

VALUING WATER QUALITY CHANGES WITHIN A WATER QUALITY LADDER FRAMEWORK

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Published January 2016

WHY DID WE DO THIS RESEARCH?

Most governments conduct environmental assessments of policy proposals like mines and pipelines. Some government agencies, like Environment Canada, are also required to assess whether proposals will make positive economic contributions. This presents a major challenge: how to convert the proposal's expected impacts on water quality into information about changes in economic values.

WHAT DID WE DO?

A multidisciplinary group of researchers at Brock University and the University of Victoria teamed up with Environment Canada staff to build a model to support the economic evaluation of proposals.

The model drew on features of Environment Canada's existing Air Quality Valuation Model and the National Sanitation Foundation's Water Quality Index used by the United States Environmental Protection Agency.

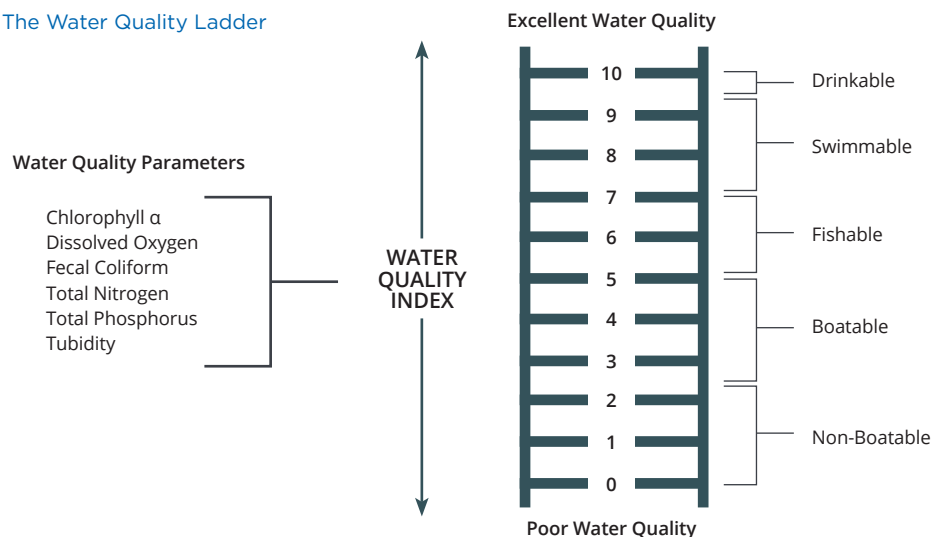


WHAT IS THE WQVM?

The Water Quality Valuation Model (WQVM) is made up of two modules:

- The Water Quality Ladder links expected changes in key water quality parameters (e.g. metals) to expected impacts on society's uses of major water bodies (e.g. fishing, swimming and drinking). For example, an increase in the concentration of a toxic substance may move water quality 'down a rung' of the ladder from drinkable to swimmable.
- The Valuation Module assigns economic values to the changes in the predicted uses of the impacted water bodies. The economic values are drawn from existing research studies on how households value changes in water quality.

The Water Quality Ladder



WHAT ARE THE IMPLICATIONS FOR DECISION MAKERS?

The WQVM enhances Environment Canada's capacity to assess the environmental and economic impacts of large-scale proposals by using the latest Canadian data on water quality and drawing on leading research on the economic value of water quality changes. The model can be easily adapted by updating the data libraries and adding additional water quality parameters.

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