Conclusion

Surveillance information collected during the 2004 mosquito season showed a reduction in West Nile Virus activity in Peel compared to 2002 and 2003. The number of positive mosquito batches and human cases declined substantially over the last three years. However, the number of positive birds in Peel did increase from 12 in 2003 to 17 in 2004. This can be attributed to Peel continuing to submit carcasses throughout the entire 2004 WNV season. In previous years the agency that conducted the testing, the Canadian Cooperative Wildlife Health Centre, suspended submissions from a health unit when four positive birds were identified in a jurisdiction; later in the fall they would permit additional submissions.

Although approximately 40 species of mosquitoes are found in Peel only a few are important in the transmission of WNV. The vectors most responsible for the bird – mosquito amplification cycle in Peel are members of the genus *Culex*. Because of their importance, *Culex* species numbers were analysed comparing adult mosquito trap data for 2002, 2003 and 2004. The analysis of trapping results demonstrated that *Culex* mosquitoes accounted for 30% of the mosquitoes collected in 2002, 13% in 2003 and 8% in 2004. The downward trend in *Culex* mosquito activity can be partially attributed to the larviciding program undertaken in both 2003 and 2004 which was primarily directed at the reduction of *Culex* mosquitoes. Other factors that may have impacted *Culex* numbers were breeding site source reduction and weather conditions.

An analysis of the West Nile Virus infection rates in *Culex* mosquitoes was also conducted. The calculations showed that the West Nile Virus infection rates in *Culex* mosquitoes have declined in each of the past three years. When there is a lower prevalence of WNV in the mosquito population, there is a lower risk of humans contracting the disease. In 2004, Peel had no reported human cases; this can be attributed primarily to the low infection rates in Peel's mosquito population.

Analysis of the West Nile virus program data indicates that information collected from bird and mosquito surveillance is valuable in identifying the presence of the virus in a community and can serve as an "early warning system" of the risk to human health. This information can also be used to enhance mosquito reduction activities and public education.

It is appropriate that Peel's 2005 West Nile Virus Prevention Plan continues to focus on surveillance, mosquito reduction and education activities. Source reduction and larviciding should continue to focus on *Culex pipiens* and *Culex restuans* mosquitoes, the main vectors of WNV in Peel.

There are no indications that the spread of the disease has stopped. At this point it is reasonable to assume that the disease has established itself in North

America and will return to Peel at some level in 2005. How much human illness will occur in 2005 is impossible to predict given our limited experience with WNV.