

Big Sand Lake Association

BSLA

Lake Management Plan

**September 2009
Version 3.0**

Supported by the Initiative Foundation

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Introduction

Initiative Foundation Activity

In September 2003 the Big Sand Lake Association was invited to participate in the Initiative Foundation's Healthy Lakes and Rivers Partnership program along with eight other Lake Associations in Douglas and Wadena Counties. Under the coordination of Darrin Moe (Hubbard County Local Water Planner) and Kari Tomperi (Wadena County Water Planner), participants attended two days of training on strategic planning, communication, and nonprofit group leadership to support lake association leadership and plan development.

Representatives of many state and local agencies, as well as nonprofit organizations also attended the training sessions in order to offer their assistance to each group in developing a strategic Lake Management Plan. The Big Sand Lake Association (BSLA) was represented at the Healthy Lakes & Rivers training sessions by: Bill Eichten, Sue Fairchild, Cynthia Jones, Tom Kimer, Mimi Long, Irene Weis, and Catherine & Stan Williamson. Following the training sessions, the BSLA held an inclusive community planning/visioning session designed to identify key community concerns, assets, opportunities, and priorities. The Big Sand Lake Association held this planning session on May 29, 2004, facilitated by Shelli Urness. Approximately 40 people attended with about 15-20% of the participants describing themselves as year round residents. Details of the public input received at this session are provided within this plan in Appendix A.

This document is intended to create a record of historic and existing conditions and influences on Big Sand Lake and to identify the goals of the Big Sand Lake community. Ultimately it is meant to assist in prioritizing goals to guide citizen action and engagement in the priority action areas. Clearly state agencies and local units of government also have a vital role and responsibility in managing surface waters and other natural resources, but above all else this Lake Management Plan is intended to be an assessment of what we as citizens can influence, what our desired outcomes are, and how we will participate in shaping our own destiny.

This Lake Management Plan is also intended to be a "living document;" as new or better information becomes available, as we accomplish our goals or discovered that alternative strategies are needed, it is our intent to update this plan so that it continues to serve as a useful guide to future leaders.

In discussing lake management issues, it is impossible to avoid all scientific or technical terms. We have tried to express our goals, measures of success, and other themes as simply and clearly as possible. Included is a glossary of common limnological terms at the end of the plan to assist the reader to determine / learn of the state of lake conditions and behavior.

Finally, we would like to thank the funders of the Healthy Lakes & Rivers Partnership program for Hubbard and Wadena Counties, including The McKnight Foundation, Laura Jane Musser Trust, Northwest Minnesota Foundation, Hewitt Family Charitable Fund, McDowall Company, Hubbard County Water Plan, Wadena County Water Plan, Hubbard County Coalition of Lake

Associations, the Minnesota Environment and Natural Resources Trust Fund as recommended by the Legislative Commission on Minnesota Resources (LCMR), Minnesota Board of Water and Soil Resources, Lake Hubert Association - Crow Wing County, Linda Kaufmann, and Don Hickman & Sandra Kaplan.

Added: August 2008 by BSLA Board Members and Focus Area Facilitators

Big Sand Lake Association Mission & Vision

The mission of the Big Sand Lake Association: We are committed to the preservation of Big Sand Lake for current use and for the use of future generations.

Our vision for the future of Big Sand Lake is beautiful, clear, turquoise blue water with healthy, non-invasive vegetation which nurtures an abundance of fish, loons and other non-invasive wildlife. The trees and other natural vegetation on the shoreline and banks prevent soil erosion and pollutants from entering the lake. The treed home sites free of sound and light pollution provide a peaceful, quiet setting which can be enjoyed by birds, wildlife and human inhabitants. The members of the Big Sand Lake Association have effective communication and friendly relationships with a commitment to observation, education and action in carrying out the mission.

Big Sand Lake Association History

The Big Sand Lake Area Association was organized in the summer of 1988. John McCallum and Bob Rust were the first to develop a mailing list of property owners on or near Big Sand Lake.

In a letter sent to all property owners, it was stated among other things, that the Association intended to investigate and take action on the following:

- Water Quality
- Swimmer's Itch
- Lake Shore and Back Lot Development
- Noise Pollution

Membership dues were established at \$50.00 for the first year. It was stated that a "war chest" was needed of about \$5,000 to \$6,000 by the spring of 1989.

Personal contacts were made and the response to our letter was excellent.

The first officers of the association were as follows:

President- John McCallum
Vice President- Bob Rust
Secretary- Ann Candor
Treasurer- Mary Gladwin

Directors elected for one year:

Pierce Fairchild
Andrea Brainard
Wayne Devore
Dr. Jim Wenzel
Ted Bair
Doug Gladwin

In October 8, 1988, the Association had 82 members.

On June 10, 1989, the annual meeting of the Association was held at the Eagles Club in Park Rapids. There were 52 members in attendance at this meeting. This was when the official articles of Incorporation were approved by the general membership.

The purpose of the Association was stated as follows in Article II

- Section 1: The Association shall promote and maintain the environmental, economic, and recreational protection of Big Sand Lake and vicinity.
- Section 2: The Association shall work in conjunction with federal, state, and local agencies, public and private, to maintain the quality of the lake.
- Section 3: The Association shall develop a program for the promotion of stocking Big Sand Lake.

- Section 4: The Association shall provide educational resources relating to the protection and quality of Big Sand Lake Area and its wildlife.
- Section 5: The Association shall inform the general membership of civil concerns relating to the purposes of the Association
- Section 6: The Association shall be a non-profit, non-stock organization.

Since that time, the Association has continued to grow with the membership in excess of 100.

Since BSLA has been in existence for a number of years, it has achieved some accomplishments prior to the Initiative Foundation training. Here is a partial list of the most important items:

- 1) The fly over of Big Sand and action by the Association Board which resulted in Big Sand being the first lake in Hubbard County to have all septic systems up-graded.
- 2) Working closely with the DNR and making sure that adequate walleye fingerlings are stocked in the lake.
- 3) Secchi disk program which monitors lake clarity.
- 4) Established a program to monitor and inform our members of what can and could be done about “swimmer’s itch.”
- 5) Maintained an annual program to make sure all sand bars and other hazards are properly marked.
- 6) The Association was very active in getting the parking problem at the access solved
- 7) Installed and paid for an attractive sign at the public access.
- 8) Support COLA in their efforts to improve and upgrade all the lakes in our area.

The primary purpose of our association remains the preservation of our beautiful resource Big Sand Lake for our current use and for the use of future generations to come.

The BSLA continues to evolve and build a strong organization. We have published our first Lake Directory providing a way for us to know our neighbors around the lake and better communicate with one another. Our membership base remains strong with over **125 memberships**.

Volunteers monitor lake clarity yearly participating in the Citizen Lake Monitoring Program through COLA (Coalition of Lake Associations).

Recently, our board conducted a survey responding to the DNR proposal that Big Sand Lake be designated a trophy Northern Pike Lake. Both Big Sand property owners as well as lake users (visitors) were asked to complete the questionnaire. AS a result of our effort in conducting the survey and the responses received the DNR elected not to go forth with the Northern Pike designation.

Social activities ranging from neighborhood coffees to book club, gardening, cooking and sporting groups are getting started. Our first Big Sand neighborhood get together was held August 2001. Since then, we have increased from one yearly social event and the annual meeting to a monthly social event during the summer along with our annual meeting. This winter, we even had Super Bowl Party to kick off the social calendar for 2005! One of all the

favorite events is the annual 4th of July boat parade started over ten years ago. We added a second parade in 2004 during the night where residents adorn their watercrafts with lights! This is still in its infancy as everyone tries to figure out generators and electricity over water.

Many great ideas and discussions have developed during numerous board and annual member meetings over the last 16 – 17 years for the BSLA. Our challenge has been documentation and management of those concepts and goals. The Initiative Foundation’s training and guidance through facilitated sessions and the formation of this document will enable the Big Sand Lake community to become more engaged, responsive, and accountable for preserving and maintaining this incredible asset God has given us to manage.

We submit this document for the Initiative Foundation’s financial and educational support, as well as a living document to aid in the management of the Big Sand Lake Watershed.

Sincerely,

<i>Tom Kimer</i>	<i>Catherine Williamson</i>	<i>Stan Williamson</i>	<i>Mimi Long</i>
President	Vice President	Former President	COLA Representative
<i>Bill Eichten</i>	<i>Irene Weis</i>	<i>Cynthia Jones</i>	<i>Dan Dyre</i>
Board Member	Board Member	Treasurer	Board Member
<i>Rich Jacobson</i>	<i>Sue Fairchild</i>	<i>Stan Goltz</i>	<i>Marlene Fairchild</i>
Board Member	Board Member	Board Member	Secretary

Physical Characteristics and location of Big Sand Lake

Big Sand Lake (DNR ID# 29-0185) is located 2.5 miles north of Dorset, MN, in Hubbard County. There are five lakes immediately upstream of Big Sand Lake including Big Mantrap, Upper Bottle, Lower Bottle, Little Mantrap, and Emma Lakes.

The lake has a surface area of 1,659 acres of which 465 acres (28 percent) is in the littoral zone (meaning that it has a depth of 15 feet or less). The maximum depth in the lake is 135 feet, and an average depth of approximately 12 feet.

The MN Department of Natural Resources conducted a fisheries assessment for Big Sand Lake in August 1998, and introduced their report with the following observations:

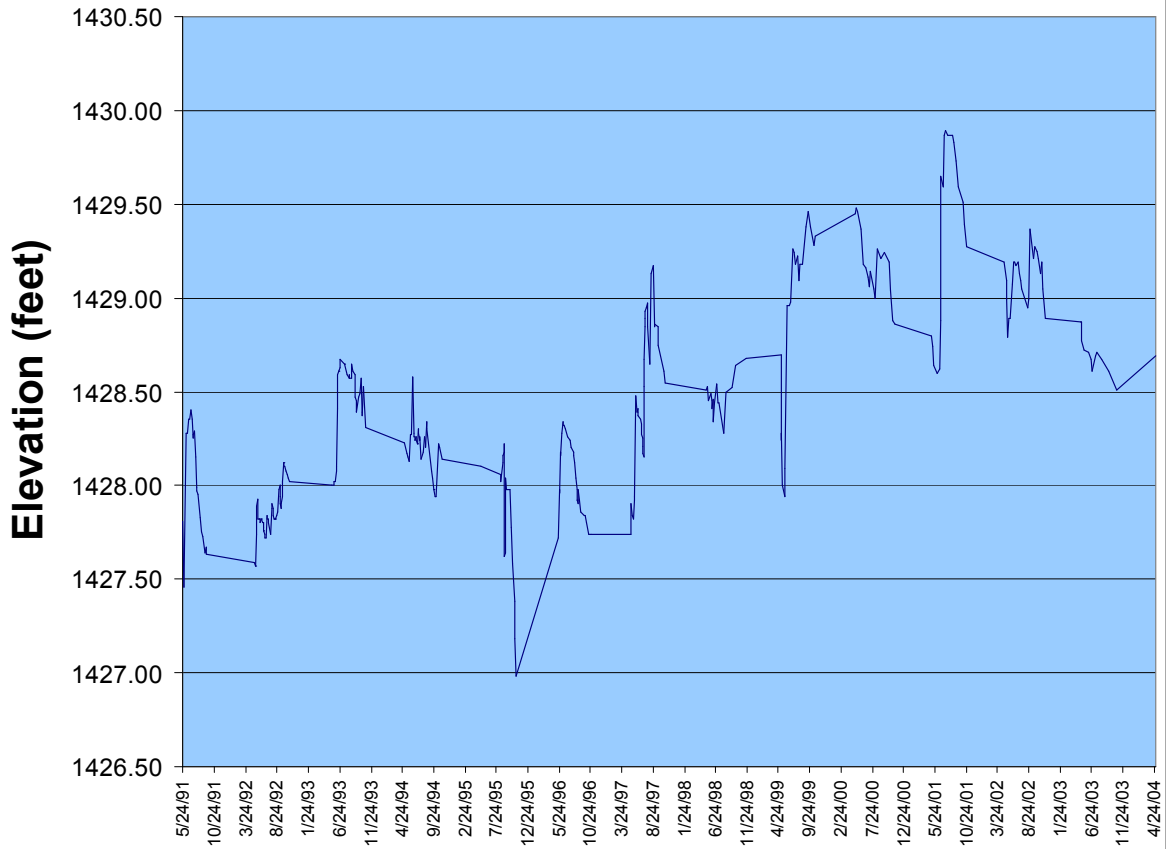
A public access is located on the southeast shore of the lake at the outlet. Construction of an expanded parking area at the access occurred in 1997. Access with small boats is also available from the inlet connecting to Lake Emma and from the outlet connecting to Lake Ida. Big Sand is noted for its outstanding walleye fishery, especially for its population of big walleyes. Big Sand Lake has exceptional water clarity and lots of structure to challenge the fisherperson. Experimental Regulations were put into effect in 1995 that requires the release of all walleyes between 18.0 and 26.0 inches (protected slot length limit).

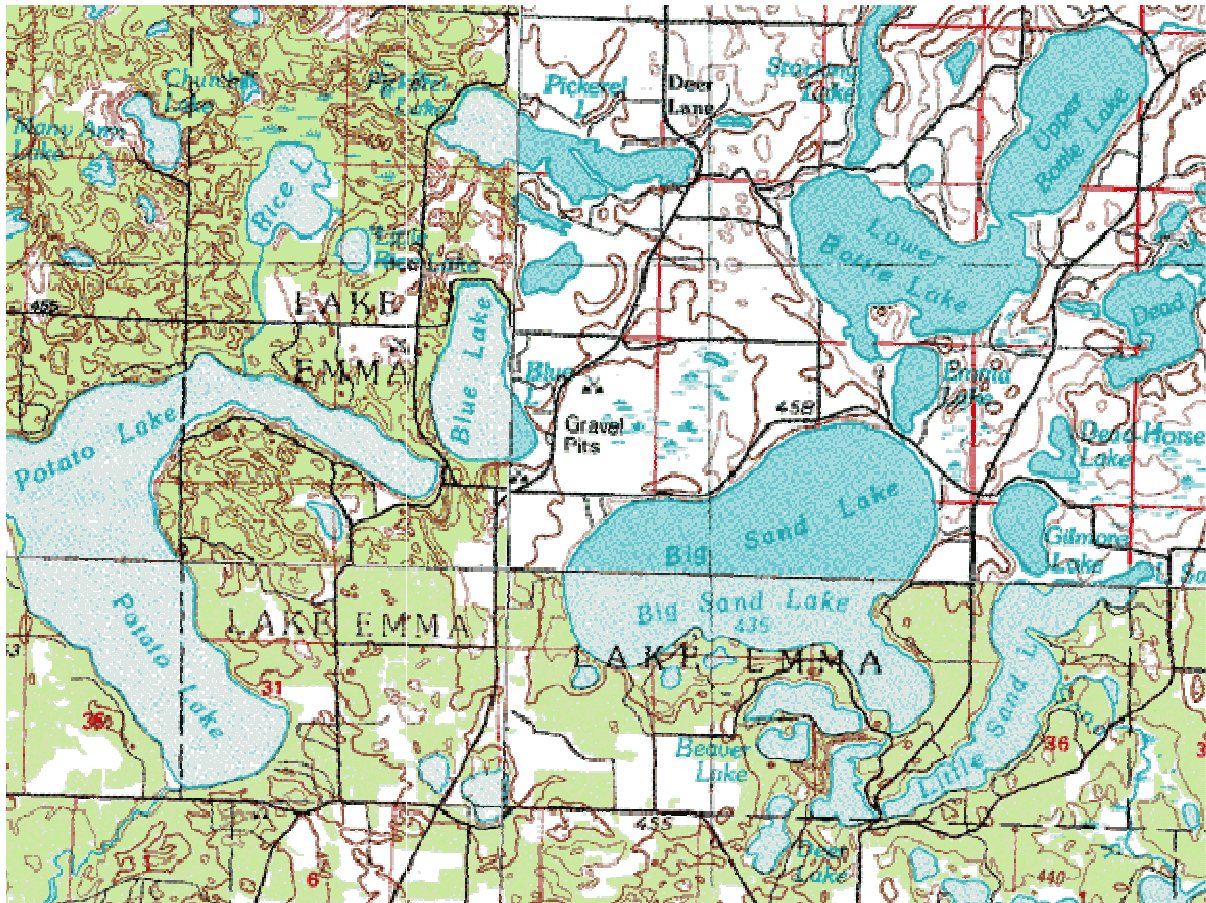
The Minnesota Department of Natural Resources (DNR) has classified Minnesota's lakes into 43 different types based on physical and chemical characteristics. Big Sand is in lake class 22. Other area lakes in this same classification include: Lower Bottle, Kabekona, Long, and Potato.

Water levels have been recorded at varying frequency on Big Sand Lake since 1960. During this period the highest water level of record was observed on June 14, 2001 at 1,429.89 feet, and the lowest on August 13, 1995 at 1,426.98. The average water level has been 1,428.41 feet, and the regulatory "Ordinary High Water" level established by the DNR is 1,427.9 feet.

Big Sand Lake

Lake Elevation 1991-2004





Watershed Description

Big Sand Lake is part of the Mantrap Valley Watershed (which is part of the Crow Wing River Watershed). Land use within the watershed is dominated by forested and water land uses, which is typical of the region.

Precipitation

In 1989 the Minnesota Pollution Control Agency (MPCA) conducted a formal “Lake Assessment Program” (LAP) study of nearby Little Sand Lake, and noted that average annual precipitation ranges between 26-28 inches, and evaporation ranges between 30-32 inches. This same study noted that springtime ice-out has usually occurred by April 20.

Soils

According to the 1989 MPCA Lake Assessment Report on nearby Little Sand Lake, the area was formed in the pitted to hilly moraine deposits of the Wadena lobe of the Late Wisconsin glaciation. Soils of this area are classified as Menahga-Marquette. These soils are light-colored and formed from non-calcareous fine to medium outwash sands. The area is heavily forested with jack pine, aspen and birch.

Focus Area 1: Water Quality

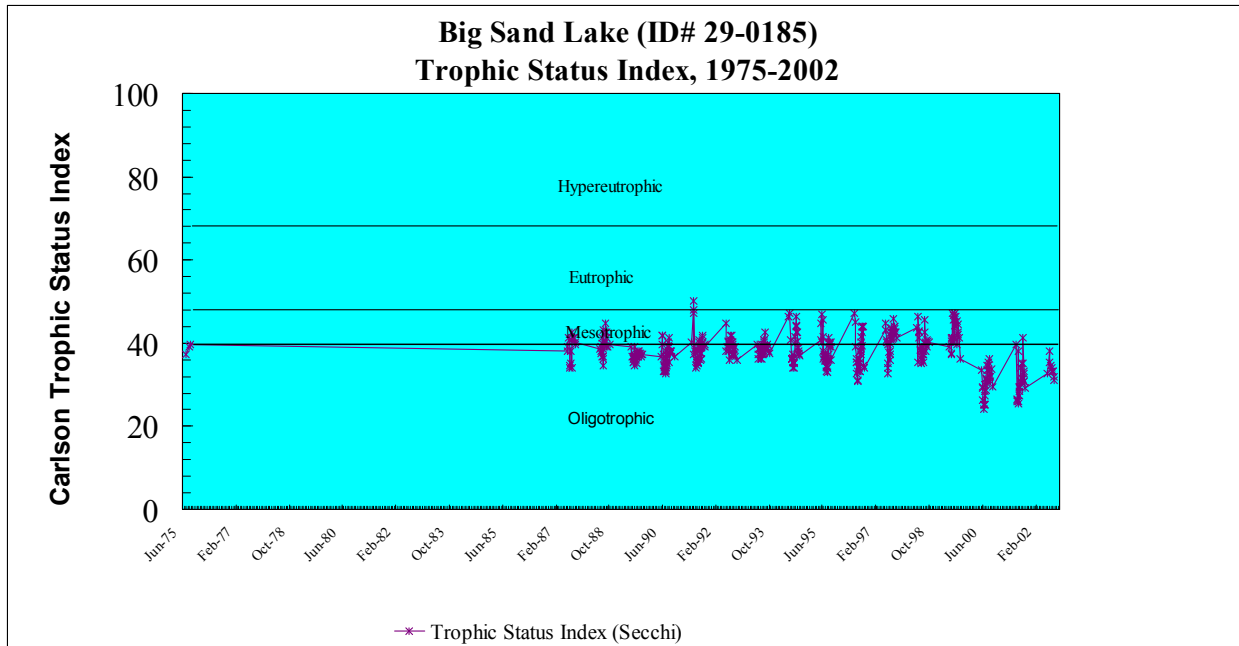
Citizen volunteers from the Big Sand Lake Association have participated in the Minnesota Pollution Control Agency's (MPCA) Citizen Lake Monitoring Program (CLMP) since 1975, recording secchi disc transparency – a measure of water clarity. Volunteers in the CLMP from Big Sand Lake have included Andrea U. Brainard, James B. Wenzel, Charles H. Corwin, Dr. Richard J. Provinzino, and Chris Ueland. During this time the annual average reading has ranged from a low of 11.0 feet in 1999, to high of 26.4 feet in 2000.

On the MPCA's web-site link, "Lake Water Quality Database," additional secchi data is also reported. These data suggest that Big Sand Lake is at the upper range of oligotrophic conditions, with a mean Secchi transparency of 15.09 feet. The MPCA web site does not indicate that water quality data other than secchi transparency has been compiled for Big Sand Lake.

One application of secchi disc transparency data is to convert the clarity measurements into a Carlson Trophic Status Index (TSI) score. The Carlson Trophic Status Index (TSI) is a tool used to summarize several measurements of water quality into one index value, which can be used to compare a lake to other lakes, or to historic/future data as a measure of degradation or improvement. In many ways, the index can be viewed as a measure of the potential for algal productivity. Since most people value lakes with low algae productivity, the lower the TSI value the healthier the lake. Specifically:

<u>TSI Range</u>	<u>Trophic Status</u>	<u>Characteristics</u>
0-40	Oligotrophic	Clean Lake
41-50	Mesotrophic	Temporary algae & aquatic plant problems
50-70	Eutrophic	Persistent algae & aquatic plant problems
Greater than 70	Hypereutrophic	Extreme algae & aquatic plant problems

As shown on the graph on the follow page, the TSI score for Big Lake varies between the mid-30's and the upper 40's, depending on the time of summer that the measurements are collected. For all practical purposes, the lake has varied within the mesotrophic and eutrophic range throughout the year for the past two decades.



Combined with secchi depth, the chlorophyll and total phosphorus measurements can be used to calculate a Carlson’s Trophic Index (TSI) value; a score between 0-100, which allows easy comparison to, measures of water quality from other lakes or at other time periods. Big Sand Lake has a TSI score of 38, placing it in the upper range of the oligotrophic trophic conditions. This score is better than 82 percent of all other lakes within the Northern Lakes and Forests ecoregion.

The Minnesota Pollution Control Agency lists the water quality of Big Sand Lake as “full support” for swimming and other recreational contact.

Listed below are ranges of common measures of water quality based on many years and locations of water quality. The tables below are adapted from the MN Pollution Control Agency and show common water quality ranges for lakes. Presented below are three tables, which summarize the range of common water quality parameters (measurements) for our eco-region: Table 1. Minnesota Lake Phosphorus Criteria (Heiskary and Wilson, 1988).

Eco-region	Most Sensitive Use	Phosphorus Criteria
Northern Lakes & Forests	Drinking water supply	< 15 µg/L
	Cold water fishery	< 15 µg/L
	Primary contact recreation & aesthetics	< 30 µg/L

Table 2. Distribution of Total Phosphorus (µg/L) Concentrations by Mixing Status and Eco-region. Based on all assessed lakes for each eco-region.

D = Dimictic, I = Intermittent, P = Polymictic

	Northern Lakes & Forests			North Central Hardwood Forests			Western Corn Belt Plains		
Mixing Status	D	I	P	D	I	P	D	I	P
Percentile value for TP									
90 %	37	53	57	104	263	344	--	--	284
75 %	29	35	39	58	100	161	101	195	211
50 %	20	26	29	39	62	89	69	135	141
25 %	13	19	19	25	38	50	39	58	97
10 %	9	13	12	19	21	32	25	--	69
# of observations	257	87	199	152	71	145	4	3	38

Table 3. Inter-quartile Range of Concentrations for Minimally Impacted Streams in Minnesota by Eco-region. Data from 1970-1992.

(McCollor and Heiskary, 1993; note 1 mg/L = 1 ppm = 1,000 ppb)

Region/Percentile	Total Phosphorus (mg/L)			Total Suspended Solids (mg/L)		
	25 %	50 %	75 %	25 %	50 %	75 %
Northern Lakes & Forests	0.02	0.04	0.05	1.8	3.3	6.0

Table 4. Average Summer Water Quality and Trophic Status Indicators

Parameter	Typical Range: North-Central Hardwood Forest Eco-region
Total Phosphorus ($\mu\text{g/L}$)	14 – 27
Chlorophyll <i>a</i> ($\mu\text{g/L}$) mean	4 – 10
Chlorophyll <i>a</i> ($\mu\text{g/L}$) maximum	<15
Secchi disc (feet)	8 – 15
Total Kjeldahl Nitrogen (mg/L)	0.4 – 0.75
Nitrite + Nitrate Nitrogen (mg/L)	<0.01
Alkalinity (mg/L)	40-140
Color (Pt-Color units)	10 – 35
pH	7.2 – 8.3
Chloride (mg/L)	0.6 – 1.2
Total Suspended Solids (mg/L)	<1 – 2
Total Suspended Inorganic Solids (mg/L)	<2
Conductivity ($\mu\text{mhos/cm}$)	50 – 250
Total Nitrogen/Total Phosphorus ratio	25:1 – 35:1

Big Sand Annual Meeting Results for the Focus Area 071104: Water Quality

Manager: Stan Williamson				
Group Owners: Ken Wilcox, Rich Jacobsen, Scott Faust, Andrea Brainard, Dick Long, and Patti Igel				
Indicators of Success:				
<ul style="list-style-type: none"> ➤ Obtain more information on the true water chemistry of Big Sand Lake. ➤ Encourage shore land buffer zones through an educational outreach ➤ Obtain any existing information on Water Quality and fill in the gaps on missing data ➤ Continue to stay in contact with COLA and lake associations upstream regarding water quality ➤ Investigate Minnesota Lakes Association (MLA) as well. These groups are also legislative and local links to water quality issues 				
Goals	Next Steps	Date	Owner	Status
Contact MPCA to determine what water quality data exists. If none exists, find out if there are plans to obtain data- do within 2 month	Contact MPCA	091004	Stan Williamson	This should be started and a report ready for the annual meeting.
Continue to work with Dan Dyer who is obtaining mercury and phosphorous levels and Secchi disk readings on a monthly basis- this has been ongoing.	Track Data for the summer of 2005. Review the Chemistry levels in September of 2005	5/1/05	Dan Dyer	The Secchi disk readings are being reported on a regular basis by Dan Dyer.
Contact COLA & MLA regarding process of working together- work with Mimi Long in 1 month to coordinate-	Find a volunteer to coordinate this goal by June 30 th , 2005	5/1/05	Stan Williamson	Stan should have a manager arranged by the annual meeting.
Organize outreach to other lake association in the area	Tom Kimer is arranging meeting with other lake association presidents.	07/05	Tom Kimer	Tom has been given the contact information for the other lake presidents.
A scientific understanding of the watershed- to be completed in one year	Find a volunteer to coordinate this goal by June 30 th , 2005	5/1/05	Stan Williamson	The DNR is to be contacted as the first step.
Place an FYI in next newsletter regarding phosphorous fertilizers on lawns and encourage people to recycle lake water for nutrients rather than fertilize	Notify Tricia Fredrikson in newsletter regarding state law requiring no phosphorous in fertilizers.	5/25/05	Stan Williamson	Information is to be placed in the newsletter for the next BSLA newsletter.
Determine progress of the DO Study	What is the data showing? What do we need to do?			

Focus Area 2: Fisheries

Status of the Fishery (as of August 5, 1998) according to the MN Dept. of Natural Resources fisheries summary:

Walleye abundance (4.6/net) was at the low end of the "normal range" for this lake class. WAE abundance was higher in 1992 (8.4/net) and 1995 (9.0/net). WAE abundance in historical surveys has fluctuated, but has generally been above the "normal range". Sampled walleye were large-sized averaging 17.9 inches and 2.3 pounds. Average weight of walleye has increased in the 1990's. All three of the surveys in 1990's have had average weights of 2.3 pounds or larger, while earlier surveys had average weights of 1.4 pounds or less. Big Sand has an abundant yellow perch and tullibee (Cisco) population that provides an excellent forage base for producing large walleye and northern pike.

Walleye growth rates were faster than other lakes in this class. Thirty-nine percent of the walleye sample fell within the 18.0 to 26.0 inch protected slot length limit, similar to the 1995 survey. Natural reproduction of walleye is contributing to the population with 47% of the sample from non-stocked years. Big Sand is stocked with walleye fingerlings in even years to supplement the natural reproduction. Big Sand has several rock and rubble shoal areas that provide excellent walleye spawning habitat. Fall electrofishing was conducted for the first time on Big Sand to assess the abundance of young walleye produced through natural reproduction. Fourteen walleye from the 1998 year class were sampled (6.2 walleye/hour). Future fall electrofishing is planned to monitor the population of young walleye and to compare abundance with other lakes in the Park Rapids area.

The DNR has imposed special walleye fishing regulations on Big Sand Lake. Effective with the 2005 fishing season all walleye from 20" to 28" in length must be immediately returned to the lake and only one walleye over 28" may be kept.

Big Sand has a low northern pike population, but is known for producing some large-size fish. Northern pike abundance was below the "normal range" for this lake class, but similar to past surveys. Average size of northern pike was large (25.1 inches & 4.3 pounds). Northern pike growth rates in Big Sand are some of the fastest in the Park Rapids area.

The bass fishery in Big Sand is known more for size than numbers of fish. Both smallmouth bass and largemouth bass are present, with smallmouth bass being the more abundant of the two species. Smallmouth bass have been sampled at low to moderate abundance, while largemouth bass numbers have been low.

Yellow perch abundance was within the "normal range" for this lake class, similar to past surveys. Yellow perch are of an acceptable size for angling.

Other species sampled include rock bass, white sucker, bluegill, and pumpkinseed. Rock bass and white sucker are abundant, while sunfish species were sampled in low numbers. Anglers can help maintain or improve the quality of fishing by practicing selective harvest. Selective harvest allows for the harvest of smaller fish for table fare, but encourages release of

medium to large-size fish. Releasing these fish will help maintain the fish population in Big Sand and provides anglers with opportunities to catch more and larger fish in the future.

Lakes may be stocked on a planned basis. In some instances the stocking has a limited and short-term benefit. DNR fisheries specialist (or privately hired fish biologists) can provide information about the limiting factors for specific fish species on a lake-by-lake basis. These factors may include spawning habitat, nursery areas or protective cover.

Big Sand Annual Meeting Results for the Focus Area 071104: Fisheries

Manager: Dan Dyer / Tom Kimer / Stan Goltz				
Group Owners: Jim Tande, Richard Sederstrom, Stan Golz, Carl Nippert, Fred Boggs, Al Judson, Tom Igel, Don Hoodacheck, Ev Duthoy, Bill Zigmot, Tom Mayerle, Dan Dyer				
Indicators of Success:				
➤ Slot limit for Walleyes remains in place and has been modified as supported by the association.				
Goals	Next Steps	Date	Owner	Status
Meet with Doug Kingsley to discuss walleye history.	Call Doug Kingsley	0804	Jim Tande	Complete – Doug provided a letter regarding Walleye / Fish history in Big Sand.
Motivate the BSLA Board to move for a recommendation to keep the slot limit	Discuss at next board meeting	082804	Tom Kimer	Complete – BSLA Board motioned to update and maintain the walleye slot limit
Write an article in the next news letter informing lake residents to support a slot limit and attend a meeting on September 29 at 7:00 pm in the basement of the PR Library.	Write an article for the BSLA fall newsletter	090505	Sue Fairchild	Complete - Article provided to Tricia Fredrickson
Write a letter to Doug Kingsley supporting the slot limit	Write a letter	092204	Dan Dyer	Completed
Fish Spearing				
Monitor & Track Fish Populations				

Manager: Tom Igel				
Group Owners: Same as 2008				
Indicators of Success:				
➤ Increased awareness of Lead in fishing tackle and its danger to birds and some wildlife.				
Goals	Next Steps	Date	Owner	Status
Present at annual meeting to show impacts of lead in a lake.	Gather DNR material to build a booth at Annual meeting	0709	Tom	Done for 2008 and 2009
Show fisher people other options	Work with DNR to get	0709	Tom	Done for 2008 and 2009
Present at annual meeting to show impacts of lead in a lake.	Gather DNR material to build a booth at Annual meeting	071010	Tom	
Show fisher people other options	Work with DNR to get	071010	Tom	
Conduct an “Intro” to Fishing Day for children and adults on the lake.	Discuss with others to determine next steps	0910	Tom	Will start discussions in 2010 – more to come.

Focus Area 3: Shoreline Education (formerly Aquatic Vegetation)

BSLA has organized and conducted numerous scouting lake patrol initiatives to keep an eye on aquatic vegetation. Scientific research and fly-overs were done by A.W Research Laboratories in 1993/94/95. Many observations have been discussed at board meetings and annual meetings, however, nothing more has been systematically documented and researched by the association.

To initially strengthen this focus area, please see the below table for goals to begin creating a natural shoreland model and encouraging lake residents to engage in environmentally friendly lakescaping.

This focus area requires the BSLA to take a proactive approach to educating other residents about how to maintain our shores.

Big Sand Annual Meeting Results for the Focus Area 071104: Aquatic Vegetation

Manager: Mimi Long				
Group Owners: Debbie Wygal, Mary Kay Watson, Steve Shell, Tara Schell, Betsy Crabtree, Barbara Kimer, and Jo Judson				
Indicators of Success:				
<ul style="list-style-type: none"> ➤ Present to every lakeshore resident with POSITIVE encouragement and education toward the establishment of native aquatic vegetation and transitional buffer zone along their lakeshore. Both of which will more closely mirror a natural environment. This more natural environment will enhance and create habitat for wildlife, and in turn, these changes will create healthy habitat for aquatic life and human life. 				
Goals	Next Steps	Date	Owner	Status
Explore possibility of creating a “self-guided lakescaping tour” of properties noteworthy for environmentally beneficial landscaping	Committee discussion. Identify potential locations	Summer 2005 -06	Mimi Long	Will be discussed at next committee mtg
Landscaping Seminars: Contact Dorsey Phelps re a ‘Natural Shoreland Planting Workshop’.	Seminar/Workshop Scheduled at ‘Point House’, Dorsey Phelps contacted. Committee planning meeting.	Meeting, late Spring, 2005. Seminar/ Workshop, late May or early June, 2005.	Mimi Long	Determined that a first step meeting to view video and begin discussion/awareness will be held in June. “Walk the Property” workshop to be held later in the summer.
‘Power Point’ Seminar and Discussion with Doug Kingsley.	Contact Doug, set date.	Summer, 2005	Mimi Long	Holding
Plan for informal	This will be the	Summer/	Committee	June 18, 2005

educational get-togethers of lakeshore residents.	first step in generating discussion. Continuing opportunities for future educational get-togethers.	Early fall, 2005 and on-going		event planned for lake area residents to view and discuss DNR video tape on Lakescaping
Update existing packet materials that are given to new residents and made available at each annual association meeting	Work with members of the 'Organization Development and Communication Committee' to prepare environmental awareness materials for "Welcome to Big Sand" packet.	Late June 2005	Barb Kimer	In progress.
Small group of two or three committee members deliver these packets to the residents in a positive and non-confrontational manner; this information shall also contain information and identification for Exotic Species.	Review available DNR and MN Extension current materials to update existing packet	Summer 2005 and on-going	Rich Jacobson has agreed to deliver packets	In Progress
Continue practice of having copies of " <i>Landscaping for Wildlife and Water Quality</i> " available for members at the annual meeting	Determine stock on hand and order more as needed	Summer 2005	Mimi Long	In Progress

2009

Focus Leader: Jo Judson				
Group Owners: Bob Klepinski, Terry Klepinski				
Indicators of Success: Workshops planned and carried out, Shoreline Maintenance packet is updated and ready to hand out, Information regarding shoreline planting is available to association members, Vegetative mapping is supported by our committee				
<ul style="list-style-type: none"> • • • 				
Goals	Next Steps	Date	Owner	Status
Two workshops the summer of 2009, possible Aquatic Vegetation and Rain Gardens	Work with others who are working with the NW Minnesota Foundation	October 2009 Workshops to be held in the summer of '09	Jo Judson and committee	In the planning process

	Implementation Grant			
Update existing packet of materials that are given to new residents and made available at each annual association meeting.	Contact Mime Long and Eleanor Burkett regarding updates on these materials	July 2009 Have available by the '09 annual meeting	Jo Judson and committee	In the planning process
Aquatic Plant Identification Workshop		Done		Goal met on July 10 and 11 of 2008
Coordinate our focus area with aquatic plant lake mapping	Visit with Don Douglas	Date?	Bob Klepinski	In process
Begin research on shoreline planting	Call (Kelly) about commercial plantings	Date?	Terry Klepinski	In process
Make a plan for providing access to association members of pressed and mounted plant samples taken at the '08 Aquatic Plant Identification Workshop	Contact Mary Blickenderfer or Eleanor Burkett about the status of the samples	October 2009 Have available by the summer of '09	Jo Judson and committee	In process

Focus Area 4: Wildlife

The following species of listed animals are found in the Big Sand Lake Watershed

Common Name	Scientific Name	State Status
Blanding's turtle	Emydoidea blandingii	Threatened

Big Sand Results for the Focus Area 0909: Wildlife

Manager: Mimi Long				
Group Owners: Debbie Wygal, Mary Kay Watson, Steve Shell, Tara Schell, Betsy Crabtree, Barbara Kimer, and Jo Judson				
Indicators of Success:				
➤ Loon population is stabilized on Big Sand Lake.				
Goals	Next Steps	Date	Owner	Status
Gather Loon nesting information to share with the Big Sand Lake residents via the newsletter.	Research loon habitats Contact the Loon researcher active on Lake Emma for planning help.	Spring, 2005 Planning Meeting.	Mimi Long	In process: Recent articles in the Park Rapids <i>Enterprise</i> have been noted
Begin loon nest conservation.	Plan for early Spring, 2006 implementation of Loon Project.	See above		“
Research purchasing Loon flats for nesting similar to those used on Mantrap.	Spring, 2006 implementation of Loon Project.	See above.		“
Contact the DNR Wildlife division about any surveys on BSL. Special concerns: Turtle and frog populations.	Planning Committee, summer 2005	Summer, 2005	Committee	To Be Discussed

Focus Leader: Karen Nelson				
Group Owners: Terry Klepinski, Ray Clark, Dan Dyer, Richard Sederstrom				
Indicators of Success:				
<ul style="list-style-type: none"> • Stabilize loon population of Big Sand • 				
Goals	Next Steps	Date	Owner	Status
Hatch loon babies on platforms	Add natural vegetation rings and screens to loon platforms	March 2007 & 2008	Dan Dyer	Possible successful hatching in summer of 2008. Loon baby sighted with mother near loon platform in summer of 2008.
	Launch loon platforms	April 2007 & 2008	Dan Dyer	Loon baby sighted with mother near loon platform in summer of 2008.

Maintain platforms	Remove loon platforms	July 2007 & 2008	Dan Dyer	Accomplished
Learn about Blandings turtles, frogs, eagles and wood ducks	Contact non-game office in Bemidji	?		Not Accomplished
Learn about bear and deer populations in the area	Contact DNR game office in Park Rapids Write article for the newsletter	August 2007	Karen Nelson	Accomplished
Learn about fox and wolf populations in the area	Contact DNR office	?		Not Accomplished
Find new Focus Area Facilitator for Wildlife	Write article for the newsletter	September 2008	Karen Nelson	In progress

Focus Area 5: Invasive Species (formerly Exotic Species)

Current BSLA information regarding exotic species:

- Curlyleaf pondweed is not found in Big Sand Lake but is known from the nearby Fish Hook Lake.
- Purple loosestrife is not reported from the Big Sand Lake Watershed.
- The Minnesota County Biological Survey (MCBS) has not yet done a survey of Hubbard County.
- Cass County to the east has been surveyed by MCBS.
- In 2004 the MCBS will be surveying the portion of Becker, which is adjacent to Hubbard County.

Big Sand Annual Meeting Results for the Focus Area 0909: Exotic Species

Manager: Mimi Long				
Group Owners: Debbie Wygal, Mary Kay Watson, Steve Shell, Tara Schell, Betsy Crabtree, Barbara Kimer, and Jo Judson				
Indicators of Success:				
➤ All lake shore residents and visitors familiar with the various types of Exotic Species so each person can identify both the Species itself and the danger it poses to Big Sand Lake.				
Goals	Next Steps	Date	Owner	Status
Report scuba dive results to Big Sand Lake residents via the Fall 2004 newsletter.	Draft news article for the Exotic Species section of newsletter	0904	Steve and Tara Schell	COMPLETED: Betsy Crabtree newsletter article.
Track potential milfoil areas during summer of 2005.	Schedule and implement next dive to potential milfoil zones.	0705	Steve and Tara Schell	Will be discussed at next committee meeting
Display signs in fish spawning beds fisher folks can be made aware of that activity.	Contact DNR to help identify and sign spawning beds. Have signs made and placed in lake.	Summer, 2005	Committee?	Will be discussed at next committee meeting
Look into the possibility of using Satellite photos to help locate possible Milfoil areas in Big Sand Lake.	Compare present lake submerging vegetation with previous A.W. Research Aerial Photos. Contact County Land Dept and/or SWCD for existing aerial photos	Summer 2005 -06	Committee	Will be discussed at next committee meeting
Provide information about the impact of impervious	Contact Bruce Wilson at MPCA	Summer 2006	Mimi Long - Committee	Will be discussed at next committee

surfaces on the lake environment	concerning using remote sensing imagery to assess our lake			meeting
Track other lakes in Central Minnesota that may impact Big Sand Lake.	Distribute information regarding other lakes challenges with milfoil.	Ongoing	Mimi Long	In progress – reported Leech Lake findings to the BSLA Board on July 29.
Get the MCBS to conduct a survey of Hubbard County / Big Sand Lake.	Inquire about services available.	Summer 2005-06	Committee	Will be discussed at next committee meeting
PLAN for the ‘worst case scenario’ of an infestation of an exotic Species in Big Sand Lake	Research alternatives and approaches already tried.	Ongoing	Committee	Holding

Focus Area 6: Land Use and zoning

The water quality of a lake or river is ultimately a reflection of the land uses within its watershed. While the specific impacts to a lake from various land uses vary as a function of local soils, topography, vegetation, precipitation, and other factors, it is ultimately the land uses which citizens have the most control over through prudent zoning

Many zoning regulations are based upon the Shoreland Management Act and/or the Minnesota Department of Natural Resources (DNR) classification of a given lake. The DNR has classified all lakes within Minnesota as General Development (GD), Recreational Development (RD), or Natural Environmental (NE) lakes, and assigned a unique identification number to the lake for ease of reference. Counties in turn have used these classifications as a tool to establish minimum lot area (width and setbacks) that is intended to protect and preserve the character reflected in the classification.

Big Sand Lake (DNR Lake ID#29-0185) is a Rural Development Lake. The Hubbard County Shoreland Ordinance explains that “the Recreational Development (RD) management district is established to manage proposed development reasonably consistent with existing development and use; to provide for the beneficial use of public waters by the general public, as well as the riparian owners; to provide for a multiplicity of lake uses; and to protect areas unsuitable for residential and commercial uses from development.”

The Hubbard County’s zoning standards for respective lake classifications are:

Standards:	General Development	Recreational Development - Unsewered	Recreational Development - Sewered	Natural Environment
Structure setback from OHW	75 ft	100 ft	100 ft	150 ft
Sewage soil treatment system setback from OHW	150 ft	150 ft	150 ft	150 ft
Maximum Impervious Coverage	25 percent	25 percent	25 percent	25 percent
Structure and ISTS setback from top of bluff	30 ft	30 ft	30 ft	30 ft
Minimum Lot Size: Single, Riparian Lots/Non-riparian lots	20,000 sq ft/ 40,000 sq ft	40,000 sq ft/ 80,000 sq ft	30,000 sq ft/ same	80,000 sq ft/ 120,000
Minimum Lot Size: Duplex	40,000 sq ft/ 80,000 sq ft	80,000 sq ft/ 120,000 sq ft	60,000 sq ft/ same	120,000 sq ft/ 160,000
Minimum Lot Size: Triplex	60,000 sq ft/ 120,000 sq ft	120,000 sq ft/ 160,000 sq ft	90,000 sq ft/ same	160,000 sq ft/ 240,000 sq ft
Lot Width – Single	100 ft/100 ft	150 ft/150 ft	100 ft/100ft	200 ft/200 ft
Lot Width-Duplex	180 ft/265 ft	225 ft/265 ft	150 ft/150 ft	300 ft/400 ft
Side Yard Setback	10 ft	10 ft	10 ft	10 ft

Clearly any local municipal jurisdiction may have additional (and usually more restrictive) standards as well.

Most lakes have numerous properties that are “grand fathered,” or developed prior to the establishment of these restrictions. In general, these pre-existing uses are allowed to remain unless they are identified as a threat to human health or environment.

Big Sand Results for the Focus Area 071104: Land Use & Zoning

Manager: Irene Weis				
Indicators of Success:				
<ul style="list-style-type: none"> ➤ The Mantrap Chain Works of Improvement (WOI), the establishment of which was considered by the Hubbard County Board of Commissioners. This project was an effort to address high water on the Mantrap Chain of Lakes, specifically Lake Belle Taine. Lake Belle Taine, at the bottom of the Mantrap Chain of Lakes, does not have an outlet. In the year of 2000 the level on the lakes surpassed the ordinary high water mark, flooding several properties on Lake Belle Taine. After various committees, task forces and governmental agencies, including the Department of Natural Resources and the Army Corp of Engineers reviewed the options available; a recommendation was made to the Commissioner by the Hubbard County Soil & Water Conservation District pursuant to Minnesota Statutes 103C.601. Public meetings were held on August 26, 2002 and July 16, 2003. Viewers were appointed pursuant to the Minnesota Statutes and proper notice was given for final hearing on August 13 and 14, 2004. Extensive testimony, written and oral was taken at the public meetings which were continued to October 6, 2004. The testimony pertained to the engineering, viewing and public utility and benefit. The Commissioners were required under Minnesota Statutes to make findings substantially conforming to Minnesota Statutes 102E.341, Subd. 2. The Commissioners found that, based upon the Viewers’ Report, damage and benefits had not been properly determined. They found many inconsistencies and errors in the Viewers’ Report. The Commissioners also found that at the present time, the proposed project was not to be of public utility and benefit, a requirement of the statute. Therefore, based upon evidence and the problems with the Viewers’ Report, the Commissioners found the project was not practicable by unanimous action determined that the Mantrap Works of Improvement should not be established. ➤ Control Growth ➤ Big Sand lakeshore will look natural again – restore to natural shoreline or as close as we can get at this point, with established buffer zones. ➤ Prevent Subdividing. ➤ Have information and methods available of giving residents lake information and information on county, township and governmental occurrences (communication). ➤ Education on stewardship needs to be done for lake dwellers. 				
Goals	Next Steps	Date	Owner	Status
Letters to the editor for the Park Rapids Enterprise regarding WOI	Call volunteers to ensure they have constructed and submitted letters.	August 9	Irene Weis	Completed
Letters or emails to the Hubbard County Commissioners regarding WOI	Call volunteers to ensure they have constructed and submitted letters.	August 9	Irene Weis	Completed
Draft BSLA Resolution	Create and present	071104	Irene Weis	Completed –

Opposing the proposed Mantrap Chain Works of Improvement.	draft to BSLA			Resolution passed by unanimous vote by present BSLA members.
Present the BSLA Resolution to the Hubbard County Commissioners at the public hearing set for August 13 & 14, 2004	Present BSLA expectations	081304 – 081404	Irene Weis	Completed.
Hubbard County Commissioners by unanimous action determined that the WOI project shall not be established. Order not subject to appeal.		October 13, 2004		Completed.
Get representation from BSLA into the appropriate government bodies to keep current government events flowing into the association.	Remain alert to the actions of the Hubbard County Commissioners and the Lake Emma Township Board, the governing entities for the Big Sand Lake area. Meetings and actions of Boards.	June 1, 2005	Irene Weis	Hubbard County Commissioners voted to adopt the land use plan which is essentially a “blueprint for how the county would like to be for the next series of years.” The plan would be a guide for land management policy decisions. The plan was developed by Headwaters Regional Development Commission (HDRC) beginning in 2000 while reflecting six values: individual choice, local influence, conservation, balance of individual liberties and public’s welfare, equity in the distribution of resources and respect for the

				<p>knowledge, abilities and role of all jurisdictions involved in managing county growth.</p> <p>This plan is not an ordinance, although various ordinances are already in place which will integrate into plan and future ordinances will be proposed and adopted to enforce the plan in the future.</p>
Follow the progress of the changes planned for the Shoreland Ordinance, if any.	Committees are meeting from several counties regarding the Ordinance	2005-2006	Irene Weis	
Watershed District	Carefully monitor allegations that a group from Belle Taine is interested in establishing a Watershed District in the future	2005-2006	Irene Weis & Others – Instrumental in thwarting attempt to amend Watershed District Statutes to remove local commissioners from authority in statute.	Proposed amendments were withdrawn from the bills at the legislature, House and Senate.
Establish and maintain contact with county and township governments.	Already have established contacts with the Hubbard County Commissioners and the Hubbard County Environmental Services, along with the Lake Emma Township Board.		Irene Weis	On-going

<p>Members need a method to inform BSLA Board about potential or actual problems needing policing. How does board stay involved when not in the area?</p>	<p>The BSLA Board members are in contact through e-mail throughout the year. The newsletter and the website will also contribute to information sharing.</p>		<p>BSLA Board</p>	<p>On-going</p>
<p>Become aware of what is now on the lake – do a photographic record of buildings and structures.</p>	<p>Investigate the extent to which this has been done. Start to implement plan to make the record</p>	<p>Summer 2005-2006</p>		<p>Discussions at the BSLA Board level regarding the best plan to go forward.</p>

Focus Area 7: Managing water surface use conflicts

The major surface water conflict on Big Sand, is the issue of PWC. (Personal Watercraft) We will continue to educate the Big Sand community via our newsletter, and at our annual meeting, as to water safety rules and regulations. We have received good co-operation from the PWC rental business on the lake. They are educating their rental users to the state laws concerning PWC use. As a result, the level of concern and the conflicts caused by PWC users is diminishing. Public pressure on the lake to ride responsibly is working, and we will continue that pressure.

Big Sand Results for the Focus Area 071104: Managing water surface use conflicts

Manager: Bill Eichten				
Group Owners: ...				
<u>Indicators of Success:</u>				
Goals	Next Steps	Date	Owner	Status
Jet ski volume				
Reward those who work to inform the public about watercraft volume.	Make the Brandt Family honorary members of the BSLA because of his extra efforts in minimizing recreational watercraft volume.	092504	Bill Eichten	EFFECTIVE, 092504
Contact sheriff's department to police the lake on PWC laws.	Call Sheriff's department	092504	Bill Eichten	Summer 2005
Put PWC regulations in the SPRING Newsletter.	Research and gather the PWC regulations to put in the letter.	090504	Bill Eichten	050105

Focus Area 8: Public water access

Research has shown that Minnesotans rely heavily upon public access sites to access lakes and rivers. A 1988 boater survey conducted by the University of Minnesota showed that three-fourths of the state's boat owners launch a boat at a public water access site at least once a year. In addition, over 80 percent of boat owners report using public water access sites for recreation activities other than boating.

The primary agency responsible for public water accesses in Minnesota is the Minnesota Department of Natural Resources, Trails and Waterways Unit. They are responsible for the acquisition, development and management of public water access sites. The DNR either manages them as individual units or enters into cooperative agreements with county, state, and federal agencies, as well as local units of government such as townships and municipalities. The DNR's efforts to establish and manage public water access sites are guided by Minnesota Statutes and established written DNR policy. The goal of the public water access program is free and adequate public access to all of Minnesota's lake and river resources consistent with recreational demand and resource capabilities to provide recreation opportunities.

According to the 1998 Minnesota Department of Natural Resources Fisheries Survey, there is one public access on Big Sand Lake, as shown below:

Public Access Information

Ownership	Type	Description
County	Concrete	A county owned public access with concrete ramp is located on the southeast shore next to the outlet.

A large public parking area has been established at the Public Access, along with a public restroom. "Welcome" signs and information signs ranging from lake association meetings, to exotic species, to Loons, to fishing regulations have been posted on a kiosk near the Access ramp. Key Association members keep the information signs up to date.

A group of concerned lake residents have, from time to time, monitored boats at the Access for exotic species plants.

The lake Emma Public Access is across CSH #40 from Big Sand Lake. The Access also serves as a public beach. The beach is near the water ingress to Big Sand, and home owners on Big Sand. We are asking the County Park and Rec. to acknowledge that some rules and regulations must be established for its use as a public beach. Noise and litter pollution from this area has an affect on Big Sand Lake and its residents.

Big Sand Results for the Focus Area 071104: Public Water Access

Manager: Bill Eichten				
Group Owners: ...				
Indicators of Success:				
Goals	Next Steps	Date	Owner	Status
Get a restroom for the Lake Emma access.	Contact Hubbard county for a restroom.	092504	Bill Eichten	County has declined.
Establish signs regulating swimming hours and the use of campfires.	Contact Hubbard County Park and Rec.	092504	Bill Eichten	County is studying the request. Spring 2005
Establish a maintenance program for the Lake Emma Beach	Contact volunteers from Lake Emma Association and BSLA	092504	Bill Eichten	CLEAN-UP COMMITTEE HAS BEEN FORMED EFFECTIVE 92504

Focus Area 9: Organizational Development and Communication

Why it's important to Big Sand Lake:

- Education is critical to those who live on or use the lake
- Legislation and lobbying to impact lake issues is needed
- Communication builds strength
- Communication on community issues is important – need a link between locals and non local/seasonal association members
- Education is important for lake dwellers – especially those new to lakeshore living
- Education and increased involvement is vital to keeping Big Sand Lake at its current state

Big Sand Results for the Focus Area 071104: Organization Development and Communication

Manager: Cathy Williamson				
Group Owners: Marlene Fairchild, Peggy Carlisle, Sarah Williamson, Cynthia Jones, Lou, Jean, Lawry, Polly, Elly, Heather				
Indicators of Success:				
<ul style="list-style-type: none"> ➤ Established secure web site. ➤ Established phone tree. ➤ Developed “New Resident” information packet. ➤ Increased yearly Association Membership-strive for 100% property owners and encourage other individuals who have an interest in the lake. ➤ Increased inter-generational involvement. ➤ Increased membership will provide strength in numbers. ➤ Increased BSLA financials ➤ An effective communication tree, which pays attention to and participates in Big Sand, community and local issues. ➤ Regular publication of the BSLA newsletter. ➤ Board Meeting agenda utilizes Lake Management Plan framework ➤ Annual Meeting agenda utilizes Lake Management Plan framework. ➤ Establish and maintain end of year report utilizing Lake Management Plan framework. ➤ Regional recognition will be earned by Big Sand Lake’s programs and successes. 				
Goals	Next Steps	Date	Owner	Status
Obtain information regarding a more secure web site.	Research Minnesota Lakes Association site	September 1, 2004	Heather, Lawry, and Sarah	Information researched and several web hosts identified as possibilities 1-2005 Domain name BigSandLake.org purchased for 2 yrs. Inquired and received info from

				4 lake assoc regarding their web sites. Evaluating whether to use professional to develop web site.
Activate a resident phone tree	Discuss working method of phone tree.	September 1, 2004	Lou, Elly, Jean, Peggy Carlisle, and Barb Kimer	Completed - Social Chair Barb Kimer consulted with Jean and phone tree established. Calling will be grouped by neighborhoods with a neighbor captain calling approximately 10 neighbors.
Introduce a new resident packet by the annual BSLA meeting	Assess available materials. Assess previous packet.	July 2005	Marlene Fairchild, Cynthia Jones, and Sarah Williamson	In progress
Create a historical BSLA document	Review history timeline through researching past meeting minutes	July 2005	Cathy Williamson and Barb Kimer	In progress
Implement a more assertive association dues plan to generate more BSLA membership	Create dues notification for April(1 st notice) and June(2 nd notice) 2005	April 2005	Cynthia Jones	Board approval
Designate Membership Captains	Assign interim captains until next BSLA annual meeting	October 2004	Cathy Williamson	Board approval In Progress
Work with bank Vice President to determine appropriate investments	Schedule meeting	October 2004	Cynthia Jones	Board approval
Increase BSLA Income	Sell BSLA goods Clothing, paper products, travel mugs, and towels	Summer 2005	Cathy Williamson	Final work being done on logo. Product research and distribution of products being studied.
Community Issues	Read local newspaper, attend	Ongoing	Irene Weis	In progress and continually

	county meetings. Share information			ongoing.
Board meeting agenda	Establish template framework for agenda per LMM.	Summer 2005	Board Members	In Progress LMP framework used for fall 2004 board meeting.
Annual Meeting	Establish template framework for agenda per LMM.	Summer 2005	Board Members	In Progress Modified LMP framework used for July 2004 mtg. Refine for 2005 mtg.
Yearend report	Establish template framework per LMM	Summer 2005	Board Members	In Progress Target for 2005.
BSLA Newsletter	Newsletter to be published 3-4 x's / year. Publish to web site. Long term email to members.	Ongoing	Trish Fredrickson	In Progress and ongoing.

Focus Leader: Karen Nelson				
Group Owners: Cynthia Jones, Barb Kimer, Karen Nelson, Catharine Williamson				
Indicators of Success:				
<ul style="list-style-type: none"> • • • 				
Goals	Next Steps	Date	Owner	Status
Obtain dues from 100% of members.	Send out follow-up letter to those who have not paid 2008 dues.	September 2008	Cynthia	In progress
Put membership list on line Solve security issue Find a person to take over monitoring of the web-site	Obtain prices from Faster Solutions Put notice in the October newsletter Ask League of Women Voters how they do it	September 2008	Karen Barb	In progress
Explore concept of a Foundation	Talk with Tom Van Bruggen	September 2008	Catharine	In progress
Organize BSLA History	Talk with Liz Nippert Put notice in the newsletter	September 2008	Barb, Karen	In progress
Reenergize the Phone Tree	Find a new person	September	Barb, Karen	In progress

	to coordinate callers. Ask Wendy Steele. Put notice in the newsletter	2008		
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Appendix A: Summary of Visioning/Planning Session

Following the training sessions, Big Sand Lake Association held an inclusive community planning/visioning meeting designed to identify key visions and priority focus areas for Big Sand Lake. This planning session was held on May 29, 2004, facilitated by Shelli Urness.

Approximately 40 people were in attendance, with about 15-20% of the participants describing themselves as year round residents. The Nine Lake Management focus areas that are discussed in this plan were presented to the group. Through consensus building, the top three priority areas were identified as Water Chemistry, Land Use and Zoning, and Organizational Development. Exotic Species, Public Access, Wildlife and Fisheries Management ranked as secondary focus areas. Details of the public input received at this session follows.

1. Focus Area: Water Quality

Why it's important to Big Sand Lake:

- Water Quality results from multiple factors
- Watershed impact is important – look at the big picture
- Water quality impacts multiple users – boats, fishing, etc.
- We need to protect the ecosystem
- The clarity and color are things we love about Big Sand Lake
- Potential Contamination lurks - clarity is important
- Water chemistry affects everything
- There is a direct relationship between water quality and property values
- Enjoyment of clean water!

Indicators of Success/Goal:

- Obtain more information on the true water chemistry of Big Sand Lake.
- Encourage shore land buffer zones through an educational outreach.
- Obtain any existing information on Water Quality and fill in the gaps on missing data.
- Continue to stay in contact with COLA and lake associations upstream regarding water quality.
- Investigate Minnesota Lakes Association (MLA) as well. These groups are also legislative and local links to water quality issues.

What we need to know about the lake/what needs to happen...

- Contact MPCA to determine what water quality data exists. If none exists, find out if there are plans to obtain data.
- Continue to work with Dan ??? Who is obtaining mercury and phosphors levels – Stan Williamson is contact with him.
- Contact COLA regarding process of working together. Same with MLA.
- Organize outreach to other lake associations in the area.

2. Focus Area: Land Use and Zoning

Why it's important to Big Sand Lake:

- Density – over development is happening
- Too much growth – it needs to be controlled
- Noise Pollution
- Other pollution
- Politicalizing of variances – there are too many inconsistencies
- Land use is related to water quality
- Local versus seasonal use is an issue
- How is economic activity related?
- The city life values phosphorus (lawns)
- Erosion adds to problems
- ATVs add to problems
- Septic systems from nearby farms or in the watershed contribute to problems
- Construction and logging nearby impact Big Sand Lake
- Education on land use is critical

Indicators or Success/Goals:

- Control Growth
- Big Sand lakeshore will look natural again – restore to natural shoreline or as close as we can get at this point, with established buffer zones.
- Prevent Subdividing.
- Have information and methods available of giving residents lake information and information on county, township and governmental occurrences (communication).
- Education on stewardship needs to be done for lake dwellers.

What we need to know about the lake/what needs to happen...

- Establish and maintain contact with county and township governments.
- Members need a method to inform BSLA Board about potential or actual problems needing policing. How does board stay involved when not in the area?
- Become aware of what is now on the lake – do a photographic record.
- Research plats and other information to determine where other public access areas lie.

3. Focus Area: Organizational Development and Communication

Why it's important to Big Sand Lake:

- Education is critical to those who live on or use the lake
- Legislation and lobbying to impact lake issues is needed
- Communication builds strength
- Communication on community issues is important – need a link between locals and nonlocal/seasonal association members
- Education is important for lake dwellers – especially those new to lakeshore living
- Education and increased involvement is vital to keeping Big Sand Lake at its current state

- A call to action needs to be made!

Indicators of Success/ Goals:

- 100% Involvement – 100% of Big Sand Lake property owners (and others?) will be members of the Big Sand Lake Association.
- There will be an increase in inter-generational involvement.
- There will be strength in numbers.
- There will be regional recognition earned by Big Sand Lake’s program and successes.
- Create and use an effective communication tree, which reaches into the community and local issues in addition to Big Sand Lake association news.

What we need to know about the lake/what needs to happen...

- Consider a Web Site – investigate possibilities, costs, and sustainability, inform residents.
- Market the association – inform residents as to the benefits of association membership.
- Socialization – socialize more and plan the work ahead – calendar.
- Use Email.

Other Focus Areas that were important to those in attendance included:

Exotic Species

Why it’s important to Big Sand Lake:

- Plants and animals –there are exotics of both approaching or nearby
- Protection of the lake from future infestations needs to happen now
- We need to be prepared to act quickly to respond to this risk
- Prevention is better than clean up
- Education is critical to lake dwellers and users
- Monitoring needs to be done

Wildlife

Why it’s important to Big Sand Lake:

- Shore land management needs to be done – provide wildlife habitat
- Seagulls are a nuisance
- Aquatic vegetation is linked to our wildlife

Fisheries Management

Why it’s important to Big Sand Lake:

- Contributes to the enjoyment and recreation of the lake
- Control the slot limit and spearing, etc. so that fisheries is maintained

Public Access

Why it’s important to Big Sand Lake:

- Private property versus public good - Who owns the lake?
- The lake is a resource for all – versus - it is a resource for the lake residents
- Public Access means the risk of introduction of exotic species

It was agreed that the participants would be updated further as to the progress of the Lake Management Plan. This will be done through the newsletter, and at the annual meeting. All of participants that handed in evaluations, rated the session as a “very good” or “good” use of there time. Big Sand Lake Association collected information from the participants so that they can be contacted in the future to help as the plan becomes refined and implemented.

Prioritized Goals and Action Plan

The final chapter of our lake management plan summarizes the conclusions and priority action we have chosen to work on at this time. Specifically, for each priority action we have down our best to answer (for each goal presented):

What are the criteria for measuring success (measured as outcomes, not effort)?

What is our schedule for implementation (What needs to happen in the next 30 days, 60 days, one-year out)?

Who is responsible for implementation or measurement (name names!)?

What is the budget for this action/goal?

Is this an on going action/goal, or a one-time effort? If on-going will we require additional funds for full implementation?

Following this format, the remaining pages identify our top priorities, what our goals for each priority are, and how, who, and when we will implement action for each of these priorities.

Appendix B: Glossary

Aerobic: Aquatic life or chemical processes that require the presence of oxygen.

Algal bloom: An unusual or excessive abundance of algae.

Alkalinity: Capacity of a lake to neutralize acid.

Anoxic: The absence of oxygen in a water column or lake; can occur near the bottom of eutrophic lakes in the summer or under the ice in the winter.

Benthic: The bottom zone of a lake, or bottom-dwelling life forms.

Best Management Practices: A practice determined by a state agency or other authority as the most effective, practicable means of preventing or reducing pollution.

Bioaccumulation: Build-up of toxic substances in fish (or other living organism) flesh. Toxic effects may be passed on to humans eating the fish.

Biological Oxygen Demand: The amount of oxygen required by aerobic microorganisms to decompose the organic matter in sample of water. Used as a measure of the degree of water pollution.

Buffer Zone: Undisturbed vegetation that can serve as to slow down and/or retain surface water runoff, and assimilate nutrients.

Chlorophyll a: The green pigment in plants that is essential to photosynthesis.

Clean Water Partnership (CWP) Program: A program created by the legislature in 1990 to protect and improve ground water and surface water in Minnesota by providing financial and technical assistance to local units of government interested in controlling nonpoint source pollution.

Conservation Easement: A perpetual conservation easement is a legally binding condition placed on a deed to restrict the types of development that can occur on the subject property.

Cultural eutrophication: Accelerated “aging” of a lake as a result of human activities.

Epilimnion: Deeper lakes form three distinct layers of water during summertime weather. The epilimnion is the upper layer and is characterized by warmer and lighter water.

Eutrophication: The aging process by which lakes are fertilized with nutrients.

Eutrophic Lake: A nutrient-rich lake – usually shallow, “green” and with limited oxygen in the bottom layer of water.

Exotic Species: Any non-native species that can cause displacement of or otherwise threaten native communities.

Fall Turnover: In the autumn as surface water loses temperature they are “turned under” (sink to lower depths) by winds and changes in water density until the lake has a relatively uniform distribution of temperature.

Feedlot: A lot or building or a group of lots or buildings used for the confined feeding, breeding or holding of animals. This definition includes areas specifically designed for confinement in which manure may accumulate or any area where the concentration of animals is such that a vegetative cover cannot be maintained. Lots used to feed and raise poultry are considered to be feedlots. Pastures are not animal feedlots.

Groundwater: water found beneath the soil surface (literally between the soil particles); groundwater is often a primary source of recharge to lakes.

Hardwater: Describes a lake with relatively high levels of dissolved minerals such as calcium and magnesium.

Hypolimnion: The bottom layer of lake water during the summer months. The water in the hypolimnion is denser and much colder than the water in the upper two layers.

Impervious Surface: Pavement, asphalt, roofing materials or other surfaces through which water cannot drain. The presence of impervious surfaces can increase the rates and speed of runoff from an area, and prevents groundwater recharge.

Internal Loading: Nutrients or pollutants entering a body of water from its sediments.

Lake Management: The process of study, assessment of problems, and decisions affecting the maintenance of lakes as thriving ecosystems.

Littoral zone: The shallow areas (less than 15 feet in depth) around a lake’s shoreline, usually dominated by aquatic plants. These plants produce oxygen and provide food, shelter and reproduction areas for fish & animal life.

Local Unit of Government: A unit of government at the township, city or county level.

Mesotrophic Lake: A lake that is midway in nutrient concentrations (between a eutrophic and oligotrophic lake). Characterized by periodic problems with algae blooms or problem aquatic vegetation.

Native Species: An animal or plant species that is naturally present and reproducing.

Nonpoint source: Polluted runoff – nutrients or pollution sources not discharged from a single point. Common examples include runoff from feedlots, fertilized lawns, and agricultural fields.

Nutrient: A substance that provides food or nourishment, such as usable proteins, vitamins, minerals or carbohydrates. Fertilizers, particularly phosphorus and nitrogen, are the most common nutrients that contribute to lake [eutrophication](#) and nonpoint source pollution.

Oligotrophic Lake: A relatively nutrient-poor lake, characterized by outstanding water clarity and high levels of oxygen in the deeper waters.

Nutrient: A substance that provides food or nourishment, such as usable proteins, vitamins, minerals or carbohydrates. Fertilizers, particularly phosphorus and nitrogen, are the most common nutrients that contribute to lake [eutrophication](#) and nonpoint source pollution.

pH: The scale by which the relative acidity or basic nature of waters are assessed,

Photosynthesis: The process by which green plants produce oxygen from sunlight, water and carbon dioxide.

Phytoplankton: Algae – the base of the lake’s food chain, it also produces oxygen.

Point Sources: Specific sources of nutrient or pollution discharge to a water body, i.e., a stormwater discharge pipe.

Riparian: The natural ecosystem or community associated with river or lake shoreline.

Secchi Disc: A device measuring the depth of light penetration in water.

Sedimentation: The addition of soils to lakes, which can accelerate the “aging” process by destroying fisheries habitat, introducing soil-bound nutrients, and filling in the lake.

Spring turnover: After ice melts in the spring, warming surface water sinks to mix with deeper, colder water. At this time of year all water is the same temperature.

Thermocline: During summertime deeper lakes stratify by temperature to form three discrete layers; the middle layer of lake water is known as the thermocline.

Trophic Status: The level of growth or productivity of a lake as measured by phosphorus, content, algae abundance, and depth of light penetration.

Watershed: The surrounding land area that drains into a lake, river, or river system.

Zooplankton: Microscopic animals.

Appendix C: Common Biological or Chemical Abbreviations

BOD	Biological Oxygen Demand
°C	degree(s) Celsius
cfs	cubic feet per second (a common measure of rate of flow)
cfu	colony forming units (a common measure of bacterial concentrations)
chl <i>a</i>	Chlorophyll <i>a</i>
cm	centimeter
COD	Chemical Oxygen Demand
Cond	conductivity
DO	dissolved oxygen
FC	fecal coliform (bacteria)
ft	feet
IR	infrared
l	liter
m	meter
mg	milligram
ml	milliliter
NH ₃ -N	nitrogen as ammonia
NO ₂ -NO ₃	nitrate-nitrogen
NTU	Nephelometric Turbidity Units, standard measure of turbidity
OP	Ortho-phosphorus
ppb	parts per billion
ppm	parts per million
SD	Standard Deviation (statistical variance)
TDS	total dissolved solids
TN	total nitrogen
TP	total phosphorus
TSI	trophic status index
TSI (C)	trophic status index (based on chlorophyll <i>a</i>)
TSI (P)	trophic status index (based on total phosphorus)
TSI (S)	trophic status index (based on secchi disc transparency)
TSS	total suspended solids
µg/l	micrograms per liter
µmhos/cm	micromhos per centimeter, the standard measure of conductivity
UV	Ultraviolet

Appendix D: Guide to common acronyms

State and Federal Agencies

BWSR	Board of Soil & Water
COE	U.S. Army Corps of Engineers
CRP	Conservation Reserve Program - A federal government conservation program
DNR	Department of Natural Resources
DOJ	United States Department of Justice
DOT	Department of Transportation
DTED	Department of Trade and Economic Development
EPA	U.S. Environmental Protection Agency
EQB	MN Environmental Quality Board
LCMR	Legislative Commission on Minnesota Resources
MDH	Minnesota Department of Health
MPCA	Minnesota Pollution Control Agency
OEA	MN Office of Environmental Assistance
OSHA	Occupational Safety and Health Administration
RIM	Reinvest In Minnesota - a State of Minnesota Conservation Program
SCS	Soil Conservation Service
SWCD	Soil & Water Conservation District
USDA	United States Department of Agriculture
USGS	United States Geological Survey
USFWS	United States Fish & Wildlife Service

Regional, watershed, community development, trade and advocacy groups

AMC	Association of Minnesota Counties
APA	American Planning Association
COLA	Coalition of Lake Associations
IF	Initiative Foundation
LMC	League of Minnesota Cities
MAT	Minnesota Association of Townships
MLA	Minnesota Lakes Association
MSBA	Minnesota School Board Association
MCIT	Minnesota Counties Insurance Trust
Mid-MnMA	Mid-Minnesota Association of Builders
MLA	Minnesota Lakes Association
MnSCU	Minnesota State Colleges and Universities
RCM	Rivers Council of Minnesota
TIF	Tax Increment Financing

Codes and Regulations

110B	The Minnesota law that regulates non-metro county water plans
ADA	American Disabilities Act
B & B	Bed and Breakfast
BOA	Board of Adjustment
Chapter 70/80	Individual Sewage Treatment Standards
CIC Plat	Common Interest Community Plat
Class V	Class Five “Injection” well; any well which receives discharge
CSAH	County State Aid Highway
CUP	Conditional Use Permit
CWA	Clean Water Act
EAW	Environmental Assessment Worksheet
EIS	Environmental Impact Statement
EOA	Equal Opportunity Act
FOIA	Freedom of Information Act
GD	General Development (lake)
GLAR	Greater Lakes Area Association of Realtors
IAQ	Indoor Air Quality
ISTS	Individual Sewage Treatment System
LMP	Lake Management Plan
LQG	Large Quantity Generator (of hazardous waste)
MAP	Minnesota Assistance Program
OHW	Ordinary High Water
PUD	Planned Unit Development
RD	Rural Development (lake)
ROD	Record of Decision
ROW	Right-of-Way
SBC	State Building Code
SDWA	Safe Drinking Water Act
SF	Square feet
SIZ	Shoreland Impact Zone
SQG	Small Quantity Generator (of hazardous waste)
SWMP	Stormwater Management Plan
UBC	Universal Building Code

Appendix E: Revision History

Version Update Description	Author	Date
Updated Focus Areas to reflect BSLA Annual Meeting Input	Sue Fairchild	September 5, 2004
Updated Focus Area tables and paragraph language	Sue Fairchild Bob Rust Cathy Williamson Irene Weis Mimi Long Tom Kimer Bill Eichton Stan Williamson	March 27, 2005
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