CREP Prioritization: Mapping Sediment Loading Risk in the Saginaw Bay Basin

Background

Michigan State University Extension (MSUE) is collaborating with the State of Michigan and local stakeholders to re-establish the Conservation Reserve Enhancement Program (CREP) in Michigan. To aid in prioritizing lands eligible for CREP enrollment, the Institute of Water Research (IWR) at MSU developed township-scale maps of sediment loading risk for the Saginaw Bay basin. This book organizes those maps at the township scale.

Data -

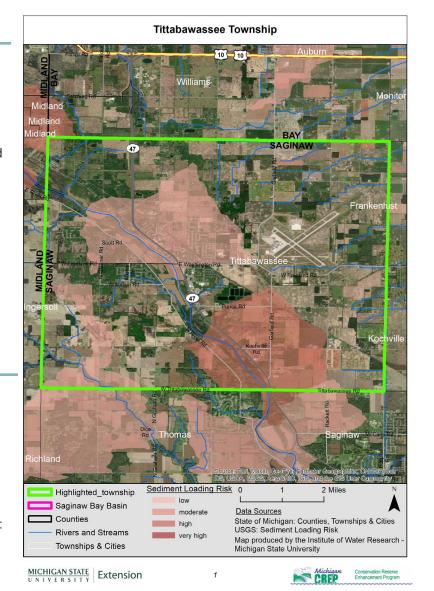
The maps are based upon data from the United States Geological Survey's (USGS) SPAtially Referenced Regression On Watershed attributes (SPARROW) model*. The model uses observations, land use characteristics, and statistical relationships, among other variables, to estimate pollutant loads to streams and rivers. The data in this map book represents incremental sediment load contribution for each small catchment in the basin (see image at right), i.e. the amount of sediment load that originated in a particular area (not the total, accumulated amount moving through the stream in that area).

Contacts -

Please direct questions about MSUE's project to: **Sarah Fronczak**Environmental Management Educator
Michigan State University Extension
froncza3@msu.edu

Please use the URL below to learn more about the SPARROW model, and direct questions about the maps to: **Glenn O'Neil**

Environmental Scientist
Institute of Water Research - Michigan State University
oneilg@msu.edu



* https://www.sciencebase.gov/catalog/item/5cbf5150e4b09b8c0b700df3



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Antrim Township Shiawassee Vernon Bennington Burns Perry SHIAWASSEE IVINGSTON Conway Locke urse: Es ri, Maxar, Geoegye, Earthstar Geographics. CNES/Airb , USDA, USGS, AeroGRID, IGN , and the GIS User Community Sediment Loading Risk 0 2 Miles Antrim Township low Saginaw Bay Basin **Data Sources** moderate Counties State of Michigan: Counties, Townships & Cities high USGS: Sediment Loading Risk Rivers and Streams very high Map produced by the Institute of Water Research -Townships & Cities Michigan State University



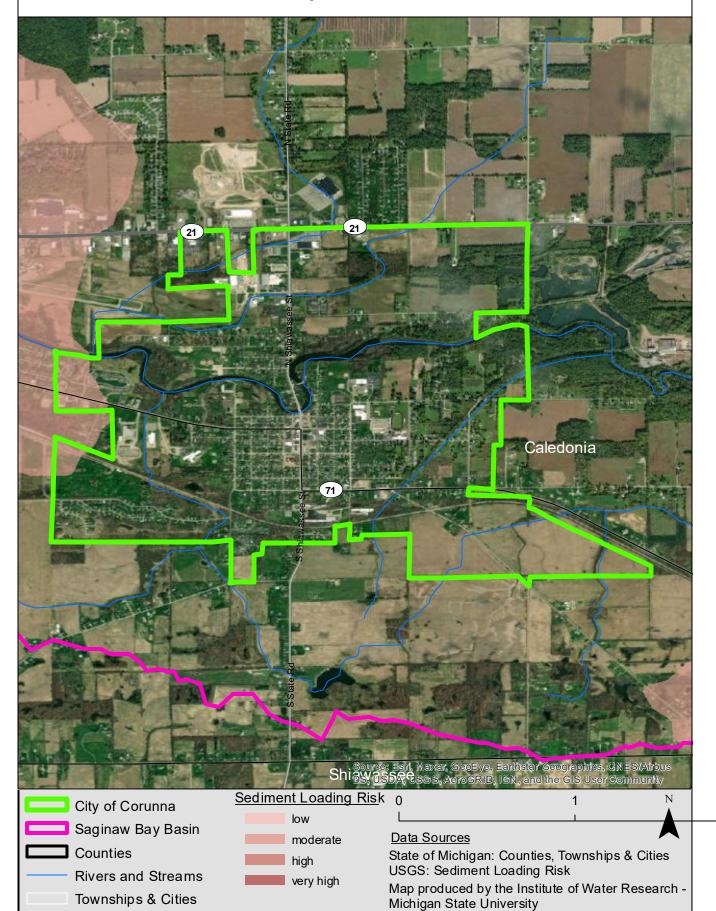
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Caledonia Township 52 New Haven E Juddville Rd Hazelton Rush Owosso Venice Owosso ਜ਼ਿ ਲੋਂ E North St E Oliver St VOSSO Corunna 71 Owosso Vernon Shiawassee Bennington E Bennington Rd Source: Esti, Maxar, Geoeye, Earthstar Geographics, CN ES/Airbus DS, USDA, USGS, AeroGRIC, IGN, and the GIS User Community Sediment Loading Risk 0 2 Miles Caledonia Township low Saginaw Bay Basin **Data Sources** moderate Counties State of Michigan: Counties, Townships & Cities high USGS: Sediment Loading Risk Rivers and Streams very high Map produced by the Institute of Water Research -Townships & Cities Michigan State University



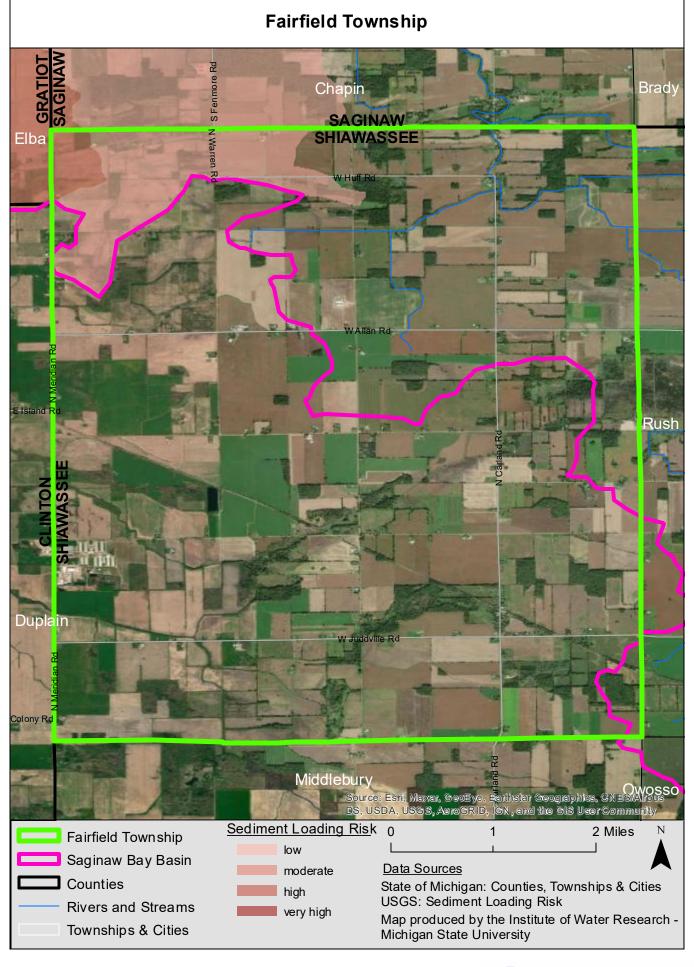
City of Corunna



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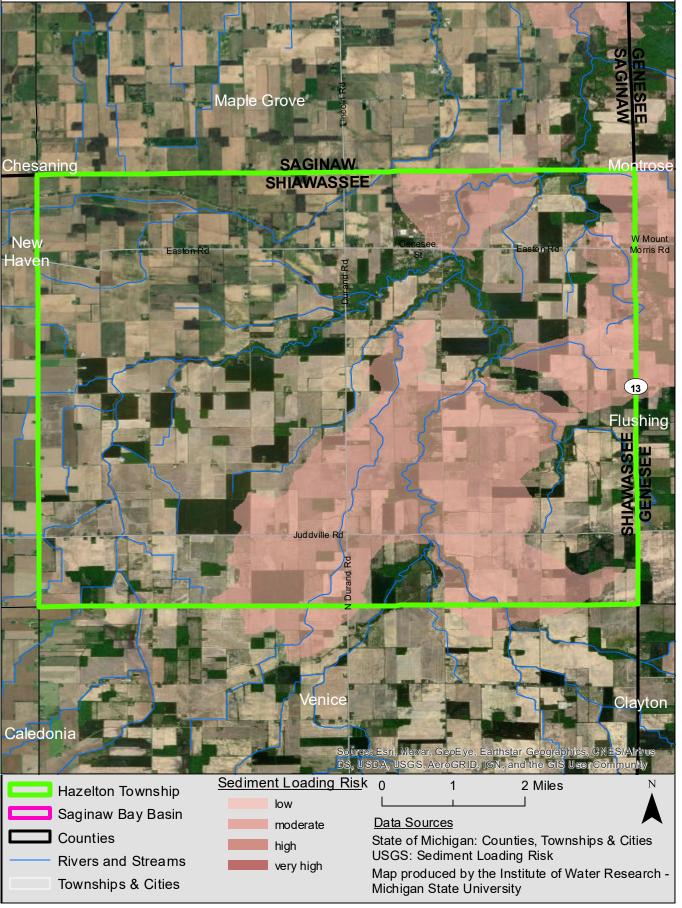
City of Durand Vernon Vernon /ernon Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community Sediment Loading Risk 0 City of Durand low Saginaw Bay Basin moderate **Data Sources** Counties State of Michigan: Counties, Townships & Cities high USGS: Sediment Loading Risk Rivers and Streams very high Map produced by the Institute of Water Research -Townships & Cities Michigan State University







Hazelton Township







Middlebury Township Rush Fairfield Colony Rd Duplain Ovid Owosso 21 Ovid Bennington Sciota Source: Esrl, Maxer, Geoegye, Earthstar Geographics, CN ES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community Sediment Loading Risk 0 2 Miles Middlebury Township low Saginaw Bay Basin **Data Sources** moderate Counties State of Michigan: Counties, Townships & Cities high USGS: Sediment Loading Risk Rivers and Streams very high Map produced by the Institute of Water Research -Townships & Cities Michigan State University



New Haven Township Brady Chesaning Maple Grove SAGINAW SHIAWASSEE 52 E'Henderson Rd Hazelton Rush id dville R E Juddville Ro Owosso Venice Caledonia Sourse: Esrl, Maxar, Geosye, Earthster Geographics, GN ES/Airbus DS, USDA, USGS, AeroGRID, 16N, and the GIS User Community Sediment Loading Risk 0 2 Miles New Haven Township low Saginaw Bay Basin **Data Sources** moderate Counties State of Michigan: Counties, Townships & Cities high USGS: Sediment Loading Risk Rivers and Streams very high Map produced by the Institute of Water Research -Townships & Cities Michigan State University



Owosso Township Rush Fairfield aven Caledonia Owosso ह ष्ट Oliver St 21 52 Owosso Owosso Middlebury Ca<mark>led</mark>onia Sciota Bennington Shiawassee Source: Esrl, Maxar, Geollye, Earthstar Geolgraphics, GN ES/Alrbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community Sediment Loading Risk 0 2 Miles Owosso Township low Saginaw Bay Basin **Data Sources** moderate Counties State of Michigan: Counties, Townships & Cities high USGS: Sediment Loading Risk Rivers and Streams very high Map produced by the Institute of Water Research -Townships & Cities Michigan State University

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Rush Township Chesaning Chapin SAGINAW SHIAWASSEE W Henderson Ro Henderson Rd 52 Fairfield . Haven V Juddville Rd Caledonia Owosso Middlebury Source: Es il, Maxar, Geoeye, Earthstar Geographics, CN ES/Airbus DS, USDA, USGS, AeroGRID**OCNOMINIO** E GIS USEI Community in St Sediment Loading Risk 0 2 Miles Rush Township low Saginaw Bay Basin **Data Sources** moderate Counties State of Michigan: Counties, Townships & Cities high USGS: Sediment Loading Risk Rivers and Streams very high Map produced by the Institute of Water Research -Townships & Cities Michigan State University



Shiawassee Township Owosso Corunna Venice Owosso Caledonia **Vernon** E Bennington Rd -Grand River Benni<mark>n</mark>gton Burns Perry Antrim Source: Esri, Maxar, GeoEye, Earthstar Geographiss, CN ES/Airbu DS, USDA, USGS, AeroGRID, 19N, and the GIS User Community Sediment Loading Risk 0 2 Miles Shiawassee Township low Saginaw Bay Basin **Data Sources** moderate Counties State of Michigan: Counties, Townships & Cities high USGS: Sediment Loading Risk Rivers and Streams very high Map produced by the Institute of Water Research -Townships & Cities Michigan State University

Venice Township New Have Hazeltor Jud dville Rd 13 Cale<mark>d</mark>onia Clayton Shiawassee EBenningto Gaines Durand Vern CDS, DSDANSSS, Aero GRID, IGN, and the GIS User Community Sediment Loading Risk 0 2 Miles Venice Township low Saginaw Bay Basin **Data Sources** moderate Counties State of Michigan: Counties, Townships & Cities high USGS: Sediment Loading Risk Rivers and Streams very high Map produced by the Institute of Water Research -Townships & Cities Michigan State University



Vernon Township <u>edonia</u> (13) Durand Gaines Shiawasse Ray Rd E Miller Rd Argentine Antrim Burns Source: Es ri, Maxar, GeoEye, Earthstar Geographics, CN ES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community Sediment Loading Risk 0 2 Miles Vernon Township low Saginaw Bay Basin **Data Sources** moderate Counties State of Michigan: Counties, Townships & Cities high USGS: Sediment Loading Risk Rivers and Streams very high Map produced by the Institute of Water Research -



Townships & Cities

Michigan State University