



Understanding the Action Plan

Lake Ontario is a vital natural resource and its shore teems with life. More than 60 per cent of the known species in Credit Valley Conservation's (CVC) jurisdiction can be found within two kilometres of the shoreline. The shoreline is an important resource for the millions of people who live, work, play and learn on or near it. Years of industrial and urban development have altered sections of the shoreline. Impacts include habitat loss, invasive species, poor water quality and disruptions to surface and ground water.

Living by the Lake: An Action Plan to Restore the Mississauga Shoreline, represents the final chapter in the Lake Ontario Integrated Shoreline Strategy (LOISS). It lays out recommendations to conserve, enhance and restore the health of the Mississauga shoreline and to direct and coordinate our collective efforts based on the best available science. It builds on existing partnerships with stakeholders to take on conservation actions collaboratively. This includes CVC, the City of Mississauga, the Region of Peel, the Governments of Ontario and Canada, ratepayer groups, non-governmental associations and academia. Recommendations dovetail with the work of our municipal, regional and community partners and integrate with broader Great Lakes initiatives and shoreline plans.

The Action Plan has a 20-year outlook (2019-2039). This acknowledges the time required to plan, initiate and complete many of the proposed large-scale and complex shoreline restoration projects. It also acknowledges the predicted long-term impacts of climate change to the shoreline.

Protecting and restoring this critical ecosystem is in our collective interest and will require people, organizations and all levels of government to work together.

Lake Ontario Integrated Shoreline Strategy (LOISS)

The Action Plan is based on our study of the Mississauga shoreline known as the Lake Ontario Integrated Shoreline Strategy (LOISS). LOISS was initiated to provide clear guidance on the steps needed to protect and enhance the shoreline ecosystem for the future. Through a multidisciplinary lens, it took a scientifically-based ecosystem approach, looking at the major factors effecting the natural environment along the shoreline.

As we learned more about the shoreline, we shared this knowledge with residents and community associations to raise awareness about the impacts of people on the shore and opportunities for improvement. Guidance and input was provided by local, provincial and federal agencies. We worked with a steering committee of municipal and agency partners from 2011 to 2016 with the long-term vision of:

A revitalized shoreline that maximizes access for people, while maintaining and restoring healthy aquatic and terrestrial habitat features and functions.

Timeline - Lake Ontario Integrated Shoreline Strategy (LOISS):

2011 - Background Review and Data Gap Analysis:

What we know and what we need to investigate further

2018 - Shoreline Characterization:

Reporting on key findings on the state of the Mississauga shoreline

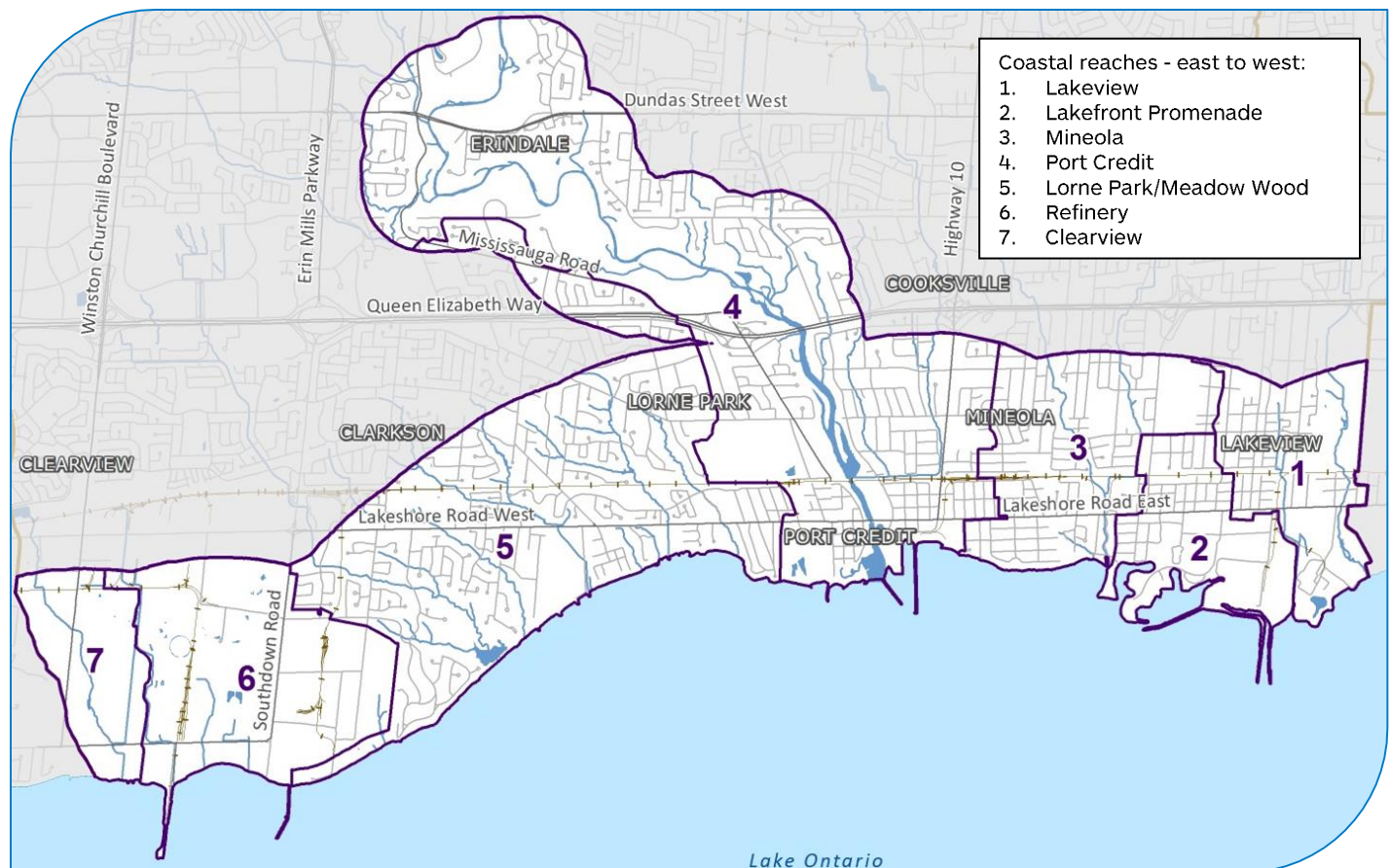
2019 - Living by the Lake: Action Plan

Recommended conservation actions

2019 - Ongoing Implementation and Monitoring

LOISS Study Area

LOISS assessed the stretch of the Lake Ontario shoreline within CVC's jurisdiction, which aligns very closely with the City of Mississauga's boundaries. The study area included the shoreline, two kilometres inland, five kilometres up the Credit River and finally, the nearshore zone (off the shoreline to 20 m depth). We divided the study area into seven coastal reaches, each with its own characteristics, environmental stressors and recommended conservation actions.



In addition to multidisciplinary shoreline research, LOISS was informed by landscape-level habitat enhancement opportunities identified in the Credit River Watershed Natural Heritage System (CRWNHS), the Integrated Watershed Restoration Strategy (IWRS) and the Mississauga Landscape Scale Analysis (LSA). It was also informed by existing plans and partnerships with the City, current landowners, and consultation with other shoreline stakeholders. The combined research and analysis are documented in the LOISS Characterization Report, which paints a comprehensive picture of current environmental conditions along the shoreline, highlighting environmental stressors and opportunities for improvement. Findings in the Characterization Report inform the recommended conservation actions found in the Action Plan.

Conservation Actions

The Action Plan identifies the major environmental stressors to the shoreline and Lake Ontario tributaries:

- **Land use changes** - resulting in habitat loss and reduced habitat quality
- **Stormwater runoff** - resulting in poor water quality and changes to water quantity
- **Climate change** - resulting in widespread changes in ecosystem features and functions
- **Invasive species** - resulting in changes in species dynamics

Conservation actions are steps we can take to address environmental stressors to reduce their impact and effects on people and ecosystems. They take a variety of forms, including reestablishing native plant communities, managing invasive species or enhancing a property to provide supporting functions to nearby natural areas. They are designed to:

- **Protect** the shoreline ecosystem from stressors to avoid impacts
- **Mitigate** against stressors to minimize impacts
- **Compensate** for stressors to offset unavoidable impacts

The Action Plan identifies key environmental stressors and appropriate conservation actions that apply both broadly across the entire LOISS study area and specifically for the seven individual shoreline reaches.

Overarching Restoration Priorities

1. Manage stormwater quality and quantity

Improved stormwater management is a priority for the LOISS study area as most of Mississauga was developed prior to storm water management controls. Action is needed to control rain where it falls through low impact development. This will reduce contaminants being carried into creeks and control the overland flow of water on streets and ultimately to creeks, reducing flooding and erosion. Improved stormwater quality controls will help us meet federal and provincial water quality targets, allow greater access to the lake for recreation and improve the source of our drinking water.

2. Improve habitat quality

The LOISS study area contains high quality habitats but is also marked with areas of poor quality that lack complexity and native food sources to best support wildlife. Conservation actions include naturalizing waterways altered by channelization, creating wetlands, mitigating the impacts of historic stonehooking that removed rocks from the bed of the lake and softening the hardened shoreline. It also means increasing forest cover and improving the diversity of native vegetation along the shoreline and creek banks to better support wildlife.

3. Manage existing habitats

Many of the natural and semi-natural areas in the study area need to be managed to ensure their resiliency. Invasive species, like common carp, emerald ash borer and garlic mustard compromise native species and are one of the biggest threats to our existing habitats. Other activities include managing forests and woodlots for forest health, conserving critical beach areas, and conserving and enhancing bluff habitats.

4. Connect habitat

Wildlife can't thrive in isolated patches of green space. They depend on connected natural areas. Conservation actions include creating and maintaining east-west habitat connections, natural spaces along the shoreline and doing the same between upper reaches of the Credit River Watershed and the lake (north-south connections). This also includes connecting our waterways, such as reconnecting tributaries to floodplains and improving fish passage from the lake into local creeks.

5. Outreach, communications, and education

Given the extent of private ownership and use of the waterfront by the public, working with residents and businesses is critical to making meaningful change to the shoreline environment. The Action Plan recommends a range of outreach and educational efforts such as encouraging property owners to improve habitats (e.g. use of native plants for landscaping that support migrating species) and manage rainwater where it falls on their own properties through low impact development. It also includes efforts to guide corporate stewardship and sustainability activities. Existing outreach initiatives, such as CVC's Naturescaping, Greening Corporate Grounds, Your Green Yard and Frontline programs, have shown positive and far reaching results in fostering connections between people and the environment.

Reach-by-Reach Restoration Priorities

Shoreline Reach	Most pressing need based on detailed characterization of shoreline reach
1 Lakeview	Connect Habitat
2 Lakefront Promenade	Improve Habitat
3 Mineola	Manage Stormwater Quantity and Quality
4 Port Credit	Manage Stormwater Quantity and Quality
5 Lorne Park / Meadowwood	Manage Stormwater Quantity and Quality
6 Refinery	Improve Habitat
7 Clearview	Manage Stormwater Quantity and Quality

Taking Action

Interagency Committee

The Action Plan recommends the establishment of an interagency committee to drive implementation with representatives from CVC, the City of Mississauga, Region of Peel, Government of Ontario, Government of Canada, academic institutions, local ratepayer associations and non-governmental organizations. The Committee will be chaired by CVC and will meet annually to develop a workplan and coordinate activities.

Mechanisms of Action

The committee can leverage a variety of tools to achieve the conservation actions needed to restore the Mississauga shoreline. These include:

1. **Land use planning and policies:** Through legislation and policy related to land use change and development.
2. **Public land management:** Through public land agreements, management and operations.
3. **Environmental management:** Through existing restoration programs including forest management, invasive species removals, aquatic and wetland restoration, terrestrial restoration and green infrastructure.
4. **Inventory, monitoring and research:** Through established monitoring, inventory and research programs, and by partnering with leaders in academia.
5. **Outreach and education:** Through established and expanded outreach and education programs.
6. **Community action:** Through partnerships with ratepayer groups, special interest groups and other community associations.

Measuring Success

Progress reports at five-year intervals will be used to report successes back to the interagency committee and all the agencies with a stake in the shoreline. These reports will summarize efforts, accomplishments and new findings.

More Information

We encourage readers to review the full Action Plan and its background documentation. All recommended conservation actions are grounded in a detailed analysis of the shoreline found in the LOISS Characterization Report and LOISS Background Review and Data Gap Analysis. We encourage readers to explore these documents and the scientific background and rationale for recommendations as we work together in fulfilling them. Please visit cvc.ca/LivingByTheLake for more information.