



May 5, 2017

Dear Watershed Partner:

Re: 2016 Lake Simcoe Subwatershed Plans Implementation Report

It is my pleasure to provide you with a copy of the report which summarizes the 2016 accomplishments of the Lake Simcoe Region Conservation Authority and its provincial and municipal partners in achieving the recommendations of its subwatershed plans.

Subwatershed plans are a requirement of the Provincial *Lake Simcoe Protection Plan* (LSPP) and are intended to provide more detailed guidance on how to meet the goals and objectives of the LSPP at more local scales. Since the release of the LSPP in 2009, LSRCA, along with its provincial and municipal partners, have developed plans for those subwatersheds located in York Region, Durham Region, Innisfil, Barrie, Oro-Medonte, Orillia, Ramara, and Kawartha Lakes, as well as one for Georgina Island. We reached a significant milestone in 2016, as we have now worked our way around the watershed and completed the final set of subwatershed plans required under the LSPP.

As each plan is completed, we transition into the implementation phase, which requires ongoing partnering among the participating agencies to ensure the recommendations of the subwatershed plan are achieved. This annual report is an important part of the implementation phase, as it allows us to maintain focus on this important work and to be accountable to watershed stakeholders.

If you have any questions on the report, please do not hesitate to contact me.

Yours sincerely,

A handwritten signature in black ink, appearing to read "Michael Walters".

Michael Walters
Chief Administrative Officer

Attachment



2016

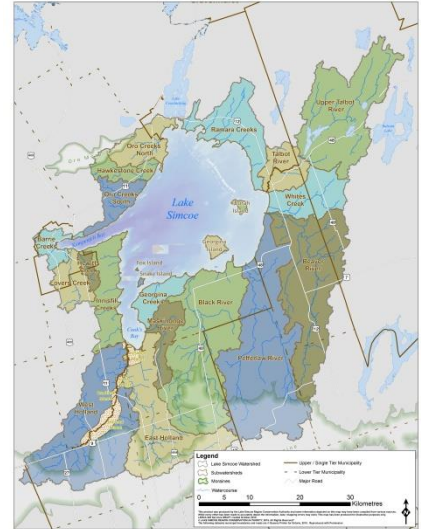
Lake Simcoe Subwatershed Plans Implementation Report



Lake Simcoe Region
conservation authority

The Lake Simcoe Watershed

Occupying 3,400 square kilometres, from the Oak Ridges Moraine in the south to the Oro Moraine in the north, the Lake Simcoe watershed contains 20 municipalities and is home to over 400,000 residents. It has 18 major river systems draining 4,225 kilometres of creek into the lake. To protect the health of the watershed, the LSRCA and its partners have been working since 2010 to develop subwatershed plans for the tributaries flowing into Lake Simcoe. This report highlights the important efforts of LSRCA and its provincial and municipal partners to undertake the recommendations developed through the subwatershed planning process.



Subwatershed Plans

As of 2016, subwatershed plans have been completed for nearly all of the tributaries flowing into the lake, as well as the islands of the Georgina Island First Nation. As part of the subwatershed planning process, implementation plans have been developed which identify a schedule of priority projects to be completed, as well as which government agencies will be responsible for their completion.

In order to ensure this work remains on track, LSRCA and its partners develop this annual report as a mechanism to track and report on progress, and identify any areas where progress has been delayed. 2016 was the fourth year of the implementation phase of these subwatershed plans and represents a year of continued efforts by all of our partnering agencies to implement the subwatershed plan recommendations.

Given that we are coming up on year five of the implementation process, LSRCA made a concerted effort within this reporting cycle to highlight the ongoing efforts of our partners, and to discuss with our partners and internal staff the feasibility and applicability of the implementation of the remaining deliverables set out in the implementation plans. This report showcases some of the activities that LSRCA and our partners have undertaken that contribute to the successful implementation of the subwatershed plan recommendations.

SHOWCASED WORKS

MNRF Response to Water Soldier on the Black River

A major subwatershed management implementation plan deliverable for the Ministry of Natural Resources and Forestry is the creation and implementation of Invasive Species Response Plans. An example of their continued efforts to accomplish this deliverable is their currently active efforts at responding to Water Soldier, a newly introduced aquatic invasive species. These efforts are detailed below:

On October 8th, 2015, MNRF staff discovered a colony of Water Soldier (*Stratiotes aloides*) in the Black River in the Town of Georgina during routine wetland evaluations. Follow-up investigations assessed the colony at 300-400 plants, with two small satellite colonies downstream. All plants were discovered upstream of the Sutton Dam.

Recognizing the plant's ability to spread prolifically, the proximity of the colonies to Lake Simcoe, and understanding the Black River population's early stages of development, it was agreed by MNRF, the MOECC, and the OFAH Invasive Species program that swift action was required to control the spread of water soldier in the Black River. A response was immediately launched that incorporated rigorous monitoring and assessment, multiple control measures, and awareness campaigns. This response relied upon a collaborative approach between MNRF and external agencies, stakeholders, and partners to maximize the potential of controlling water soldier in the Lake Simcoe watershed. These efforts continued into 2016, recognizing the ability of water soldier to persist even after initial control efforts have been carried out. Minimal regrowth in the 2015 colony areas was observed in 2016; however a new colony comprised of emergent and submergent plants was discovered upstream. The collaborative nature of the water soldier response is building - in 2016 the Town of Georgina joined the efforts and supported the installation of a floating barrier at the Sutton Dam to prevent dispersal and propagation downstream. Given MNRF's prompt actions, water soldier has not become established downstream of the Sutton Dam, and regrowth after treatment has been minimal. Efforts will need to persist if complete eradication is to occur.



A colony of water soldier (Photo credit: Aurora district MNRF)



MNRF staff harvesting water soldier (Photo credit: Aurora district MNRF)

Partnering Municipalities: Annual Tree Plantings

The community organization Neighbourhood Network partnered with the municipalities of Aurora, Newmarket, East Gwillimbury, King, and Georgina and the LSRCA to undertake a number of coordinated tree planting events in the spring of 2016. These tree planting events are completed annually and are among the many stewardship projects that help accomplish deliverables within the subwatershed implementation plans and help benefit water quality and quantity in the watershed.



Volunteers participate in a Neighbourhood Network tree planting event

The tree planting events occurred on April 30th, 2016 and resulted in the planting of 2,450 native trees and shrubs on six sites (two sites in Newmarket and one site within each of the other municipalities). Approximately 200 volunteers came out to plant trees in their neighbourhood.

OMAFRA: Water Smart Farm Projects

Further contributing to the accomplishment of subwatershed management goals, the Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA) has been engaging in continued stewardship and engagement efforts that help promote water quality and quantity improvements within the watershed. Recently, for example, OMAFRA has contracted Farm & Food Care to conduct a number of water use assessments to help growers better understand how and where they use water. By having better information, growers are often able to reduce their water use, cut costs, and generally find lower cost treatment systems.

Project Goals:

- Water use optimization by considering risk (amount), economics, and in-plant water requirements and timing of use.
- Optimize irrigation water use by considering risk (amount), economics, and field water distribution patterns.

Each assessment will include:

- On-site collection of information pertaining to current water uses, losses and estimated costs;
- Preparation of a water balance showing current water inputs and outputs in the process, and alternatives such as reuse, reduction and recycling opportunities;
- Identification of opportunities to reduce, reuse and optimize current water use and losses;
- Development of business cases (costs, equipment life, simple payback, etc.) for

- implementation of the identified opportunities, and recommendations; and
- Delivery of a final report documenting the current situation, identified opportunities, economic assessment, and recommendations.

Grower Benefits:

- Water use and wastewater use characterization;
- Identification of opportunities to reduce water & energy use, reduce wear & tear on equipment, cost savings and simple paybacks;
- Identification of potential incentive programs to implement opportunities;
- Third party verification of the system

NOTE: Water quality analysis is not shared with OMAFRA.

For further information about the project please see their website for a video and contact information: <http://www.farmfoodcareon.org/water-smart-farm-projects/>

MOECC: E-Flows Assessment

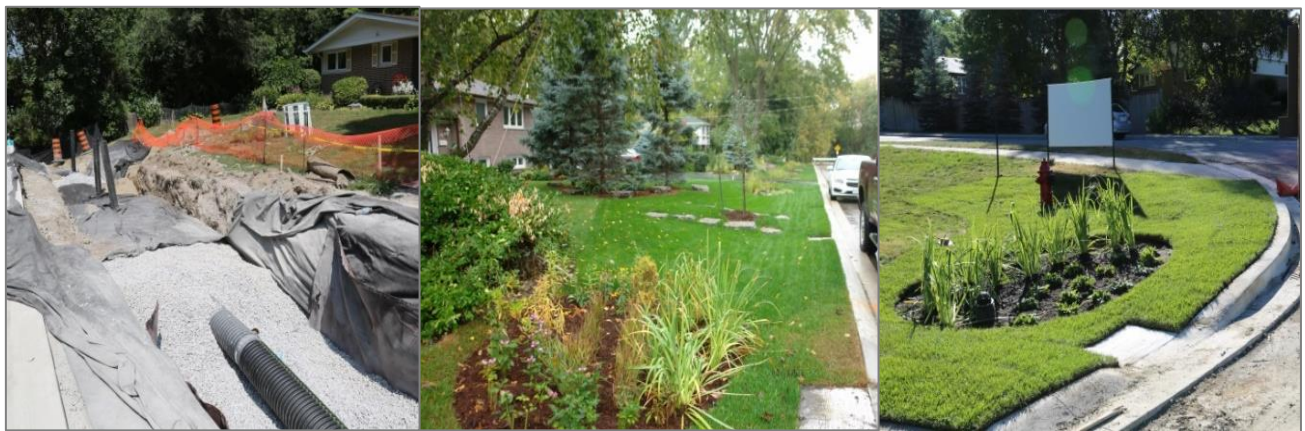
MOECC has developed a partnership with LSRCA to complete an environmental flow assessment for two creeks within the Lake Simcoe watershed, Lover's Creek, for which this assessment has been completed, and the East Holland River, which is underway. These projects arose directly from the Lake Simcoe Protection Plan, which required the development of flow targets for water quantity stressed subwatersheds, as well as from subwatershed plan recommendations regarding the potential impacts of land use change to the many types of flow needed to maintain ecological function within a watercourse, including baseflow, subsistence flow, high pulse flow, channel forming flow, and riparian flow. By completing this project we are able to better understand the relationship between land use change and flows to the creeks within the watershed as well as better equip our planning department with real world evidence that supports Low Impact Development projects. The effects of land use changes highlighted through this project include increasing levels of all components of the flow regime, from baseflow to storm flows; more frequent and higher pulse flows, with a shortened rise to peak flow, corresponding with storm events; and increasing magnitude and duration of large flows. These effects are expected to increase with continued land use change.

The changes to the flow regime resulting from land use change have been, and will increasingly be, affected by climate change, where storms are becoming much more intense (a storm which, before settlement, would have been considered a 100-year storm has now become the 10-20 year storm); highlighting the need for a new approach to managing precipitation in both urban and rural areas in order to reduce the volume of precipitation runoff and sustain more natural flows in local watercourses. In urban areas, implementation of Low Impact Development and increasing green infrastructure will be key to meeting this goal, and in rural areas solutions include capturing and reusing tile drainage and increasing forest cover.

Low Impact Development Implementation





The LSRCA continues to work with its partners to implement LID around the watershed. It partnered with municipalities to complete eight low impact development projects (including, but not limited to, projects at the civic centre in East Gwillimbury, the Aurora Community Centre in the Town of Aurora, Coultice Park in the Town of Whitchurch-Stouffville, and Forest Glen in Newmarket, which is further discussed below). LSRCA also completed construction of a new parking lot with a number of LID features. In addition to contributing to recommendations related to water quantity and quality within the subwatershed plans, these projects raise awareness of LID within the community.

By way of example, the Forest Glen Project was intended to mitigate frequent flooding along Western Creek, a tributary of the East Holland River, in an established area of Newmarket. The project featured significant community involvement, and included the installation of a bioswale/filter system, which was comprised of raingardens integrated within the bioswale features in front of each of the residences; and subsurface drainage layers (including a layer of red sand) integrated as two linear conveyance features along each side of the roadway will enhance the filtering of stormwater runoff through the neighbourhood area draining through the LID system thus improve water quality. In summary, this LID retrofit will enhance conveyance capacity, provide stormwater volume reduction, and improve water quality, particularly with respect to phosphorus and total suspended solids.















Forest Glen project construction and LID features (Photo credit: LSRCA)

Summary of Progress














2016 Subwatershed Plan Theme Areas	Number of activities which are ...			
	 Complete	 On target for completion	 Not on target for completion	 Past due
Governance of implementation plans		2		
Increasing use of Low Impact Development Solutions (LID)	2	5		
Improving construction and road development practices	1	3	1	
Natural channel design			5	
Planning, development and enforcement processes	1	4	2	
Improving property management		3		
Reducing salt use	1	5		
Aquatic and terrestrial ecosystem restoration		3	1	
Urban stormwater retrofits		1		
Protecting and restoring natural heritage features through stewardship	1		1	
Prioritizing stewardship projects	2	1		
Preserving water quantity	1	5		
Dealing with dust and atmospheric deposition			1	
Promoting stewardship to increase uptake	1	7		
Improving the reporting of monitoring data		4		
Improving data collection		1		
Assessing stewardship effectiveness		3		
Overall Progress – 2016	10	47	11	0











The details are included in the tables below.

Activity	Lead	Year 4 2016	Comments
Governance of Implementation Plans			
Host periodic meetings of the implementation working group*	LSRCA		
Share annual reports with partners*	LSRCA		
Increasing use of Low Impact Development Solutions (LID)			
Develop LID funding strategy	LSRCA		
Develop stewardship funding categories for LID projects	LSRCA		
Develop information and educational materials for landowners detailing how they can promote infiltration and reduce the volume of stormwater runoff on their own properties	LSRCA		
Pursue LID through redevelopment*	Municipalities		
Incorporate LID in stormwater master plans	Municipalities		
Continue to hold design charrettes to engage developers in including LID in plans of subdivision	LSRCA		
Adopt model site alteration by-law developed by LSRCA Stormwater Management Policy Working Group	LSRCA and Municipalities		
Improving construction and road development practices			
Review practices in use in Lake Simcoe watershed, and elsewhere, in addressing common barriers to managing erosion and sediment control programs	LSRCA		
Develop funding model to support appropriate erosion and sediment control practices	LSRCA		
Provide training for sediment and erosion control inspectors*	LSRCA		
Monitor and report on implementation of sediment and erosion control best practices on an annual basis	Municipalities		Further work required by LSRCA to assist municipalities in reporting
Include assessment of providing barrier-free connectivity for wildlife in municipal infrastructure EAs*	Municipalities		
Natural channel design			
Establish a pilot project to focus efforts on modifying a municipal drain to promote ecological function.	LSRCA		On hold to focus on other priorities

Activity	Lead	Year 4 2016	Comments
Promote use of features such as grassed buffers, two stage channels, or weirs on headwater wetlands to manage drains, while minimizing impacts on agricultural drainage	LSRCA		On hold to focus on other priorities
Update LSRCA watercourse layer to identify which watercourses are free-flowing and which are enclosed	LSRCA		On hold to explore in 2017.
Review drainage reports and notes from initial land surveys to estimate which drains are natural watercourses and which have either been extended or created	LSRCA		On hold to explore in 2017.
Host workshop for conservation authority staff, farm community, drainage superintendents, and drainage contractors on managing ecosystem function in municipal drains	LSRCA		On hold to focus on other priorities
Planning, development and enforcement processes			
Develop a natural heritage mitigation policy	LSRCA		
Develop approvals for the Lake Simcoe Phosphorus Offsetting Program pilot project	MOECC and LSRCA		
Make Tier 2 water budget model available for use, with protocol for model revisions based on detailed aggregate pit monitoring data	LSRCA		
Develop a process for reviewing aggregate applications with the support of the Tier 2 integrated water model (or other model as deemed appropriate), in order to look at cumulative impacts that may result from water takings. This process may include the development of a screening tool to determine when the model is necessary.	MOECC and LSRCA		On hold to focus on other priorities.
Provide and/or participate in training session to staff from MNRF, MOECC, and proponents on the review process, and data required from proponents	LSRCA, MNRF, and MOECC		Dependent on above recommendation.
Revise ECA process for stormwater ponds in ESGRAs	MOECC and LSRCA		
Develop draft policies for consideration in municipal Official Plan updates, Secondary Plans, and Community Improvement Plans to ensure consistency with subwatershed plan recommendations	Municipalities		Ongoing as official plans are updated.
Improving property management			
Continue to collect natural heritage data in public lands*	MNRF		

Activity	Lead	Year 4 2016	Comments
Pending results of pilot study, expand use of invasive species monitoring protocol to other public lands in Durham Region	LSRCA		
Review public lands for opportunities to contribute to subwatershed health	All public agencies		
Reducing salt use			
Host Salt Management Working Group meetings	LSRCA		
Provide Smart about Salt training	LSRCA		
Evaluate effectiveness of training program in reducing application of road salt	LSRCA		
Develop map of priority areas for windbreak establishment, to manage blowing snow and dust	LSRCA and Municipalities		Work has been done by researchers at the University of Guelph; the information needs to be shared with our partner agencies.
Continue to monitor chloride*	MOECC		
Update salt management plans, as needed	Municipalities		
Aquatic and terrestrial ecosystem restoration			
Share stewardship targets with Stewardship Network	LSRCA		
Continue to implement stewardship projects	All public agencies		
Implement activities identified in Invasive Species Response Plans	MNRF		
Continue to provide information on invasive species to nurseries in the Lake Simcoe watershed	MNRF		
Urban stormwater retrofits			
Review operations to reduce phosphorus loading in uncontrolled areas	Municipalities		
Protecting and restoring natural heritage features			
Review results of grassland bird conservation studies and other relevant studies being conducted by MNRF, Bird Studies Canada, OFA, and their partners	LSRCA		

Activity	Lead	Year 4 2016	Comments
Develop and/or compile information on reducing impacts of human activities on urban natural areas	LSRCA		Reviewing an alternative strategy
Prioritizing stewardship projects			
Share stewardship prioritization mapping with members of the Lake Simcoe Stewardship Network	LSRCA		
Establish short- and long-term stewardship targets based on priority issues identified in subwatershed plans.	LSRCA		
Review existing funding programs, to ensure that stewardship funds are provided in locations, and for project types, where maximum benefit can be achieved	LSRCA, MNRF and OMAFRA		
Preserving water quantity			
Provide ESGRA maps and guidance to municipalities	LSRCA		
Enhance and down-scale existing regional-scale integrated water models, using modelling framework developed by MNR, to develop subwatershed-scale model	LSRCA		
After subwatershed-scale integrated water model is developed, use it in e-flow assessment	MOECC and LSRCA		
Develop in-stream flow targets for Lovers Creek	MOECC and LSRCA		
Develop strategy to achieve in-stream flow targets	MOECC and LSRCA		
After pilot in-stream flow assessment and strategy completed, apply to other stressed tributaries in the Lake Simcoe watershed	MOECC and LSRCA		
Use in-stream flow targets in PTTW decisions in the Lovers Creek subwatershed	MOECC	N/A	Results have indicated that water takings are not a stressor in Lovers Creek
Dealing with dust and atmospheric deposition			
Develop an 'action plan' to reduce atmospheric deposition associated with municipal, aggregate, and agricultural operations	MOECC		
Promoting stewardship to increase uptake			
Develop online communication strategy	LSRCA		
Continue to release watershed newsletters*	LSRCA		

Activity	Lead	Year 4 2016	Comments
Maintain website, to ensure information remains current*	LSRCA		
Expand LSRCA website to provide information on range of stewardship funding programs available in the Lake Simcoe watershed, with contact information	LSRCA		
Continue to showcase stewardship projects*	LSRCA and Municipalities		
Engage community groups active in local subwatersheds*	LSRCA		
Revise communication tools to address identified barriers to stewardship participation	LSRCA		
Submit notices and articles to newsletters of local residents associations, on issues related to subwatershed management, and opportunities to participate in stewardship programs*	LSRCA		
Improving the reporting of monitoring data			
Establish and maintain an on-line library of reports and scientific studies on Lake Simcoe and its watershed	LSRCA		
Develop web portal for KPI reporting	LSRCA		
Analyse and report on Key Performance Indicators of watershed health*	LSRCA		
Implement enhanced monitoring program, as necessary to report on Key Performance Indicators	LSRCA		
Improving data collection			
Review monitoring data and monitoring program to enable further assessment of emerging trends in watershed health*	MOECC and LSRCA		
Assessing stewardship effectiveness			
Conduct literature review of factors related to stewardship behaviour of private land owners**	LSRCA		
Monitor and determine barriers to uptake of stewardship programs, and successful examples**	LSRCA		
Refine stewardship prioritization tools based on research on barriers to stewardship participation	LSRCA		

* Annual ongoing works

** Pilot complete with respect to stormwater management on private properties