

# Focus on water

Science helps us to build a strong business case in southern Ontario for investing in wetland restoration that complements the water-management role of built infrastructure in our communities.

## Do wetlands improve water quality in working landscapes?

In southwestern Ontario, we are looking to wetland restoration to help improve water quality in agricultural watersheds. Research is underway north of Lake Erie examining the extent to which small, restored wetlands capture nutrients (e.g., phosphorus) before they move downstream to raise the risk of algal blooms in rivers and lakes.

Early findings show that restored wetlands act as “phosphorus sinks”, capturing the most worrisome form of phosphorus — called soluble reactive phosphorus — at a 59 per cent reduction efficiency through all four seasons of the study year. Notably, three of the wetlands performed extremely well at 93 per cent, 96 per cent and 99 per cent efficiency.

The second year of data collection will complete in September 2021. Already, the research has informed our standard general principles for small wetland design in Ontario, which now include an option for a “sediment capture basin” when there is significant surface-water flow into the wetland. The feature will capture sediment before it enters the wetland, removing nutrients while protecting the health and longevity of the habitat for waterfowl and other wildlife.

*This research is led by DUC's Institute for Wetland and Waterfowl Research and has received support from Environment and Climate Change Canada, Ontario Ministry of Natural Resources and Forestry, and the St. Clair Region Conservation Authority. We are grateful to the wetland landowners for their ongoing cooperation.*



**Learn more: The Power of Small Wetlands for Clean Water**

[ducks.ca/stories/policy/the-power-of-small-wetlands-for-clean-water](https://ducks.ca/stories/policy/the-power-of-small-wetlands-for-clean-water)

A report of the first year of study was presented in February 2020 at the St. Clair Region Conservation Authority offices.

## How can we leverage wetland restoration to reduce flood risk?

We commissioned a study with Emmons and Olivier Resources to explore how wetlands are currently integrated into flood management in southern Ontario communities. We discovered a growing awareness of the benefits of wetlands in water-control management among, for example, public sector and water-management experts. We also confirmed that the natural flood-management services of wetlands are a cost-effective complement to traditional infrastructure built to protect communities from floods.

Our interest in this area lies in understanding what is needed to remove the barriers that prevent deeper integration of wetland conservation into flood management plans. We see an increased need to better understand and communicate the benefits of wetland habitats beyond their value for waterfowl, so that we continually maintain support for wetland conservation.

*This research was supported by Ontario Trillium Foundation.*



**Learn more: Natural Infrastructure for a Climate-ready Ontario**

[ducks.ca/stories/policy/natural-infrastructure-for-a-climate-ready-ontario](https://ducks.ca/stories/policy/natural-infrastructure-for-a-climate-ready-ontario)



*In 2019, Sarah French and Danny McIsaac sampled aquatic invertebrates three times at the 28 wetlands.*

## Do small wetlands support aquatic invertebrates?

Visiting scientist Sarah French is an aquatic ecologist completing post-doctoral research in southern Ontario that explores to what degree restored, or created, wetlands are impacted by surrounding land uses, specifically by pesticides, and whether they support aquatic invertebrates which are important food sources for waterfowl.

The field work took place at 28 open-water wetlands in the summer of 2019. Identification and analysis of invertebrates, insects and fish are anticipated to wrap up in early 2021. Results thus far indicate that the wetlands host diverse food webs and Dr. French looks forward to sharing results about the wetlands with the landowner partners.

*This research is led by the University of Waterloo and DUC's Institute for Wetland and Waterfowl Research and supported by a Mitacs Elevate Postdoctoral Fellowship. We are grateful for the ongoing cooperation of the wetland landowners.*



*A presentation about wetlands and flood management at the Town of Innisfil in January 2020 was featured in local news. Pictured are Sean Rootham, DUC conservation specialist, with Mayor Lynn Dollin (right) and Barrie-Innisfil MPP Andrea Khanjin (left).*

