Supplemental Information

Responses of Deposition and Bioaccumulation in the Great Lakes Region to Policy and Other Large-scale Drivers of Mercury Emissions

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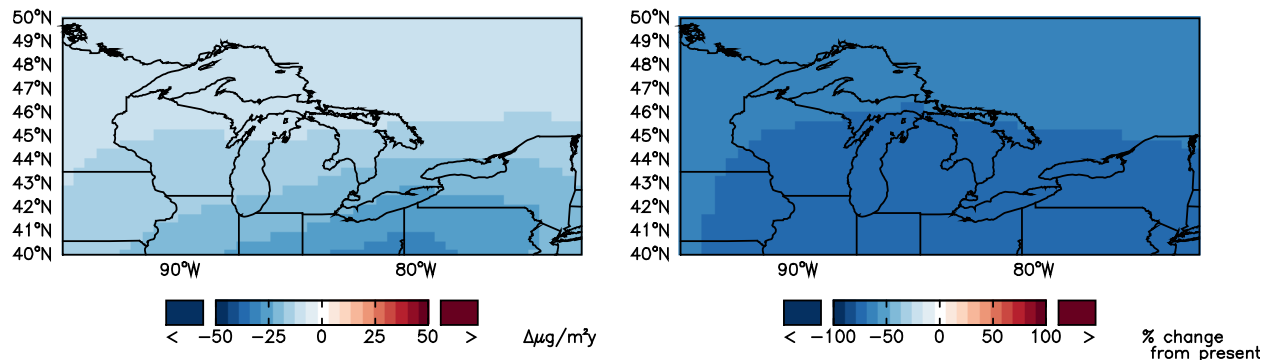
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Figure S1. Aspirational scenario total Hg deposition change. The panel on the left represents the aspirational policy benefit in $\Delta\mu g\ m^{-2}\ yr^{-1}$, while that on the right represents it as % change from the present.

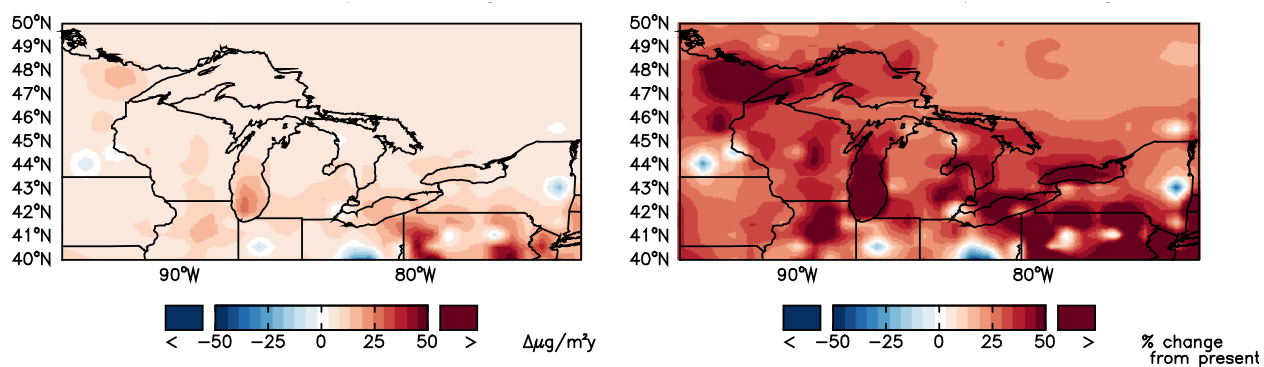
Figure S2. Minimal regulation scenario total Hg deposition change. The panel on the left represents the aspirational policy benefit in $\Delta\mu g\ m^{-2}\ yr^{-1}$, while that on the right represents it as % change from the present.
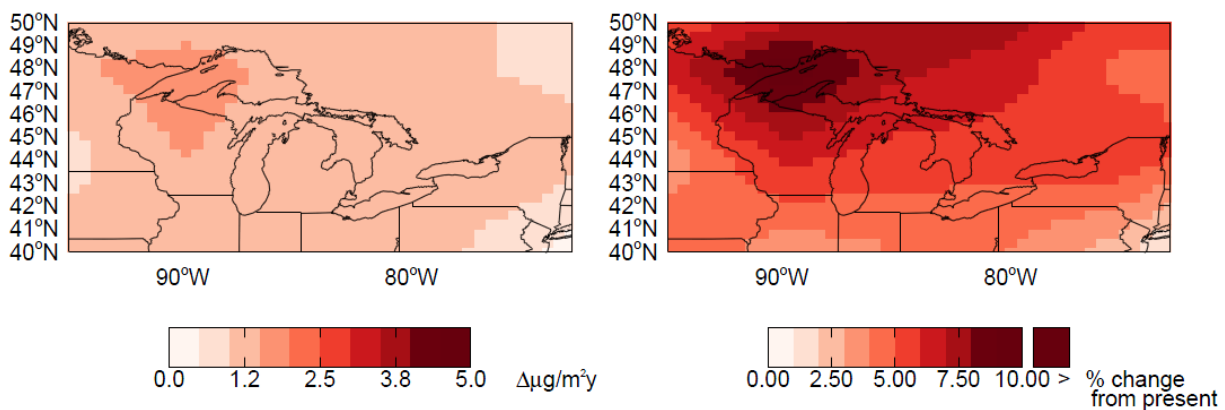

Figure S3. Climate change scenario total Hg deposition change. The panel on the left represents the aspirational policy benefit in $\Delta\mu g\ m^{-2}\ yr^{-1}$, while that on the right represents it as % change from the present.

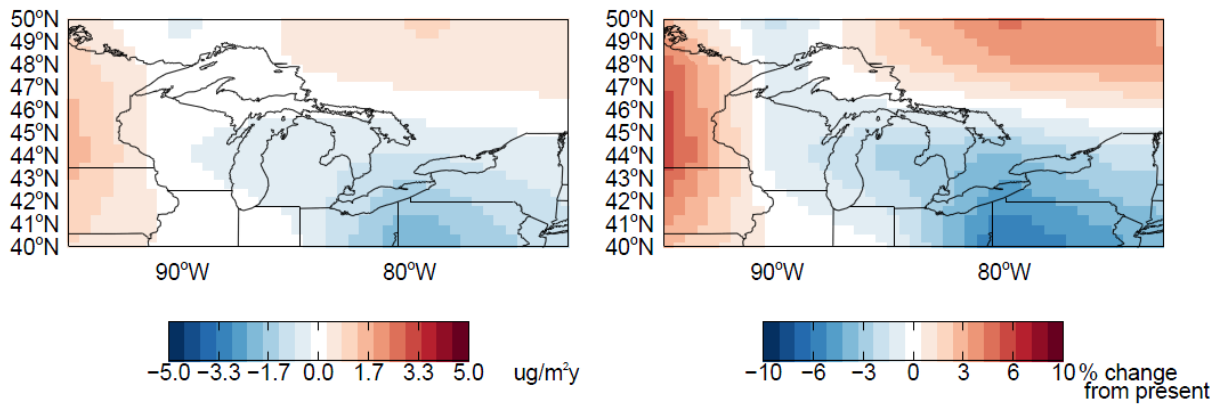Figure S4. Land use/land cover total Hg deposition change. The panel on the left represents the aspirational policy benefit in Δμg m^{-2} yr^{-1}, while that on the right represents it as % change from the present.
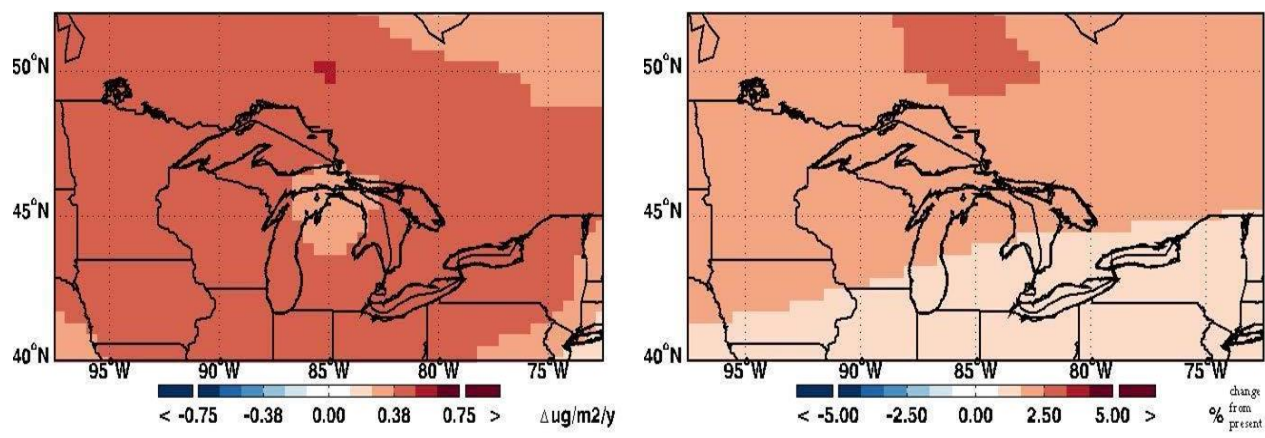

Figure S5. Biomass burning scenario total Hg deposition change. The panel on the left represents the aspirational policy benefit in Δμg m^{-2} yr^{-1}, while that on the right represents it as % change from the present.

Table S1. Summary of lake characteristics and process rates in Hg lake model

Parameter or Process	Value	Units
Lake Surface Area	9.7×10^6	m^2
Volume of Lake	1.4×10^8	m^3
Mean Depth	15	m
Watershed Area	1.9×10^8	m^2
Wetland Area in the lake's Watershed	14	%
pH (Measured)	6.9	
DOC Concentration[a,b]	7.4	$mg\ L^{-1}$
Biotic Solids Concentration[a,b]	34	$mg\ L^{-1}$
Abiotic Solids Concentration	0.3	$mg\ L^{-1}$
Lake Temperature[a,b]	1.2 – 18.1	^{o}C
Burial Velocity[a]	0.0022	$m\ yr^{-1}$
Resuspension Velocity[a]	0.0013	$m\ yr^{-1}$
Settling Velocity[a]	330	$m\ yr^{-1}$
Inflow[b]	1.0×10^8	$m^3\ yr^{-1}$
Outflow[a,b]	9.9×10^7	$m^3\ yr^{-1}$
THg Concentration in Sediments (Measured)	404	ppb Dry Wt
THg Concentration in Epilimnion (Mean Measured)	0.8	$ng\ L^{-1}$
THg Concentration in Hypolimnion (Mean Measured)	0.6	$ng\ L^{-1}$
THg Wet Deposition	7.6	$ng\ m^2\ yr^{-1}$
MeHg of THg in Wet Deposition	1.5	%

[a]Calculated values
[b]Variables changing seasonally