. It may be necessary to re-formulate Project 1-C to ensure that it provides a useful administrative mechanism for continued aquatic plant management.

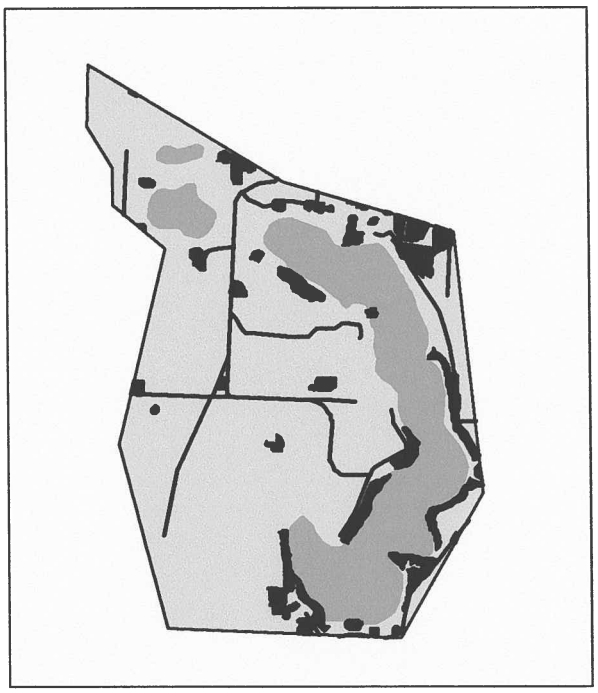
D. Untreated urban stormwater discharges, including overflows from existing treatment systems, will be further reduced by adding additional treatment and upgrading existing facilities.

E. Basic data on Leitheiser, Patrick and Schultz will be acquired.

11.3 Long Lake Water Quality Management Area Plan



For many decades Long Lake has been an major destination for Becker County visitors. Though a small lake (407 acres) relative to others which attract a large clientele, its elongated shape gives it a shoreline length that is exceeded in the District only by Big Detroit and Melissa; and only Melissa has more residential structures along its shores.



Many Long shoreline structures are associated with resorts. At least two of these already have been converted to residential use, and it seems likely that at least one more large RV park will be subdivided in the next few years.

Given the general trend towards more intensive development of shoreline lots, and several undeveloped tracts found along its shores, it is reasonable to expect further shoreline development pressures. More second tier development will happen, stimulated in part by plans to annex most of the LWQMA into the City of Detroit Lakes. .

Long is a deep lake, and much of its shoreline slopes steeply towards the lake. The natural shoreline has been greatly modified, and based upon District shoreline monitoring is continuing at a rapid pace. Relative to other lakes, Long has more structures and retaining walls in its shore impact zone.

LONG LWQMA GENERAL ATTRIBUTES

	Strunk	Long
DNR Lake ID	112	383
Status	Lake	Lake
Surface Acres (GIS)	24	407
Shoreline Length (feet)	4,052	31,597
Shoreline length (miles)	0.8	6.0
Shoreline Ratio (acres/mile)	31	68
Fetch (feet)	1608	7264
Volume (acre feet)		8398
% more than 20 feet		31
% more than 30 feet		13
Average Depth (feet)		20
% less than 15 feet deep		43
% less than 10 feet		35
Maximum Depth		65
Mixing Pattern	Polymictic	Dimictic
Outlets	1	1
Inlets	1	1
Inflow (annual acre feet)		
Residence time in days		
Shoreline with moderate or major modification (%)		
vegetation		63
land		44
littoral		46
No shoreline modification		33
Shore Impact Zone parcels with		
Retaining Walls		33
Weed Rollers		3
Sand Blankets		24
Rip-Rap		9
Watercraft		243
Personal Watercraft		10
Lake acres per watercraft		1.7
1st Tier Residences		323
2ndTier Residences		35
Lake acres / 1st tier residence		1
1st tier residences /shore mile		49

With relatively intensive shoreline development, recreational pressure on the lake is very high. Boat traffic and noise issues have sometimes emerged as an issue.

LONG LWQMA WATERSHED

WQMA land acres	1,640
WQMA/Lake Ratio	3.5
WQMA Land Use (%)	
urban, residential, etc.	7.5
cultivated/pasture/grass	47.4
forest	20.2
water	22
wetland	2.9
Road (linear feet)	46,485
Impervious (% of land area)	8.9
Hydric (% of land area)	9.3
Drained wetlands	negligible
Steep Slope (% of land area)	13.2

Long's "lakeshed" is small, and no permanent streams enter the lake. A significant portion of the watershed has steep slopes, and hydric soils also are common. There are few drained wetlands in the area, though road building and other development have interfered with natural drainage somewhat. An example is a wetland area that has been partially drained and occasionally flows to the north end of the lake.

There are some important areas of shoreline wetlands and emergent aquatic plants that need special protection from development.

Most of Long's water comes from underground sources, though there is some surface flow from the immediate basin area, and especially through wetlands to the north and northwest. Long Lake drains through a small outlet to St. Clair.

Strunk has hydrological connections with Long via a series of wetlands, but little is known about its attributes.

The LWQMA contains a mixture of sandy, gravelly soils. It's topography is highly varied with a considerable portion of the immediate shoreline area possessing slopes exceeding 15%. More than 10% of the shoreline is fringed with wetlands.

Aside from some large wetland areas, the natural condition of most of the land in this LWQMA has been greatly altered. Gravel mining has been active in the area, and highways have influenced drainage. About 20 percent of the area is in 2nd growth forest. Just under 9% of the land area is covered with impervious surfaces.

Lake Water Quality Issues

The water quality in Long lake is very good. There is some evidence that clarities have decreased in recent years, but other indicators are either unchanged (Chl-a) or improved (TP).
Residents have complained of shoreline erosion and other water quality issues resulting from boat traffic, but a 1997 District study could detect no impact of boating on turbidity of phosphorus levels.

WATER QUALITY SUMMARY

	Long		
Annual Averages	TP (ug/l)	Secchi (ft)	Chl-a (ug/l)
1980's		*38*	
1987-1994	*49*	*38*	*44*
1995-2003	*46*	*42*	*42*
2000's	*43*	*41*	*45*
1994-2004 TSI		**42**	
Trophic Status		**Mesotrophic**	

It is anticipated that most areas along and near Long Lake's shores will be served by City sewer and water facilities within the next ten years.

PHOSPHORUS CONCENTRATIONS AND SOURCES TO THE FLOYD LAKES

	Long
Average Annual Loads from upstream, 1995-2003 (pounds)	100
Estimated Average Annual Atmospheric Load (pounds)	39
Estimated Average Annual Load from shoreland (pounds)	284
Mid-Summer total phosphorus in surface water (ppb)	14
Mid-Summer bio-available phosphorus in surface water (ppb)	4

It seems reasonable to conclude that whatever water quality risks face Long Lake, the most important causes are associated with current and future intensive shoreline and second-tier development. Near-shore activities, including increased imperviousness, drainage alterations, and the removal of native shoreline vegetation, tend to promote nutrient runoff.

Little is known about water quality of the 24 acre Strunk Lake, also in this LWQMA.

Arsenic in wells in excess of recommended EPA levels for drinking water is a cause of some concern, though it appears that this problem has a natural source.

A Plan for the LONG LWQMA

The District's main goals for the Long LWQMA is to maintain the mesotrophic status of Long Lake. The focus will be on improved management of shoreline and near-shore areas

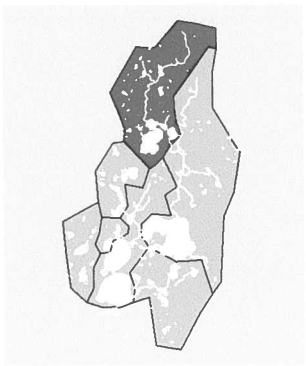
The District adopts the following strategies to address the special problems facing the Long LWQMA:

A. The District will advocate for stricter shoreline development standards; great care must be given to protecting the remaining natural shoreline areas from further degradation.

B. The District will explore options for providing special incentives for improved shoreline BMP's.

C. Surface and groundwater quality impacts from Highway 10, individual sewage treatment systems, the airport, spray irrigation and gravel operations will be investigated and mitigated where possible.

11.5 Floyd-Campbell Lake Water Quality Management Area Plan

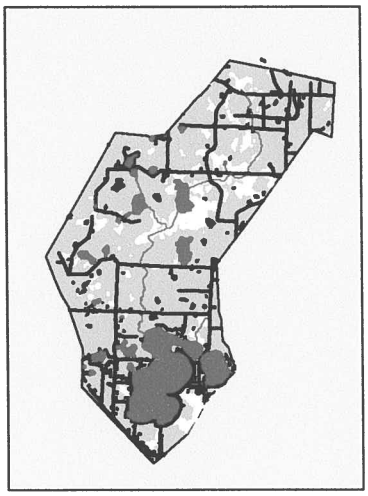


Almost 17,000 acres drain towards the Floyd Lakes, among the most valuable recreational lakes in the area. The area is drained by a complex network of waterways consisting of public and private ditches, natural drainage channels, small lakes and wetlands. In addition to the Floyd lakes, the watershed includes several small lakes.

The LWQMA is about one-third forested, and contains some of the more valuable agricultural land in the District. Overall it contains a relatively high watershed to water ratio. Only 5% is covered by impervious surface.

FLOYD/CAMPBELL WATERSHED

WQMA acres	16,610
WQMA/Lake Ratio	9.4
WQMA Land Use (%)	
urban, residential, etc.	2.4
cultivated/pasture/grass	49.9
forest	29
water	11.9
wetland	6.5
Road (linear feet)	297148
Estimated Impervious (%)	5.1
Hydric Soils Area	29.7
Drained wetlands	1324 acres (8% of WQMA)
Steep Slopes (%)	14



Floyd-Campbell development (white areas are drained wetlands)

An important hydrologic feature of the area is the public ditch system #11-12. It is responsible for draining, or at least drawing down, Campbell Lake. Indeed, wetlands drained by this ditch system comprise over 8% of the land area in the LWQMA.

Another important attribute of the area is occurrence of the high stream gradients. Ditch 11-12 discharges to Campbell Creek, a natural channel which drops almost 80 feet in 2 miles before reaching North Floyd Lake. Through this reach, Campbell Creek passes through highly eroded and erodible soils, so that the stream carries a heavy sediment load to North Floyd.

It appears that most of the time Big Floyd also contributes some flow to North Floyd. The source of this water is thought to be mainly groundwater, though some surface water reaches Big Floyd via wetlands and overland routes.

Little Floyd receives most of its water from North Floyd, though there are some small natural drainage-ways that lead to the lake.

Big and Little Floyd Lakes have seen cottage developments along their shores for over 70 years. Some of the development is quite dense. More recently the undeveloped portions of these lakes, together with North Floyd, have been under heavy development pressure. Also many of the seasonal cottages have been converted to year-round residency or usage. Second-tier development has begun to be an issue.

Over three-quarters of the shoreline on Little Floyd and Floyd has seen significant land and vegetation alterations. Utilization of rip-rap and retaining walls are prominent practices. A few residences have holding tanks, but the vast majority are dependent upon septic systems.

Watershed District Rules play a significant impact on many of these development actions, but in general Becker County zoning regulations prevail. Moreover, the Floyds lie entirely within an area which is described in The City of Detroit Lakes' *Comprehensive Plan* as a *Future Utility Extension/Annexation Area*; also most of Floyd Lake, and all of Little Floyd lies in Detroit Lakes' "extra-territorial" area. This means that The City of Detroit Lakes has a great deal of influence on the specifics of new developments.

FLOYDS-CAMPBELL LWQMA
GENERAL ATTRIBUTES

	Big Floyd	North Floyd	Little Floyd	Campbell	Sands	Fish	Tamarac	Kennedy
DNR Lake ID	387a	387b	386	419		229		
Status	Lake	Lake	Lake	Partially drained	Lake	Lake	Lake	Lake
Surface Acres (GIS)	862	298	217	112	90	69	50	38
Shoreline Length (feet)	29,005	18,850	11,740	10735	9507	8868	8499	5133
Shoreline length (miles)	5.5	3.6	2.2	2.0	1.8	1.7	1.6	1.0
Shoreline Ratio (acres/mile)	157	83	98	55	50	41	31	39
Fetch (feet)	9396	6773	4066	3600	3800	2250	2200	1800
Volume (acre feet)	9870	4777	3259					
% more than 20 feet	12.0%	25.8%	14.9%					
% more than 30 feet	0.0%	9.5%	0.8%					
Average Depth (feet)	11.8	16	14.6					
% less than 15 feet deep	70	w/BF	47					
% less than 10 feet	66	45	43					
Maximum Depth	26	31	32					
Mixing Pattern	Dimictic	Dimictic	Dimictic					
Outlets	1	1	2					
Inlets	1	2	1					
Inflow (annual acre feet)	NA	6428	11478					
Residence time in days	NA	271	104					
Shoreline with moderate or major modification (%)								
vegetation	89	22	79					
land	83	34	70					
littoral	14	14	36					
No shoreline modification	10	61	17					
Shore Impact Zone parcels with								
Retaining Walls	34	2	4					
Weed Rollers	10	3	14					
Sand Blankets	2	0	0					
Rip-Rap	18	2	7					
Watercraft	361	16	70					
Personal Watercraft	19	4	11					
Lake acres per watercraft	2.4	18.6	3.6					
1st Tier Residences	183	21	80					
2ndTier Residences (1000 feet zone)	65	6	28					
Lake acres / 1st tier resid	1	4	1					
1st tier residence/shore mile	33	6	36					

The Floyds include approximately 1400 surface acres of water. All three have large portions that are less than 10 feet deep. Floyd is shallowest of the three main lakes, both in terms of maximum and average depth. DNR maps show North Floyd's deepest point at 34 feet, and Little Floyd at 32 feet. Emergent aquatics are common.

The lakes are heavily used for game-fishing, boating and other summer and winter recreational activitles.

The small lakes in the Floyd-Campbell LWQMA are mostly shallow, and have little shoreline development.

Lake Water Quality Issues

In terms of water quality Floyd lake (Big Floyd) ranks very high among District Lakes. Most of the time its water is clear, with moderate phosphorus and algae concentrations, with good game fish populations, and with moderate plant growth.

FLOYDS WATER QUALITY SUMMARY

	Big Floyd			Little Floyd			North Floyd		
	TP ug/l	Secchi feet	Chl-a ug/l	TP ug/l	Secchi feet	Chl-a ug/l	TP ug/l	Secchi feet	Chl-a ug/l
average 1994-2003	*17*	*11.8*	*3.1*	*44*	*9.1*	*6.4*	*33*	*7.8*	*10.6*
averages									
1970's		*10*			*7.6*			*6.6*	
1980's		*11.2*						*8.1*	
1990's	*18.3*	*12.4*	*3.2*	*25.7*	*7.7*	*6.5*	*35.8*	*7.6*	*9.3*
2000's	*15.0*	*11.2*	*2.6*	*70.5*	*10.9*	*8.2*	*29.8*	*8.0*	*16.3*
TROPHIC INDEXES									
average 1994-2003	*45*	*43*	*42*	*53*	*45*	*48*	*54*	*48*	*53*
averages									
1970's		*44*			*48*			*50*	
1980's		*42*						*47*	
1990's	*44*	*42*	*40*	*55*	*44*	*51*	*53*	*48*	*56*
2000's	*43*	*43*	*40*	*55*	*44*	*50*	*53*	*48*	*56*
1994-2003 TSI		**43**			**49**			**52**	
Trophic Status		**Mesotrophic**			**Borderline Mesotrophic**			**Borderline Eutrophic**	

On the other hand, from a water quality perspective, North Floyd is a significantly damaged lake, suffering poor clarity, high phosphorus and severe algae blooms as a result of heavy loads of phosphorus and sediment entering from Campbell Creek. It also experiences occasional late-summer episodes of internal loading of phosphorus from enriched bottom sediments.

Little Floyd is also a direct victim of the Campbell nutrient source, because dissolved nutrients in North Floyd as well as phosphorus-enriched algae flow from North Floyd to Little Floyd.

The District understands that Floyd lakes' water problems are primarily the result of high nutrient and sediment loads from Campbell Creek and its tributaries which drain nutrient-rich wetlands and farm lands through the highly erodible soils of the lower Campbell Creek watershed. A somewhat lesser problem has to do with upstream agriculture practices or dense residential development accompanied by poor shoreline practices, including the removal of natural vegetation, the failure of retaining walls, and excessive impervious surfaces (including turf grasses). There is some suspicion that groundwater flows, especially as they relate to individual sewage treatment systems may also be in play.

PHOSPHORUS CONCENTRATIONS AND SOURCES TO FLOYD LAKES

	North Floyd	Big Floyd	Little Floyd
Average Annual Loads from upstream, 1995-2004 (pounds)	1200	0	*1100*
Estimated Average Annual Atmospheric Load (pounds)	25	60	*17*
Estimated Average Annual Load from shoreland (pounds)	155	239	*97*
Mid-Summer total phosphorus in surface water (ppb)	44	17	*33*
Mid-Summer bio-available phosphorus in surface water (ppb)	8	6	*6*

A Plan for the Floyd-Campbell LWQMA

The District's main goals for this LWQMA are to prevent further degradation of Big Floyd, and to improve the condition of North and Little Floyd. A more complete understanding of the conditions in the LWQMA's small lakes is needed.

The District will adopt the following strategies to address the special problems facing the Floyd-Campbell LWQMA:

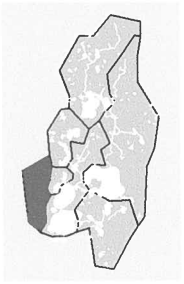
A. Implement BMP's to reduce peak flows from the Campbell Creek system. It is understood that management practices which slow the rate of discharge, and retain some water are a part of responsible and productive farm management. The District will continue to explore the feasibility of controlling peak flows through some areas.

B. Implement BMP's to stabilize Campbell Creek streambanks and other sources of sediment carried to North Floyd.

C. Implement agricultural BMP's in other areas draining to North Floyd and Little Floyd.

D. Monitor and mitigate, if necessary, groundwater migrations involving individual sewage treatment and/or those from the county landfill.

11.5 Pearl –Loon Lake Water Quality Management Area Plan



Pearl, Loon, Spear and Rider lakes are all relatively small waterbodies in the western edge of the District. All are relatively shallow lakes, and depend primarily upon groundwater.

PEARL-LOON LWQMA GENERAL ATTRIBUTES

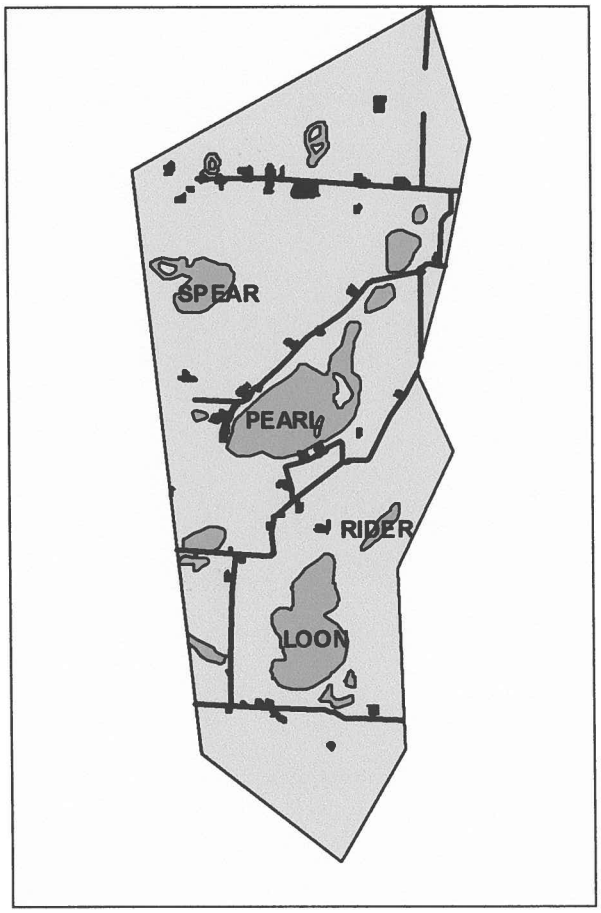
	Pearl	Loon	Spear	Rider
DNR Lake ID	486		251	254
Status	Lake	Lake	Lake	Lake
Surface Acres (GIS)	244	191	72	15
Shoreline Length (feet)	21245	13,755	11,119	4406
Shoreline length (miles)	4.0	2.6	2.1	0.8
Shoreline Ratio (acres/mile)	61	73	34	18
Fetch (feet)	5610			
Volume (acre feet)	3053			
% more than 20 feet	24			
% more than 30 feet	11			
Average Depth (feet)	13			
% less than 15 feet deep	76			
% less than 10 feet	71			
Maximum Depth	54			
Mixing Pattern	Dimictic			
Shoreline with moderate or major modification (%)				
vegetation	33			
land	9			
littoral	35			
No shoreline modification	56			
Shore Impact Zone parcels with				
Retaining Walls	6			
Weed Rollers	1			
Sand Blankets	3			
Rip-Rap	2			
Watercraft	32			
Personal Watercraft	1			
Lake acres per watercraft	1.9			
1st Tier Residences	63			
2ndTier Residences	15			
Lake acres / 1st tier resid	4			
1st tier residence / shore mile	16			

They are contained in a drainage area of about 5400 acres, much of which is given to agricultural activities. There are numerous wetlands (13% of the area's soils are considered "hydric"), and about 10% of the area is in slopes exceeding 15%.

PEARL-LOON LWQMA Watershed Attributes

WQMA acres	5,433
WQMA/Lake Ratio	10.4
WQMA Land Use (%)	
Urban, residential, etc.	1.6
cultivated/pasture/grass	56.8
Forest	23.9
Water	12
wetland	5.7
Road (linear feet)	59881
Estimated Impervious (%)	2
Hydric Soils Area	13
Drained wetlands	61 acres (1% of total WQMA)
Steep Slopes (%)	10

Though essentially rural in character, this portion of the Watershed District has seen rapid growth in recent years. Pearl lake shoreline development has grown by about one-third. There has been some significant second-tier development too.



Further indication of the dynamic situation in this LWQMA is contained in the results of surveys of Pearl Lake's shoreline in 1998, and again in 2002. In that relatively short period of time,

- Over half of the shoreline parcels available in 1998 experienced some residential development; 3 residences were added to the 2nd tier (shoreland zone).
- The number of boats rose from 32 to 54 (69% increase).
- Other shoreline changes in that period include the addition of retaining walls, several new shore impact zone structures were added and vegetation altered; more weedrollers, rip-rap and sand blankets appeared.

Lake Water Quality Issues

The District began to gather data on Pearl Lake in 1998. Results are somewhat mixed; Pearl exhibits relatively clear conditions. However, phosphorus and chlorophyll-a levels are much higher than would be expected given the lake's clarity. Overall, the lake is borderline mesotrophic with moderately clear water, good game fish populations, and moderate plant growth.

No data are available for the other lakes in this LWQMA.

	Pearl		
	TP ug/l	Secchi feet	Chl-a ug/l
Trophic Status Index			
average 1998-2004	***52***	***43***	***52***
averages			
1970's			
1980's			
1990's	***51***	***42***	
2000's	***52***	***44***	***52***
1998-2003 TSI		**49**	
Trophic Status		**Borderline Mesotrophic**	

Pearl Residents have complained of agricultural runoff, and it is apparent that some problems of that sort do exist. On the other hand, it seems likely that shoreline alterations, and intensive residential development along the shores of these lakes lead to long-term problems. Second tier development may also contribute to some degree.

PHOSPHORUS CONCENTRATIONS AND SOURCES TO PEARL/LOON LAKES				
	Pearl	Loon	Spear	Rider
Average Annual Loads from upstream, 1995-2003 (pounds)	?	0	0	*0*
Estimated Average Annual Atmospheric Load (pounds)	21	10	5	*5*
Estimated Average Annual Load from shoreland (pounds)	175			
Mid-Summer total phosphorus in surface water (ppb)	27			
Mid-Summer bio-available phosphorus in surface water (ppb)	9			

A Plan for the Pearl-Loon LWQMA

The District's main goal for the Pearl-Loon LWQMA is to maintain the current conditions on Pearl and Loon. The District will adopt the following strategies to address the special problems facing the Pearl/Loon LWQMA:

A. Obtain base information on Loon, Spear and Rider.

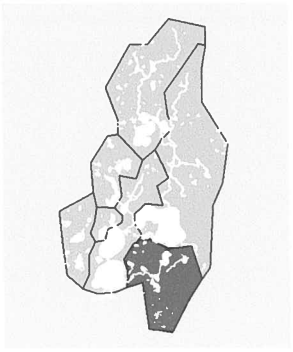
B. Improve diagnosis of Pearl water quality conditions.

C. Investigate agricultural runoff problems, and prescribe BMP's to reduce runoff and runoff impacts.

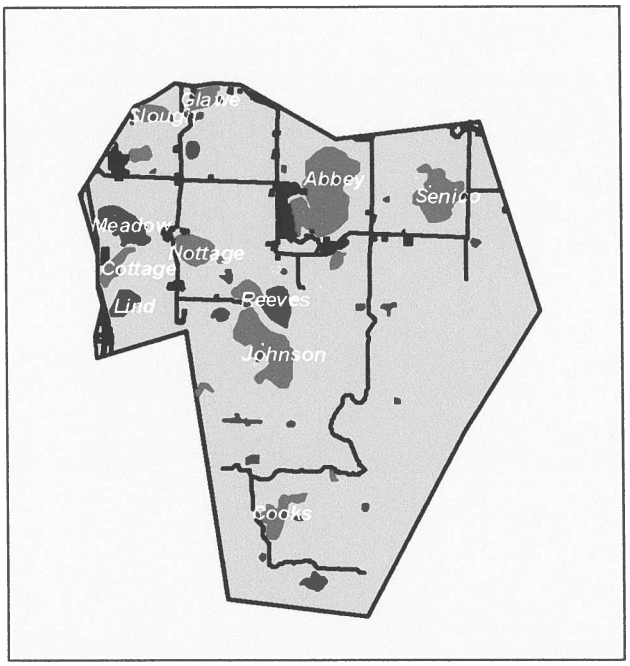
D. Assist residents in becoming informed about lake management issues.

E. Encourage citizen involvement, especially through lake associations, and through the CLMP and DNR programs.

11.6 Small Lakes Lake Water Quality Management Area Plan



The southeastern extremity of the District extends into Ottertail County and contains numerous small lakes and wetland areas. Many of the lakes are connected by means of wetlands, but the overall drainage of the area is indistinct.



SMALL-LAKES LWQMA GENERAL ATTRIBUTES

	Glawe	Slough	Cooks	Nottage	Senico	Lind	Cottage	Meadow	Johnson	Reeves	Abbey
DNR Lake ID		494	525	372	491	376	373	371	374a	374b	366
Status	Lake	Lake	Lake	Lake	Lake	Lake	Lake	Lake	Lake	Lake	Lake
Surface Acres (GIS)	31	30	56	59	114	36	30	68	166	87	26
Shoreline Length (feet)	4,717	4,825	9,421	5967	11624	4939	6201	6713.8	16178	10394	1793
Shoreline length (miles)	0.9	0.9	1.8	1.1	2.2	0.9	1.2	1.3	3.1	2.0	3.4
Shoreline Ratio (acres/mile)	35	33	31	52	52	38	26	53	54	44	78

Aside from dimensions, the District has obtained relatively little data on most of these lakes.

SMALL-LAKES LWQMA GENERAL ATTRIBUTES

	Meadow	Johnson	Reeves	Abbey
Volume (acre feet)	1688	2269	1189	
% more than 20 feet	46	9	10	
% more than 30 feet	28	0	2	
Average Depth (feet)	25	12	12	
% less than 15 feet deep	42	65	76	
% less than 10 feet	36	50	69	
Maximum Depth	81	30	43	
Mixing Pattern	Dimictic	Polymictic	Polymitic	Polymictic
Shoreline with moderate or major modification (%)				
vegetation	22			
land	0			
littoral	27			
No shoreline modification	27			
% of Shore Impact Zone parcels with	0			
Retaining Walls	0			
Weed Rollers	0			
Sand Blankets	12			
Rip-Rap	0			
Watercrraft	18			
Personal Watercraft	0			
Lake acres per watercraft	3.7			
1st Tier Residences	123			
2ndTier Residences	5			
Lake acres / 1st tier resid	1			
1st tier residence/shore mile	94			
Special designations	trout			

The LWQMA contains about 11,000 acres; it contains a relatively high watershed to water ratio. Less than 2% is covered by impervious surface. Much of the southeast half is forested with steep slopes. The northwest half contains most of the small lakes and extensive wetlands, as well as some significant agricultural enterprises.

SMALL-LAKES LWQMA
Watershed Attributes

WQMA acres	10,953
WQMA/Lake Ratio	11.6
WQMA Land Use (%)	
urban, residential, etc.	NA
cultivated/pasture/grass	NA
forest	NA
water	9.4
wetland	6.7
Road (linear feet)	134927
Estimated Impervious (%)	1
Hydric Soils Area (%)	1550
Drained wetlands	negligible

The shorelines of the lakes in this LWQMA are sparsely settled, but have recently seen more development interest. It seems likely that these areas will continue to be attractive to new residents.

Watershed District Rules will play a significant role on such development activities, however, most of these lakes are included within the long-term annexation zone described in the City of Detroit Lakes *Comprehensive Plan*, and all but Lind Lake and Cooks Lake (in Ottertail County), are within the area for which the City has signaled its intention to control land use developments.

Lake Water Quality Issues

In water quality terms our knowledge of the Small Lakes area also is limited. Since 1998 some data have been gathered for four of the lakes (see below). It seems likely that most of the lakes exhibit mesotrophic conditions, though Abbey is an important exception. We have detected no changes.

Meadow is of special interest because of its depth. It has very good water quality (in the lower range of mesotrophic), and is a designated trout lake. There is a resort on the lake, and it has been subject to some other development pressures as well.

SMALL LAKES WQMA:
WATER QUALITY SUMMARY

	Meadow		Johnson		Reeves		Abbey	
	TP ug/l	Secchi feet	TP ug/l	Secchi feet	TP ug/l	Secchi feet	TP ug/l	Secchi feet
TROPHIC INDEXES								
Total Phosphorus								
1998	*56*	*40*	*49*	*44*		*44*		
1999	*49*	*35*	*49*	*45*				
2000	*42*	*41*	*49*	*46*	*47*	*42*	*53*	*52*
2001	*43*	*36*	*57*	*45*	*57*	*44*	*69*	*57*
2002	*51*	*42*	*52*	*46*	*55*	*45*	*57*	*52*
2003	*39*	*38*	*48*	*45*	*51*	*43*	*60*	*55*
average 1998-2004	***47***	***39***	***51***	***45***	***53***	***44***	***60***	***54***
averages								
1990's	***53***	***37***	***49***	***45***		***44***		
2000's	***44***	***39***	***51***	***45***	***53***	***44***	***60***	***54***
1998-2004 TSI	**43**		**48**		**48**		**57**	
Trophic Status	**Mesotrophic**		**Mesotrophic**		**Mesotrophic**		**Eutrophic**	

On the other extreme is Abbey which exhibits Eutrophic conditions. It is shallow and has been somewhat more impacted by past agricultural practices, and current development pressures. It seems likely that Glawe, Slough, and Senico (Senical) are in similar condition.

Johnson and Reeves lakes have relatively good water quality. So far their shores have remained largely undeveloped.

Based upon land use juxtapositions, it seems likely that some, if not all of these lakes have been impacted by agricultural land practices and associated runoff. Some of these practices remain, but, the implementation of Best Management Practices should reduce such problems. On the other hand, residential shoreline development will offset gains.

A Plan for the Small Lakes LWQMA

The District's main goal for this LWQMA are to acquire additional information and to attempt to stimulate citizen interest.

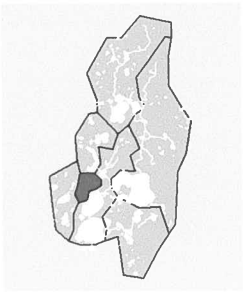
In order to reach this goal, the District will undertake the following:

A. obtain base data on seven additional lakes, and expand data collection efforts on four other lakes

B. hold informational meetings

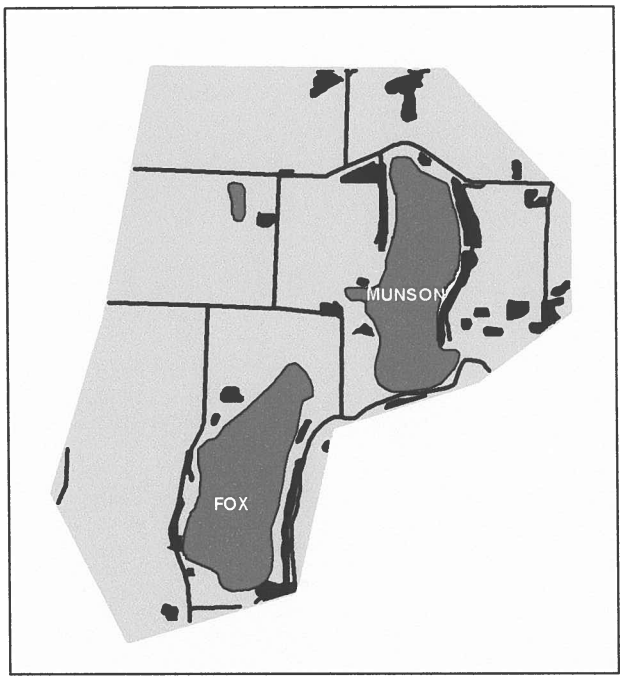
C. recruit CLMP volunteers to collect transparency and other needed water quality data

D. encourage the formation of one or more lake associations to further interest in the future of these lakes.



11.7 Munson-Fox Lake Water Quality Management Area Plan

The LWQMA contains about 1350 acres; both lakes have relatively small watersheds. A little more than one-quarter of the area is in forest, and about half is (or recently has been) cultivated, grassland or pastureland. Less than 2% is covered by impervious surface. Some major gravel mining operations are found in the area.



Munson and Fox are small lakes (129 and 138 acres, respectively). They are also elongated giving them relatively large amounts of shoreline. The lakes owe their existence to groundwater; though both have adjacent wetlands and some shoreline runoff, neither has a significant specific in-coming stream. Both have small outlets.

Fox-Munson LWQMA Watershed Attributes

	Munson	Fox
WQMA acres	1,351	
WQMA/Lake Ratio	6.1	
WQMA Land Use (%)		
urban, residential, etc.	4.8	
cultivated/pasture/grass	47.2	
forest	28.3	
water	16/5	
wetland	3.2	
Estimated Impervious (%)	9%	
Hydric Soils Area	93	
Drained wetlands	220	

Much of the shoreline around these two main lakes in this LWQMA is heavily developed. There have been extensive modifications to the shorelines as a result of rip-rap, retaining walls, shore-impact zone structures, and the addition of sand blankets; the number of boats has increased significantly in recent years.

Fox-Munson LWQMA General Attributes

	Munson	Fox
DNR Lake ID	367	358
Status	Lake	Lake
Surface Acres (GIS)	129	138
Shoreline Length (feet)	11715	9843
Shoreline length (miles)	2.2	1.9
Shoreline Ratio (acres/mile)	58	74
Fetch (feet)	4576	4553
Volume (acre feet)	1904	1447
% more than 20 feet	9	1
% more than 30 feet	0	0
Average Depth (feet)	14	10
% less than 15 feet deep	49	65
% less than 10 feet	39	57
Maximum Depth	26	24
Mixing Pattern	Dimictic	Dimictic
Outlets	1	1
Inlets	0	0
Inflow (annual acre feet)		
Residence time in days		
Shoreline with moderate or major modification (%)		
vegetation	60	54
land	58	6
littoral	13	32
No shoreline modification	36	38
% of Shore Impact Zone parcels with	16	0
Retaining Walls	18	2
Weed Rollers	0	0
Sand Blankets	18	4
Rip-Rap	5	3
Watercrraft	43	31
Personal Watercraft	2	1
Lake acres per watercraft	1.4	2.4
1st Tier Residences	47	49
2ndTier Residences	21	11
Lake acres / 1st tier resid	3	3
1st tier residence / shore mile	21	26

The lakes are heavily used for game-fishing, boating and other summer and winter recreational activities.

Both lakes have significant undeveloped shoreline parcels, so it seems likely that usage and development of the lakes will continue to rise as a result of shoreline development. Also, additional 2nd tier development can be expected to occur in the area. Munson, with a public access, is subject to some pressure from non-resident recreation visitors.

Watershed District Rules will play a significant role on such development activities, however, most lakes are included within the long-term annexation zone described in the City of Detroit Lakes Comprehensive Plan, and much of the watershed areas which drain to these lakes are within Detroit Lakes extraterritorial zone, an area which the City has signaled its intention to control land use developments.

Lake Water Quality Issues

Both Munson and Fox have relatively good water quality. Both are classified as *mesotrophic,* and have shown no signs of change over the period for which data are available.

FOX-MUNSON LWQMA: WATER QUALITY SUMMARY

	Munson			Fox		
	TP ug/l	Secchi feet	Chl-a ug/l	TP ug/l	Secchi feet	Chl-a ug/l
TROPHIC INDEXES						
11-yr average 1994-2004	***47.4***	***44.4***		***44.6***	***46.7***	***41.8***
averages						
1990's	***47***	***43***		***46***	***47***	***42***
2000's	***48***	***43***		***45***	***47***	***41***
1994-2004 TSI		**46**			**44**	
Trophic Status	**Mesotrophic**			**Mesotrophic**		

Nevertheless, there are some troubling signs for both lakes. Both have experienced episodes of high phosphorus, and both have had some years of poor clarity.

PHOSPHORUS CONCENTRATIONS AND SOURCES	Fox	Munson
Average Annual Loads from upstream, 1995-2003 (pounds)	0	0
Estimated Average Annual Atmospheric Load (pounds)	12	13
Estimated Average Annual Load from shoreland (pounds)	81	97
Mid-Summer total phosphorus in surface water (ppb)	17	27
Mid-Summer bio-available phosphorus in surface water (ppb)	5	8

In the absence of any significant upstream sources of phosphorus, it seems that phosphorus sources for these lakes are predominantly associated with shoreland development. Continuing intensive shoreland development, coupled with dubious shoreline management practices are the problems which must be confronted by these two lakes.

Non-riparian, residential and some commercial development has occurred in the shoreland zone (within 1000 feet of lakeshore), especially in the case of Munson. It seems likely that such development will continue near both lakes, and in the LWQMA in general. The increases in impervious surfaces associated with such development have been shown to have negative effects on lakes.

Agricultural runoff may be a problem, especially for Fox lake. The impacts from gravel mining operations are unknown, though some have intruded into the ground water, a possible concern for these groundwater-dependent lakes. It seems likely that non-lakeshore development will continue to expand.

While Fox Lake residents have formed a lake association and have exhibited interest in monitoring water quality and related issues, there has been no such concern exhibited by Munson lake residents.

A Plan for the Munson-Fox LWQMA

The District's main goal for this LWQMA is to promote the implementation of aggressive shoreline best-management practices.

In order to reach this goal, the District will undertake the following:

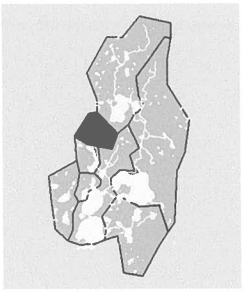
A. Advocate for stricter shoreline development controls

B. provide education and incentives for the implementation of shoreline BMP's.

C. minimize surface and groundwater quality impacts from highways, agricultural and gravel operations

D. promote citizen involvement among Munson residents

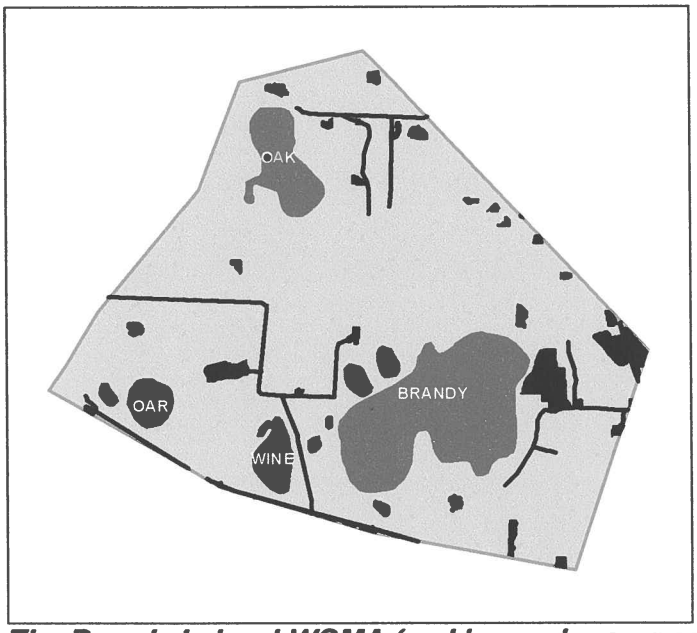
11.8 Brandy Lakes Lake Water Quality Management Area Plan



The LWQMA contains about 3000 acres; the lakes have quite small watersheds. Almost half of the area is, or recently has been, cultivated or utilized as pasture.

Wetlands and small lakes are the dominant features of the LWQMA. Almost 20% of the area is wetland and approximately 10% of the area is owned by the US Fish and Wildlife Service.

Brandy has 323 acres, but the other lakes are much smaller. None of the lakes have much shoreline development, though there are scattered residential and commercial developments near, or in some cases on, the lakes.



The Brandy Lakes LWQMA (and impervious areas)

BRANDY LWQMA WATERSHED

WQMA land acres	3,045
WQMA/Lake Ratio	6.1
WQMA Land Use (%)	
urban, residential, etc.	2.7
cultivated/pasture/grass	48.6
forest	24.2
water	14.2
wetland	10.3
Road (linear feet)	60282
Impervious (% of land)	7.7
Hydric Soils (% of land)	18.3
Drained wetlands	negligible
Steep Slopes (% of land)	30.1

All of the lakes have significant amounts of undeveloped shoreline. However, though classified as Natural Environment Lakes by Becker County, they are shallow, and probably not well-suited for recreational development.

Brandy has a small inlet with surface drainage that originates near a former County landfill which is currently under active management of the Minnesota Pollution Control Agency. Groundwater, extracted from the former landfill, is aerated and discharged to Brandy.

Watershed District Rules will play a significant role in future development of this area; however, this LWQMA is included within the extraterritorial area for which the City of Detroit Lakes exercises zoning control. The long-term annexation zone described in the City of Detroit Lakes Comprehensive Plan, includes Brandy and Wine lakes.

BRANDY LWQMA GENERAL ATTRIBUTES

	Brandy	Oak	Wine	Oar
DNR Lake ID	400	116		183
Status	Lake	Lake	Lake	Lake
Surface Acres (GIS)	323	81	35	29
Shoreline Length (feet)	18057	9944	5123	4081
Shoreline length (miles)	3.4	1.9	1.0	0.8
Shoreline Ratio (acres/mile)	95	43	36	38
Fetch (feet)	5866	3160	1935	1524
Volume (acre feet)	1932			
% more than 20 feet	0			
% more than 30 feet	0			
Average Depth (feet)	5			
% less than 15 feet deep	100			
% less than 10 feet	100			
Maximum Depth	7			
Mixing Pattern	Polymictic			
Outlets	0			
Inlets	1			
Inflow (annual acre feet)				
Residence time in days				
1st Tier Residences	29			
2ndTier Residences	0			
Lake acres / 1st tier resid	11			
1st tire resid /shore mile	9			

Lake Water Quality Issues

Brandy is an eutrophic lake, bordering on hypereutrophic. Clarity is poor, and TP is elevated. This is an impaired water for recreational purposes. At the present time there are no data available for the other lakes in this LWQMA.

It seems likely that the overall health of these lakes is significantly impacted by their shallowness. Also, past land use practices near these lakes may have contributed to problems.

There is no evidence that the Closed Landfill remediation that involves discharge of treated groundwater to surface wetlands draining to Brandy Lake is of any significant consequence. .

PHOSPHORUS CONCENTRATIONS AND SOURCES

	Brandy
Average Annual Loads from upstream, 1995-2003 (pounds)	?
Estimated Average Annual Atmospheric Load (pounds)	35
Estimated Average Annual Load from shoreland (pounds)	149
Mid-Summer total phosphorus in surface water (ppb)	56
Mid-Summer bio-available phosphorus in surface water (ppb)	17

WATER QUALITY SUMMARY

	Brandy	
Annual Averages	TP (ug/l)	Secchi (ft)
1998	23	4.0
1999		3.5
2000		5.6
2001	82	3.0
2002	77	2.7
2003	43	4.2
1994-2003	***56***	***4***
2000's	***67***	***3***

TROPHIC INDEXES		
1998	*49*	*57*
1999		*59*
2000		*52*
2001	*68*	*61*
2002	*67*	*63*
2003	*58*	*57*
1994-2003	**61**	**58**
2000's	***64***	***60***
1994-2003 TSI	**59**	
Trophic Status	**Eutrophic**	

A Plan for the Brandy Lakes LWQMA

Preventing further degradation, and developing options for improving lake water quality are the District's main goals for this LWQMA.

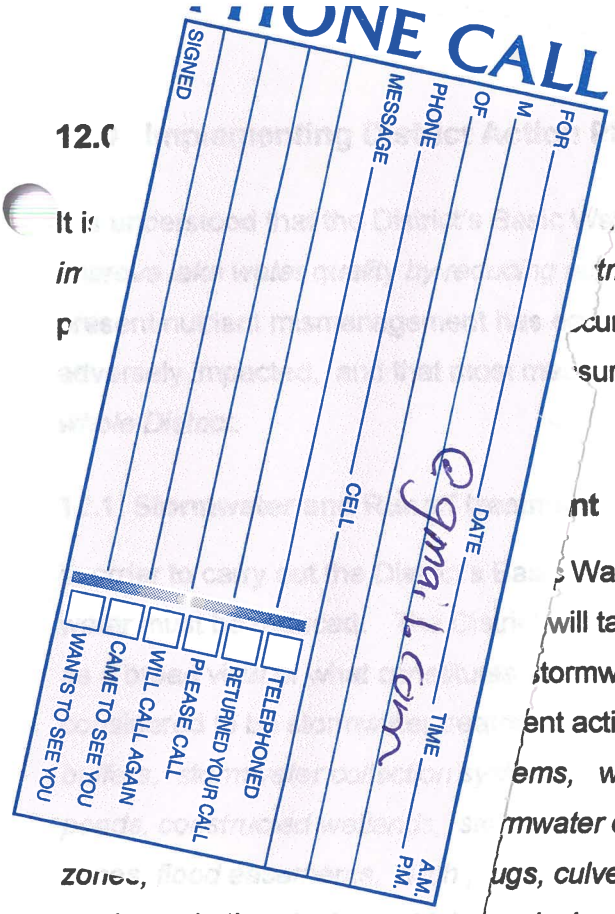
In order to reach these goals, the District will undertake the following:

A. obtain base data on Oar, Wine and Oak lakes, and increase data collection on Brandy.

B. coordinate District monitoring and management efforts with the PCA's landfill remediation project.

C. identify and address commercial, residential or agricultural runoff to lakes.

D. develop a plan for improvement of Brandy's water quality.



12.0 ns

It i er Management Project (Minn. Stat. 103D.605 Subd.1(2)) is *to im trient loadings to District lakes.* It is further understood that past and p curred throughout the District, that all District lakes have been sures taken to solve lake nutrient enrichment problems *will benefit the*

nt

Water Management Project, the nutrients delivered to lakes by storm will take a broad approach to accomplish this reduction, and accordingly, stormwater treatment. Pursuant to Minn. Stat. 103D.730, the following are ent activities and facilities: *permitting, education, enforcement, shoreline ems, wetland restoration, sediment control devices, stormwater detention rmwater diversion, stormwater detention, streambank protection, buffer zones, ugs, culvert risers, storm sewers, in-stream chemical treatment, conservation pools, and other devices are designed to reduce stormwater flows or the nutrients which are contained in them.*

12.2 Annual Work Plans

Each year the District Board of Managers undertakes a comprehensive review of District activities for the completed year, and authorizes a work plan for the next year. This activity is accomplished in the context of existing Revised Management Plan's goals and implementation strategies.

Indeed, it is understood that the goals and implementation strategies described for both the District as a whole and its constituent LWQMA's, must be described in more detail in order to be implemented in practice. This is accomplished in the form of task lists that are specified annually by the Managers and assigned to be carried out by the staff. This process incorporates budget planning as well. Although the new Revised Management Plan will be significantly more complicated than the past, this annual assessment process will be continued.

A water quality monitoring plan also is prepared once each year. In addition to specifying monitoring sites, monitoring schedules, and sampling plans for on-going monitoring and special studies, the plans will outline analytical procedures, and quality assurance activities.

12. 3 Financing

In is anticipated that District financing of its RMP implementation activities will be carried out more or less as it has been in the past. In short, this means that most expenses associated with general administration and district-wide activities will be obtained through the ad valorem levies to the General fund and Survey and Data Acquisition Fund (SADAF). Stormwater treatment, including permitting and enforcement, will be paid from some combination of general fund revenues, and storm-water utility charges. Ditch management responsibilities will be carried out by means of Assessments to the ***benefited*** Property Owners in the respective Ditch systems. Existing and future District projects will be paid for by some combination of grants, general operating funds, and assessments in accordance with Minn. Stat. 103d, and 103e.

More specifically, in order to finance the implementation of its Revised Management Plan's goals and implementation strategies, and its annual work plans, the District anticipates employment of some combination of the following four financing methods:

1. as noted elsewhere, the *Basic Water Management Project* of the District is "to improve lake water quality by reducing nutrient loadings to District lakes". The following activities are among the components of the District's Basic Water Management Project;

    - education
    - monitoring
    - regulation and permitting
    - stormwater treatment and diversion measures
    - groundwater treatment
    - nutrient removal from ditch and stream discharges
    - chemical treatment of individual lakes
    - establishing buffer zones and other BMP's for ditches and streams

    Since they address district-wide problems and causes of problems, and would result in benefits throughout the District, these components may be funded by (1) a district-wide ad valorem tax, (2) by cooperative agreements with other governmental units under Minn. Stat. 103D.605 and 103D.611, or (3) by the creation of a district-wide Water Management District (WMD) in accordance with Minn. Stat. 103D.729 Subd.1, or some combination of the foregoing.

    If a district-wide WMD is created, it is intended that it should be permanent. The costs of projects funded by a district-wide WMD would be underwritten by charges as provided for in Minn. Stat. 103.D.729 subd. 2. The total cost of each project authorized under the district-wide WMD project would be collected as a stormwater charge (fee) apportioned among the landowners in the WMD on the basis of their relative contribution of nutrients and sediments to runoff Rates may be differentiated on the basis of the amount of land and its usage in accordance with standard phosphorous loading factors, or by standard runoff coefficients. It is anticipated that no more than $500,000 in charges (fees) will be collected in any one year during the period of this plan.

2. Projects not considered by the District to have district wide impact may be funded by one, or some combination of, the following: (1) special assessment upon benefited property, (2) by cooperative agreements with other governmental units under Minn. Stat. 103D.605 and 103D.611, or (3) by the creation of up to eight other WMD's in accordance with Minn. Stat. 103D.729 Subd. 1 and defined by the LWQMA's described in the previous sections , their upstream areas and such downstream areas as are relevant to controlling runoff and nutrient transfer to lakes Detroit, Floyd and Sallie (see maps describing these WMD's in Appendix II).

   It is intended that any such WMD (LWQMA) would be permanent. The costs of projects funded by these WMD's will be underwritten by stormwater charges as provided for in Minn. Stat. 103D.729 subd.2. The total cost of each project authorized in this manner will be collected as a stormwater charge (fee) apportioned among the landowners in all or a portion of each WMD on the basis of their parcel's relative contribution of nutrients and sediments to runoff. There may be more than one stormwater treatment project in a single WMD.

   Rates charged to landowners will be differentiated on the basis of the amount of their land and its usage in accordance with standard phosphorous loading factors, or by standard runoff coefficients.

3. The City of Detroit Lakes may choose to petition the District under MN. Stat. 103D.905 for a project which would result in costs being apportioned among landowners on an ad valorem basis.

4. Watershed District Project and Ditch Assessments will be assessed in accordance with provisions of MN. Stat. 103D and 103E.

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APPENDIX A. WATER MANAGEMENT RULES OF PELICAN RIVER WATERSHED DISTRICT

TO PROTECT AND ENHANCE THE QUALITY OF WATERS WITHIN ITS JURISDICTION; TO ENSURE THAT WISE DECISIONS ARE MADE CONCERNING THE MANAGEMENT OF STREAMS, WETLANDS, LAKES, GROUNDWATER AND RELATED LAND RESOURCES WHICH IMPACT THESE WATERS; AND TO ACCOMPLISH THE PURPOSES FOR WHICH A WATERSHED DISTRICT IS ESTABLISHED.

Section 1.0 Introduction

1.1 Statutory Authority to Adopt Rules

According to Minnesota Statutes (M.S.) Section103D.341, subdivision 1, the managers must adopt rules to accomplish the purposes of this chapter and to implement the powers of the managers.

1.3 Short Title

These rules shall be known and may be cited as the "Pelican River Watershed District Rules."

1.4 Inconsistent Provisions

If any rule or rules herein contained are inconsistent with the provisions of M.S. Chapter 103D or other applicable laws of the State of Minnesota, the provisions of Chapter 103D or other applicable law shall govern.

1.8 Severability

The provisions of these rules shall be severable and the invalidity of any section, subdivision or any other part thereof shall not make invalid any other section, subsection, paragraph, subparagraph, subdivision or any other part thereof.

Section 2.0 Policy Statement

2.1 General Policy

These rules shall be adopted by the Board of Managers of the Pelican River Watershed District to effectuate the purposes of M.S. Chapter 103D and the powers of the Board of Managers therein prescribed. It is the intention of the Board of Managers that its rules conform to the legislative policy of M.S. Chapter 103D.

It is the Managers' intention to use these rules as a tool to carry out the District's mission to enhance the quality of water in the lakes within its jurisdiction. It is understood that to accomplish this, the District must ensure that wise decisions are made concerning the management of streams, wetlands, lakes, groundwater, and related land resources which directly affect these lakes. The Managers' further intent is to accomplish this mission in a manner that is most beneficial to the general welfare of present and future residents of the District and to minimize adverse environmental impacts upon the water resources of the District.

Specifically, the District seeks to minimize increased discharges or nutrients to the waters of the District by exercising control over development and to regulate improvements by riparian property owners of the beaches, banks, and shores of lakes, streams, and wetlands for preservation and beneficial public use.

The rules stated below shall be followed by any persons, corporations, firms, state, county or municipal governments, and other government agencies undertaking revision of their existing rules, plans or statutes, or undertaking certain land use modification or land development activities within the District.

Section 3.0 Definitions

For the purposes of these Rules, certain words and terms are defined below. In the absence of a definition, the definitions established for the State of Minnesota by statute or by case law shall apply to these Rules unless clearly in conflict, clearly inapplicable, or unless the context makes such meaning repugnant thereto. Certain terms or words used herein shall be interpreted as follows: the word "shall" is mandatory, not permissive. All distances, unless otherwise specified, shall be measured horizontally.

ALTERATIONS TO LAND – grading, excavation, fill or movement of soil or vegetative material.

APPROPRIATE REGISTERED PROFESSIONAL OR REGISTERED PROFESSIONAL – a professional registered in the state of Minnesota with the necessary expertise in the fields of hydrology, drainage, flood control, erosion and sediment control, and stormwater pollution control to design and certify stormwater management devices and plans, erosion prevention and sediment control plans, and shoreland alterations including retaining walls. Examples of registered professionals may

include professional engineers, professional landscape architects, professional geologists, and professional soil engineers who have the referenced skills.

BLUFF - a topographic feature such as hill, cliff, or embankment located in a shoreland area and draining to a water body, having a slope rising at least 25 feet above the ordinary high water level of the water body, and where the grade of the slope from the toe of the bluff to any point 25 feet or more above the ordinary high water level averages 30 percent or greater.

BLUFF IMPACT ZONE- a bluff and land located within 20 feet from the top of the bluff.

BOARD OF MANAGERS shall mean the Managers of the Pelican River Watershed District.

BWSR – Minnesota Board of Water and Soil Resources

DETENTION SYSTEM – a structure or facility, which collects and stores runoff on a temporary basis with a subsequent gradual release of stormwater at a controlled rate. A detention basin may retain some water.

DE-WATERING – discharge of appropriated surface or ground water.

DISCHARGE – the disposal, conveyance, channeling of runoff or drainage of water or material, including, but not limited to stormwater and snow melt.

DISTRICT – shall mean the Pelican River Watershed District.

EROSION – the wearing away of soil by rainfall, surface water runoff, wind, or ice-movement.

FILL – soil, sand, gravel, clay or any other material which is placed on land or in waters of the state.

GROUNDWATER RECHARGE AREA - area in which surface water accumulates and is conveyed to groundwater aquifers.

ICE RIDGE shall mean the ridge, comprised of soil, sand and/or gravel, often found in the shore impact zone near the ordinary high water mark of lakes, and caused by wind driven ice or ice expansion.

ICE RIDGE MODIFICATION – the removal, excavation, alteration, of material or vegetation on an ice-ridge.

IMPERVIOUS SURFACE shall mean a constructed hard surface that either prevents or retards the entry of water into the soil and causes water to run off the surface in greater quantities and at an increased rate of flow than prior to development. Examples include, but are not limited to, rooftops, sidewalks, patios, roads, streets, driveways, and parking lots constructed of concrete, asphalt, paving stones and bricks, or compacted soils (including "class 5").

LATERAL means any constructed waterway or drain which conveys water to a public ditch.

LAND ALTERATION – any change in the surface of the land.

LOADS – a quantity of sediment or nutrients, expressed by weight, and carried by, or dissolved in, discharge.

MANAGERS – the Board of Managers of the Pelican River Watershed District.

MPCA – Minnesota Pollution Control Agency.

NATURAL VEGETATION DISBURBANCE – the removal or destruction of established vegetation species.

NRCS – U.S. Department of Agriculture Natural Resource Conservation Service Agency.

ON-SITE - within the contiguous confines of a ownership parcel.

ORDINARY HIGH WATER (OHW) – The boundary of public waters and wetlands which is an elevation delineating the highest water level which has been maintained for a sufficient period of time to leave evidence upon the landscape, commonly the point where the natural vegetation changes from predominantly aquatic to predominately terrestrial. For watercourses, the ordinary high water level is the elevation of the top of the bank of the channel.

POINT DISCHARGE – discharge from a specific outlet, such as storm sewer, pipe, culvert, or ditch.

PROPERTY OWNER– means the party possessing the title of the land on which the activity will occur; or if the activity is for a lease holder, the party identified as the lease holder; or the contracting government agency responsible for the activity.

RECONSTRUCTION – includes, but is not limited to, changing drainage, re-grading, changing cross sections or vegetation removal; reconstruction does not include seal-coating or overlays of roads, streets, highways, driveways or parking lots, right-of-way maintenance, or road repairs resulting from maintenance or repair of sanitary or water supply system.

RETAINING WALL – a structure intended to maintain a grade differential of six inches or more.

RETENTION SYSTEM – a structure or facility which accumulates a specified amount of stormwater or runoff.

RUNOFF is water, including nutrients, pollutants and sediments carried by water, discharged from land surface.

SEDIMENT – mineral or organic particulate matter that has been carried from its point of origin by water or wind.

SHORE IMPACT ZONE means land located between the ordinary high water level of a public water and a line parallel to and 1/2 the setback from it (as defined by applicable county or municipal zoning ordinances), except that on property used for agricultural purposes the shore impact zone boundary is a line parallel to and 50 feet from the ordinary high water level.

SHORELAND (SHORELAND DISTRICT OR SHORELAND ZONE) means land located within 1000 feet of the ordinary high water mark of a lake, pond, or 300 feet from a river or stream, as defined in the Becker County Zoning Ordinance.

SLOPE INSTABILITY – condition in which slope has exhibited sloughing or slumping or other failure to maintain natural grades, or is determined by an appropriate registered professional to have the potential for failure.

STABILIZATION – covering an exposed ground surface by sod, erosion control blanket, rip rap or other material that prevents erosion. A surface is not considered stabilized by simply sowing grass seed.

STEEP SLOPE – steep slopes, that are not bluffs, are lands having average slopes more than 12 percent, as measured over distances of 50 feet measured on the ground.

STORM SEWER shall mean a system of pipe installed for the specific purpose of transporting surface and/or underground waters from one location to another and said system need not be continuously constructed only of pipe, but may include reaches of flumes, spillways, or open channels.

STORMWATER – precipitation runoff, snow melt runoff, or any other surface runoff and drainage.

STORMWATER INFRASTRUCTURE – constructed measures to collect, convey, or treat stormwater.

STORMWATER TREATMENT – facility designed to retain or detain stormwater, or to lower its sediment or nutrient content.

RELIEF – A modification or variation of the provisions of the Rules, as applied to a specific piece of property.

VEGETATION – brush, shrubs, grass, or trees.

WATERCOURSE - channel having definable beds and banks capable of conducting confined runoff from adjacent lands. During floods water may leave the confining beds and banks, but under low and normal flows water stays within the channel. A watercourse may be perennial or intermittent, natural or man-made. Ditches and streams are examples of watercourses.

WATERS OF THE STATE - means all streams, lakes, ponds, marshes, watercourses, waterways, wells, springs, reservoirs, aquifers, irrigation systems, drainage systems, and all other bodies or accumulations of water, surface or underground, natural or artificial, public or private, which are contained within, flow through, or border upon the state or any portion thereof.

WATERSHED DISTRICT- shall mean the legally established agency named and referred to as the Pelican River Watershed District, when the word "District", it shall mean the land contained within the boundary of the Pelican River Watershed District.

WETLAND-shall mean all wetlands as defined in Minnesota Statutes.

4.0 Water Quality Protection and Enhancement

4.10 Thresholds for Permits. Permits are required for any of the following actions:

c. alterations to land, impervious surface, or vegetation in Shore or Bluff Impact Zones, or on steep slopes in a Shoreland Zone;

d. additions to impervious surface resulting in total impervious surface (new and existing) in excess of 25% of lot area, or 10,000 square feet in the shoreland zone, or 1 acre elsewhere for any property draining to waters of the state, or draining to an existing storm sewer or stormwater treatment facility;

i. construction or re-construction of a private or public highway, road, street, parking lot, or public water access;

j. subdivisions, plats, developments based upon certified surveys or planned unit developments;

k. changes to stormwater infrastructure, including streets and public parking, inlets to waters of the state, bridges, or culverts;

l. de-watering of groundwater by discharges to waters of the state;

m. installation, repair, or replacement of rip-rap or beach sand blanket in the shore impact zone;

n. installation, repair, or replacement of retaining walls in the shore or bluff impact zone.

4.11 Approval of Permits. Permits will be granted for actions in 4.0 which meet all of the following conditions:

a. Actions will not result in increases in stormwater discharge rates to adjoining properties or to waters of the state for the 5-year, 25-year, and 100-year- 24-hour rainfall events.

b. All actions must utilize standards and procedures for controlling runoff rates, nutrients, and sediments as described in the "Protecting Water Quality in Urban Areas" manual (MPCA , 2000) as revised. If a facility or measure is not addressed in that manual, other resources include "BWSR Minnesota Construction Site Erosion and Sediment Control Planning Handbook" as revised, the NRCS "Slope Protection for Dams and Lakeshores, Minnesota Technical Release 2" (October 1997) as revised, "Minnesota Urban Small Sites BMP Manual, Met Council, 2001", or "Storm Water Management for Construction Activities: Developing Pollution Prevention Plans and Best Management Practices, U.S. Environmental Protection Agency, 1992", as revised.

c. Actions in Section 4.10 b, c, d, and e, must be accompanied by a stormwater management plan, and for areas that are changed incorporate retention of the stormwater runoff generated by the 5 year 24 hour rainfall event on site; an alternative standard would be to show a minimum of 90% removal of total suspended solids and a 50% or higher total phosphorus removal for a 5-year-24-hour rainfall event using Walker's Pond Net model. In either case, a maintenance schedule for the provisions must be provided.

d. Actions involving ice ridges are allowed only for purposes of repairing existing shoreline damage; no ice ridge modifications which result in an increase of runoff to a lake or natural vegetation disturbance are allowed, except that a 4 foot wide walkway may be constructed upon an ice ridge.

e. Actions involving the stabilization of shorelines or stream banks, or installation of beach sand blankets must use fill or material that is non-polluting under any foreseeable circumstances. For rip-rap, under normal conditions, no rip-rap or filler materials should be placed more than six feet waterward of the shoreline measured from the Ordinary High Water (OHW) level elevation. The encroachment into the water is the minimum amount necessary to provide protection and does not unduly interfere with the flow of water.

f. Retaining walls in the shore impact zone are allowed only for the purposes of correcting existing slope instability or erosion; the base of such walls must be above the highest known water level. Retaining wall design plans must comply with accepted engineering principles and submit an analysis which shows that the wall will withstand expected ice and wave action, and earth pressure.

4.12 Permit Application Requirements

a. No action, works, or use requiring a permit shall be commenced prior to issuance of the permit, except for emergency repairs necessitated by storms, floods, or water, electrical and sewage system failures. The District should be notified of such repairs as soon as practicable.

b. Application forms and instructions will be available from the Pelican River Watershed District office, the City of Detroit Lakes, and the Becker County Zoning office. Permit applications must be complete in order to be considered by the District.

c. Permits are valid for an eighteen month period from the date of issuance unless otherwise suspended or revoked. To extend a permit, the property owner must apply to the District in writing stating the reasons for extension. Any plan changes, and related project documents must also be included in the extension application. The District must receive this application at least thirty days prior to the permit's expiration date.

d. Permit applications involving land alterations of a bluff or steep slope, or involving the construction, repair, or replacement of a retaining wall in the shore impact zone *are* required to include a site evaluation and construction plan designed and signed by an appropriate registered professional.

e. Nothing in these Rules shall limit the District from requiring a design certification by a registered professional when deemed necessary and appropriate by the Managers or their designee in order to ensure compliance with the Rules.

4.13. Fees

a. A permit fee will be required for permit applications as established on an annual basis by the Board of Managers.

b. A field inspection fee, based upon the actual hourly rates of District staff or consultants will be charged in order to cover actual costs related to investigation of the area affected by the proposed activity, analysis of the proposed activity, services of a consultant, and any required subsequent monitoring of the proposed activity.

c. Governmental agencies are exempt from fees.

4.14 Sureties

a. The District may require a performance bond, letter of credit or other surety in a form approved by the District for an activity regulated under these Rules. A commercial surety shall be from an issuer licensed and doing business in Minnesota. The surety shall be submitted by the property owner but the surety principal may be either the property owner or the individual or entity undertaking the proposed activity.

b. The surety shall be in favor of the District and conditioned on the applicant's performance of the activities authorized in the permit in compliance with all applicable laws, including the District's Rules, the terms and conditions of the permit and payment when due of any fees or other charges authorized by law, including the District's Rules. The surety shall state that in the event the conditions of the surety are not met, the District may make a claim against it.

c. The surety must be valid and in force for at least an eighteen (18) month period and shall contain a provision that it may not be canceled or released except pursuant to the terms in 4.14 e herein.

d. The amount of the surety shall be set by the Board of Managers by resolution as the amount the Board deems necessary to cover the following potential liabilities to the District:

(1) Application, field inspection, monitoring and related fees authorized under Minnesota Statute § 103D.345;
(2) The cost of maintaining and implementing protective measures set forth in or incorporated into the permit; and
(3) The cost of remedying damage resulting from permit noncompliance or for which the property owner otherwise is responsible.

e. On written notification of completion of a project, the District will inspect the project to determine if the project is constructed in accordance with the terms of the permit and District Rules. If the project is completed in accordance with the terms of the permit and District Rules and there is no outstanding balance for unpaid inspection fees, the District will release the surety if one was required in Section 4.14a. If the District has not inspected the project and made a determination about the project's compliance with the above criteria within 45 days of District receipt of written notification of project completion, the surety is deemed released. In this event, the District will provide a written release of the surety if needed to meet the issuer's requirements.

f. Governmental agencies are exempt from surety requirements.

4.15 Relief

Any request for a relief from a requirement of these Rules must be decided by the Pelican River Watershed District Board of Managers under the following conditions:

a. Relief Authorized – The Board of Managers may hear requests for appeals of staff interpretation of these Rules or relief from the literal provisions of these Rules in instances where their strict enforcement would cause undue hardship because of circumstances unique to the property under consideration. The Board of Managers may grant relief where it is demonstrated that such action will be in keeping with the spirit and intent of these Rules. Requests for relief must be in writing.

b. Standard – In order to grant a relief, the Board of Managers will determine that:

1. Special conditions apply to the structure or land under consideration that do not generally apply to other land or structures in the District.

2. Because of the unique conditions of the property involved, undue hardship to the applicant would result, as distinguished from mere inconvenience, if the strict letter of the rules was carried out A

hardship cannot be created by the landowner or their contractor. Economic hardship is not grounds for issuing a relief.

3. The proposed activity for which the relief is sought will not adversely affect the public health, safety, welfare; will not create extraordinary public expense; will not adversely affect water quality, water control, drainage in the District.

4. The intent of the District's Rules is met.

c. Term - A relief will become void after eighteen (18) months after it is granted if not used.

d. Violation - A violation of any condition set forth in a relief is a violation of the District's Rules and will automatically terminate the permit.

4.2 Upgrade of Existing Stormwater Discharges.

The Managers may require a person or government to provide a treatment plan for point discharges of stormwater containing annual loads in excess of 10 pounds of phosphorus or 2000 pounds of sediment to waters of the state. Such a plan must be implemented within 2 years of notification by the District.

4.3 Maintenance of Stormwater Treatment Devices.

The owner of property on which a stormwater treatment device has been constructed must maintain that device so that its function is not diminished.

Section 5.0 Governmental Responsibilities

5.1 All township, municipal, county and state governments must work to reduce sediment and nutrient loadings to waters of the state with designs described in Protecting Water Quality in Urban Areas (MPCA, 2000) as revised.

5.2 Notification and Review

All township, municipal, county and state governments shall provide copies of plans or documents for proposed actions which may impact the waters of the state to the legal address of the District at least 10 calendar days before the first public hearing date for review and comment, or before rendering a decision on the proposed action ,whichever is earlier. The Board of Managers shall review such changes in light of the foregoing Water Quality Protection and Enhancement Rules (Section 4.0) to ensure that such changes contain provisions for maintaining or enhancing water quality. The following are specific cases in which such notification and review are required:

a. Proposed ordinances involving land use, storm water, or wetlands;
b. Proposed public works including modifications of existing roadway, storm collection or treatment systems, sewage collection and treatment systems, or plans for such projects;
c. Requests for zoning changes, divisions of riparian lots, subdivisions, plats, variances, conditional use permits, and planned unit developments, to be authorized under county or municipal zoning ordinances;
d. Requests for permits involving construction or other modifications in a shoreland zone.

6.0 Ditch Authority

6.1 Policy Statement

The Managers understand their responsibility to maintain Ditches 11-12, 13 and 14 in accordance with M.S. Chapter 103E and relevant case law. The District also intends to maintain and further develop the ditches in such a way as to minimize their past, present and future downstream impacts on the District's lakes.

6.2. Notification and Review

In addition to any obligations or restrictions described in preceding sections in these Rules copies of a proposal or plan which involves any modification of the Public Ditch systems, or any waterways that impact the discharge or the nutrient loads of those systems, must be provided to the Managers at least 10 days prior to the commencement of work. This notification is specifically required for, but is not limited to...

a. dredging, filling, or diking of watercourses, wetlands or lakes
b. culvert and bridge replacements or modifications
c. variance and conditional use for feedlots within 1000 feet of a waterway
d. streambank stabilization, including the placement of rip rap
e. channelization of watercourses

f. construction of laterals
g. repair of laterals
h. removal of grass, shrubs or trees within 16.5 feet of a watercourse
I increased discharge to a lateral or ditch as a result of increases in impervious surface
j. storage of snow within 50 feet of a ditch or a lateral.

The notification must contain sufficient information to allow Managers to make an informed judgment on the conformance with provisions of M.S. Chapter 103E, the District Rules, and other applicable rules, statutes and ordinances.

6.3 Compliance with District Rules

All District Rules will apply to the management of Ditch systems.

Section 7.0 Enforcement Powers of Board of Managers

7.1 Stop Work Order

District staff shall issue an order to immediately stop or prevent any violation or threatened violation of these rules or other applicable statutes, rules or regulations affecting water quality within the District.

7.2 Enforcement

These Rules, other applicable statutes, rules or regulations affecting water quality within the District and any stop work order issued by District staff shall be enforced by all appropriate legal action, including, but not limited to temporary restraining orders, injunctions, actions to compel compliance with these rules, restoration, abatement, costs and damages. Costs, fees and expenses incurred by the District in enforcing these rules, including but not limited to engineering and attorneys fees, shall be assessed against and paid by any person, entity, contractor or governmental subdivision found to be in violation of these rules.

7.2 Contractor's Liability

Any individual, firm, corporation, partnership, association or other entity contracting to perform services regulated by these Rules shall be responsible for ascertaining that all permits have been obtained and that the work performed complies with all requirements of these Rules. Contractors and landowners in violation of these Rules may be separately subject to all methods of enforcement as provided above.

Section 8.0 Adoption or Amendment

These Rules of the Pelican River Watershed District shall be adopted or amended in accordance with M.S. Chapter 103D.

Section 9.0 Effective Date

Upon adoption, Rules and Amendments of the Rules previously approved by the Board of Managers are hereby rescinded.

These Rules are effective upon adoption in accordance with M.S. Chapter 103D.

BOARD OF MANAGERS
PELICAN RIVER WATERSHED DISTRICT

_____
David Brainard, Secretary

(Published in Detroit Lakes Tribune on April 20, 2003).

APPENDIX B: PELICAN RIVER WATERSHED DISTRICT BY-LAWS as amended April 19, 2001

I. MANAGERS

A. Appointment of Board

The Board of Managers shall consist of 7 managers appointed by the County Commissioners pursuant to Minn. Stat. 103D. The term of office for a manager is 3 years. A manager's term continues until a successor is appointed and qualified. A vacancy occurring in the office of a manager is filled by the appointing County Board. To ensure continuity, managers terms are specified and staggered, so that no more than 3 managers' terms will expire in any given year. In the event that a manager resigns prior to the expiration of his or her term, the District will request that the County appoint a successor to fill the remainder of the term.

B. Officers

The Board of Managers will elect for a one-year term at the January Board meeting from among the then qualified managers, a president, vice president, secretary, and treasurer. Any vacancies occurring in officers positions will be filled by majority vote of the managers.

C. Compensation of Managers

Compensation of managers for meetings and for performance of other necessary duties will be set annually by the managers and will not exceed the maximum per diem amount allowed by the State of Minnesota. Managers are entitled to reimbursement for traveling and other necessary expenses incurred in the performance of official duties.

D. Oath

Each manager must take and sign the oath defined in Minnesota Constitution Art. V, Section 6, and such oath must be signed and filed with the Secretary of the Board.

II. MEETINGS

A. Place and Time

1. *Regular monthly meetings of the managers shall be held on the third Thursday of each month at the District office, unless otherwise noticed. Meetings may be re-scheduled in the case of time-conflicts or emergencies by the President or other officer.*
2. *Special meetings of the managers may be called at the request of any manager.*
3. *Notices of any special or rescheduled meeting shall be sent to the managers, advisors and staff at least eight (8) days prior to the date of the special or rescheduled meeting, and shall be posted on the door of the District office at least (3) days prior to the date of the meeting.*

B. Conduct of Meetings

1. *All meetings shall be held in a public location. The Secretary shall keep minutes of every meeting of the managers. All meetings shall be conducted pursuant to Robert's Rules of Order.*
2. Quorum. Transaction of business at any meeting may occur if a majority of the then appointed managers are present.
3. Voting. Each manager shall have one vote on all matters at issue before the Board, unless that manager has a personal financial interest in the outcome of the issue in question. Managers with a personal financial interest in the outcome of an issue before the Board shall abstain from voting on that issue.

III. FINANCIAL PROCEDURE

The fiscal year of the Board of Managers is January 1 to December 31. The Board of Managers must have an annual outside audit completed on the books and accounts of the Watershed District.

A. Accounting

The Board of Managers shall operate under a cash basis. Monthly payrolls and monthly financial summaries are prepared by office staff and reviewed by the Treasurer and the Administrator. The Managers shall approve financial statements at least once each quarter.

B. Budget

The Board of Managers shall prepare the next fiscal year's preliminary annual budgets for consideration and approval by the Board no later than the September meeting. A public hearing will be held prior to the September meeting to provide public input on preliminary budgets. After adoption of the preliminary budgets, the preliminary levy shall be certified to the County Auditor at the conclusion of the September meeting. During or before the December Board meeting, the Managers shall review the preliminary annual budgets and certify final levy to the County Auditor.

C. Funds

The Board of Managers shall maintain the following funds:

Administrative Fund or General Fund
Survey and Data Acquisition Fund
Project 1-B Maintenance Fund
Project 1-C Maintenance Fund
CWP - Lake Sallie/Ditch 14 Project Implementation Fund
Harvesting Projects Implementation Fund
Ditch 13 Maintenance Fund
Ditch 11-12 Maintenance Fund
Ditch 14 Maintenance Fund
Basic Water Management Project Implementation Fund
Utility Fund

IV. RESOLUTIONS

A. Actions requiring resolutions

Actions of the Board of Managers which have the potential to affect or commit the financial resources of the District or which shall have an affect upon the public at large or the water quality of the District shall require approval by resolution.

B. Voting on resolutions

All resolutions shall require a majority of the managers present and accounted for at the meeting which the resolution is proposed for adoption.

C. Proposal of resolutions

All resolution may be proposed by a motion of a manager, which motion must be seconded by a second manager before discussion shall occur. Upon seconding, the motion shall be discussed and a vote may be taken.

D. Adoption

Resolutions duly approved at any meeting shall be recorded in the minutes of the Board of Managers and shall be valid and enforceable and without transcription onto a separate document. Resolutions which establish rules and regulations for the public shall be published in a newspaper generally circulated within the Watershed District and shall contain an indication of the effective date.

E. Amendment, repeal or suspension

Any resolution of the Board of Managers may be amended by majority vote of a quorum of the managers at the meeting upon which the motion or amendment is made and seconded.

V. CONTRACTS

The Board of Managers is authorized to enter into contracts with given individuals and public bodies pursuant to the authority granted to the managers under Minn. Stat. 103D. All such contracts must be approved by a majority vote of the managers then duly appointed.

VI. PROPERTY

The Board of Managers is authorized to acquire, sale, or lease property pursuant to Minn. Stat. 103D.

VII. CIVIL RIGHTS POLICY

The Pelican River Watershed District acknowledges that every person should be given full and equal employment opportunities and therefore, adheres to the policy of employment opportunity for all its employees and for all applicants seeking employment within its jurisdiction. Equal opportunity under this policy includes, but is not limited to, the following: hiring, recruitment, selection, benefits, promotion, transfer, layoff, return from layoff, compensation, equality of wages, and employee development programs including apprenticeship and training programs. The District does not permit discrimination because of race, color, creed, religion, age, national origin, marital status, disability, handicap, or public assistance.
The District's Administrator is responsible for implementing this policy.

VIII. MISSION

The mission of the Pelican River Watershed District is to enhance the quality of water in the lakes within its jurisdiction. It is understood that to accomplish this, the District must ensure that wise decisions are made concerning the management of streams, wetlands, lakes, groundwater, and related land resources which affect these lakes.

IX. DRAINAGE AUTHORITY

Following transfer by the Becker County Commissioners, the Board of Managers will act as Drainage Authority for Ditches 11-12, 13 and 14. The Drainage Authority exercises responsibilities that are described in various sections of the Drainage Code (Section 103E); these duties include, but are not limited to, constructing and maintaining drainage systems, undertaking an annual inspection, ordering repairs, receiving petitions, and preventing unauthorized use or damage to the drainage systems under its jurisdiction.

The Board directs the District Administrator to carry out the annual inspections, and to undertake, on his or her own authority, repairs costing less than $1000 per Ditch.