

**Table S4.** Share of the total nitrogen flux delivered to the Gulf of Mexico from sources in States in the Mississippi and Atchafalaya River Basins. The States are listed in descending order of their percentage contribution to the total flux delivered to the Gulf of Mexico.

State	Yield (kg km <sup>-2</sup> yr <sup>-1</sup> )	Percentage of the total flux delivered to the Gulf of Mexico										
		Total Flux	Urban	Atm. Dep.	Corn / Soybeans	Wheat	Other Crops	Alfalfa	Pasture/ Range*	Forest	Shrub Land	Barren Land
Illinois	1734.9	16.8	17.9	10.1	24.7	12.7	1.8	8.4	6.4	3.1	0.1	2.1
Iowa	1167.2	11.3	4.0	6.0	17.8	0.3	1.2	14.7	10.7	1.4	0.0	0.8
Indiana	1806.6	10.1	7.3	6.9	14.9	7.6	1.5	5.3	5.2	2.8	<0.1	2.6
Missouri	800.5	9.6	8.6	10.1	8.4	15.4	13.2	10.2	12.2	9.6	1.2	3.5
Arkansas	750.1	6.9	4.1	7.4	4.8	14.9	18.1	0.8	7.4	10.4	0.7	8.9
Kentucky	879.5	6.1	6.7	8.3	4.4	4.0	8.2	5.3	9.0	11.5	0.0	6.5
Tennessee	757.7	5.5	8.7	8.2	2.8	3.8	9.3	1.7	8.3	13.2	0.0	9.7
Ohio	1082.3	5.4	10.9	5.6	5.1	4.7	1.7	7.5	3.8	4.7	0.0	2.3
Mississippi	863.5	3.4	1.9	4.2	2.6	2.4	10.5	0.1	1.6	4.2	0.0	6.8
Nebraska	244.6	3.2	1.5	1.9	4.2	1.2	2.8	5.3	4.5	0.3	0.0	0.7
Kansas	221.7	3.1	3.2	3.3	1.6	14.8	5.9	3.9	4.1	0.7	7.9	1.0
Minnesota	340.7	2.9	3.3	1.7	3.7	0.7	1.3	5.2	2.9	1.1	0.7	1.2
Wisconsin	406.8	2.7	2.6	2.9	1.9	0.1	2.8	14.2	4.8	3.2	<0.1	1.6
Oklahoma	206.1	2.5	3.4	3.7	0.3	11.7	5.2	1.5	5.6	4.5	9.4	6.2
Pennsylvania	705.0	1.9	6.2	4.3	0.2	0.1	1.3	4.1	1.3	5.0	0.0	5.6
West Virginia	505.9	1.8	2.7	5.4	0.1	<0.1	1.2	1.5	1.2	8.9	0.0	8.0
Louisiana	513.0	1.7	1.6	2.1	1.0	0.8	5.4	<0.1	1.3	3.2	0.0	6.8
Alabama	925.6	1.1	1.3	1.7	0.5	0.5	2.3	0.2	2.1	2.2	0.0	2.9
South Dakota	72.0	0.9	0.4	0.9	0.8	0.7	0.9	4.0	2.0	0.2	2.2	1.3
North Carolina	534.2	0.6	0.8	1.4	0.1	<0.1	0.5	0.1	0.6	3.6	0.0	0.8
Texas	80.9	0.6	0.7	1.0	0.1	1.4	1.8	0.2	1.6	1.0	4.1	1.4
Virginia	377.7	0.5	0.7	0.8	0.1	<0.1	0.8	0.8	1.0	2.0	0.0	1.4
Montana	20.3	0.4	0.3	0.4	<0.1	1.3	0.7	2.4	1.1	1.2	33.3	6.9
North Dakota	34.6	0.2	0.2	0.4	<0.1	1.0	0.4	1.3	0.5	<0.1	7.1	1.2
New York	634.7	0.2	0.3	0.5	<0.1	<0.1	0.3	0.4	0.3	0.7	0.0	<0.1

Georgia	590.8	0.2	0.3	0.3	0.0	<0.1	0.2	<0.1	0.2	0.7	<0.1	0.3
Wyoming	11.7	0.1	0.1	0.1	<0.1	0.1	0.3	0.5	0.2	0.5	32.6	9.3
Colorado	6.9	0.1	0.3	<0.1	<0.1	0.1	<0.1	0.1	0.1	0.1	0.7	0.1
Idaho	10.7	<0.1	<0.1	<0.1	0.0	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Maryland	640.9	<0.1	<0.1	0.1	<0.1	<0.1	0.1	0.1	0.1	0.1	0.0	0.1
Michigan	61.0	<0.1	<0.1	<0.1	0.0	<0.1	<0.1	<0.1	<0.1	<0.1	0.0	<0.1
New Mexico	0.1	<0.1	<0.1	<0.1	0.0	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1
South Carolina	542.3	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.0	<0.1

\* Pasture / Range land includes nitrogen from non-recoverable animal manure.

**Table S5.** Share of the total phosphorus flux delivered to the Gulf of Mexico from sources in States in the Mississippi and Atchafalaya River Basins. The States are listed in descending order of their percentage contribution to the total flux delivered to the Gulf of Mexico.

State	Yield (kg km <sup>-2</sup> yr <sup>-1</sup> )	Percentage of the total flux delivered to the Gulf of Mexico								
		Total Flux	Urban	Corn Soybeans	Other Crops	Alfalfa	Pasture/ Range*	Forest	Shrub	Barren
Illinois	117.4	12.9	18.4	27.2	7.4	12.9	6.3	4.2	0.3	0.5
Missouri	89.4	12.1	9.2	8.0	15.8	11.0	14.9	11.5	3.8	2.7
Iowa	89.2	9.8	4.9	15.1	0.9	20.1	10.4	1.9	0.0	0.1
Arkansas	94.6	9.6	4.3	8.5	24.7	1.2	8.3	13.9	2.6	19.2
Kentucky	113.4	9.0	7.6	4.3	5.3	7.1	12.6	13.8	0.0	9.2
Indiana	132.3	8.4	8.3	17.5	4.5	11.1	4.6	3.7	0.1	3.1
Tennessee	61.9	5.3	6.4	2.3	6.2	1.3	6.1	8.0	0.0	11.4
Mississippi	101.6	4.4	2.0	4.7	15.3	0.2	2.5	5.3	0.0	12.9
Ohio	72.1	4.1	10.6	3.0	1.5	5.1	3.1	5.5	0.0	2.2
Oklahoma	24.1	3.3	2.1	0.1	1.8	0.6	6.2	4.0	26.2	6.6
Nebraska	21.9	3.3	1.9	2.2	1.3	5.3	5.1	0.4	<0.1	0.0
Kansas	16.2	2.6	2.7	0.5	2.7	1.9	4.2	0.6	28.0	0.1
Louisiana	67.4	2.4	1.5	1.6	7.4	<0.1	1.9	3.5	0.0	12.1
Wisconsin	31.7	2.4	2.3	1.1	0.9	9.9	2.4	2.1	<0.1	1.1
West Virginia	52.8	2.1	3.3	0.1	0.5	1.3	1.8	10.6	0.0	8.8
Minnesota	20.1	2.0	3.2	2.5	0.6	4.4	1.4	0.7	0.9	0.5
Pennsylvania	61.9	1.9	7.3	0.2	0.4	2.3	1.0	4.9	0.0	2.1
South Dakota	11.0	1.6	0.5	0.8	0.7	2.6	2.8	0.2	4.9	<0.1
Alabama	72.7	0.9	0.9	0.2	0.9	0.1	1.4	1.5	0.0	3.4
Texas	8.3	0.7	0.4	0.1	0.5	0.1	1.3	0.8	8.8	1.8
Virginia	32.0	0.4	0.5	<0.1	0.2	0.5	0.6	1.2	0.0	0.9
New York	50.0	0.2	0.3	<0.1	0.1	0.3	0.1	0.6	0.0	<0.1
North Carolina	13.2	0.2	0.2	<0.1	0.1	0.1	0.2	0.6	0.0	0.2
Colorado	2.1	0.2	0.8	0.1	0.1	0.3	0.2	0.1	2.3	<0.1
North Dakota	1.2	0.1	<0.1	<0.1	0.1	0.1	0.2	<0.1	4.1	<0.1

Montana	0.3	0.1	<0.1	<0.1	0.1	0.1	0.1	0.1	9.2	0.3
Georgia	30.5	0.1	0.2	<0.1	0.1	<0.1	0.1	0.2	0.0	0.2
Idaho	0.1	<0.1	0.0	0.0	0.0	0.0	0.0	0.0	<0.1	<0.1
Maryland	37.5	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	0.1	0.0	<0.1
Michigan	1.2	<0.1	<0.1	0.0	<0.1	0.0	0.0	<0.1	0.0	<0.1
New Mexico	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1
South Carolina	69.2	<0.1	<0.1	0.0	0.0	0.0	<0.1	<0.1	0.0	0.0
Wyoming	0.2	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	<0.1	8.7	0.5

\* Pasture / Range land includes phosphorus from non-recoverable animal manure.