

# Recommendation for Continued Operation of the Wisconsin DNR MDN/NTN Sites





# Background

- The Focus on Energy (FOE) Program has funded the WDNR's mercury monitoring program, but the FOE's research and funding goals have changed
- Funding uncertainties led DNR to reevaluate the current MDN and NTN networks during 2013, examining sites for longevity of operation and ability to track important trends
- Re-evaluation involved discussions with Lake Michigan Air Director's Consortium (LADCO), internal data users, external data users, and researchers and other stakeholders



# Background and Monitoring Goals

- Wisconsin has 15,000 lakes and 42,000 miles of streams and rivers
- Atmospheric Deposition impact these surface waters and serve as points of entry for the mercury to the food web
- Local controls and reductions of mercury are especially important for Wisconsin, which is rich in both water and natural resources
- Monitoring data gathered in sensitive ecosystems can be useful in assessing the benefits of emission reductions
- Monitoring data is useful in determining the significance of mercury deposition, re-emission, and transformation in the atmospheric mercury balance



# Who emits mercury?

- Mercury is primarily emitted into the atmosphere from facilities and vehicles that burn fossil fuel
  - Industrial point sources make up the majority
  - Coal combustion
- Airborne mercury can travel many miles before falling back to the ground through rain, snow, and dry deposition



# National Atmospheric Deposition Program (NADP)

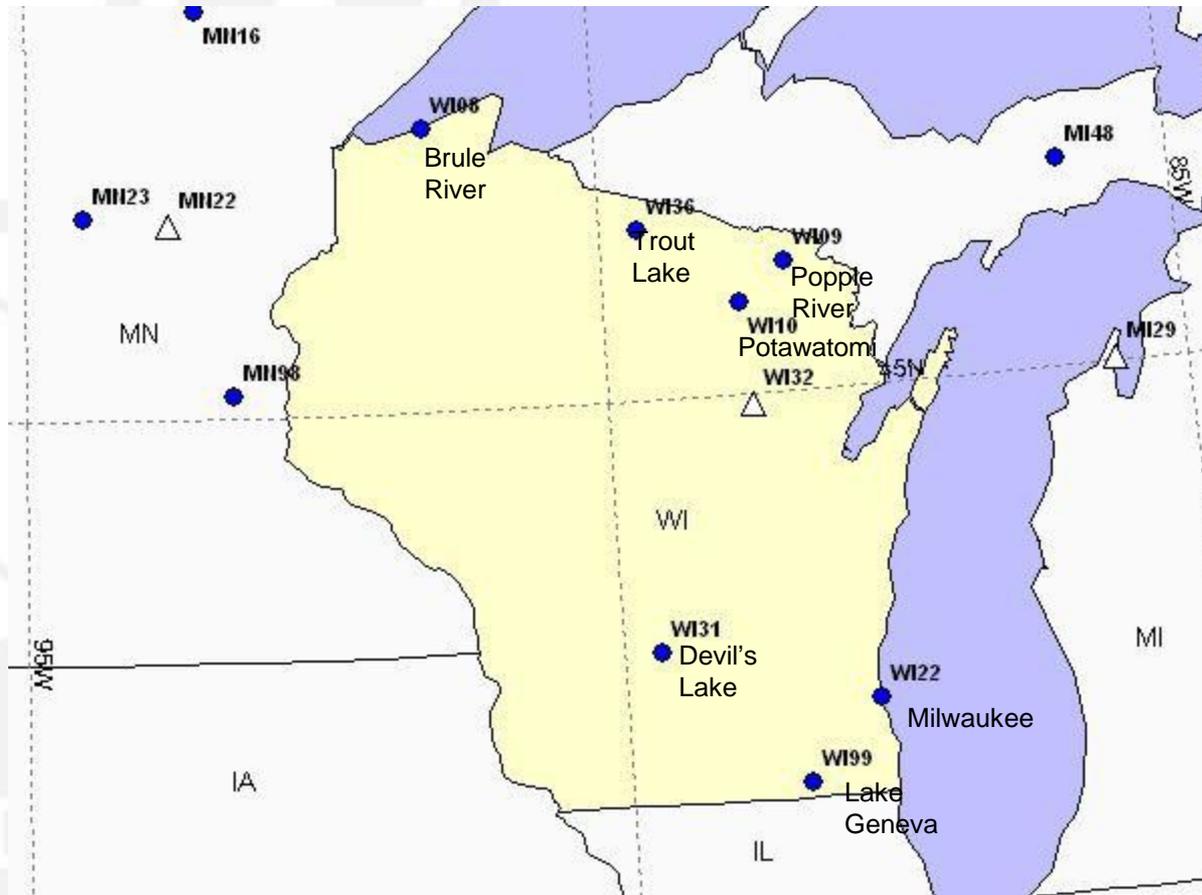
- NADP monitors precipitation chemistry and is made up of various networks
  - Mercury Deposition Network (MDN) samplers are analyzed for total mercury and some for methyl mercury
  - National Trends Network – provides data on the amounts, trends, and geographic distributions of acids, nutrients, and base cations in precipitation
  - AMNet – measures atmospheric mercury fractions which contribute to dry and total mercury deposition



# Evaluation of Existing Sites – MDN/NTN

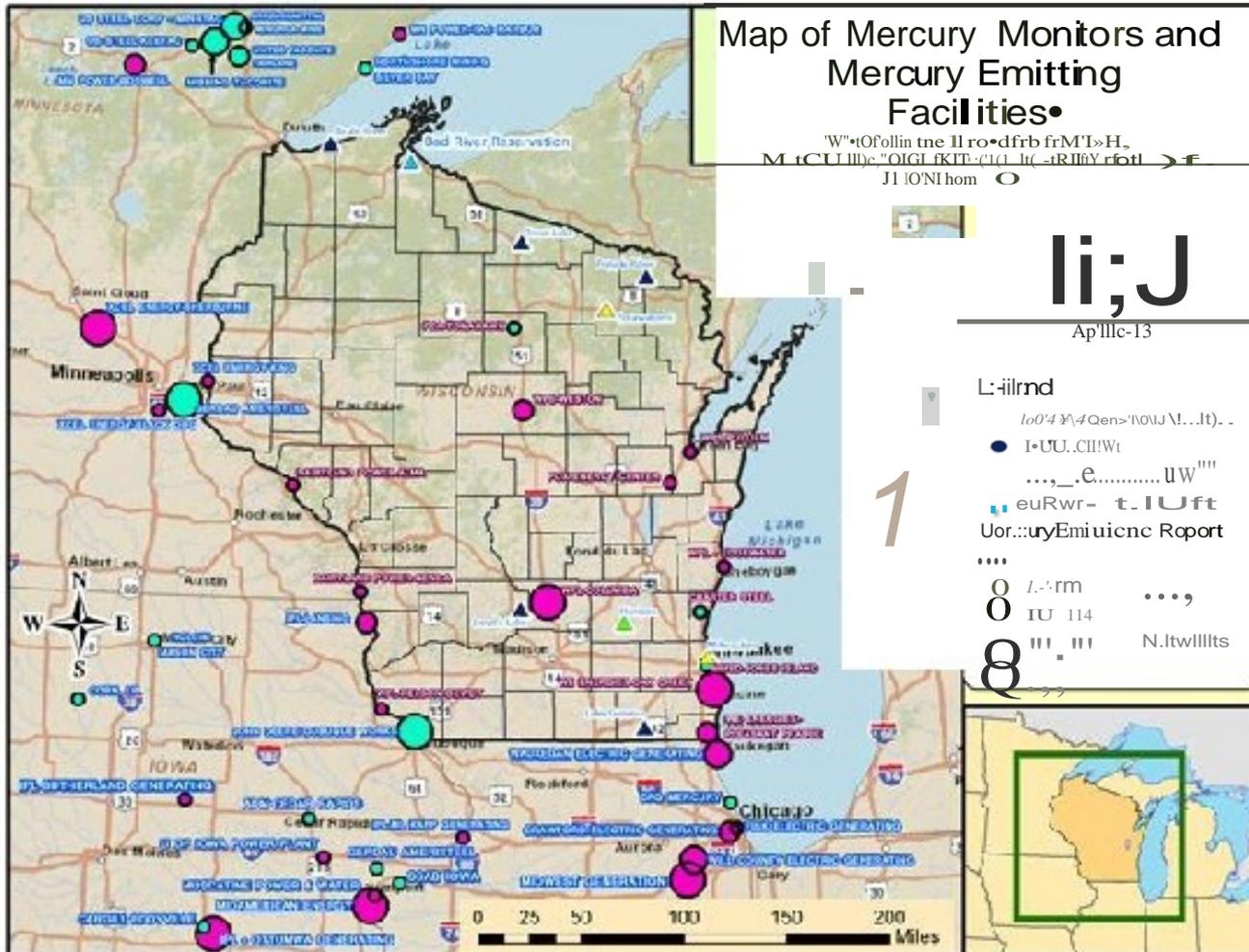
- Followed method used by Risch, Kenski, and Gay to evaluate all mercury monitoring sites in EPA Region 5. Examining:
  - Land areas and populations near sites
  - Number of sources and total Hg emissions
  - Historical deposition data from the sites
- Looked at emission sources in Wisconsin and in adjoining states.
- For NTN, evaluated scenarios to examine data loss as sites were shut down
- Talked to people who use the data

# 2013 Monitoring Sites - MDN





# Emissions Map





# Data Requests by Site (2010-2012)

<b>NADP Site</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>Total</b>
<b>Brule River</b>	11	9	44	64
<b>Popple River</b>	30	34	32	96
<b>Potawatomi</b>	31	36	21	88
<b>Milwaukee</b>	18	11	9	38
<b>Suring</b>	11	10	10	31
<b>Lake Dubay</b>	22	15	18	55
<b>Devil's Lake</b>	16	10	44	70
<b>Perkinstown</b>	5	6	4	15
<b>Trout Lake</b>	41	24	70	135
<b>Spooner</b>	3	2	2	7
<b>Wildcat Mountain</b>	25	23	16	64
<b>Lake Geneva</b>	266	206	133	605



# Priority Ranking - MDN

Site Name	Ranking	Reason for Ranking
Devil's Lake	1	Site covers a large area and affected population and near significant mercury sources
Trout Lake	2	Area includes the UW Trout Lake Station, a long term mercury and lake research center. Also identified as an important site in a proposed regional mercury deposition network
Brule River	3	Only site in the Lake Superior watershed. Site also affected by many out of state mercury sources.
Lake Geneva	4	Identified as important in proposed regional mercury deposition network. Long term mercury monitoring site and located in interstate area.
Popple River	5	Site location is near to and redundant with the Potawatomi site. Current plans are to discontinue monitoring at the site after 2013.
Milwaukee	6	Urban sites are not a focus of the national network. Site location is being redeveloped. Current plans are to discontinue monitoring at the site in late 2013.



# Priority Ranking – NTN

- Analysis was done, but in order to save costs the group looked at collocating MDN and NTN sites
  - Suring (NTN) to Brule River
  - Wildcat Mountain (NTN) to Devils Lake
  - Perkinstown operated by USEPA
- Analysis was then redone and showed good coverage across state



## Changes to MDN/NTN Networks - 2014

- Using limited state funding to support the networks:
  - Devil's Lake – discontinue event sampling, move Wildcat Mountain NTN to Devil's Lake
  - Trout Lake – retain MDN and NTN sampling
  - Brule River – continue MDN and move Suring NTN to Brule River
  - Lake Geneva – MDN to be operated by LADCO; discontinue NTN sampling
  - Discontinue Popple River and Milwaukee sites
  - Discontinue NTN at Spooner and Lake Dubay
  - Horicon – continue AMNet sampling; LADCO will pay fee
  - Potawatomi currently operated by tribe; Perkinstown operated by USEPA



# Contact

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