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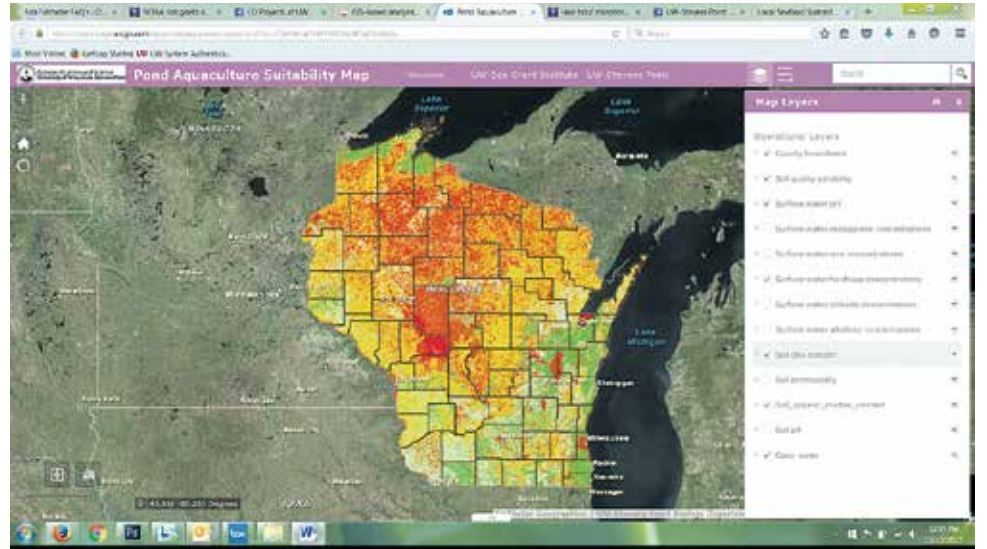
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RESEARCH



A screen shot of the UW-Stevens Point GIS aquaculture suitability map. Users can select individual model parameters or combine factors to determine location suitability for an aquaculture facility.

GIS suitability models identify new areas for aquaculture in Wisconsin

University of Wisconsin-Stevens Point develops technology for industry expansion

BY EMMA WIERMAA

Funded by a NOAA and Wisconsin Sea Grant College Program grant, researchers at the University of Wisconsin-Stevens Point (UW-Stevens Point) and its Northern Aquaculture Demonstration Facility have developed Geographic Information Systems (GIS)-aquaculture suitability models to assist in planning new aquaculture businesses throughout the state.

Aquaculture has been an industry in Wisconsin since 1856. Businesses across the state raise a wide variety of fish from minnows for bait, walleye and yellow perch for stocking, and rainbow trout for the food market. Much of that production occurs in ponds and flow-through raceways at the 2,700 registered fish farms that provide over 400 jobs and generate over \$21 million in revenue.

While the Wisconsin aquaculture industry has a significant presence in the state, new aquaculture businesses find it difficult to locate suitable land that has accessible freshwater to establish their business. This GIS-aquaculture project used modern technology and a vast array of public databases to look at multiple aspects of the landscape and locate areas with high suitability for both pond and raceway aquaculture ventures.

The GIS suitability model uses landscape information such as slope, water quality, and land cover. Multiple water quality parameters, soil physical and chemical characteristics and land use and land cover variables were employed in a multi-criteria decision making approach to organize factor weights in an analytical hierarchical process (AHP). These results were cross-validated to assure unbiased reporting of predictions for all data surfaces.

The suitability models were uploaded to an online database that is publically accessible. Users can select individual model parameters or combine factors that they deem relevant and observe whether the location they are interested in is identified as suitable for an aquaculture facility.

Of course the model should be used as a guide and not a definitive factor since aquaculturists can always modify the land and water to best meet their needs. Currently, the models are being finalized and instructions on how to best use the sites are near completion.

For more information or to view the suitability models please visit aquaculture.uwsp.edu and go to "Current Projects" page.



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