

Mississippi River Basin / Gulf Hypoxia Initiative (MRB/GHI)
*Making Every Conservation Dollar Count for
Wildlife, Water Quality & Agriculture*

Farming for Fish & Shrimp

Midwestern states within watersheds across the Midwest and the Mississippi Alluvial Valley currently contribute the greatest nutrient load to the Gulf of Mexico hypoxic zone, an area where oxygen levels can decrease to the point of no longer supporting aquatic species—or the fishing industry that depends on them. Reducing nutrient loading from these agricultural lands may significantly address hypoxia issues at multiple scales, from harmful algal blooms in local waters to the recovering resources of the Gulf.

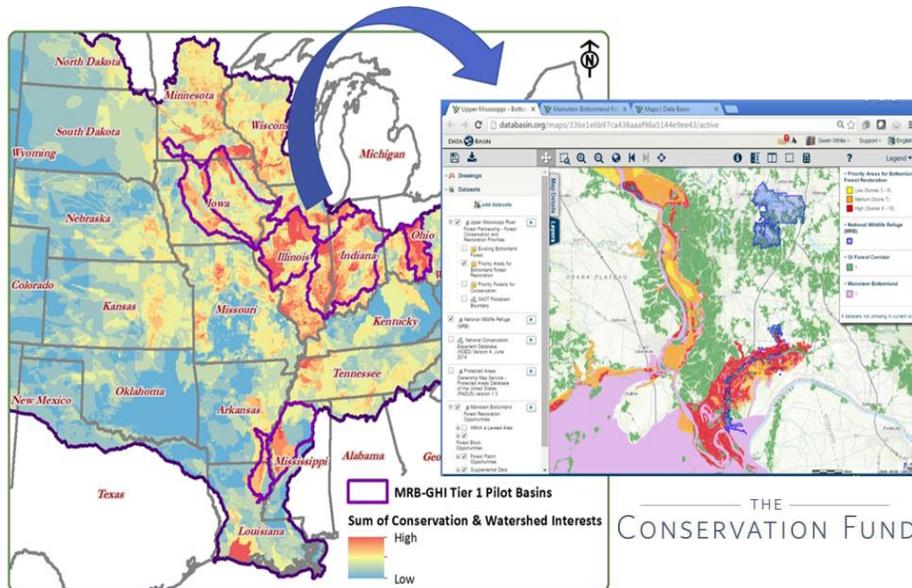
Multi-Sector Stakeholder Strategies

Modifying the design or shifting the location of conservation practices could make program dollars go farther and appeal to more land managers by producing multi-sector benefits for wildlife, water quality and agriculture.

Through a stakeholder-driven decision support process, the Mississippi River Basin / Gulf Hypoxia Initiative (GHI), led by seven Landscape Conservation Cooperatives, is developing an integrated framework consisting of: resource management objectives; a tiered set of conservation strategies within five agricultural production systems (corn and soybean, grazing lands, floodplain forest, rice, and cotton); and a Landscape Conservation Design (LCD) to align work in four ecological systems (headwater fields; upland prairies; mid-sized riparian streams; and mainstem floodplains).

Tools for Precision Conservation

Work Teams are preparing *Fact Sheets* for a dozen standardized and emerging practices that describe design, configuration, benefits, installation costs, performance metrics, relevant programs and recent research with simplified illustrations to guide



technical assistance and consideration by land managers. The teams will refine this portfolio with additional practices.

Based on this framework, The Conservation Fund developed a prototype GIS Landscape Conservation Design (LCD) to identify opportunity areas for conservation investment at the basin scale and at a higher resolution for use in the local scale pilot regions.

A recent workshop reconvened researchers and technical program managers to guide refinement and implementation of these tools. The LCCs and Climate Science Centers support research on human dimensions and ecosystem services that will inform conservation delivery and adoption. Additional scenario planning could forecast conditions for adaptation strategies that respond to ecological or economic drivers, evaluated with landscape-level metrics.

The MRB/GHI is designed to complement related ongoing efforts including the Gulf of Mexico Hypoxia Task Force, NRCS Mississippi River Basin Initiative, and state nutrient reduction strategies—but *with an emphasis on the ecological and social values of wildlife habitat* that help upstream communities connect to downstream impacts.

What To Do

The MRB/GHI is focused on two main components: what to do and where to do it. These two components form a holistic conservation framework that allows conservation managers and policy makers to identify both the types of conservation needed and the necessary placement of those conservation efforts on the landscape.

The component of “what to do” is constituted in the MRB/GHI by a set of conservation fact sheets. Currently, there are twelve of these sheets, although that number is not static. These twelve practices were identified by a set of expert working teams as those practices that, when designed

properly, carry the greatest benefits for water quality, wildlife, and agriculture. Practices range from lower floodplain reforestation to upland prescribed fire. In addition, some of the sheets concern specific, discrete technologies (e.g., two stage ditches) while other fact sheets address broader “suites” of practices (e.g., buffer strips).

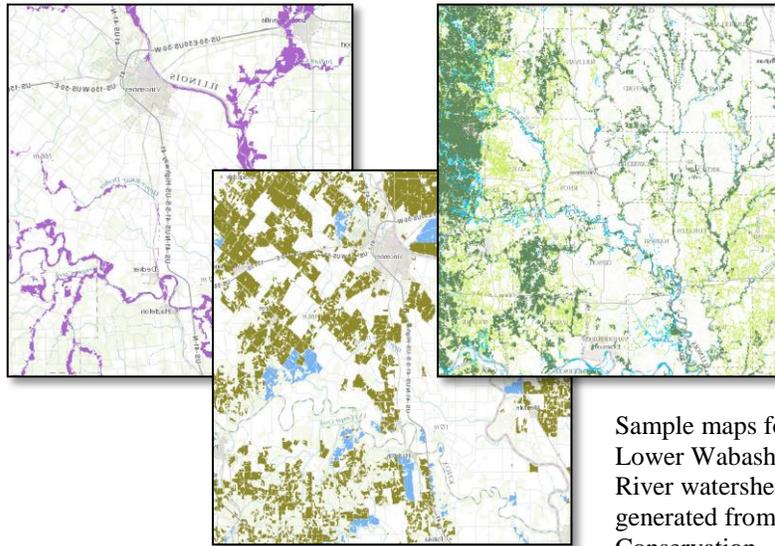
These conservation fact sheets are still in the development stage and are currently undergoing another round of revision. If you are interested in lending your expertise to this Initiative, please contact the GHI Coordinator:

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Where To Do It

A critical component of any landscape conservation design is identifying opportunities on the landscape for the delivery of conservation. In the MRB/GHI, this spatial analysis takes the form of the Precision Conservation Blueprint developed by The Conservation Fund. This Precision Conservation Blueprints synthesizes 200+ layers to identify conservation opportunities at multiple scales.

At a regional scale, the Precision Conservation Blueprint looks at watershed interests, wildlife conservation interests, water quality concerns, nutrient loading potential, and more to identify a series of priority focal or pilot basins where the interests of wildlife, water quality, and agriculture overlap most readily. At a local (field) scale, the Blueprint looks at soil type, field grade, contiguous habitat, cropland value, and more to identify site specific opportunities for conservation at a 30 meter resolution.



Sample maps for Lower Wabash River watershed generated from Conservation Blueprint v1.02

The Conservation Blueprint is still being updated, and the most up-to-date data and information is required. If you have any data or information you would like incorporated, please contact The Conservation Fund:

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Pilot Project: Lower Wabash River

One of the next steps for the MRB/GHI is to implement the tool on the ground in the priority/pilot basins. One of these priority basins is the Lower Wabash River watershed. Forming the border between Indiana and Illinois, the Wabash River contributes a hugely disproportionate amount of nutrients to the Mississippi River and ultimately the Gulf of Mexico and forms the hearts of an important migratory flyway.

After being approached by several stakeholders in the area, the LCC took on a facilitative role in establishing a locally-led partnership to address the many resource challenges facing the region. With state, federal, local, NGO, and private involvement from both IN and IL, this partnership is currently undertaking the task of developing a cohesive and holistic landscape conservation design for the watershed. This landscape conservation design uses the MRB/GHI framework to identify opportunities and practices that have

the maximum multiple benefits for wildlife, water quality, and agriculture.

We Need Your Help

The development of the MRB/GHI tools and frameworks, including the conservation fact sheets and the Precision Conservation Blueprint, has been collaborative from the very beginning, and we are not done yet. If you are at all interested in lending your expertise to this Initiative, or if you would simply like more information on the Initiative—including a demonstration of its products—please contact.

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The multi-LCC online spatial analysis *Precision Conservation Blueprint v1.0* with over 200 data layers is available for download and visualization after registering (free of charge) for the site and joining the group at:

Data Basin

<<http://databasin.org/groups/d52de40d017e4ce98c3914dba1bc4ee7>>

ScienceBase

<<https://www.sciencebase.gov/catalog/item/54e37c9ce4b08de9379b51e3>>

Learn more at:

<<https://tallgrassprairielcc.org/issue/gulf-hypoxia>>



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