Water Resource Associates

A network of consultants in hydraulics, hydrology, groundwater & environmental issues

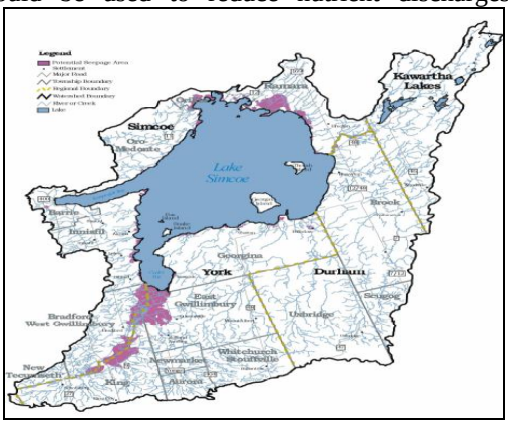
Project title: Lake Simcoe Water Quality Modelling Study

Summary: The impacts of phosphorus on Lake Simcoe have been assessed using the INCA-P model to simulate fluxes of P moving from the catchments to the Lake.

Client: Ontario Government , Canada	**Financed by:** Ontario Government
Period of assignment: 2010-11	**Location**: Canada
Project Value: £110K	**WRA services**: £45K
In co-operation with: University of Trent, Canada	

Background: Lake Simcoe Catchments Nutrient Modelling Project

WRA has been comisioned by the Ontario Ministry of the Environment to apply a new version of INCA-P for multibranched catchments to the Lake Simcoe Catchments to assess the nutrient fluxes entering Lake Simcoe and to evaluate a range of nutrient management options. Lake Simcoe is approximaely 200 km North East of Toronto and has 26 rivers or drainage systems. Five of these sub-catchments have a branched network of streams and so it has been necessary to create a new version of the INCA Model that can simulate multibranched networks. The new version of the model has been set up for the 5 branched catchments and calibrated agianst field data. The model has also been set up for the whole catchmnet plus a lake module so that a full integrated assesment of nutrient flows into the lake can be undertaken. A set of scenarios have been investigated including population increases, changed land use, fertiliser reductions, phophorus removal at STWs and Changing Atmospheric Deposition. The aim has been to idnetify management strategies that could be used to reduce nutrient discharges to the Lake.



Scope of work by Water Resource Associates Ltd Applications of the INCA P Model to assess diffuse and point source pollution in the Simcoe catchments and assess P loads under a range of management options

Results Report to University of Trent and paper submitted to Science of the Total Environment.

Modelling Phosphorus dynamics in multi-branch river systems: a study of the black river, Lake Simcoe, Ontario, Canada --Contact Paul Whitehead for further information

Project Number 315

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