

# **A COMPARISON OF ACUTE TOXICITY OF BIODIESEL, BIODIESEL BLENDS AND DIESEL ON AQUATIC ORGANISMS**

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Master of Applied Science  
Environmental Applied Science and Management  
Ryerson University

## **ABSTRACT**

The increasing demand of alternative energy sources has created interest in biodiesel and biodiesel blends; biodiesel is promoted as a diesel substitute. Like diesel spills, biodiesel spills can have deleterious effects on aquatic environments. The effect of neat biodiesel, biodiesel blends and diesel on *O. mykiss* and *D. magna* was evaluated using acute toxicity testing. Static non-renewal bioassays of freshwater organisms containing B100, B50, B20, B5 and conventional diesel fuel were used to compare the acute effects of biodiesel to diesel. Mortality was the significant endpoint measured in this study; percent mortality and lethal concentration (LC50) at different exposure times were determined from the acute toxicity tests performed. Trials were considered valid if the controls exhibited more than 90% survival. Based on percent mortality and LC50 values, a toxicity ranking of fuels was developed. The results of the definitive tests indicated that diesel is more toxic than neat biodiesel and biodiesel blends. This approach can provide insights into the lethality of biodiesel spills in the aquatic environment.