RESTORING THE HEALTH OF THE GREEN BAY ECOSYSTEM UNDER A CHANGING CLIMATE: MODELING LAND USE, MANAGEMENT AND FUTURE CONDITIONS

The U-M Water Center engages researchers, practitioners, policymakers, and non-profit groups with the goal of supporting, integrating, and improving current and future restoration and protection efforts.

The grants program is an important part of the Water Center's efforts to enhance restoration and protection activities by engaging exceptional multi-sector teams in advancing evaluation and assessment of restoration projects.

FOR MORE INFORMATION

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PROJECT SUMMARY

The southern end of Green Bay, Lake Michigan experiences excessive nutrient loading from the watershed, resulting in hypereutrophic waters, the accumulation of organic-rich sediments and recurring summertime hypoxia. Future climate scenarios project warmer and wetter conditions with shorter winters, reduced ice cover, increased runoff and frequency of heavy precipitation events, changes in wind speed and direction and an extended stratified period – all of which are expected to further drive hypoxic conditions in Green Bay.

Restoring water quality in Green Bay, and ultimately delisting it as a Great Lakes Area of Concern, requires a significant and sustained effort to reduce loadings, the cooperation and buy-in of the large population within the watershed and resource agencies armed with science-based predictive tools that will allow effective, adaptive management essential for restoration in the face of an uncertain future. This diverse project team will integrate existing watershed, biogeochemical and hydrodynamic models with downscaled regional climate scenarios to assess current conditions and future conditions and the efficacy of available strategies to mitigate hypoxia and restore beneficial uses.

The project will engage managers and stakeholders in water treatment, soil conservation, land use, agriculture and watershed and aquatic habitat resource management. The team will produce a Management Analysis Tool and web-based visualizations, tables, figures and other outputs that managers and stakeholders can use to visualize nutrient loading and Bay responses to climate change, land use trajectories and management and restoration actions.

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