Cobbossee Lake Watershed Survey

November 2014

Prepared by: **Cobbossee Watershed District**, with
Friends of the Cobbossee Watershed
Maine Department of Environmental Protection

Acknowledgments

The Cobbossee Lake Watershed Survey Project was made possible by the cooperative efforts of several individuals and organizations. The following organizations participated in the development of this survey:

- **Cobbossee Watershed District (CWD)**
- **Friends of the Cobbossee Watershed (FOCW)**
- **Maine Department of Environmental Protection (Maine DEP)**
- **United States Environmental Protection Agency (USEPA)**

Specifically,

- The **watershed survey field work** was performed by Shannon Power and Zach Beaudry (FOCW), and Ryan Burton, Hannah Shute, Meryl Bond, and Bill Monagle (CWD). Data compilation was performed by Bill Monagle and Ryan Burton (CWD).
- All **mapping** was produced by Ryan Burton of the CWD.
- **Steering Committee** members included Tamara Whitmore (FOCW), Ryan Burton and Bill Monagle (CWD), and Kristin Feindel, Maine DEP.
- **Funding** for this project, in part, was provided by the U.S. Environmental Protection Agency under Section 319 of the Clean Water Act. Section 319 grants are administered by the Maine Department of Environmental Protection in partnership with EPA. The DEP Grant Agreement Administrator was Kristin Feindel.
- The **Watershed Survey Report** was prepared by CWD project Manager, Bill Monagle.

For additional information or copies of the report, contact:

Cobbossee Watershed District
P.O. Box 418, Winthrop, ME 04364
207-377-2234
cwd@faripoint.net

Table of Contents **Page**

Introduction
- General Watershed and Water Quality Information 4

Previous Survey Efforts 6

Purpose of the Watershed Survey 6

NPS Survey Methods 6

Summary of Survey Results 9

Examples of Impacted Sites 10

Future Implementation 17

Appendices

Appendix A – Watershed Survey Field Sheets and Information Letter to Landowners

Appendix B – Watershed Survey Sector Maps with Geo-located NPS Sites

Appendix C – Survey Site-Tracker Spreadsheet

Cover Photo: A dozen Common Loons on Cobbossee Lake. Photo by Ryan Burton.

INTRODUCTION

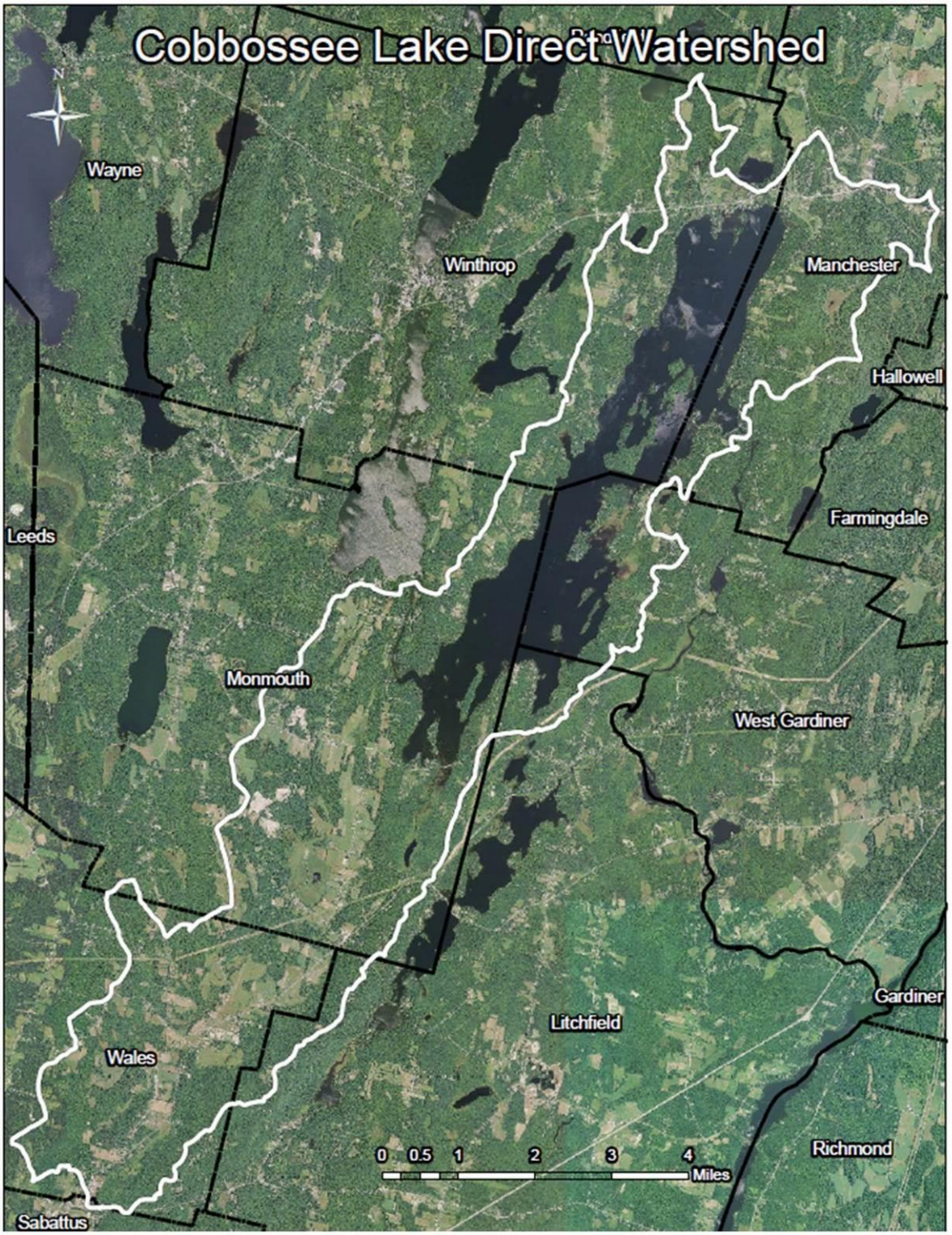
General Watershed and Lake Water Quality Information:
Cobbosseecontee (Cobbossee) Lake is a 5,238 acre lake, within a 32.2 sq. mi. watershed, located a few miles west of Augusta in the Towns of Litchfield, Manchester, Monmouth, West Gardiner, and Winthrop, Kennebec County, Maine, and easily accessible from Routes 202 and 135 (Figure 1). Cobbossee Lake is a central figure of the Cobbosseecontee (Cobbossee) Stream watershed and outflows directly to Cobbossee Stream. Cobbossee Lake has a maximum depth of 100 feet, a mean depth of 37 feet, and flushes 1.07 times per year. Hydrologically, the major sources to the lake are Jock Stream which flows from the south, Jug Stream (outflow from Annabessacook Lake upstream) in the southwest, and an unnamed outlet stream from Little Cobbossee Lake that enters the lake to the north. The primary cultural land uses in the watershed are agriculture (primarily hayland) and residential, but the north end of the lake along Rte. 202 supports modest commercial land uses. There is extensive shoreland development around the lake, and access to the approximately 26 miles of shoreline is gained by between 80 and 100 private roads, nearly all of these consisting of graveled surfaces.

> ***Watershed*** *– All of the land directly surrounding a lake and which serves as a source of water through tributaries, ditches, direct overland flow, or via groundwater.*

Cobbossee Lake has a long history of water quality related problems, primarily excessive nutrient (i.e., **phosphorus**) enrichment and algae bloom proliferation, and has been the subject of extensive restorative efforts. The lake is on the Maine **Nonpoint Source Pollution** (NPS) Priority Watersheds List and was removed from the State's List of Impaired Lakes (i.e., §303d) in 2006 as it had exhibited an extended period without a "severe algae bloom", functionally defined by the Maine DEP as having minimum water clarity less than 2 meters. The Cobbossee Watershed District has been monitoring Cobbossee lake water quality for nearly 40 years, and based on CWD's recent data, it is apparent that more NPS mitigation is needed to maintain Cobbossee Lake's "de-listed" status as the lake exhibited a severe bloom in 2009 when the minimum water clarity was 1.7 meters, and most recently with a minimum reading of 1.98 meters in 2013. In addition to NPS nutrient loading from Cobbossee Lake's direct watershed, additional nutrient loading is provided by Annabessacook Lake and Little Cobbossee Lake, two lakes that lie immediately upstream of Cobbossee Lake. Both of these lakes are also on the Priority Watersheds List and are NPS impaired water bodies.

> ***Phosphorus*** *– An essential plant nutrient that is considered most responsible for the proliferation of algae and aquatic plant growth in lakes.*

Figure 1. Direct Watershed of Cobbossee Lake



PREVIOUS SURVEY EFFORTS

The most recent comprehensive NPS assessment of Cobbossee Lake's watershed was by CWD while preparing the Cobbossee Lake Total Maximum Daily Load (TMDL) Report in 1995 (subsequently updated to new 1999 EPA guidelines in 2000) using 1991 and 1992 aerial infra-red photographs and field survey. This study delineated land uses, determined their relative area as percent of the total watershed, and estimated the relative phosphorus loading from the various land use subcategories, but **it's worth noting that private camp roads were not considered separately but were incorporated into the low density residential land use as infrastructure support.** Concurrent with that initial TMDL effort (1995), the CWD conducted a survey of NPS Sources in the Jock Stream Watershed that was funded under the CWA §604(b) and many of the sites identified were addressed in the Cobbossee Lake Restoration by Reduction of Phosphorus in Jock Stream Watershed project (#99R-29) administered by the KCSWCD in partnership with CWD. And recently, additional NPS sites in the direct watershed of Cobbossee lake were corrected as part of the Cobbossee lake Water Quality Protection, Phase I project (#2007RR06) also administered by KCSWCD in partnership with CWD. Despite these efforts, or the fact that the lake has been de-listed, it remains sensitive to phosphorus inputs, and we (CWD) believe that more needs to be accomplished in this watershed, as well as in upstream lake watersheds, to provide the necessary protection to keep the lake from being re-listed. Because of the extent of the direct watershed, and because the Maine DEP has declared gravel camp roads to be a major contributor of sediment and phosphorus to Maine lakes, it seemed prudent and wise to begin by implementing an initial comprehensive survey of the immediate watershed area including the nearly 100 camp roads that are in closest proximity to the lake shore before investing further resources toward mitigating NPS in this watershed.

> ***Total Maximum Daily Load (TMDL)*** *– In general, the loading capacity, or greatest loading of a pollutant a waterbody can receive without violating water quality standards.*

PURPOSE OF THE WATERSHED SURVEY

This Cobbossee Lake Watershed Survey Project was undertaken to identify and document specific NPS problem sites where BMPs should be implemented to reduce sediment and/or phosphorus loading to the lake as well as identifying those roads, or segments thereof, where responsible road maintenance appears to be lacking. The survey identified and prioritized NPS problem sites for future BMP implementation based on their severity and their suitability for corrective measures. The survey process and results also served to prepare citizens, road associations, and municipalities for understanding and accepting their own active roles in regularly maintaining their own roads and protecting the lake, and provides a foundation for the development of a long-range watershed-based protective plan to guide implementation efforts in the watershed.

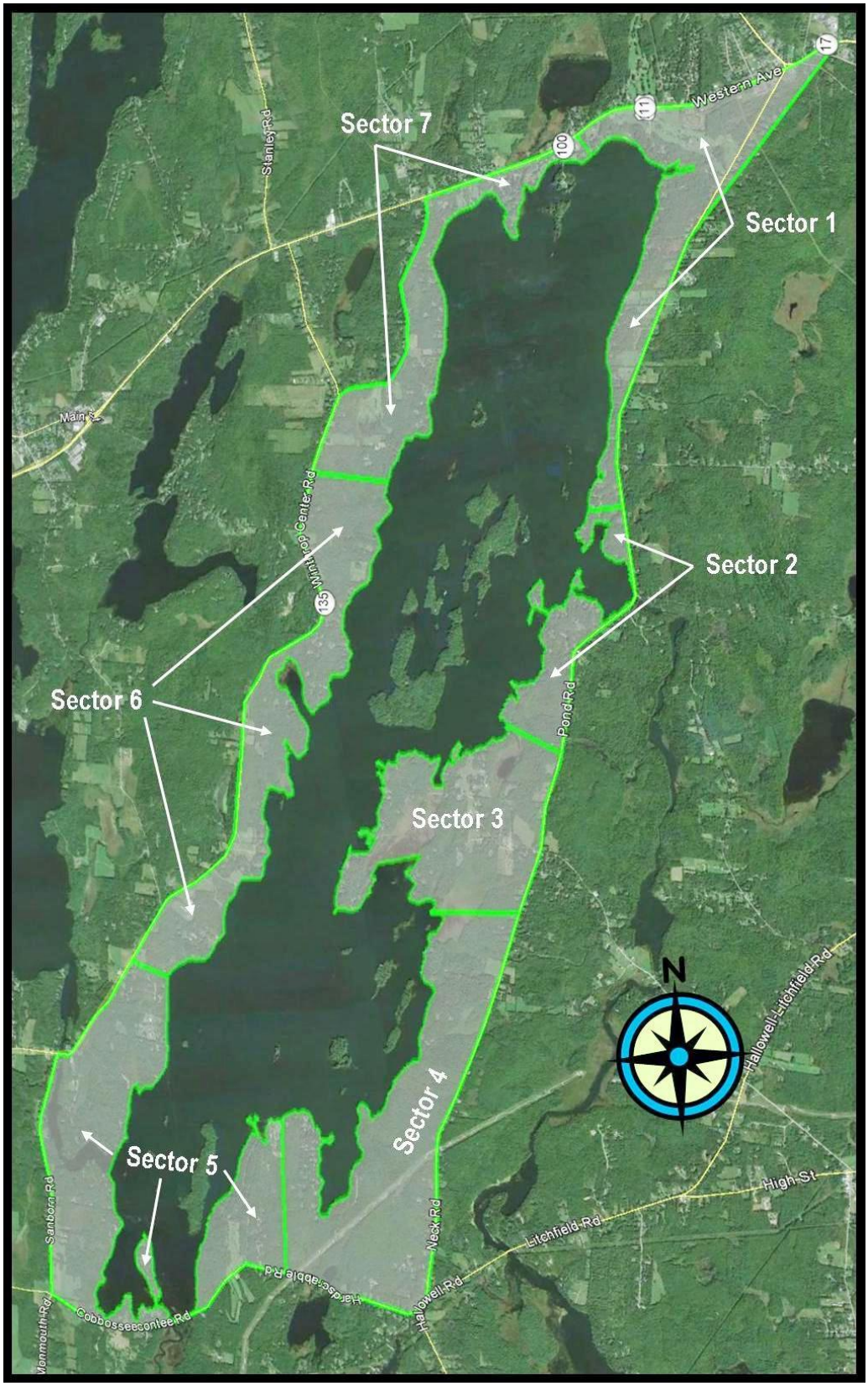
NPS SURVEY METHODS:

The survey was conducted by CWD staff and staff members of the Friends of the Cobbossee Watershed (FOCW) and generally followed the "Maine DEP Lake and Stream Watershed Survey

QAPP" (2009) and the guidance in the "Citizen's Guide to Volunteer Lake Watershed Surveys" (2011). In general, this survey was conducted more as "road survey" as it was primarily limited to surveying NPS problem sites from private camp roads and the public roadways from which the camp roads originate. Access to private property was to be limited to that permitted by the respective property owners. Prior to conducting the survey, notices of the survey were posted in the town offices in the Towns of Winthrop, Monmouth, Litchfield, Manchester, and West Gardiner, and an article was published in the local Community Advertiser in May 2013.

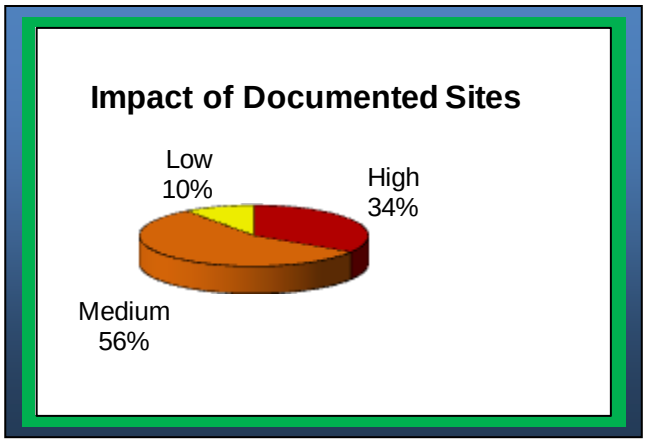
The effort began with a training session held on a gravel camp road in Manchester in May of 2103. Training was conducted by CWD Project Manager Bill Monagle and DEP Agreement Administrator Kristin Feindel. The survey began immediately following the May 2013 training session, but unfortunately, there were very few trainees aside from one member of the CYC and staff members of the CWD and the Friends of the Cobbossee Watershed. The watershed was divided into 7 sectors (See Figure 2), and surveyors were assigned a specific sector, or sectors. Surveyors were supplied with survey forms, sector maps, and a letter for property owners that inquire about the survey, as well as other materials necessary to complete the survey. Each NPS site was assigned an NPS site number, located on the respective sector map, and the GPS location recorded in lat/long (decimal degrees). See Appendix A for an example of an NPS survey field sheet used in this survey and the informational letter to property owners. Mr. Monagle conducted follow-up field work to check any sites recorded by FOCW staff as well as several recorded by the CWD.

FIGURE 2. Map of Watershed Survey Sectors



SUMMARY OF SURVEY RESULTS

In general, there were 10 subcategories of NPS sites described, and in several cases, a particular site satisfied more than one category. Of the 80 sites, 34 percent were considered to be High Priority, 45 percent as Medium Priority, and 10 percent as Low Priority. Priority ranking was based on a combination of factors including the extent of erosion and the proximity to a water resource or



Impact was based on size, slope, amount of erosion, and proximity water.

- **"Low"** impact sites are those with limited soil transport off-site
- **"Medium"** impact sites are generally those with visible signs of off-site sediment transport to water.
- **"High"** impact sites are larger sites where there is apparent sediment transport to the lake with little to no evidence of buffer treatment.

drainage channel, in most cases with the intent being to rank the sites based on the degree of threat to lake water quality. A breakdown of NPS sites by type is shown in the table below. As the data suggest, and as expected given the survey design, the majority of NPS sites that were identified were related to private roads. This is also reflected in the range of problem descriptions, as 82% of all identified NPS problems were related to either road surface erosion, clogged or eroded culverts, ditch erosion, or shoulder erosion. Land classified as agriculture accounted for only 2% of the NPS-related problems – as expected considering the geographic focus of the survey - and the two that were identified were related to farm animals grazing in or near a stream channel, or a possible manure handling/discharge problem that has yet to be confirmed. The results were not unexpected, as the NPS survey was to be conducted from edge of properties along public and private roadways, with property owner permission required for a more in-depth inspection.

Occurrence of Identified NPS Sites by Type

LAND USE TYPE	Number of NPS Sites
Private Road Surface Erosion	59
Public Road	2
Private Driveway Surface Erosion	8
Private Boat Launch Erosion	2
Ditch Erosion	16
Culvert (undersized, clogged, or broken)	18
Roadside Bank Erosion	1
Agricultural – Manure Runoff	2
General Site Erosion	4
Shoreline Erosion	2

To most efficiently address NPS problems as identified in this survey, it is recommended that the highest priority sites be tackled first. Of the 27 high priority sites, 20 were related to roads. The Appendices include Maps of the 7 individual sectors and the associated NPS sites (Appendix B) and a Site-Tracker Spreadsheet presenting the complete NPS survey results (Appendix C). Site-specific BMPs to address these problems should be prescribed prior to work being performed as conditions may have changed since the survey was performed. The most common BMPs to address the 59 road related sites will be re-grading and stabilization of roadside shoulders, adding surface material to eroded roads and reshaping them as required, replacing new culverts where needed and stabilizing culvert inlets and outlets, and reshaping and stabilizing roadside ditches and installing turnouts to buffer areas where deemed beneficial. Costs in dollars (2014) to repair the average camp road related problems generally will likely run between $4,000 and $10,000 per site. Camp roads with multiple problems can be expected to be proportionately more expensive. Current CWD staff experience with improving common camp road NPS sites suggests that an average camp road repair project runs approximately $6,000.

EXAMPLES OF IMPACTED SITES

Following is a general discussion of several examples of NPS sites documented during the survey. Discussion of NPS sites here will be limited primarily to sites rated as either Medium or High Priority.

NPS Sites #103 and #104 (High Priority) – Ditch Erosion

NPS Sites 103 & 104 (High Priority) – These two related sites are located on a gravel camp road along the eastern shore of the lake in Manchester. Site 104 is at the bottom of a long (~700 foot) ditch that is severely eroded due to an overwhelming volume of stormwater runoff from Pond Road during major rain events, which have become more frequent over the past decade or so. Site 103 is directly associated with Site 104 and is located on the lake (west) side of the camp road. Also, note that the site-numbered photographs are not consistent as the site was photographed twice and the numbers were interchanged. These two related sites have been problematic for a number of several years and represent what must be considered one of the most severe erosion sites in the watershed.

This photo is looking toward the lake from the camp road during the training session in May 2013. There were no noticeable signs of excessive sedimentation of the lake (e.g., delta) on this date. Also note that the ditch pictured here is not included in the ~700 foot section of ditch referred to in the paragraph above.

This photo shows the base of the eroded 700 foot ditch at a culvert beneath the road after a heavy rain event in August 2014. Note the large amount of rock and debris in the channel and the fine sediment deposited on the road surface where the stormwater had overtopped the road.

This photo shows the mouth of the ditch channel shown 2 photos prior (NPS #104) with a delta of sediment and debris deposited after the heavy August 2014 rain

<u>Recommendation for NPS Sites #103 & #104</u> – Ideally, reducing the volume of stormwater that enters the 700' ditch would help alleviate much of the erosion within the ditch and the transport of eroded materials to the lake. The CWD has in the recent past attempted to coordinate an agreement between the Maine DOT and a private property owner on Pond Road to direct a portion of Pond Road drainage to a wooded buffer via a level spreader in order to reduce the discharge to the ditch, but to no avail. Therefore, the remaining solution to this problem involves enlarging and stabilizing the 700' ditch using geotextile and large rip-rap to prevent further erosion and sediment transport. Either of these possible solutions is likely to be expensive.

NPS Site #214 (High Priority) – Road Surface/Shoulder Erosion

NPS Site 214 – This site is located at the bottom of a private camp road in Manchester along the east shore of the lake. Approximately 2,000 square feet of road surface was severely eroded with evidence of runoff and sedimentation to a drainage swale beneath a shorefront property driveway. From speaking with a local neighborhood resident it was learned that this represents a chronic problem at this site.

This is a view up the road from the base of the road near shorefront property. There is clear evidence of severe surface erosion with no opportunity for runoff to enter the adjacent wooded area to receive buffer treatment.

Here, runoff is directed from the road surface onto a private shorefront driveway from where it encounters minimal vegetation prior to discharging into the lake.

Recommendation for NPS Site #214 – The road surface should be crowned, preferably using recycled asphalt, with several (every 50 feet) waterbars, or "bumps" constructed from crushed, or processed, base (ledge) material and aligned on 30-degree diagonals to direct runoff to the wooded area adjacent to the road.

NPS Site #212 (Medium Priority) – Road Shoulder Erosion

<u>NPS Site 212</u> – This site is located along Pond Road – a state road – in the Town Manchester on the opposite side of the road from the lake. The road surface here is gently to moderately sloped, but because runoff is unable to enter the adjacent vegetated swale due to excessive roadside sediment build-up and vegetation it is forced to flow along the shoulder causing shoulder erosion. At the low point in the road, the sediment–laden runoff then leaves the road shoulder and enters a culvert from where it then flows underneath the road and to the lake.

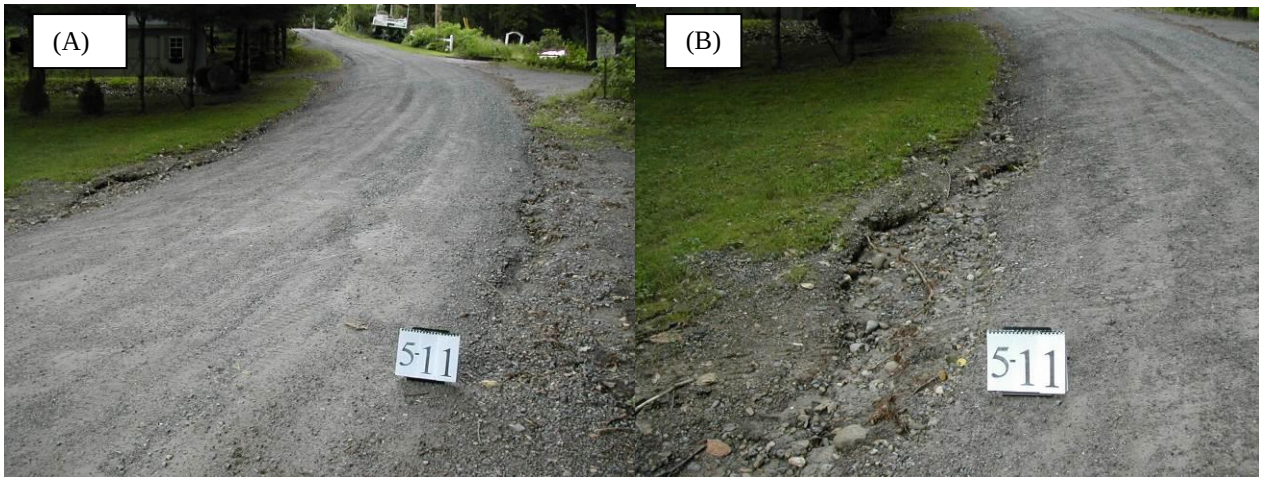
This is a view looking north along Pond Road with clear evidence of severe road shoulder erosion and discharge of eroded material into a ditch and culvert that are not in view.

This is a reverse angle view of the photo above. The culvert is just below the road shoulder and marked with the stake with red marker.

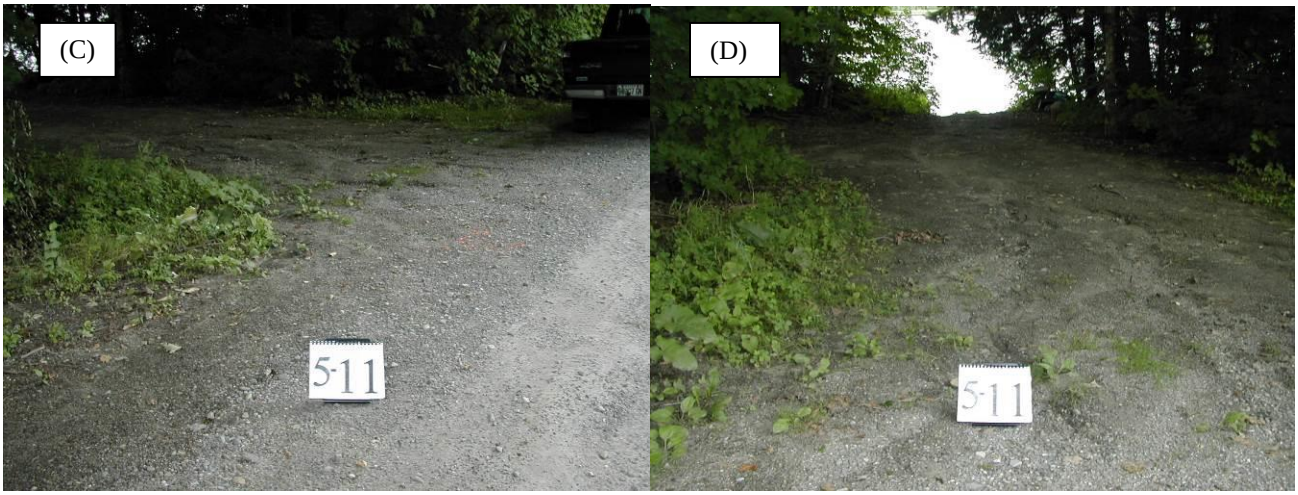
Recommendation for NPS Site #212 – The fill slope between the shoulder and the roadside vegetated ditch should be graded and stabilized (seeded) to enable filtered road runoff to enter the ditch. The road shoulder should also be stabilized and graded.

NPS Site #511 (Medium/High Priority) – Road Surface/Boat Access Erosion

NPS Site 511 – This site, located on a camp road on the south end of the lake in Monmouth, represents a series of NPS problems. Initially, there is excessive road surface and shoulder erosion that culminates in draining onto, and eroding, a private shorefront driveway and boat access at the shorefront with direct sediment deposition into the lake.



Here, looking northward (Photos A & B) can be seen evidence of road surface and road shoulder erosion along the road.



Looking just southward, Photo C shows where the road surface runoff (Photos A & B) is being directed onto a private driveway. In Photo D can be seen the terminus of the driveway, or boat launch, with the lake in the background.

<u>Recommendation for NPS Site #511</u> – The road surface should be crowned to encourage runoff to shed to either of the road surface. A broad-based dip, or waterbar, should be installed just before the driveway (Photo C) and direct runoff to the opposite side of the road. For the driveway/launch, ideally, the boat access should be discontinued and revegetated, but if not, then the driveway/boat launch should be re-graded with a couple of waterbars, or "bumps" constructed from crushed, or processed, base (ledge) material and aligned on 30-degree diagonals to direct runoff to the adjacent wooded area.

NPS Site #703 (High Priority) – Road Surface Erosion

<u>NPS Site 703</u> – This site is located at a private campground along the west shore of the lake. Approximately 300 feet of camp roadway that approaches the lakeshore is severely eroded with visual evidence of sediment transport to the lake. Unfortunately, there are very few opportunities to direct road runoff to wooded buffer areas.

This photo is of a view west, or landward of the lake, shows the beginning of the eroded road surface.

This photo shows the same road looking east with severe road surface erosion directed toward Cobbossee Lake in the background.

<u>Recommendation</u> – The road surface should be built up, crowned, preferably with recycled asphalt. At two points along the road, waterbars, constructed from processed, or crushed, base (ledge) material should be installed at slight angles to divert road runoff to adjacent vegetated areas.

FUTURE IMPLEMENTATION

The watershed survey results as summarized in this report provide strong supporting information for the development of a Watershed-based Protective Plan for Cobbossee Lake and a robust list of candidate sites to target for future corrective action. The strategy to be laid out in the Watershed-based Plan will combine information gathered during this survey effort with that included in the Cobbossee Lake Total Maximum Daily Load- Phosphorus Control Action Plan (TMDL-PCAP) that was updated and approved by the USEPA in 2000 along with CWD's keen knowledge and understanding of the lake's watershed. Had Cobbossee Lake not been removed from the state's List of Impaired Waterbodies (i.e., §303(d)) in 2006 as a result of improved water quality, then a formal nine-element Watershed-based Plan would be required before moving forward.

The next step in protecting Cobbossee Lake water quality will be the preparation and submission of a proposal to the Maine DEP for 319 grant funding to implement a Watershed Project to address many of the high priority NPS sites identified during this survey as well as other NPS phosphorus sources in the watershed. To promote participation in the Watershed Project, property owners will be offered cost-sharing incentives to assist in protecting lake water quality. Overall, the anticipated Watershed Project will provide a roughly 60-40 cost sharing opportunity for landowners to implement BMPs on their property to help protect Cobbossee Lake water quality, but the cost-sharing ratio will be established on a case by case, site by site basis, and will depend on the particulars of the site under consideration, including whether the site is publicly or privately owned, whether improvements or maintenance are currently required by deed covenants or if the NPS problem represents a violation, the total cost of BMP implementation, among others.

APPENDIX A

Watershed Survey Field Sheets and Information Letter to Landowners

Watershed Survey Field Sheet

Fina Site # | Checked by | Date

Cobbossee Lake Watershed Survey

REMINDER: Only write up if there is likely transport of sediment or phosphorus into the lake.

Sector & Site _____ Date_____ Surveyor Initials _____

Location *(house #, road, utility pole #)* _____

Building Color _____ Landowner Name _____

Tax Map & Lot _____ Talked to Landowner? _____

Flow into Lake via (check ONE): ☐ Directly into Lake ☐ Stream ☐ Ditch ☐ Minimal Vegetation

Note: If flow does not make it into lake, do not fill out a form. It would not be considered a site.

GPS Coordinates in Latitude/Longitude Decimal Degrees (NAD83 or WGS84)

— ☐☐.☐☐☐☐☐☐ °

☐☐.☐☐☐☐☐☐ °

Land Use/Activity Circle ONE	Description of Problems Circle ALL that apply	
State Road	**Surface Erosion**	**Soil**
Town Road	Slight	Bare
Private Road	Moderate	Uncovered Pile
Driveway	Severe	Delta in Stream/Lake
Residential	**Culvert**	Winter Sand
Commercial	Unstable Inlet / Outlet	**Roof Runoff Erosion**
Municipal / Public	Clogged	**Shoreline**
Beach Access	Crushed / Broken	Undercut
Boat Access	Undersized	Lack of Shoreline Vegetation
Trail or Path	**Ditch**	Inadequate Shoreline Vegetation
Logging	Slight Erosion	Erosion
Agriculture	Moderate Erosion	Unstable Access
Construction Site	Severe Erosion	**Agriculture**
OTHER:	Bank Failure	Livestock Access to Waterbody
	Undersized	Tilled Eroding Fields
	Road Shoulder Erosion	Manure Washing off Site
	Slight	**OTHER:**
	Moderate	
	Severe	
	Roadside Plow/Grader Berm	

Slope: ☐ Flat ☐ Moderate ☐ Steep **Size of Area Exposed or Eroded** (length & width): _____

Site is linked to another: Cause of Site # _____ Result of Site # _____

Front

Recommendations		
Culvert	**Roads / Driveways**	**Paths & Trails**
Armor Inlet/Outlet	Remove Grader/Plow Berms	Define Foot Path
Remove Clog	Build Up	Stabilize Foot Path
Replace	Add New Surface Material	Infiltration Steps
Enlarge	• Gravel	Install Runoff Diverter (waterbar)
Lengthen	• Recycled Asphalt	**Roof Runoff**
Install Plunge Pool	• Pave	Infiltration Trench @ roof dripline
Ditch	Reshape (Crown)	Drywell @ gutter downspout
Vegetate	Vegetate Shoulder	Rain Barrel
Armor with Stone	Install Catch Basin	**Other**
Reshape Ditch	Install Detention Basin	Install Runoff Diverter (waterbar)
Install Turnouts	Install Runoff Diverters	Mulch / Erosion Control Mix
Install Ditch	• Broad-based Dip	Rain Garden
Install Check Dams	• Open Top Culvert	Infiltration Trench
Remove debris/sediment	• Rubber Razor	Water Retention Swales
Install Sediment Pools	• Waterbar	**Vegetation**
Other Suggestions:	**Construction Site**	Establish Buffer
	Mulch	Add to Buffer
	Silt Fence / EC Berms	No Raking
	Seed / Hay	Reseed bare soil & thinning grass
	Check Dams	

Impact: Circle one choice in each column, add the three selected numbers together, and then circle the site's corresponding impact rating (high, medium, or low).

Type of Erosion	Area	Buffers and Other Filters	IMPACT
Gully - **3**	Large - **3**	No filter, all channelized direct flow into lake or stream - **3**	High: 8-9 pts
Rill - **2**	Medium - **2**	Some buffer or filtering, but visible signs of concentrated flow and/or sediment movement through buffer and into lake - **2**	Med: 6-7 pts
Sheet - **1**	Small - **1**	Significant buffer or filtering* - **1**	Low: 3-5 pts

* Confirm there is likely sediment/runoff delivery. If not, do not write up as a site.

Cost to Fix

High: Greater than $2,500
Medium: $500-$2,500
Low: Less than $500

Technical Level to Install

High: Site requires engineered design
Medium: Technical person should visit site & make recommendations
Low: Property owner can accomplish with reference materials

Potential Youth Conservation Corps project? Yes No

Back

JANE ANDREWS
Chairperson

WILLIAM J. MONAGLE
Executive Director

COBBOSSEE WATERSHED DISTRICT

P.O. Box 418, Winthrop, Maine 04364
Telephone (207) 377-2234

Maine's first regional lake management district

Dear Property Owner,

The Cobbossee Watershed District, with support from the Friends of the Cobbossee Watershed, are partnering with local volunteers to conduct a watershed survey of Cobbossee Lake to locate sources of phosphorus and sediment, which is having a negative impact on water quality. The volunteer survey is funded under a grant from the Maine Department of Environmental Protection.

The goals of this survey are to locate non-point source pollution sources in the watershed. This survey will help prioritize where improvement money is directed in the future in order to protect this beautiful lake. A watershed is the area of land surrounding a water body, which drains to the water body through ditches or smaller streams.

Soil erosion is the main focus of the survey because it is a major source of phosphorus – the most serious pollutant to lakes in Maine. Phosphorus and other pollutants reach our lakes through storm water runoff and can come from anywhere in the watershed – not just the shoreline. Sediment is also detrimental to aquatic life habitat.

The reason for doing the survey is that many Maine water bodies have shown evidence of water quality declines in the past few decades. Waterfront property owners can be directly affected when water quality declines. In addition to undesirable aesthetic changes to the water and the potential impact to the fishery, shorefront property values are lowered.

The purpose of the survey is <u>not</u> to impose upon the privacy of individual property owners, nor will any information gathered be used for enforcement purposes. If problem areas are detected on private property and are considered a high priority, then technical assistance, and possibly financial assistance, will be made available to the property owner to correct the problems.

The survey will begin following a training session in late May 2013. Local residents will be gathering data by car and on foot looking for erosion problems. Please contact the Cobbossee Watershed District at 377-7109 or by e-mail (cwd@fairpoint.net) if you have any questions. Again, this project is strictly voluntary.

Thank you.

Bill Monagle, CLM
Executive Director

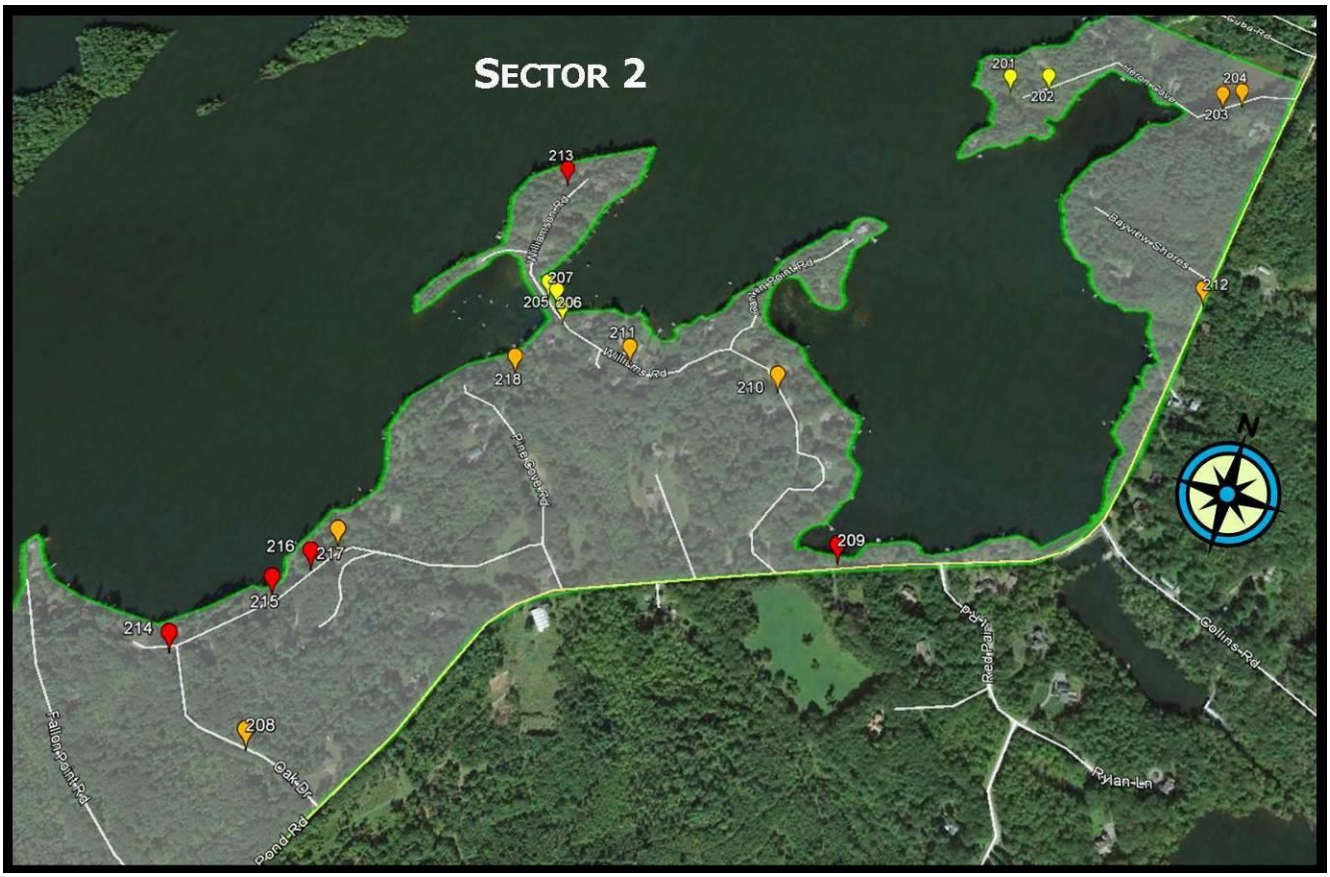
APPENDIX B

Mapped Watershed Survey Results – 7 Sectors

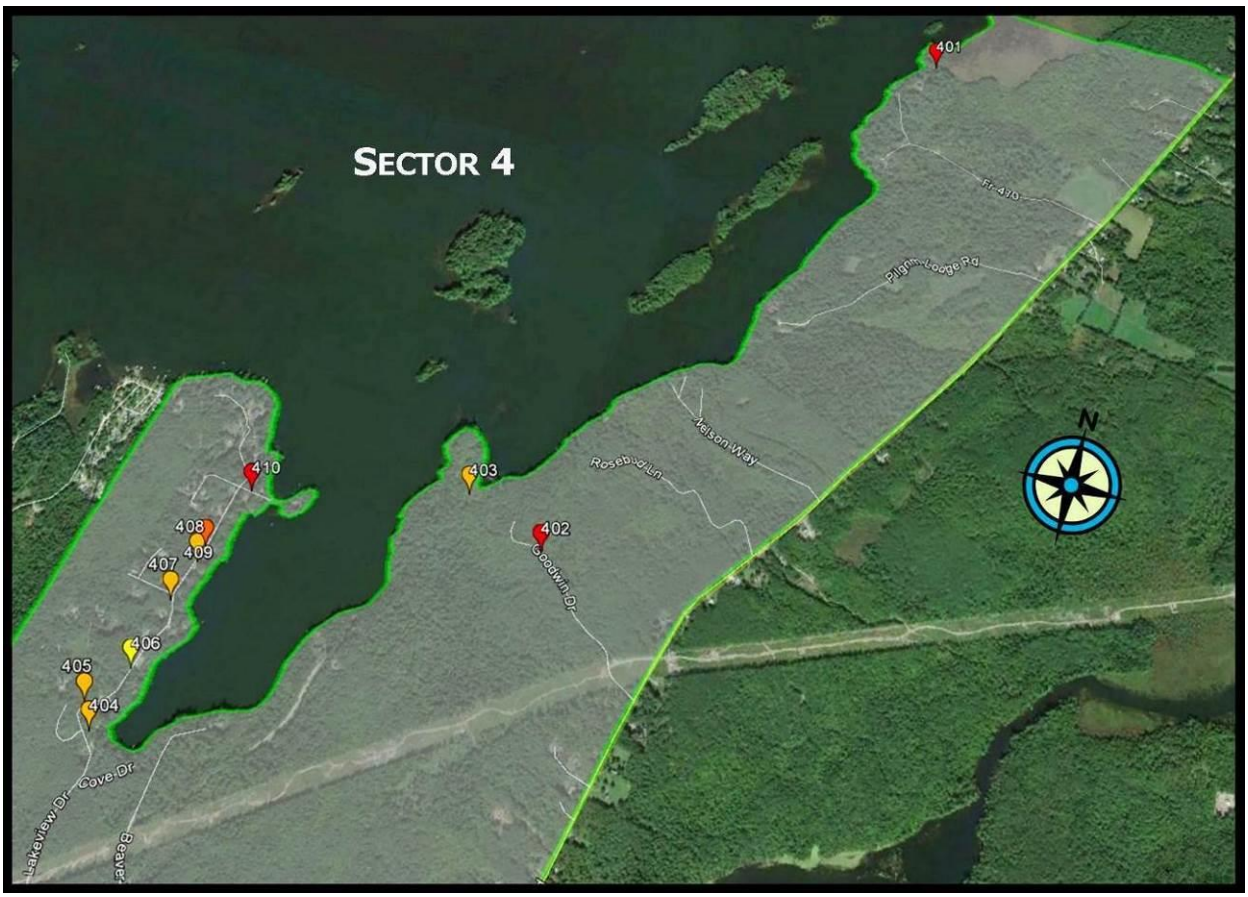
Individually mapped NPS sites are color-coded.

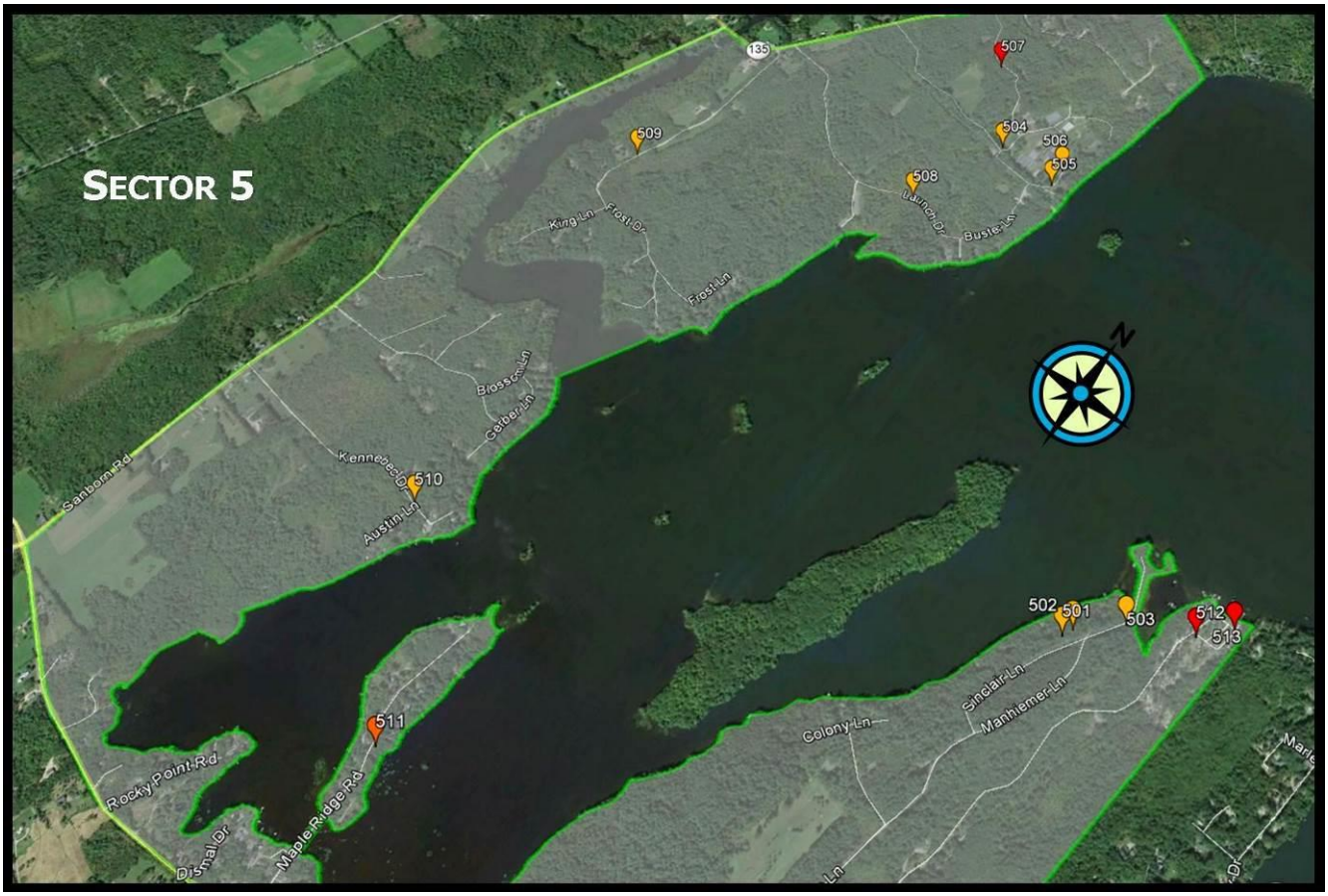
- **Red – High Priority**
- **Orange – Medium Priority**
- **Yellow – Low Priority**

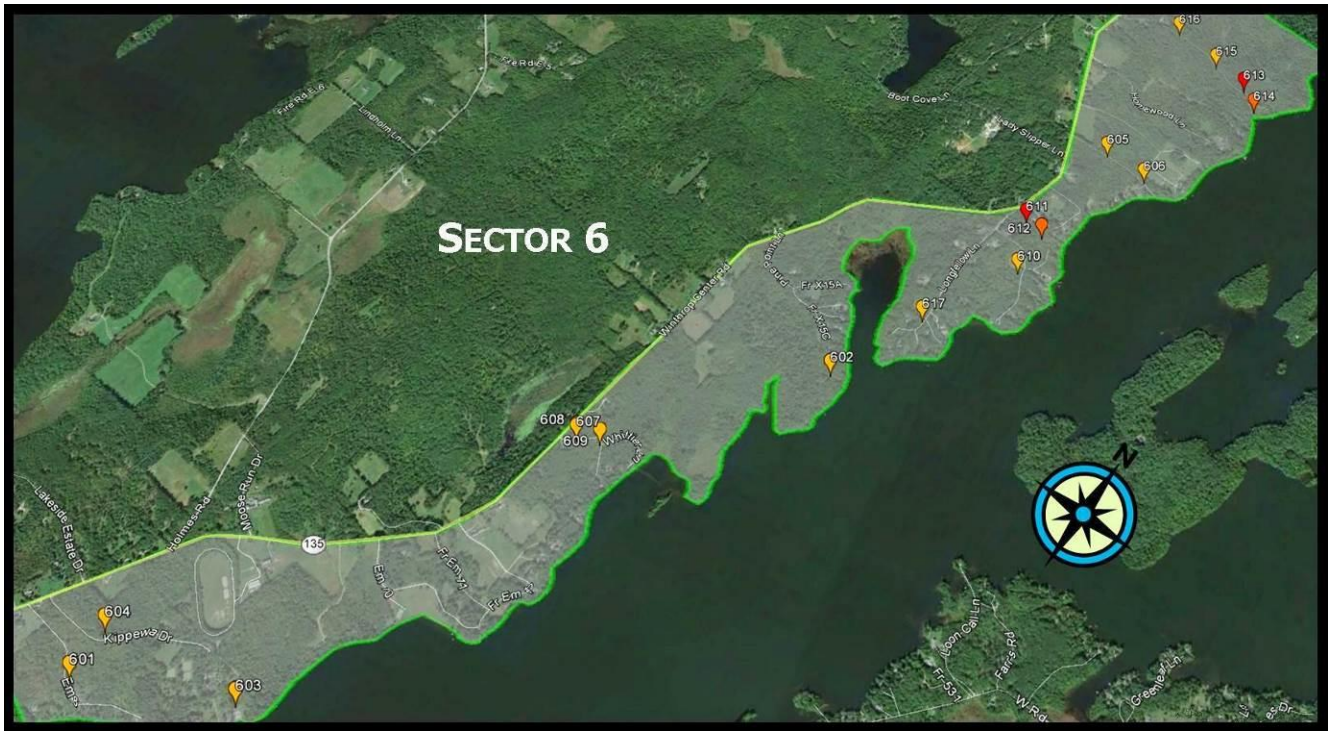
SECTOR 1
101
102
103
104
105
106
107
108
110
111
Patch Rd
Pond Rd
Hillside Rd
Edgewater Dr
Hawkes Farm Rd
Buswell Ln
Acorn Ln
Perkins Dr
N


SECTOR 2
201
202
203
204
205
206
207
208
209
210
211
212
213
214
215
216
217
218
Williams Rd
Pine Cove Rd
Bayview Shores
Collins Rd
Red Paint Rd
Rylan Ln
Oak Dr
Pond Rd
Fallon Point Rd
N

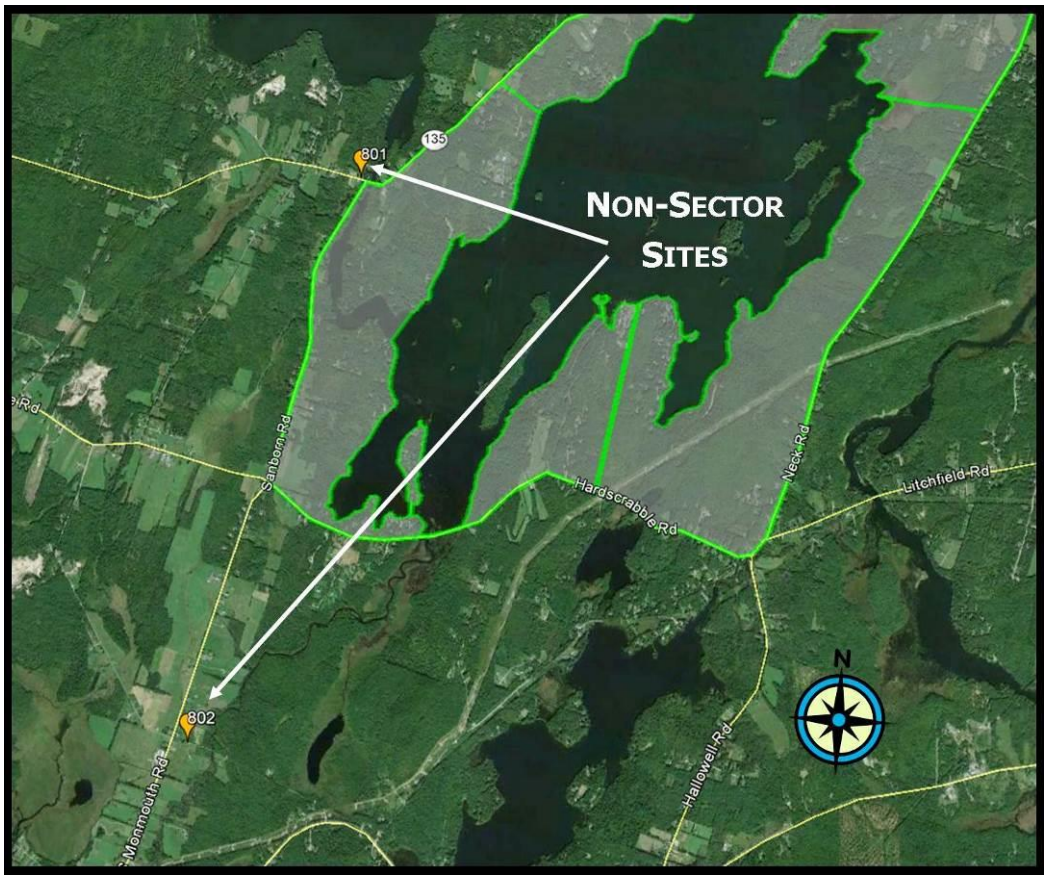
SECTOR 3
302
Fire Rd
W Rd
Irish Cir
Clarks Ln
Wentworth Cove
N


SECTOR 4
401
Fr 470
Pilgrim Lodge Rd
Nelson Way
Rosebud Ln
Goodwin Dr
403
402
410
408
409
407
406
405
404
Cove Dr
Lakeview Dr
N


SECTOR 5
507
509
504
506
505
508
King Ln
Frost Dr
Launch Dr
Buster Ln
Frost Ln
Blossom Ln
Gerber Ln
Kennebec Dr
510
Austin Ln
Sanborn Rd
502
501
503
512
513
Sinclair Ln
Manhiemer Ln
Colony Ln
511
Rocky Point Rd
Maple Ridge Rd
Dismal Dr
135


SECTOR 6
618
615
613
614
605
606
611
612
610
617
602
608
607
609
Boot Cove Ln
Lady Slipper Ln
Winthrop Center Rd
Fr X15A
Fr X15C
Holmes Rd
Moose Run Dr
Lakeside Estate Dr
135
Fr Em 71
Fr Em 71
604
Kippewa Dr
601
603
Loon Call Ln
Farris Rd
Greenleaf Ln

SECTOR 7
709
707
708
706
705
703
704
701
702
Foxfire Ln
Ellis Ln
Larson Ln
Birchwood Ln
N


NON-SECTOR SITES
801
802
135
Sanborn Rd
Hardscrabble Rd
Neck Rd
Litchfield Rd
Hallowell Rd
Monmouth Rd
N

APPENDIX C

Cobbossee Watershed Site-Tracker Spreadsheet