



MARCH 2021 | WINTER UPDATE

WATERSHED PLANNING & ECOSYSTEM SCIENCE

The scientific data collection, research and planning activities of the Watershed Planning and Ecosystem Science (WPES) business unit informs management decisions affecting the natural areas and watercourses within Toronto and region. The following WPES internal newsletter reports on work underway from September 2020 to present.

GOOD NEWS STORIES

- Completed the draft [Watershed and Ecosystems Reporting Hub](#) - launch April 22, 2021! We have circulated it to our municipal and research partners for review in advance of the 2021 Earth Day (April 22) launch. Over 30 TRCA staff contributed to its development!
- Hosted two virtual Open Houses for the draft Carruthers Creek Watershed Plan in early February, with 134 individuals in attendance. The public comment period closes March 19, 2021 after which we will work with Durham Region and other municipal partners to finalize the watershed plan.
- [Interviewed with the Weather Network](#) about winter water quality sampling and concerning chloride trends.
- Published The Meadoway: Vegetation, Bird and Butterfly Monitoring 2016, 2018-2020 report.
- Received a \$30,000 funding commitment from Durham Region to complete a region-wide Natural Heritage Vulnerability Assessment in partnership with the other four Durham conservation authorities.
- Analyzed data from various [Toronto Waterfront Aquatic Habitat Restoration Strategy \(TWAHRS\) projects](#) to ensure that waterfront revitalization incorporates the best management practices moving forward.
- Completed development of TRCA's updated and integrated target Natural Heritage System using the existing and new data on terrestrial and aquatic ecosystems and broader landscape.
- Received a new electrofishing vessel Night Heron III - built with modernized equipment and features, including a modified V hull to better handle water conditions on Lake Ontario and an updated electrofishing control box.

MONITORING & EVALUATION

- Preparing for the aquatic monitoring sampling season. The plan is to sample 49 RWMP sites for fish habitat and communities and 150 sites for benthos, as well as install 38 water temperature loggers.
- Continuing to collect monthly surface water quality samples at 47 sites. Water quality samples are collected at TRCA properties as well as some that are part of the Provincial Water Quality Monitoring Network.
- Maintained and checked water levels at 22 groundwater wells and collected water quality samples at 16 of these wells. This year-round monitoring is done in support of the Provincial Water Quality Network.
- Sampled 60 transects during the fall night electrofishing surveys. We caught a variety of fish including Northern Pike, Bowfin, and Longnose Gar.
- Completed environmental compliance monitoring and reporting for several projects including the Cherry Street Lakefill (part of the Don Mouth Naturalization Project), Ashbridge's Bay Landform project, and Fishleigh Drive erosion control project.
- Completed annual survey for Asian carps on behalf of Fisheries and Oceans Canada. Good news! We did not find any of the four invasive Asian carp species. This is the fourth year that TRCA has helped with proactive surveillance for these invasive fish.
- Planning to fill additional data gaps in the Humber River watershed in preparation for a future watershed plan update.



- Prepared to start the urban forest field season to collect data for the York Region Forest Studies.
- Worked with the Integrated Restoration section on the monitoring and reporting of seven habitat restoration projects. Further monitoring data will be collected at additional restoration projects in 2021.
- Continued fall and winter survey of salamander overwintering habitat using ground penetrating radar technology to complement habitat connectivity studies. The results will inform natural heritage conservation and road impact mitigation efforts.



PLANNING & RESEARCH

- Developed a Historical Watercourses report that refines watercourse data layers within the City of Toronto to identify lost or buried features. As part of this research, linkages between buried streams and municipal infrastructure (i.e. stormwater) were examined to improve urban watershed management.
- Working with our municipal partners, conservation authorities and the province to better understand how to identify and delineate the vague Significant Surface Water Contribution Areas component of the Water Resource System described in the [Growth Plan for the Greater Golden Horseshoe](#). Having secured appropriate direction, a draft data layer has now been completed for the jurisdiction.
- Provided science-based input to various planning processes, including Municipal Comprehensive Review, GTA West EA, and other municipal initiatives related to natural heritage and water resource systems.
- Continued to work closely with Planning Policy and Business Intelligence & Data Analytics to develop a dashboard on the status of Municipal Comprehensive Reviews and TRCA's input into these processes. A draft dashboard has been developed and will launch for internal use in the coming weeks.
- Contributed to a nomination of Durham Region for a Canadian Association of Municipal Administrators award for its outstanding environmental leadership in climate change adaptation.
- Completed development of TRCA's Invasive Species Management Strategy (2020) and the prioritization framework (2021) in partnership with Restoration and Infrastructure Division. Engaged more than 15 stakeholder organizations in development of the prioritization framework.
- Completed development of a comprehensive TRCA wetland layer that incorporates data and information from air-photos, field surveys, provincial data, and planning files.
- Completed development of TRCA Water Resource System using the best available knowledge.
- Completed one applied research partnership and initiated two additional partnerships with University of Toronto supported partially through grants secured from Mitacs Inc. These applied research projects helped develop an invasive species prioritization framework, assess TRCA habitat health, and quantify restoration benefits using remote sensing methods.
- Analyzing current monitoring data collected at wetlands created 10 years ago to determine what species are now present and to gain further insight into how various management techniques can enhance biodiversity in the future.
- Integrated costing into the LID Treatment Train Tool, with the update nearly ready for peer review.

PROJECTS & STUDIES

- Drafted a technical report for the York Region Canopy Cover Assessment and presented the results to the Region, local municipalities, and First Nations.
- Continue to manage the Durham Roads Vulnerability Assessment project.
- Worked with the Engineering Projects section in order to support the monitoring and permitting process associated with 17 slope stability and erosion stabilization projects. An additional 17 projects are being planned for 2021.
- Completed three key analyses and prepared technical reports to characterize the terrestrial and aquatic ecosystem, as well as urban forest, to support the development of the Etobicoke Creek Watershed Plan.
- Continued to work with Environment and Climate Change Canada on a climate visualizations project.
- Kicked off a York Region Green Infrastructure Ecosystem Services Valuation Project.
- Produced a report discussing 2018-2019 monitoring of forest vegetation and birds at three sites in the Mimico Creek watershed. This data was collected to support a Geomorphic Study of Mimico Creek being undertaken by the City of Toronto and TRCA.
- Commented on Peel Region's Scoped Subwatershed Study in support of its Settlement Area Boundary Expansion and broader Municipal Comprehensive Review. Through this process, we have strongly advocated for the use of TRCA's natural heritage, water resource system, and natural hazard data.



KNOWLEDGE SHARING & MOBILIZATION

- Submitted the Watershed Synthesis Report (first technical report in a series) to York Region in support of its Municipal Comprehensive Review. This report consolidates TRCA and Lake Simcoe Conservation watershed mapping and recommendations to inform land use and infrastructure policy direction for York Region's Official Plan update and ongoing environmental work.
- Hosted a workshop on Green Infrastructure Asset Management at the Asset Management Ontario Conference.
- Presented at a STEP webinar on calculating the co-benefits of green infrastructure.
- Shared the 5-year accomplishments of the Natural Environment Climate Change Collaborative (NECCC) through a well-attended webinar. The NECCC is a group focused on implementing Durham's Community Climate Adaptation Plan.
- Presented TRCA work at various conferences including Ontario Invasive Plant Council, Applied Ecology Resources, Lake Ontario Evening.
- Hosted nine Lunch and Learn webinars for internal staff since September 2020 (with a total of over 500 attendees) on the following topics:
 - Erosion Risk Management
 - Explore TRCA's Biodiversity
 - Green Infrastructure Asset Management Planning
 - Latest Floodplain Mapping Updates
 - LID Treatment Train Tool
 - Meadoway Research
 - Waterfront Aquatic Habitat Restoration
 - Watersheds and Ecosystems Reporting App
 - Working with Indigenous Communities
- Presented at the October 2020 Lake Ontario Evening on the history and current status of aquatic habitat and restoration efforts along the Toronto and Region Waterfront.
- Collaborated with Education and Community Engagement to promote our work and knowledge through their Facebook Live - At Home with Nature video series:
 - Asian carp surveillance (1.3 views)
 - Bats of the Toronto Region (893 views)
 - Jefferson forest (8.4K views)
 - Night electrofishing surveys (2.4 views)
 - Wetland basics (783 views)
- Produced two additional videos - a Species Spotlight video on the Barred Owl (203 views) and one for the Virtual Salmon Festival at Highland Creek (12.3 K views).
- Circulated the Fall 2020 edition of the Monitoring Matters e-newsletter to almost 450 subscribers. This edition highlighted the Highland Creek Watershed Greening Strategy, bat monitoring activities, new electrofishing vessel Night Heron III, Lake Ontario Evening presentations, current reports, open data and videos.
- Collaborating with Education and Community Engagement on new modules for the Peel Water Story, specifically with regard to benthos communities as well as providing an updated surface water quality video.
- Published two blog articles:
 - Fantastic Field Finds of 2020 describes biodiversity records from the terrestrial monitoring team.
 - Breaking Ground with Bat Monitoring describes how we have been collecting sound recordings over the last three years in order to expand our knowledge of where regional bat species are foraging and breeding.