

DEPOMOD: Zone of Impact Modelling for Lake Huron Cage Farms (2009/2010)

The primary project objective is to evaluate the potential of DEPOMOD as an environmental management tool for the cage culture industry in Ontario.



DEPOMOD is a dispersion model designed for marine (salt-water) aquaculture that has recently been successfully employed in the marine environment. The primary objective of the current DEPOMOD research is to allow for the adaptation and validation of the DEPOMOD model for use in freshwater environments. A valid waste dispersion modeling tool will improve risk management and facilitate objective decision-making by regulators when evaluating proposals for new operations and the continuance and expansion of existing operations.

The research is occurring over two years, with benthic and sediment sampling occurring in the summer of 2009. This field research is required to allow for comparison and adaptation of the model when known parameters such as cage production, feed data, current information and temperature profile data is entered into the software.

A secondary objective of this project is to generate data and knowledge that will be used to inform the development of sediment and environmental policy with respect to cage farms. In 2009/2010, a new collaborative approach to developing sediment and water quality policy and regulations for the industry is to be undertaken. Project data will be contributed to the deliberations of the collaborative working group.

The sampling component of the project will involve sediment and benthic sampling along 5 or 6 transects and the collection of sediment traps at two commercial rainbow trout farms each producing 400 to 500 tonnes per year. The collections will take place at a farm on Fraser Bay (Manitoulin Island) and a First Nations farm in Manitowaning Bay (Wikwemikong Unceded Indian Reserve).

Completion of this sampling program and validation of DEPOMOD for freshwater cage fish farming will provide a tool for the determination of the Zone of Maximum Accumulation (ZMA), an area that requires delineation

within the proposed regulatory sampling regime. Most importantly, this project will continue the development of environmental standards for fish farms. The development of accepted standards will assist the farms in obtaining “social license” which will allow this sector to expand to meet market demands.

The validation of DEPOMOD would allow its inclusion into the Decision Support Tool being developed as part of the Harmonized Guide process for the issuance of cage aquaculture licences and would contribute to a new period of sustainable development of the industry. The model will be used for evaluating existing and new production sites to minimize environmental impacts of cage aquaculture.