

Forecasting climate-change induced effects on recreational and commercial fish populations in the Great Lakes

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Great Lakes fishery managers and stakeholders have little information regarding how climate change could affect the management and conservation of fish populations, including those of high recreational and commercial value. USGS scientists will work closely with state management agencies and the National Wildlife Federation to complete several objectives that will provide knowledge to aid their planning and management strategies in anticipation of coming changes. First, researchers will update a regional Great Lakes climate model to predict water level changes, water temperatures, and ice cover data for the entire Great Lakes basin 50-100 years into the future. Second, researchers will use satellite data to determine whether the recent climate warming has influenced the timing and magnitude of algal production in lakes Michigan and Huron. Third, they will use long-term data sets and time series models to explore how climate influences variability in fish production in lakes Michigan and Huron. These models will then be used along with future climate predictions to forecast future fish production over the next 50-100 years in these lakes. Finally, researchers will use bioenergetics modeling to explore how warmer water temperatures will influence the growth and consumption rates of several managed Great Lakes fish species.

