

6.2. Adaptive Management: Meeting Lake Goals for Water Quality

Many of the implementation actions of District Programs (ongoing initiatives) and specific projects are intended to decrease the total phosphorus loading to District's lakes. Ten of these lakes have specific water quality goals based on findings from existing and ongoing studies. Specific projects have been identified for many of these lakes. However, at this stage, nutrient reduction activities have not been identified for all of the lakes to the extent needed to fully meet the goals of this plan. In addition, the actual performance of planned practices may vary from what was estimated after installation. Since the cumulative effect on water quality of planned and future projects is also unknown, a feedback loop is necessary that evaluates lake water quality and then tailors implementation actions to the findings.

Measuring the success of meeting lake water quality goals will therefore be conducted through an adaptive management process. As practices are implemented in a lake's watershed, lake water quality will be monitored to evaluate the impact of the practice and the proximity of phosphorus concentrations to the respective goal (10-year, 20-year or long term – see Table 3). If water quality is nearing the goal, the implementation actions will continue as planned. If water quality does not show improvement, the implementation action will be reviewed and adapted as necessary.

Table 3. Lake water quality goals.

Lake	Measured Average		10-year In-Lake Total Phosphorus Goal	20-year In-Lake Total Phosphorus Goal		Long Term In-Lake Total Phosphorus Goal
	Concentration	Years of Data	Concentration	Concentration ⁶	Load ⁷	Concentration ⁸
Moody	384 µg/l TP	3	60 µg/l TP	40 µg/l TP	144 lb/yr	40 µg/l TP
Bone	85 µg/l TP	21	40 µg/l TP	40 µg/l TP	669 lb/yr	30 µg/l TP
Birch	90 µg/l TP	3	60 µg/l TP	60 µg/l TP	471lb/yr	60 µg/l TP
School	62 µg/l TP	4	50 µg/l TP	40 µg/l TP	452 lb/yr	40 µg/l TP
Little Comfort	118 µg/l TP	5	40 µg/l TP	40 µg/l TP	577 lb/yr	30 µg/l TP
Shields	336 µg/l TP	18	100 µg/l TP	60 µg/l TP	195 lb/yr	60 µg/l TP
Sylvan	21 µg/l TP	21	20 µg/l TP	20 µg/l TP	69 lb/yr	20 µg/l TP
Forest	41 µg/l TP	24	<40 µg/l TP	<40 µg/l TP	3,312 lb/yr	30 µg/l TP
Heims	37 µg/l TP	1	<40 µg/l TP	<40 µg/l TP	NA	<40 µg/l TP
Comfort	61 µg/l TP	12	40 µg/l TP	40 µg/l TP	2,339 lb/yr	30 µg/l TP

⁶ The 20-year In-Lake Total Phosphorus Goal is equivalent to the state standards for in-lake water quality established by the Minnesota Pollution Control Agency.

⁷ For Moody, Bone, School, Little Comfort, Shields, Comfort Lakes from: Lake Total Phosphorus Assimilative Capacity from Comfort Lake-Forest Lake Watershed District Six Lakes Total Maximum Daily Load Study (MPCA, 2010). For all other lakes from: Comfort Lake-Forest Lake Watershed District (CLFLWD), 2007a. Watershed and Lake Water Quality Modeling Investigation for the Development of a Watershed Capital Improvement Plan. Prepared by Wenck Associates, Inc.

⁸ The Long Term In-Lake Total Phosphorus Goal was established by the CLFLWD Board of Managers and exceeds state standards for lakes defined by the District as active recreation lakes.