**Predicting the effects of climate change on walleye (*Sander vitreus*) distributions in Ontario lakes**

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Climate change is expected to alter suitable thermal habitat and distributions of Ontario freshwater fishes in response to increasing water temperatures, precipitation and decreasing levels of dissolved oxygen and water clarity. Distribution shifts of freshwater fishes could then lead to novel biotic interactions and potentially alter complex food web dynamics. The objective of this study is to understand the effects of climate change on populations of walleye (*Sander vitreus*), an ecologically and commercially important freshwater fish, and predict their future distributions in 9885 Ontario lakes. Environmental characteristics including lake morphology, chemistry, geography, and occurrence of predators and prey, will be used to predict the occurrence of walleye in Ontario. Preliminary analyses suggest lake size, climate, water clarity, and presence of smallmouth bass, a predatory fish, are the most important predictors of walleye occurrence. Subsequently, I will predict how climate change may alter walleye distributions in the future, using general circulation climate models for the years 2050 and 2070. It is hypothesized that walleye distributions will undergo a northward shift as climate warming continues. Next, the potential effects that northward expanding smallmouth bass (*Micropterus dolomieu*) populations may have on walleye distributions under scenarios of climate change will be examined. Smallmouth bass are an invasive fish that predate on young walleye and compete with adult walleye. As such, I predict that smallmouth bass presence will exacerbate the northward shift of walleye. Predicting future walleye distributions under climate change and invasive species stress will allow for the development of conservation and management strategies.