

Metadata/ Métadonnées: STREAM NEONICOTINOID/ÉTUDE DE SUIVI DES NÉONICOTINOÏDES DANS LES RUISSEAUX

Title	STREAM NEONICOTINOID MONITORING STUDY / ÉTUDE DE SUIVI DES NÉONICOTINOÏDES DANS LES RUISSEAUX
Alternate Title	Multi-Media Monitoring Study / Étude de surveillance multimédia
Abstract	<p>French text follows English / Le texte français suit l'anglais</p> <p>*****</p> <p>English</p> <p>The Ministry of the Environment, Conservation and Parks (MECP) initiated the Multi-Media Monitoring Study in 2015 to measure changes in neonicotinoid insecticide concentrations in stream water and soil following restrictions on the use of neonicotinoid-treated corn and soybean seeds. The study is also measuring changes in aquatic benthic invertebrate communities. This dataset contains measurements of neonicotinoid insecticide concentrations in streamwater samples collected from streams in southern Ontario watersheds with primarily agricultural land use between 2015–2019. The data can be used to characterize neonicotinoid concentrations in streams at the study sites and to explore how stream neonicotinoid concentrations vary with season, between grab samples and wet weather event samples, and among watersheds. Data from soil and benthic invertebrates are presented separately.</p> <p>*****</p> <p>Français</p> <p>En 2015, le ministère de l'Environnement, de la Protection de la nature et des Parcs (MEPP) a entrepris une Étude de surveillance multimédia afin de mesurer les changements dans les concentrations d'insecticides néonicotinoïdes dans l'eau des ruisseaux et dans le sol à la suite des restrictions visant l'utilisation des semences de maïs et de soja traitées aux néonicotinoïdes. L'étude consistait également à mesurer les changements survenus dans les communautés d'invertébrés aquatiques benthiques. Ce jeu de données contient des mesures des concentrations d'insecticides néonicotinoïdes dans les échantillons d'eau recueillis dans les ruisseaux de bassins versants du sud de l'Ontario dont les terres sont principalement utilisées à des fins agricoles, entre 2015 et 2019. Les données peuvent servir à caractériser les concentrations de néonicotinoïdes dans les ruisseaux sur les sites de l'étude. Elles peuvent également permettre d'explorer les variations de concentrations de néonicotinoïdes selon la saison (échantillons instantanés et échantillons prélevés par temps humide) et d'un bassin versant à l'autre. Les données sur le sol et sur les invertébrés benthiques sont présentées séparément.</p>
Purpose	<p>*****</p> <p>English</p> <p>This dataset contains measurements of neonicotinoid insecticide concentrations in streamwater samples collected from five agricultural streams in southern Ontario between 2015–2019.</p> <p>*****</p> <p>Français</p> <p>Ce jeu de données contient des mesures des concentrations d'insecticides néonicotinoïdes dans les échantillons d'eau recueillis dans cinq ruisseaux en milieu agricole du sud de l'Ontario entre 2015 et 2019.</p>
Status	<p>Study completed</p> <p>Étude réalisée</p>

Cited Responsible Parties	*****
	English
	Name: Melanie Raby Voice: (416) 235-6533 Email: melanie.raby@ontario.ca Organisation: Ontario Ministry of the Environment, Conservation and Parks Position: Senior Surface Water Scientist, Groundwater and Stream Water Monitoring Unit, Water Monitoring Section, Environmental Monitoring and Reporting Branch Role: Custodian
	Name: Georgina Kaltenecker Voice: 1 (800) 855-0511 then (416) 235-6162 Email: georgina.kaltenecker@ontario.ca Organization: Ontario Ministry of the Environment, Conservation and Parks Position: Group Lead, Groundwater and Stream Water Monitoring Unit, Water Monitoring Section, Environmental Monitoring and Reporting Branch Role: Custodian

Français	
Nom : Melanie Raby Téléphone : 416 235-6533 Courriel : melanie.raby@ontario.ca Organisme : Ministère de l'Environnement, de la Protection de la nature et des Parcs Poste : Scientifique chevronnée, eau de surface, Unité de surveillance des eaux souterraines et des eaux de ruisseau, Section de la surveillance de la qualité de l'eau, Direction de la surveillance environnementale Fonction : Conservatrice	
Nom : Georgina Kaltenecker Téléphone : 1 800 855-0511 et 416 235-6162 Courriel : georgina.kaltenecker@ontario.ca Organisme : Ministère de l'Environnement, de la Protection de la nature et des Parcs Poste : Chef d'équipe, Unité de surveillance des eaux souterraines et des eaux de ruisseau, Section de la surveillance de la qualité de l'eau, Direction de la surveillance environnementale Fonction : Conservatrice	

<p>Use Limitation</p>	<p>***** English</p> <p>The results are applicable to the specific streams sampled and not to all streams or surface water in the province.</p> <p>Although high percentages of corn and soybean land use were targeted during site selection in order to focus monitoring efforts on crop types specified in the legislation, it is acknowledged that 1) there is variability in corn and soybean land use percentages among selected sites, 2) a variety of other land use types make up each watershed, and 3) crops will change from year to year. Consequently, the presence of neonicotinoids at any of these monitoring sites is not necessarily due solely to corn and soybean crop use and could in part be the result of neonicotinoid use on other crop or land use types in the watershed.</p> <p>Additional considerations: Drinking water, soil, and benthic invertebrate data for this study are available separately.</p> <p>***** Français</p> <p>Les résultats s'appliquent aux échantillons d'eau spécifiques prélevés dans les ruisseaux et non à l'ensemble des ruisseaux ou de l'eau de surface de la province.</p> <p>Même si des pourcentages élevés de terres consacrées à la culture du maïs et du soja ont été ciblés pendant le choix du site, dans le but d'axer les efforts de surveillance sur les types de culture précisés dans la législation, il est reconnu que 1) il existe des variations dans les pourcentages d'utilisation des terres pour la culture du maïs et du soja, entre les sites choisis, 2) chaque bassin versant est constitué d'une variété de terres utilisées à d'autres fins, 3) les cultures changent d'une année à l'autre. Par conséquent, la présence de néonicotinoïdes sur l'un ou l'autre de ces sites de surveillance n'est pas forcément causée par la culture du maïs et du soja et pourrait être en partie due à l'utilisation de néonicotinoïdes sur d'autres cultures ou lors de l'utilisation des terres du bassin versant à d'autres fins.</p> <p>Autres considérations : Les données sur l'eau, le sol et les invertébrés benthiques dans le cadre de cette étude sont disponibles séparément.</p>
<p>Geographic Bounds</p>	<p>***** English</p> <p>West bound: -95.15699 East bound: -74.30798 South bound: 41.6723 North bound: 56.850117</p> <p>***** Français</p> <p>Limite ouest : - 95,15699 Limite est : - 74,30798 Limite sud : 41,6723 Limite nord : 56,850117</p>
	<p>***** English</p> <p>Five Southern Ontario watersheds were included in the study: Big Creek, Little Ausable Creek, White Ash Creek, North Creek and Garvey Glenn. Each stream had one sampling site. The five sites were selected because they most closely met the following criteria: existing infrastructure (automated samplers) to support frequent sampling; high proportion of corn and soybean crop in the watershed; and represent a range of soil types.</p> <p>Grab samples were collected approximately bi-weekly from April/May to October/November.</p> <p>Sampling via automated sampler targeted approximately three wet-weather</p>

<p>Supplemental information</p>	<p>events (at five points – two on the rising limb, one at the peak, two on the receding limb – on each event’s hydrograph) at each site, though three events were not necessarily captured as all sites.</p> <p>Grab samples were collected into amber glass 1L bottles from a depth of approximately 0.3 m. Wet weather event samples were triggered remotely and collected by Teledyne ISCO Avalanche transportable refrigerated automatic samplers. Each sampler intake pipe was installed using a fixed-mount system, mounting the intake at approximately 0.3–0.4 m above the streambed. In preparation for a forecasted wet-weather event, auto samplers were programmed to start sampling once stream level rose 0.025 m above the pre-event baseflow level (stream level measurements were taken at each site by automated ISCO Bubbler Flow Module, usually at 5-minute intervals). Auto samplers were typically paced to sample at 3-hour intervals (or a longer interval if the event was expected to last several days), to maximize the number of samples taken throughout the event hydrograph. Sampling continued until the last bottle in each auto sampler had been filled. Auto samplers were typically pre-loaded with 14 1L polyethylene plastic sample bottles for sampling each event. These samples were then manually decanted from the polyethylene bottles into 1L amber glass bottles.</p> <p>Both grab samples and wet weather event samples were kept cool on ice while in transit to the laboratory, where they were kept refrigerated until analysis.</p> <p>Neonicotinoid concentrations in water were determined using MECP Method E3544 with the following analytes (method detection limits in parentheses): Acetamiprid (5 ng/L), clothianidin (5 ng/L), dinotefuran (5 ng/L), flonicamid (10 ng/L), imidacloprid (5 ng/L), nitenpyram (5 ng/L), thiacloprid (2 ng/L) and thiamethoxam (5 ng/L).</p> <p>*****</p> <p>Français</p> <p>Sampling via automated sampler targeted approximately three wet-weather events (at five points – two on the rising limb, one at the peak, two on the receding limb – on each event’s hydrograph) at each site, though three events were not necessarily captured as all sites.</p> <p>Grab samples were collected into amber glass 1L bottles from a depth of approximately 0.3 m. Wet weather event samples were triggered remotely and collected by Teledyne ISCO Avalanche transportable refrigerated automatic samplers. Each sampler intake pipe was installed using a fixed-mount system, mounting the intake at approximately 0.3–0.4 m above the streambed. In preparation for a forecasted wet-weather event, auto samplers were programmed to start sampling once stream level rose 0.025 m above the pre-event baseflow level (stream level measurements were taken at each site by automated ISCO Bubbler Flow Module, usually at 5-minute intervals). Auto samplers were typically paced to sample at 3-hour intervals (or a longer interval if the event was expected to last several days), to maximize the number of samples taken throughout the event hydrograph. Sampling continued until the last bottle in each auto sampler had been filled. Auto samplers were typically pre-loaded with 14 1L polyethylene plastic sample bottles for sampling each event. These samples were then manually decanted from the polyethylene bottles into 1L amber glass bottles.</p> <p>Both grab samples and wet weather event samples were kept cool on ice while in transit to the laboratory, where they were kept refrigerated until analysis.</p> <p>Neonicotinoid concentrations in water were determined using MECP Method E3544 with the following analytes (method detection limits in parentheses): Acetamiprid (5 ng/L), clothianidin (5 ng/L), dinotefuran (5 ng/L), flonicamid (10 ng/L), imidacloprid (5 ng/L), nitenpyram (5 ng/L), thiacloprid (2 ng/L) and thiamethoxam (5 ng/L).</p>
<p>Date Stamp</p>	