

Supplemental materials

Table S1. Data collection information

No.	Data		Resolution	Data sources
1	Urban-rural composition of the population		Baoding City	Hebei Economic Yearbook (2017 & 2018)
2	Population			
3	Energy consumption per unit of GDP			
4	The output quantifies of livestock and poultry products			
5	The number of livestock and poultry products in stock at the end of the year			
6	Production of aquatic products			
7	Main indicators of the national economy	Gross domestic product	Districts and counties of Baoding City	
		Total number of households/population in the countryside		
		Total fertilizer use		
		Efficient irrigation of the area		
		Total sown area of crops		
		Grain cultivation area		
		Grain/oil/cotton/vegetable/garden/fruit production		
		Pig output/stock		
8	The main food consumption per capita of rural residents		Hebei Province	
9	The main crops sown area/yield			
10	Population birth/death rate		Baoding City/ Xiongan New area	Hebei Rural Statistical Yearbook (2018 & 2019)
11	population of rural households			
12	Fertilizer/pesticide use			
13	Water-saving irrigation			
14	Sowing area and yield of grain/oilseed/cotton/raw hemp/beet/tobacco/vegetable/fruit			
15	Livestock output/stock			
16	Main indicators of the national economy	Utilization of fertilizer (purification method)/pesticide/mulch film		
		Rice/wheat/corn/soybean sown area and yield		
		Oil/cotton/sugar/vegetable sown area and yield		
		Meat/eggs/milk production		
		Pigs/cattle/sheep output/stock		
		Aquatic products		
17	Agricultural/forestry/grazing/fishery output		Xiongxian and Rongcheng County	Xiongxian statistical bulletins (2017, 2018 & 2019). Rongcheng statistical
18	Wheat/corn/oilseed/vegetable/fruit sown area			
19	Wheat/corn/oilseed/vegetable/fruit yield			
20	Meat/eggs/milk production			
21	Pigs/sheep/cattle output/stock			
22	Rural/urban household population			

				bulletins (2017 & 2018).
23	Population Changes		Districts and counties of Baoding City	Baoding Economic Statistical Yearbook (2018)
24	Gross domestic product			
25	Agricultural land			
26	Food/crops/forestry production			
27	Livestock/fishery production			
28	The consumption of food per capita households			
29	Registered population		Districts and counties	Statistical Yearbook of China Counties (2018)
30	Number of industrial enterprises			
31	Total industrial wastewater discharge		Baoding Municipal District	Urban Statistical Yearbook of China (2018)
32	Sewage/household waste disposal rate			
33	Rural toilet improvements		Hebei Province	Environmental Statistics Yearbook of China (2017)
34	Irrigation area and application of chemical fertilizers			
35	Plastic films and pesticides			
36	Discharge and treatment of industrial wastewater		Baoding City	Environmental Yearbook of China (2015)
37	Agricultural pollution emissions			
38	Discharge and treatment of urban domestic pollution			
39	Sewage treatment situation			
40	Domestic waste disposal			
41	Afforestation area		Districts and counties	Forestry Statistical Yearbook of China (2018)
42	Industry information of key pollution discharge enterprises	Type/address/production cycle	Baoding City	Government information disclosure (2018 & 2021)
		Total emissions/concentration of COD/ammonia nitrogen/total phosphorus/total nitrogen		
		Outlet location/number		

Table S2 Parameters sources used in RUSLE model

No.	Data catagories	Data sources
1	Long-time Rainfall	China Meteorological Administration and U.S. National Climate Data Center

2	Soil property	Soil dataset of China from the Second National Soil Census
3	Soil silty	Harmonized World Soil Database version 1.1, HWSD
4	Terrain	ASTER GDEM 30m
5	Vegetation coverage	Spatial distribution dataset of China Annual Vegetation Index (NDVI).
6	Land use	Spatial distribution dataset of remote sensing monitoring of land use types in China in 2020

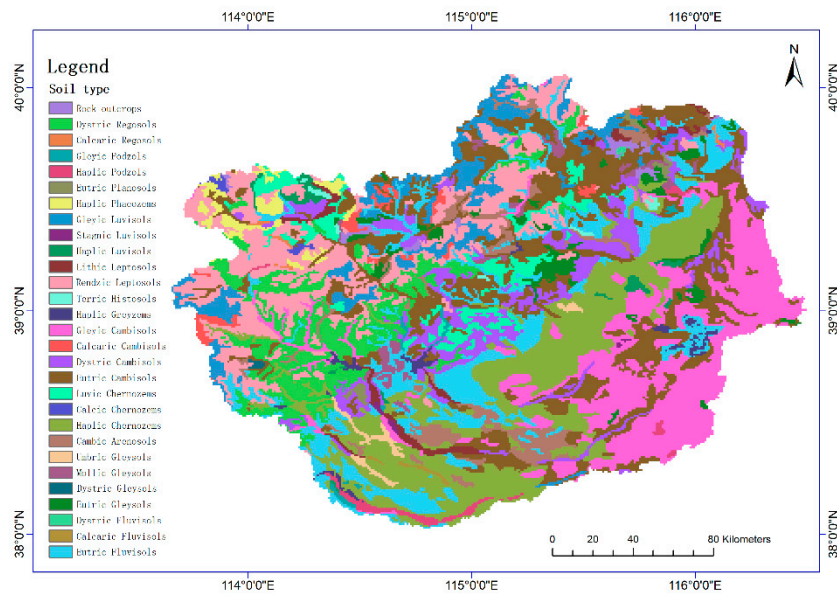
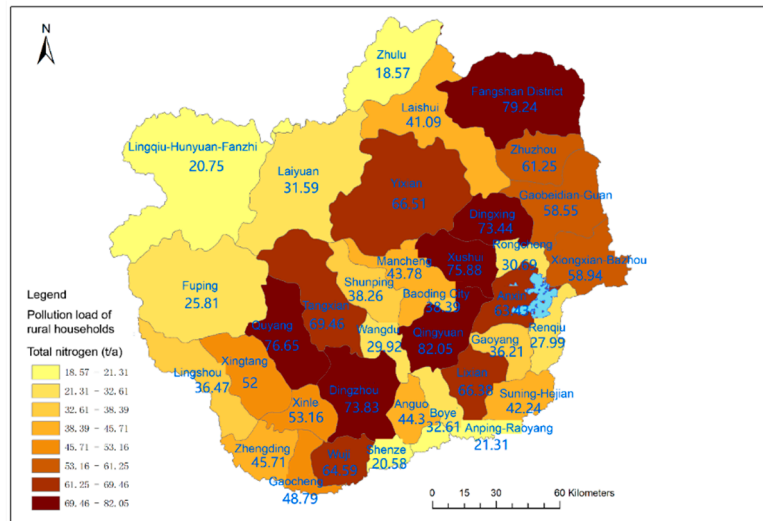
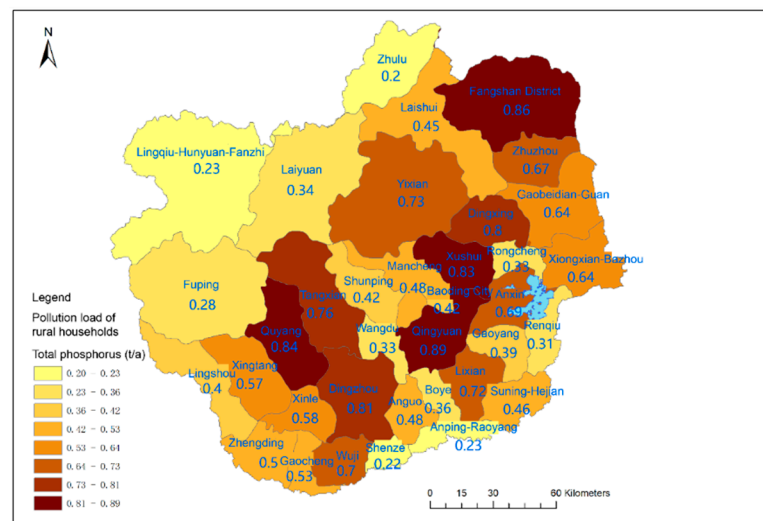


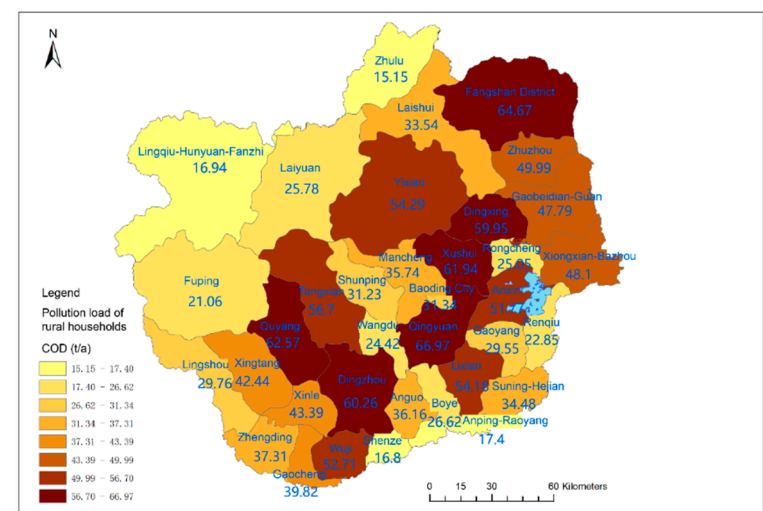
Figure S1. The soil type of Baiyangdian lake Basin.



a



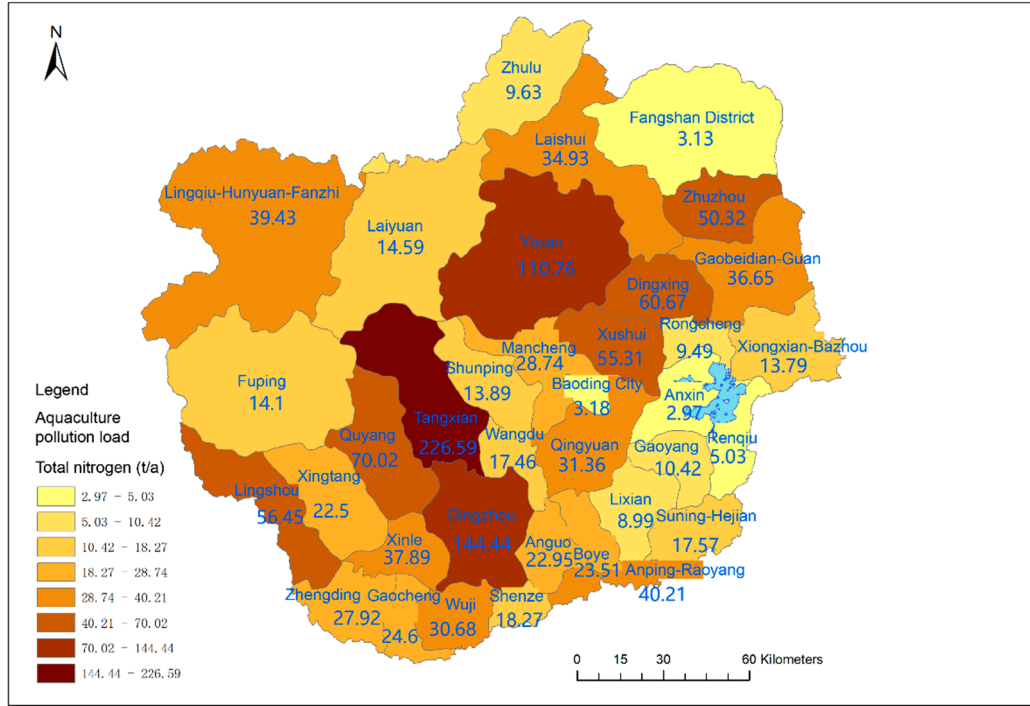
b



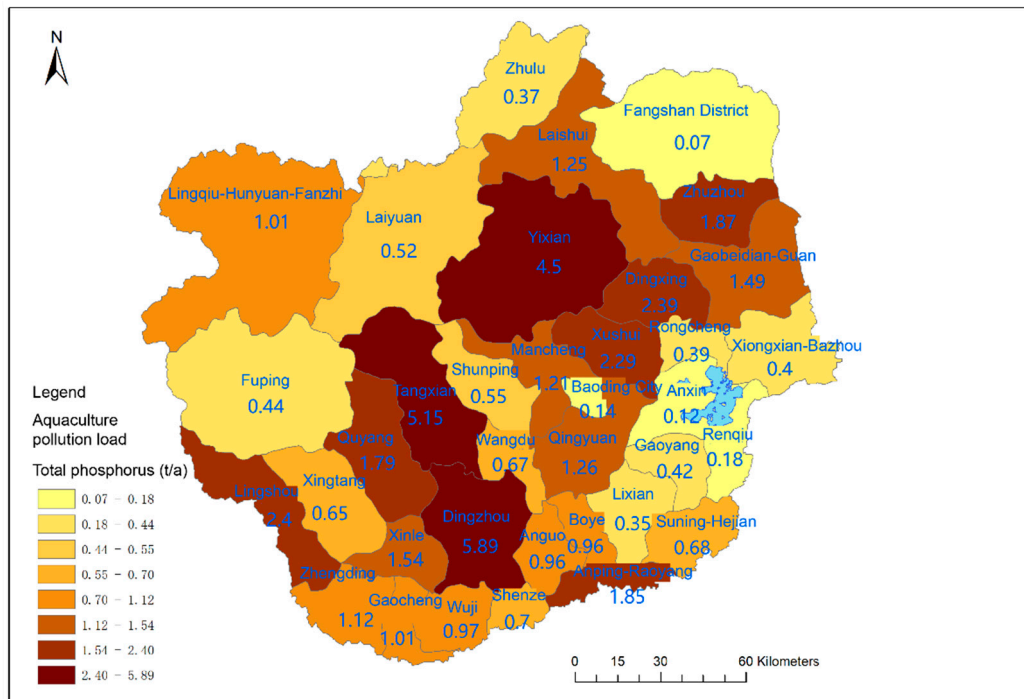
c

Figure S2. Non-point source pollution load of rural life in all districts and counties of the

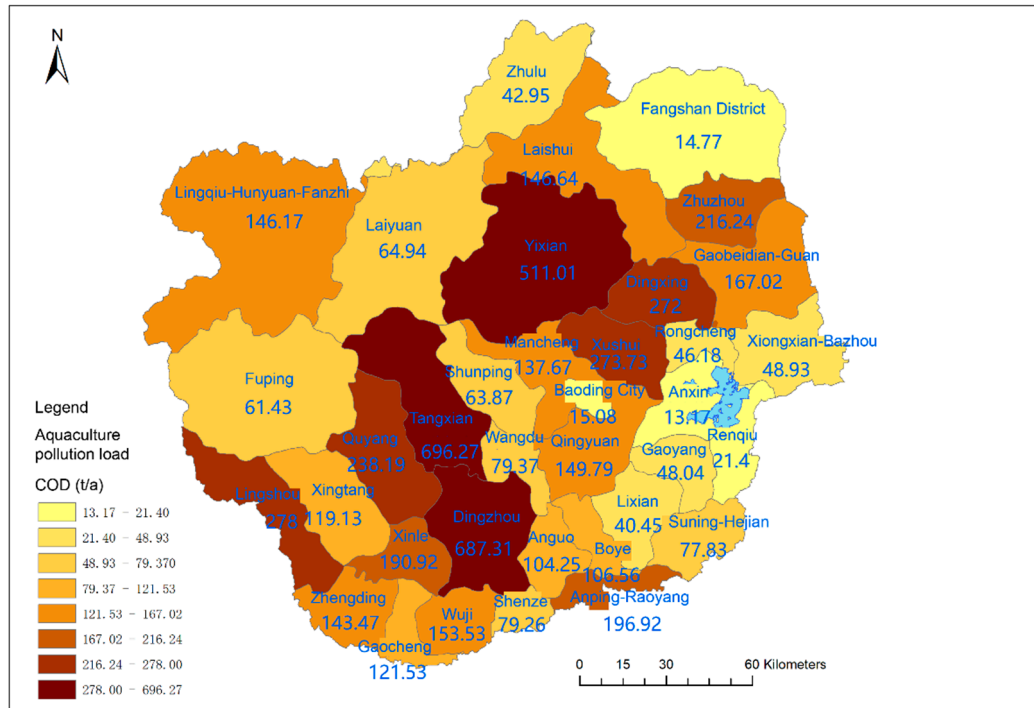
Baiyang Lake
(a: Total nitrogen load; b: Total phosphorus load; c: COD load)



a

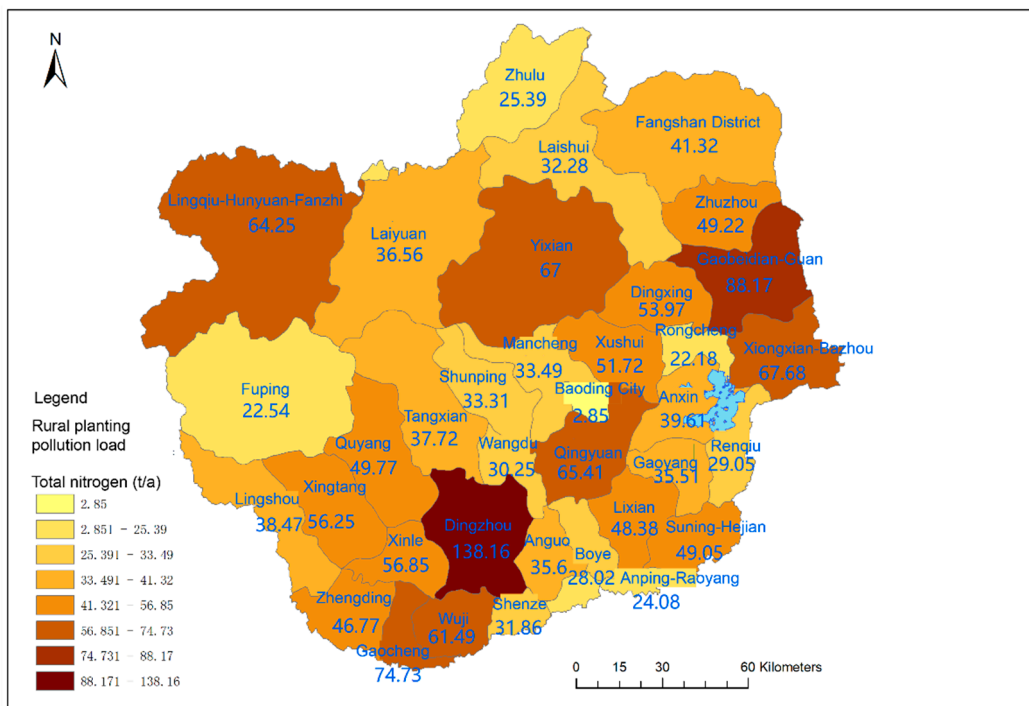


b



c

Figure S3. Non-point source pollution load of livestock and poultry in various districts and counties of Baiyang Lake
(a: Total nitrogen load; b: Total phosphorus load; c: COD load)



[illegible]

Legend

Rural planting pollution load

COD (t/a)

2.110000
2.111 - 17.76
17.761 - 22.00
22.001 - 24.58
24.581 - 32.46
32.461 - 42.21
42.211 - 53.31
53.311 - 89.84

Map labels (COD load values):

- Zhulu: 15.39
- Laishui: 20.42
- Fangshan District: 28.52
- Zhuzhou: 31.96
- Gaobedian-Qian: 53.31
- Yixian: 41.08
- Dingding: 35.75
- Mancheng: 21.24
- Xushui: 32.46
- Rongcheng: 13.98
- Xongxian-Gaozhou: 40.86
- Shunping: 21.24
- Tangxian: 22.85
- Guayang: 24.58
- Wangdi: 19.01
- Qingyuan: 42.21
- Anxin: 24.21
- Gaoyang: 21.62
- Lixian: 31.76
- Suning-Hejian: 31.97
- Rehqlu: 17.76
- Lingshou: 23.8
- Zhangshu: 35.17
- Dingzhou: 89.84
- Anguo: 22.64
- Boye: 17.4
- Anping-Raoyang: 16.29
- Shenze: 19.8
- Guochang-Wuji: 46.11
- Zhongding: 30.05
- Xinlu: 35.97
- Fuping: 14.02
- Lingjiu-Huyuan-Fanzhi: 38.51
- Laiyuan: 22

Figure S4. Non-point source pollution load of agricultural planting in various districts and counties of Baiyang Lake
(a: Total nitrogen load; b: Total phosphorus load; c: COD load)