

Appendix A – Acronyms

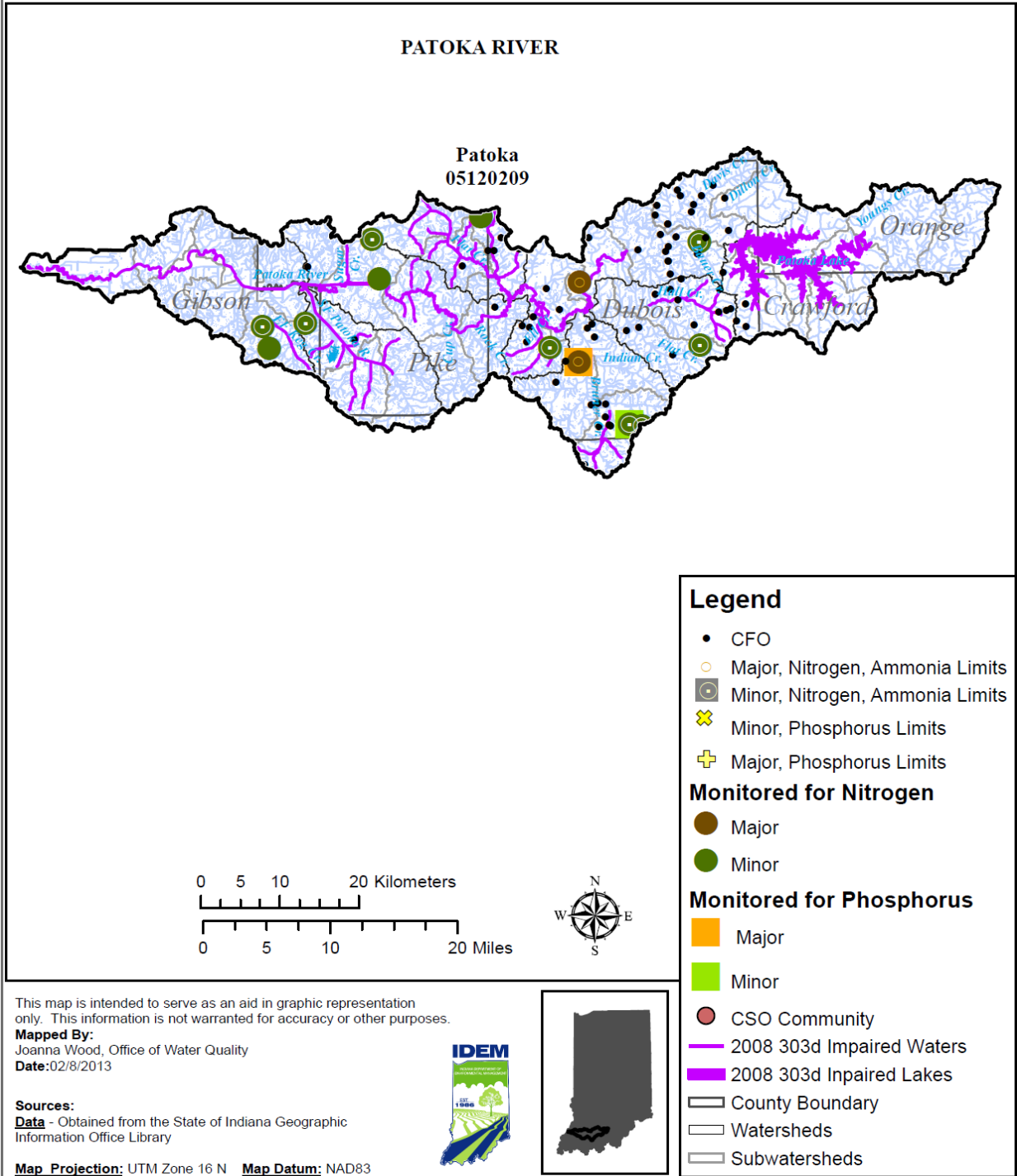
ACEP	Agricultural Conservation Easements Program
ACI	Agribusiness Council of Indiana
ALE	Agricultural Land Easements
BMP	Best Management Practice
CAFO	Concentrated Animal Feeding Operation
CALM	Consolidated Assessment and Listing Methodology
CC	Cover Crop
CCA	Certified Crop Advisor
CCSI	Conservation Cropping Systems Initiative
CEES	Center for Earth and Environmental Services (IUPUI)
CES	Cooperative Extension Service (Purdue)
CFO	Confined Feeding Operation
CIG	Conservation Innovative Grant
CREP	Conservation Reserve Enhancement Program
CRP	Conservation Reserve Program
CSO	Combined Sewer Overflow
CSP	Conservation Stewardship Program
CWA	Clean Water Act
CWI	Clean Water Indiana
CWS	Community Water Systems
DAP	Domestic Action Plan
DRP	Dissolved Reactive Phosphorus
DSC	Division of Soil Conservation (ISDA)
DSS	District Support Specialist (ISDA)
EOF	Edge-of-Field
EPA	Environmental Protection Agency
EPRI	Electrical Power Research Institute
EQIP	Environmental Quality Incentive Program
4Rs	Right Source, Right Rate, Right Time, Right Place
FSA	Farm Service Agency (USDA)
GIS	Geographic Information System
GLRI	Great Lakes Restoration Initiative
GLWQA	Great Lakes Water Quality Agreement
GWMN	Ground Water Monitoring Network
HAB	Harmful Algae Bloom
HFRP	Healthy Forest Reserve Program
HRI	Healthy Rivers Initiative (IDNR)
HTF	Hypoxia Task Force (Gulf of Mexico)
HUC	Hydrologic Unit Code
IANA	Indiana Agriculture Nutrient Alliance
IASWCD	Indiana Association of Soil and Water Conservation Districts
IAC	Indiana Administrative Code
ICP	Indiana Conservation Partnership
IDEM	Indiana Department of Environmental Management

IDNR	Indiana Department of Natural Resources
IGS	Indiana Geological Survey
INFA	INField Advantage
INFB	Indiana Farm Bureau
InWMC	Indiana Water Monitoring Council
ISDA	Indiana State Department of Agriculture
ISDH	Indiana State Department of Health
IUPUI	Indiana University-Purdue University Indianapolis
LARE	Lake and River Enhancement (IDNR)
LOADEST	Load Estimator
LTCP	Long-Term Control Plans
LUMCON	Louisiana Universities Marine Consortium
MARB	Mississippi/Atchafalaya River Basin
MCPHD	Marion County Public Health Department
MGD	Million Gallons/day
MRBI	Mississippi River Basin Initiative
MS4	Municipal Separate Storm Sewer Systems
MSQA	Midwestern Stream Quality Assessment
NASS	National Agricultural Statistics Service
NAWQA	National Water Quality Assessment
NLR	Nutrient Load Reduction
NOAA	National Oceanic and Atmospheric Administration
NOI	Notice of Intent
NPD	Non-rule Policy Document
NPDES	National Pollutant Discharge Elimination System
NPS	Non-Point Source
NRCS	Natural Resources Conservation Service (USDA)
NWQI	National Water Quality Initiative
OISC	Office of Indiana State Chemist
OWQ	Office of Water Quality (IDEM)
POTW	Publicly Owned Treatment Works
PS	Point Source
RCPP	Regional Conservation Partnership Program
RS	Resource Specialist (ISDA)
SAFE	State Acres for Wildlife Enhancement
SNRS	State Nutrient Reduction Strategy
SPARROW	Spatially Referenced Regressions on Watershed Attributes
SPEA	School of Public and Environmental Affairs, (IU)
SRA	State Resource Assessment
SSCB	State Soil Conservation Board
SWCD	Soil and Water Conservation District
SWQMP	Stormwater Quality Management Plan
TMDL	Total Maximum Daily Load
TN	Total Nitrogen
TNC	The Nature Conservancy
TP	Total Phosphorus

USDA	United States Department of Agriculture
USGS	United States Geological Survey
WHO	World Health Organization
WLEB	Western Lake Erie Basin
WMP	Watershed Management Plan
WQ	Water Quality
WQS	Water Quality Standards
WREP	Wetland Reserve Enhancement Program
WRP	Wetland Reserve Program
WRTDS	Weighted Regressions on Time, Discharge, and Season
WWTP	Waster Water Treatment Plant

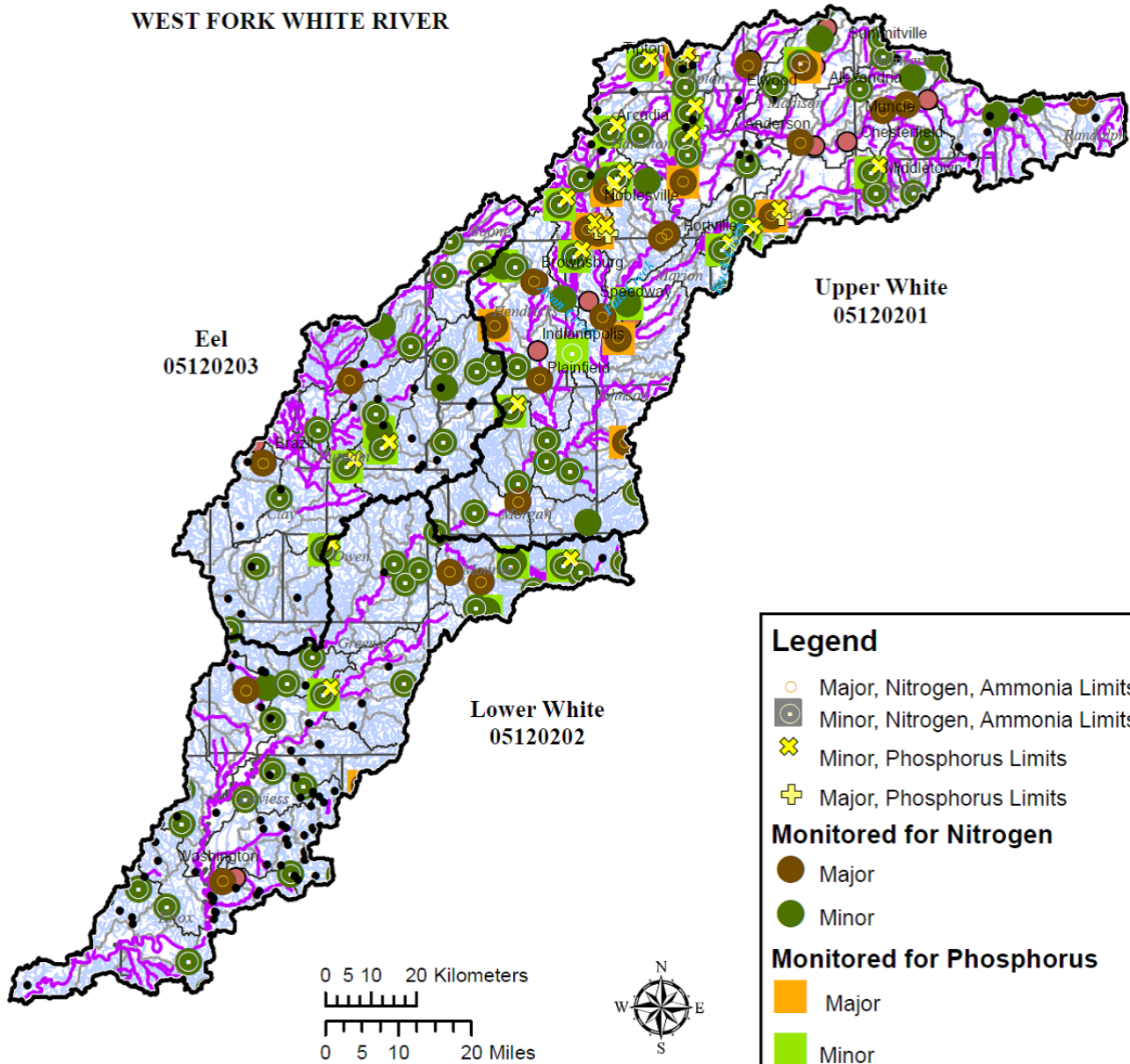
Appendix B – Permitted Facilities with Water Quality Monitoring for Ammonia and Phosphorus

Facilities with WQ Monitoring for Ammonia & Phosphorus
Includes Data on Facilities with Permit Limit Notations



Facilities with WQ Monitoring for Ammonia & Phosphorus Includes Data on Facilities with Permit Limit Notations

WEST FORK WHITE RIVER



Legend

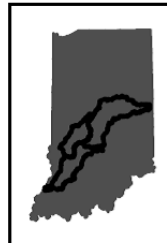
- Major, Nitrogen, Ammonia Limits
 - Minor, Nitrogen, Ammonia Limits
 - ✕ Minor, Phosphorus Limits
 - ⊕ Major, Phosphorus Limits
- Monitored for Nitrogen**
- Major
 - Minor
- Monitored for Phosphorus**
- Major
 - Minor
- CFO
 - CSO Community
 - 2008 303d Impaired Waters
 - 2008 303d Impaired Lakes
 - ▭ County Boundary
 - ▭ Watersheds
 - ▭ Subwatersheds

This map is intended to serve as an aid in graphic representation only. This information is not warranted for accuracy or other purposes.

Mapped By:
Joanna Wood, Office of Water Quality
Date: 02/8/2013

Sources:
Data - Obtained from the State of Indiana Geographic Information Office Library

Map Projection: UTM Zone 16 N **Map Datum:** NAD83



Facilities with WQ Monitoring for Ammonia & Phosphorus Includes Data on Facilities with Permit Limit Notations

Legend

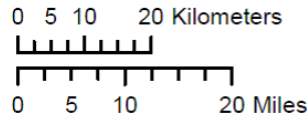
- CFO
- Major, N, Ammonia Limits
- ⊙ Minor, N, Ammonia Limits
- ✕ Minor, Phosphorus Limits
- ⊕ Major, Phosphorus Limits
- CSO Community
- 2008 303d Impaired Waters
- 2008 303d Impaired Lakes
- ▭ County Boundary
- ▭ Watersheds
- ▭ Subwatersheds

Monitored for Nitrogen

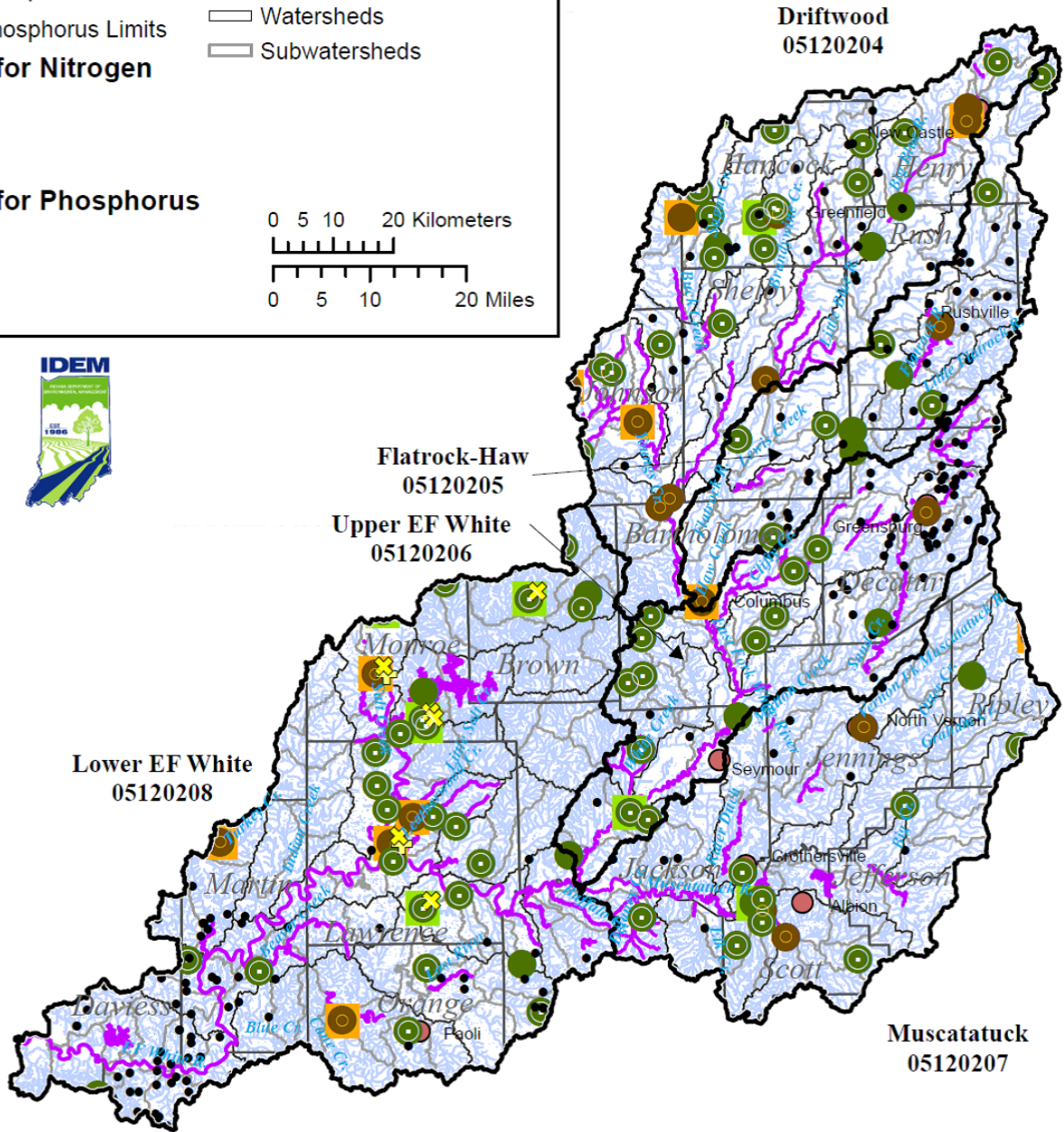
- Major
- Minor

Monitored for Phosphorus

- Major
- Minor



EAST FORK WHITE RIVER



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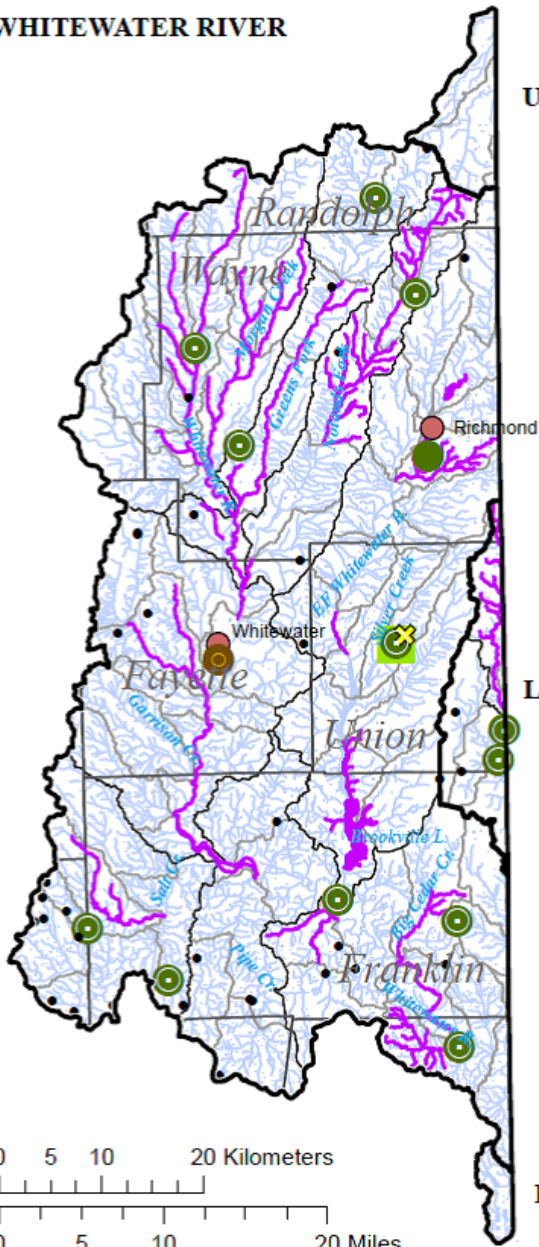


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Facilities with WQ Monitoring for Ammonia & Phosphorus Includes Data on Facilities with Permit Limit Notations

WHITEWATER RIVER



Upper Great Miami
05080001

Whitewater
05080003

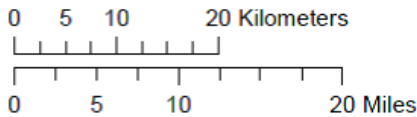
Lower Great Miami
05080002

Lower Great Miami
05080002



Legend

- CFO
- Major, N, Ammonia Limits
- ⊙ Minor, N, Ammonia Limits
- ✕ Minor, Phosphorus Limits
- ⊕ Major, Phosphorus Limits
- Monitored for Nitrogen**
- Major
- Minor
- Monitored for Phosphorus**
- Major
- Minor
- CSO Community
- 2008 303d Impaired Waters
- 2008 303d Impaired Lakes
- County Boundary
- Watersheds
- Subwatersheds



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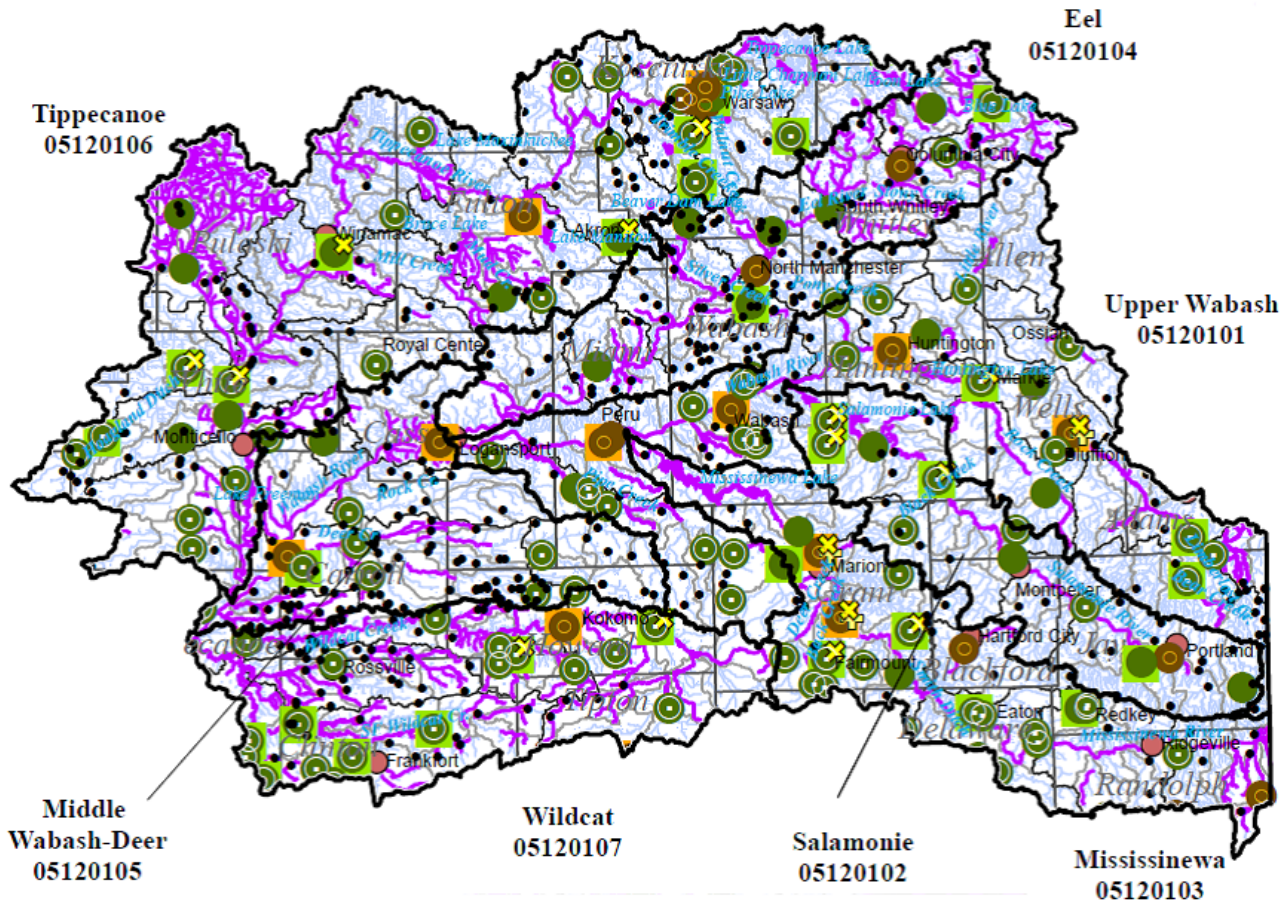


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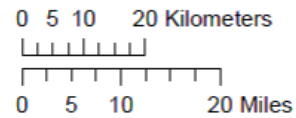
Facilities with WQ Monitoring for Ammonia & Phosphorus Includes Data on Facilities with Permit Limit Notations

UPPER WABASH RIVER



Legend

- | | |
|-----------------------------------|-----------------------------|
| • CFO | ● CSO Community |
| ○ Major, Nitrogen, Ammonia Limits | — 2008 303d Impaired Waters |
| ⊙ Minor, Nitrogen, Ammonia Limits | — 2008 303d Impaired Lakes |
| ✕ Minor, Phosphorus Limits | ▭ County Boundary |
| ⊕ Major, Phosphorus Limits | ▭ Watersheds |
| | ▭ Subwatersheds |
-
- | | |
|---------------------------------|-------------------------------|
| Monitored for Phosphorus | Monitored for Nitrogen |
| ■ Major | ● Major |
| ■ Minor | ● Minor |



Sources:

Data - Obtained from the State of Indiana Geographic Information Office Library

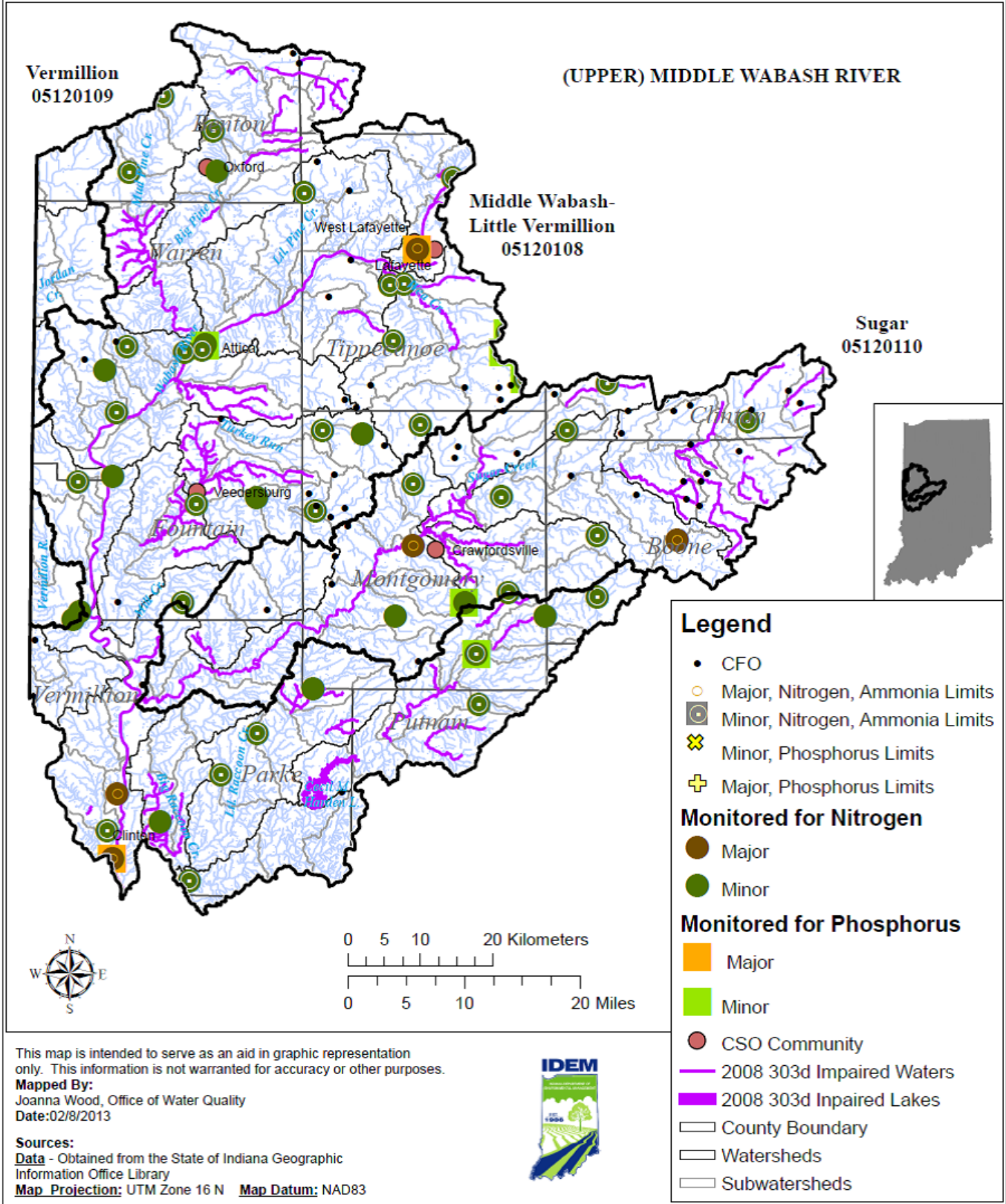
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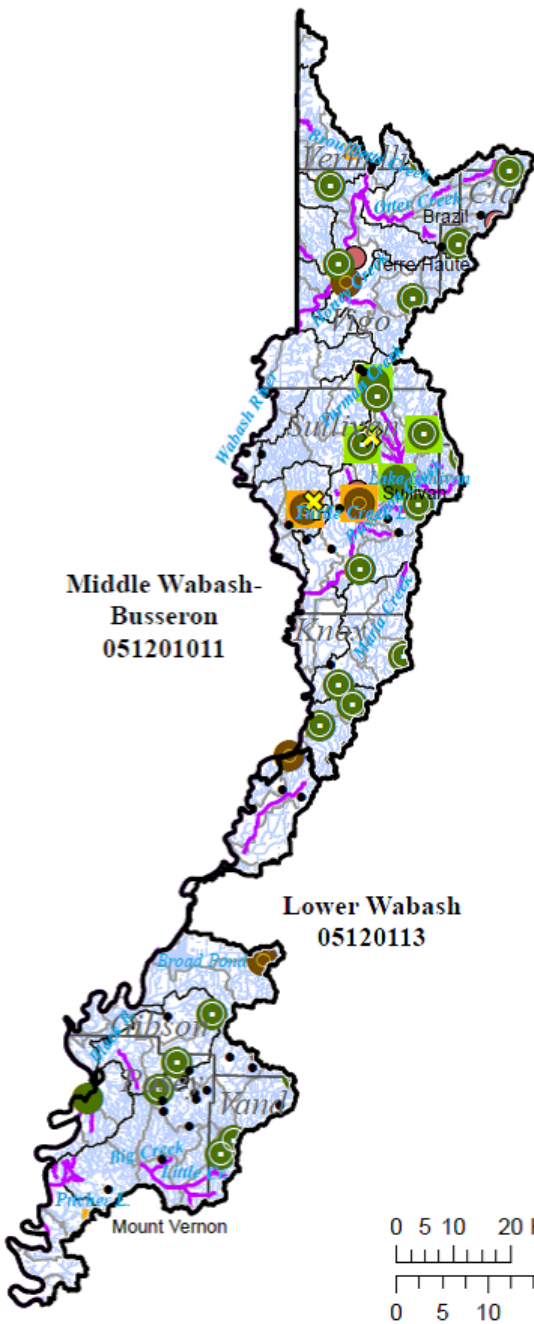
Mapped By: Joanna Wood, Office of Water Quality
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Facilities with WQ Monitoring for Ammonia & Phosphorus Includes Data on Facilities with Permit Limit Notations



Facilities with WQ Monitoring for Ammonia & Phosphorus Includes Data on Facilities with Permit Limit Notations

LOWER & MIDDLE WABASH RIVER



Legend

- CFO
- Major, Nitrogen, Ammonia Limits
- ⊙ Minor, Nitrogen, Ammonia Limits
- ⊗ Minor, Phosphorus Limits
- ⊕ Major, Phosphorus Limits

Monitored for Nitrogen

- Major
- Minor

Monitored for Phosphorus

- Major
- Minor

- CSO Community
- 2008 303d Impaired Waters
- 2008 303d Impaired Lakes
- County Boundary
- Watersheds
- Subwatersheds

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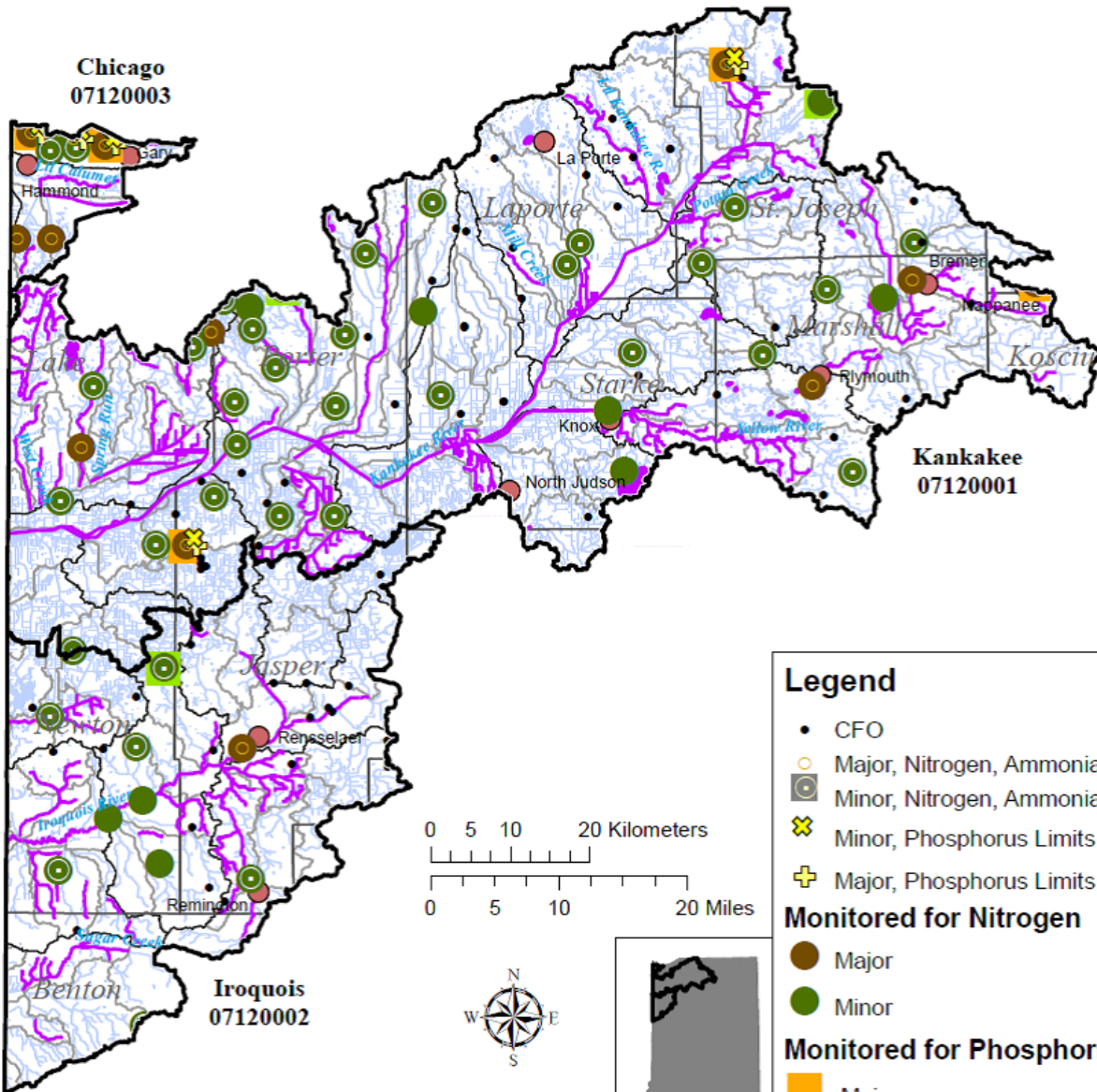
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Facilities with WQ Monitoring for Ammonia & Phosphorus Includes Data on Facilities with Permit Limit Notations

KANKAKEE & IROQUOIS RIVERS



Legend

- CFO
- Major, Nitrogen, Ammonia Limits
- ⊙ Minor, Nitrogen, Ammonia Limits
- ✕ Minor, Phosphorus Limits
- ⊕ Major, Phosphorus Limits

Monitored for Nitrogen

- Major
- Minor

Monitored for Phosphorus

- Major
- Minor

- CSO Community
- 2008 303d Impaired Waters
- 2008 303d Impaired Lakes
- County Boundary
- Watersheds
- Subwatersheds

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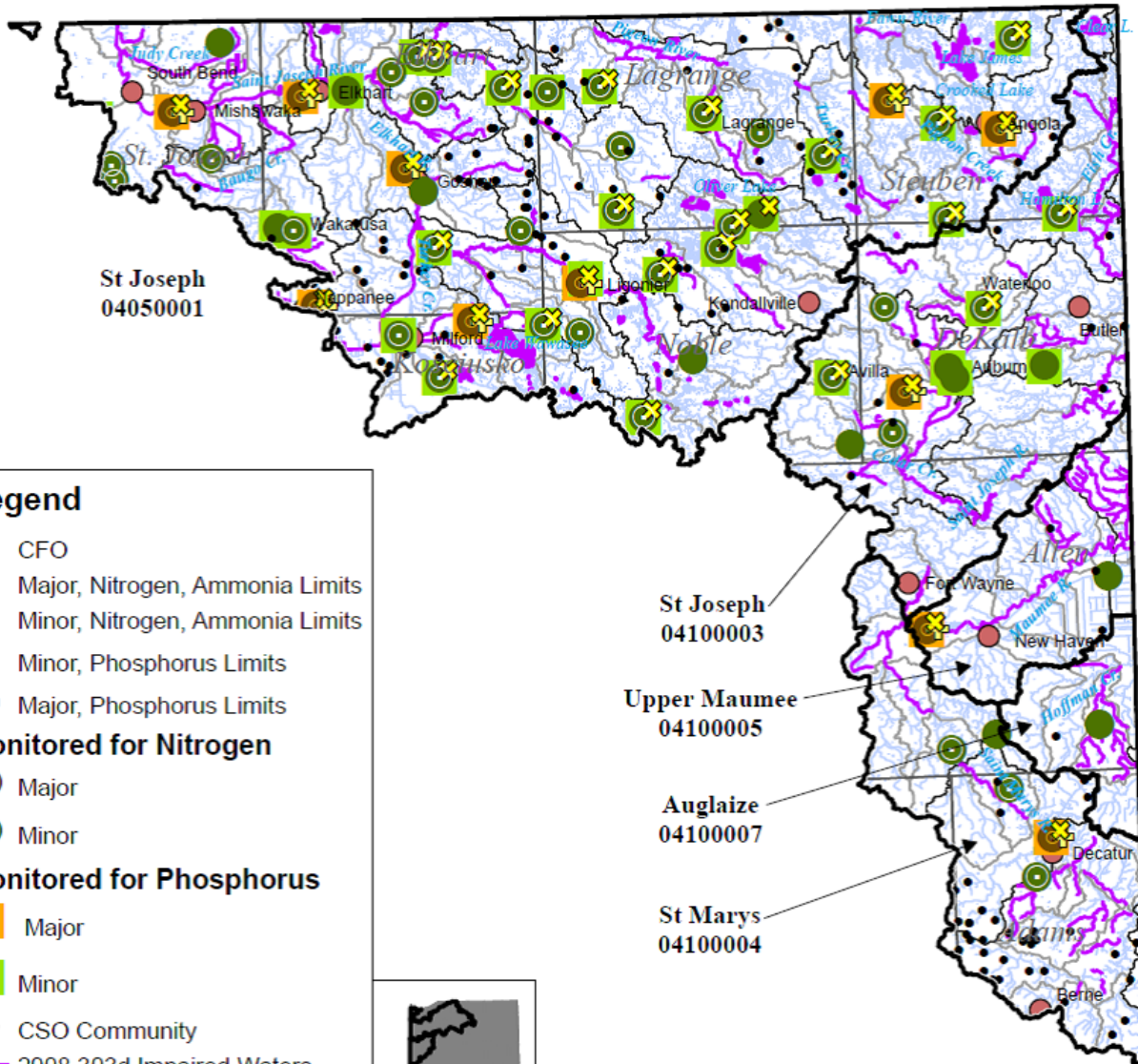
Mapped By:
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Facilities with WQ Monitoring for Ammonia & Phosphorus Includes Data on Facilities with Permit Limit Notations

ST JOSEPH & MAUMEE RIVERS



Legend

- CFO
- Major, Nitrogen, Ammonia Limits
- ⊙ Minor, Nitrogen, Ammonia Limits
- ✕ Minor, Phosphorus Limits
- ⊕ Major, Phosphorus Limits

Monitored for Nitrogen

- Major
- Minor

Monitored for Phosphorus

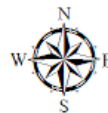
- Major
- Minor
- CSO Community
- 2008 303d Impaired Waters
- 2008 303d Impaired Lakes
- County Boundary
- Watersheds
- Subwatersheds



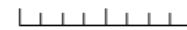
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0 5 10 20 Kilometers

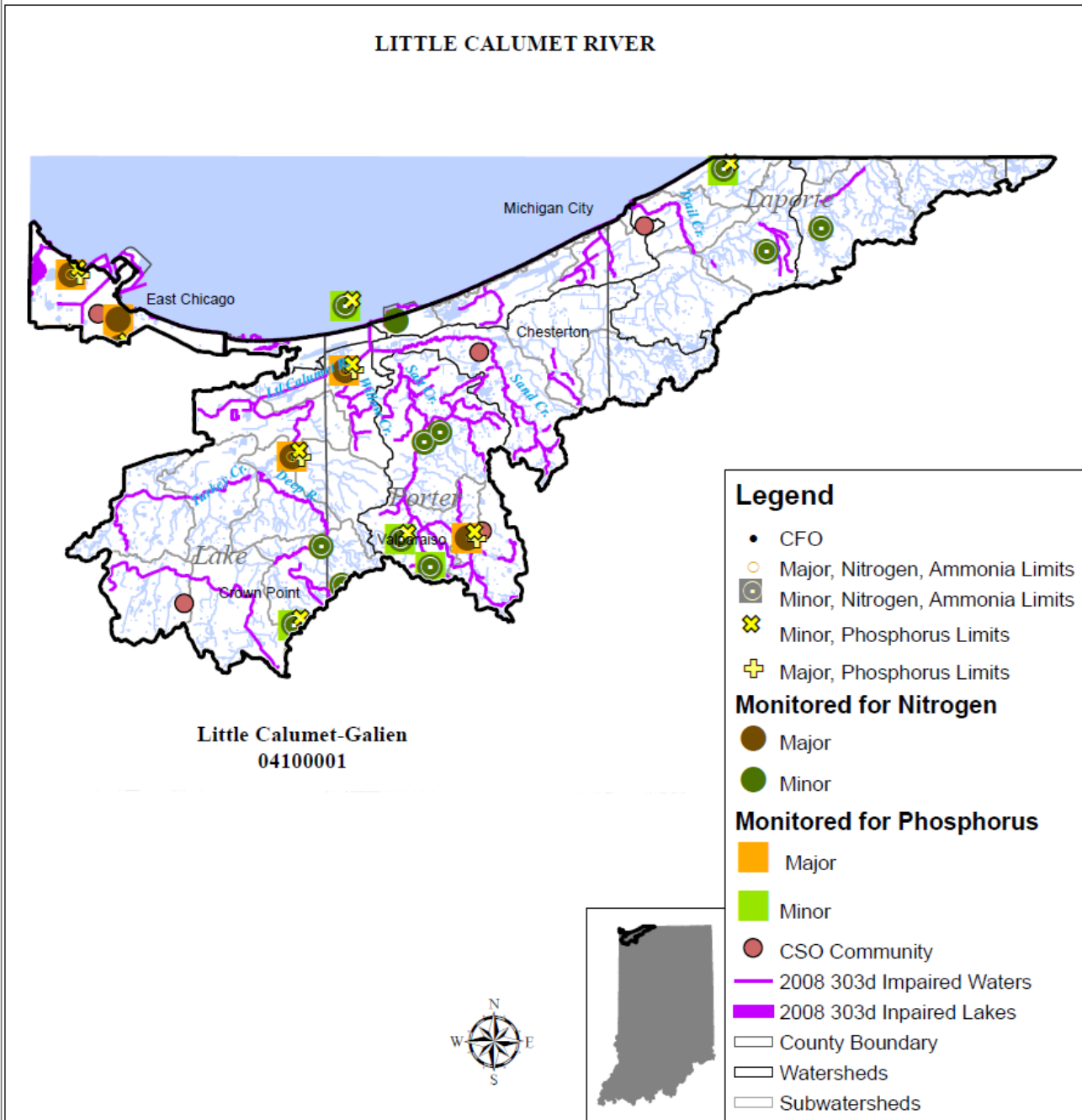


0 5 10 20 Miles



Facilities with WQ Monitoring for Ammonia & Phosphorus Includes Data on Facilities with Permit Limit Notations

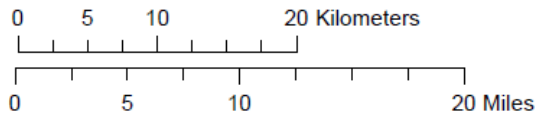
LITTLE CALUMET RIVER



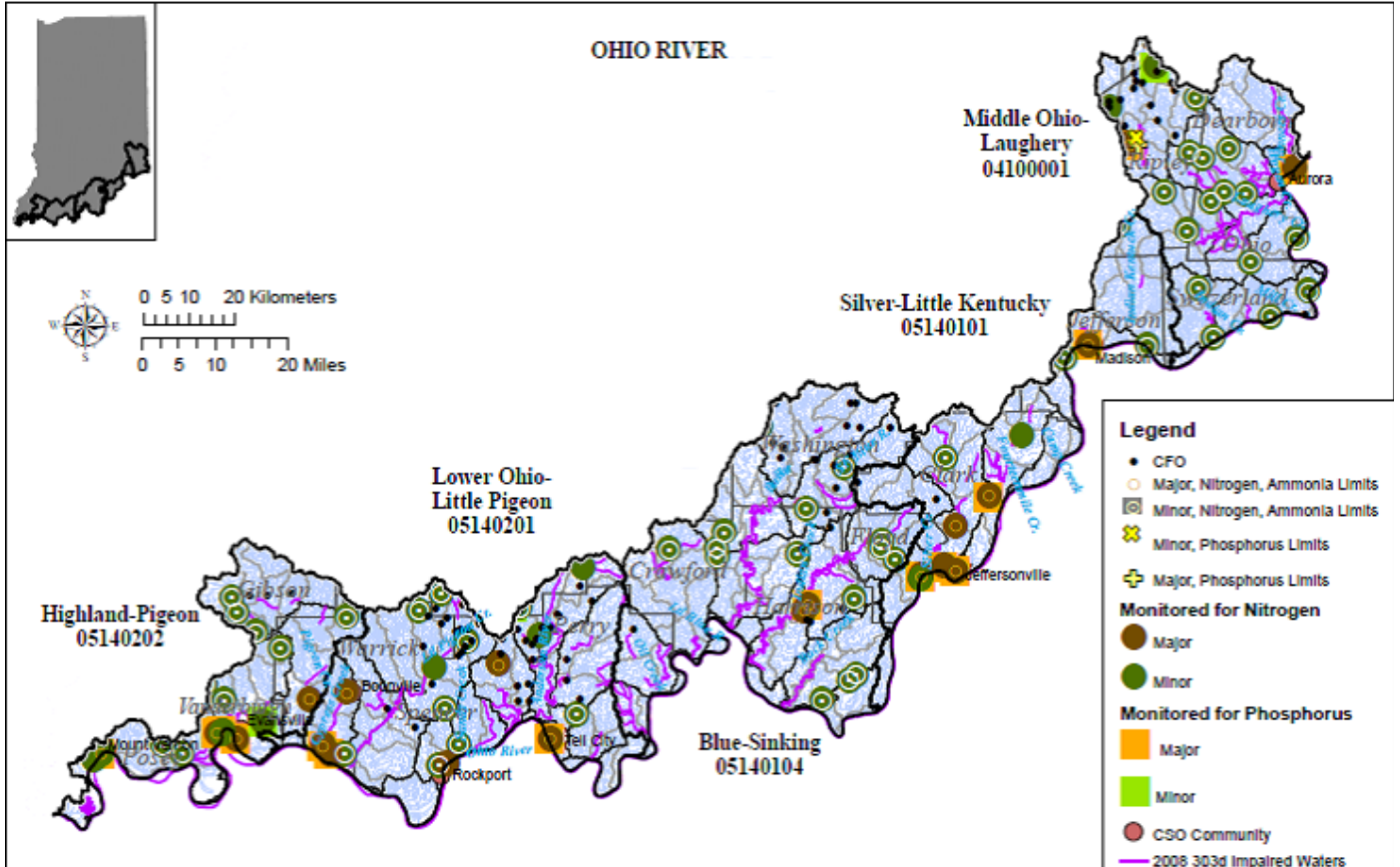
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**Facilities with WQ Monitoring for Ammonia & Phosphorus
Includes Data on Facilities with Permit Limit Notations**



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Mapped By: Joanna Wood, Office of Water Quality
Date: 02/8/2013

Legend

- CFO
- Major, Nitrogen, Ammonia Limits
- ◻ Minor, Nitrogen, Ammonia Limits
- ✱ Minor, Phosphorus Limits
- ✱ Major, Phosphorus Limits
- Monitored for Nitrogen**
- Major
- Minor
- Monitored for Phosphorus**
- Major
- Minor
- CSO Community
- 2008 303d Impaired Waters
- 2008 303d Impaired Lakes
- County Boundary
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Appendix C – IDEM Monitoring Activities for 2018-2019

Watershed Assessment and Planning Branch Monitoring Activities 2018 - 2019

Probabilistic Monitoring		Year: 2018		Year: 2019	
Watershed Name	Hydrologic Unit Code(s)	Parameters	Laboratory Analytical Costs/Funding Source	Parameters	Laboratory Analytical Costs/Funding Source
		<i>E. coli</i> , Aluminum, Antimony, Arsenic, Calcium, Cadmium, Chromium, Copper, Lead, Magnesium, Nickel, Selenium, Silver, Zinc, Alkalinity, Total Solids, Dissolved Solids, Total Suspended Solids, Sulfate, Chloride, Hardness, TKN, Ammonia- Nitrogen, Nitrate/Nitrite, Total Phosphorous, TOC, Cyanide-Total, Cyanide-Weak Acid Dissociable, Chemical Oxygen Demand, Dissolved Oxygen, D.O. Saturation, pH, Specific Conductance, Temperature, Turbidity, Fish, Macroinvertebrates, Periphyton, Seston, Habitat Dissolved Oxygen and Orthophosphate (@ subset of 14 target sites, minimum 2 week end of August just prior to algae)	Tributaries to the Great Lakes Basin 04040001, 04050001, 04100003, 04100004, 04100005 and 04100007 (excludes Lake Michigan shoreline) Pace Analytical \$69,000 ISDH Environmental Laboratory Division IDEM Mobile <i>E. coli</i> Lab \$1,100 USGS Algal Biomass Lab \$12,500 IDEM Fish, Macroinvertebrate and Algal Lab for Specimen Identification Diatom Verification \$1,500 Macroinvertebrate Verification \$600 Fish Verification \$0	Tributaries to the Ohio River 05090203, 05140101, 05140104, 05140201, 05140202 (excludes Ohio River mainstem) Pace Analytical TBD ISDH Environmental Laboratory Division IDEM Mobile <i>E. coli</i> Lab TBD USGS Algal Biomass Lab TBD IDEM Fish, Macroinvertebrate and Algal Lab for Specimen Identification Diatom Verification TBD Macroinvertebrate Verification TBD Fish Verification \$0	
		Aluminum, Antimony, Arsenic, Calcium, Cadmium, Chromium, Copper, Lead, Magnesium, Nickel, Selenium, Silver, Zinc, Alkalinity, Total Solids, Dissolved Solids, Total Suspended Solids, Sulfate, Chloride, Hardness, TKN, Ammonia- Nitrogen, Nitrate/Nitrite, Total Phosphorous, TOC, Chemical Oxygen Demand, Dissolved Oxygen, D.O. Saturation, pH, Specific Conductance, Temperature, Turbidity, Fish, Macroinvertebrates, Periphyton, Seston, Habitat	Year: 2018 05080003 Whitewater (10), 05090203 Middle Ohio Laughery (3), 05140104 Blue Sinking (13), 05140201 Lower Ohio Little Pigeon (1), and 05120209 Patoka (3) Pace Analytical \$43,803 USGS Algal Biomass Lab \$5,667 IDEM Fish, Macroinvertebrate and Algal Lab for Specimen Identification Diatom Verification \$750 Macroinvertebrate Verification \$450 Fish Verification \$0	Year: 2019 TBD Pace Analytical TBD USGS Algal Biomass Lab TBD IDEM Fish, Macroinvertebrate and Algal Lab for Specimen Identification Diatom Verification TBD Macroinvertebrate Verification TBD Fish Verification \$0	

Watershed Assessment and Planning Branch Monitoring Activities 2018 - 2019

Fixed Station Monitoring	Parameters	
<p>165 sites throughout all 9 watersheds: Divided into 16 routes sampled monthly (2 added in April 2014 for NWQI)</p> <p>Laboratory Analytical Costs/Funding Source ISDH/106</p>	<p>CHEMISTRY (dissolved vs. total metals at 12 selected sites geographically representative): Alkalinity, Hardness, Calcium, Magnesium, Ammonia-N, Nitrate+Nitrite-N, Nitrogen-TKN, Phosphorous-Total, COD, TOC, BOD, Solids-Total, Solids-Suspended, Solids-Dissolved, Fluoride, Chloride, Sulfate, Cyanide-Total, Cyanide-Free, Cyanide-Amenable, Arsenic (µg/l), Cadmium (µg/l), Chromium-Total (µg/l), Copper(µg/l), Iron (µg/l), Lead (µg/l), Manganese (µg/l), Nickel (µg/l), Potassium (µg/l), Sodium (µg/l), Zinc (µg/l), <i>E. coli</i>, RADIOLOGICAL (select sites, drinking water intakes): Alpha (gross), Beta (gross) FIELD: Turbidity, DP, pH, Temperature, Specific Conductance, Weather coding ORGANICS/PESTICIDES (select sites, drinking water intakes): Hexachlorocyclopentadiene, Desethylatrazine, Desisopropylatrazine, Hexachlorobenzene, Simazine, Atrazine, Cloazone, Pentachlorophenol, Lindane, Terbufos, Acetochlor, Alachlor, Heptachlor, Metolachlor, Chlorpyrifos, Cyanazine, Penimethalin, Heptachlor Epoxide, Oxychlorane, Gamm-Chlordane, Alpha-Chlordane, Trans-Nonachlor, endrin, Cis-Nonachlor, P,P'-DDT, Bis(2-Ethylhexyl)adipate, Methoxychlor, Bis-(Ethylhexyl)phthalate, Benzoapyrene, Trifluralin, Aldrin, Dieldrin, Propachlor</p>	<p>Year: 2019 Laughery Creek 0509020305</p>
<p>Watershed Characterization Studies</p>	<p>Year: 2018</p>	<p>Parameters</p>
<p>Watershed or Waterbody Name(s)</p>	<p>Lower East Fork White River</p>	<p>CHEMISTRY monthly for Alkalinity, Total Solids, Total Suspended Solids, Total Dissolved Solids, Sulfate, Chloride, Hardness, Ammonia-Nitrogen, Total Kjeldahl Nitrogen, Nitrate-Nitrite-Nitrogen, Total Phosphorous, Total Organic Carbon and Chemical Oxygen Demand. FIELD: pH, DO, D.O saturation, Temperature, Turbidity, and Specific Conductance. E. coli will be done 5X Biological: Fish, Macroinvertebrates, Habitat</p>
<p>Hydrologic Unit Code(s)</p>	<p>05120208, 0512020815</p>	<p>IDEM Mobile <i>E. coli</i> Lab, IDEM Fish and Macroinvertebrate Specimen Identification \$33,000 Test America \$1,000 <i>E. coli</i></p>
<p>Laboratory Analytical Costs/Funding Source</p>	<p>IDEM Mobile <i>E. coli</i> Lab, IDEM Fish and Macroinvertebrate Lab for Specimen Identification \$33,000 Test America \$1,000 <i>E. coli</i></p>	<p>IDEM Mobile <i>E. coli</i> Lab, IDEM Fish and Macroinvertebrate Lab for Specimen Identification \$39,000 Test America \$1,400 <i>E. coli</i></p>

Watershed Assessment and Planning Branch Monitoring Activities 2018 - 2019

Performance Measure Monitoring		Year: 2018	Parameters	Year: 2019
Watershed or Waterbody Name(s)	041000030401 – 2 sites; W Branch Fish Cr 041000030604 – 1 site; W Smith Ditch 041000030702 – 1 site; Peckhart Ditch 041000030705 – 2 sites; Little Cedar Cr 041000030707 – 3 sites; Cedar Creek		CHEMISTRY may vary from year to year depending on the impaired listing, BMPs implemented, critical areas, & land use. Ammonia-Nitrogen, Total Phosphorus, Nitrate/Nitrite, Total Kjeldahl Nitrogen, Dissolved Solids, Suspended Solids. FIELD: pH, DO, D.O. saturation, temperature, turbidity, and specific conductance. E. coli will be done 5X if necessary. Biological: Fish, Macroinvertebrates, Habitat	TBD
Laboratory Analytical Costs/Funding Source	No sites require an outside lab; therefore, no cost associated with water chemistry. IDEM Fish and Macroinvertebrate Lab for Specimen Identification			TBD IDEM Fish and Macroinvertebrate Lab for Specimen Identification
Fish Tissue Monitoring		Year: 2018	Parameters	Year: 2019
Watershed or Waterbody Name(s)	Upper Wabash River Basin (Lake Michigan - up to 10 samples will be collected by DNR & analyzed by IDEM)		Percent Moisture, Percent Lipid, PCBs, Organochlorine-Pesticides, Cadmium, Selenium, Lead, Total Mercury (and possibly methylmercury)	Kankakee and Lower Wabash River Basins (Lake Michigan - up to 10 samples will be collected by DNR & analyzed by IDEM)
Hydrologic Unit Code(s)	05120101, 05120102, 05120103, 05120104, 05120105, 05120106, and 05120107			05120108, 05120109, 05120110, 05120111, 05120113 07120001, 07120002, 07120003
Laboratory Analytical Costs/Funding Source	Pace/IN Lab Account \$120,860			Pace/IN Lab Account TBD
Toxic Algae Monitoring		Locations	Parameters	
Waterbody Name(s)	Designated swimming beaches in the lakes at the following state owned parks or managed recreation areas: Potato Creek, Pokagon, Chain-o-Lakes, Mississinewa, Salamonie, Raccoon Lake (aka Cecil M. Harden Reservoir), Monroe (2 beaches), Hardy, Whitewater, Brookville (2 beaches), Deam Lake and Starve Hollow		Cyanobacterial Identification and Cell Enumeration, Microcystin, Cylindrospermopsin, Anatoxin a, and Saxotoxin toxin analysis	
Laboratory Analytical Costs/Funding Source:	IDEM Algal Lab/106			