Iowa Environmental Public Health Tracking Network

Nationally Consistent Data Measures for Community Water Systems

Concentration of Nitrate, 2005

Presented below are data that represent the nationally consistent data measures for presence of nitrate in community water systems in Iowa for the Year 2005:

Community water systems (CWS) are regulated under the Safe Drinking Water Act, and are defined as public water supplies that provide water for human consumption that has at least 15 service connections or serves at least 25 people at least 60 days during the year. The Iowa Department of Natural Resources maintains a statewide Safe Drinking Water Information System (SDWIS), and CWS submit the results of required water quality monitoring to this system.

Nitrate is the contaminant most commonly found in groundwater aquifers worldwide. Nitrate occurs naturally in drinking water contaminated by nitrate-containing fertilizers, sewage and septic tanks, and decaying natural material such as animal waste. Excessive levels of nitrate in drinking water can cause methemoglobinemia and can lead to serious illness and sometimes death in infants due to the conversion of nitrate to nitrite by the body, which can interfere with the oxygen-carrying capacity of the child's blood. Symptoms include shortness of breath and blueness of the skin. The maximum contaminate level for nitrate is 10 milligrams per Liter (10 mg/L), this level is based on studies of cases of metheglobinemia among infants.

CWS also provide estimates of population served through the SDWIS. These numbers are used in the measures presented below, but should be treated as rough estimates and not accurate counts of the population served.

This report contains the following NCDMs

- Distribution of number of community water systems and number of people served by mean nitrate concentrations (milligrams per liter) by year and by quarter.
- Distribution of number of community water systems and number of people served by maximum nitrate concentrations (milligrams per liter) by year.

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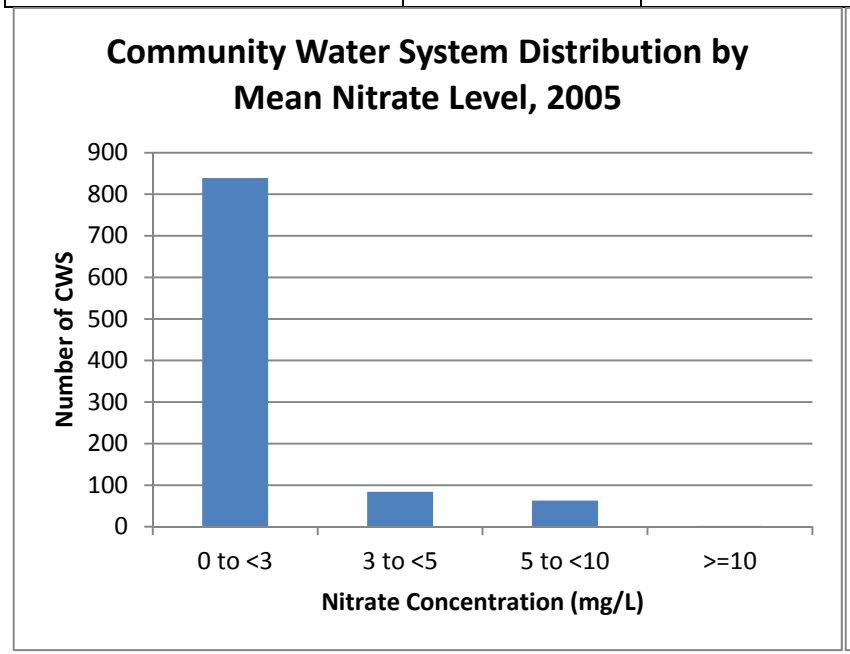
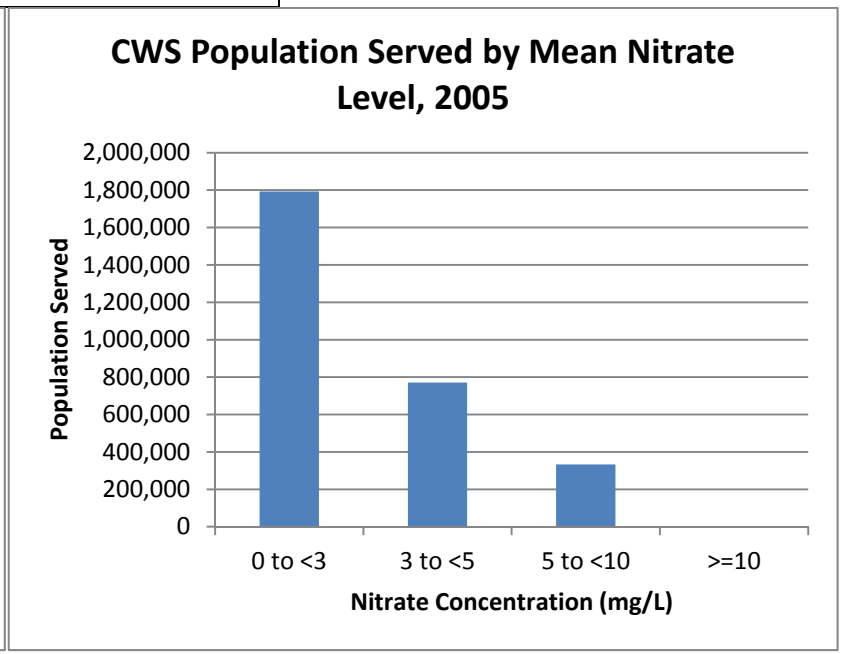
1. Distribution of number of community water systems and number of people served by mean nitrate concentrations (milligrams per liter) by year.

Community Water Systems and Population served by mean Nitrate concentration, 2005		
Nitrate Concentration (mg/L)	**Number of CWS**	**Population Served**
0 to <3	839	1,792,878
3 to <5	84	771,089
5 to <10	63	333,263
>=10	2	667





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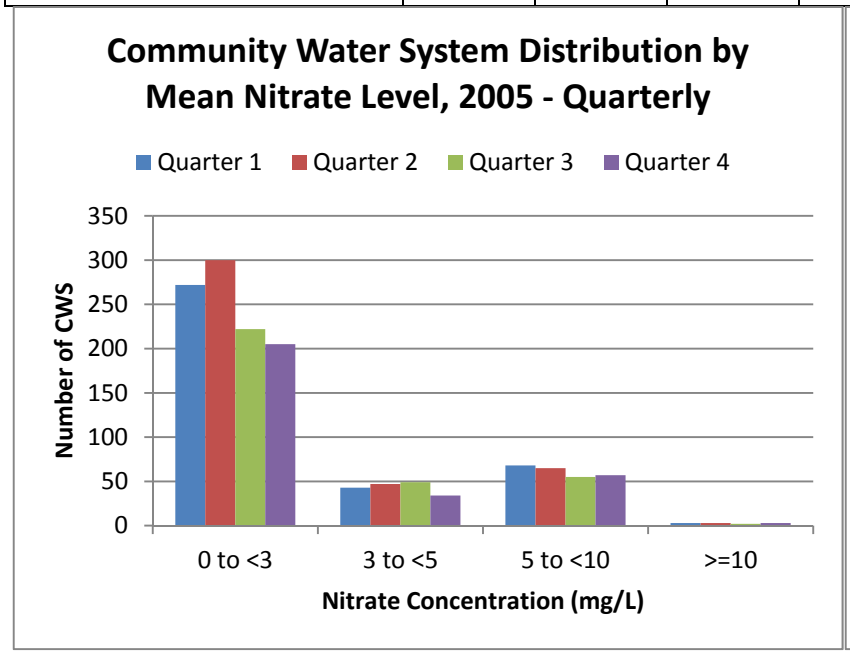
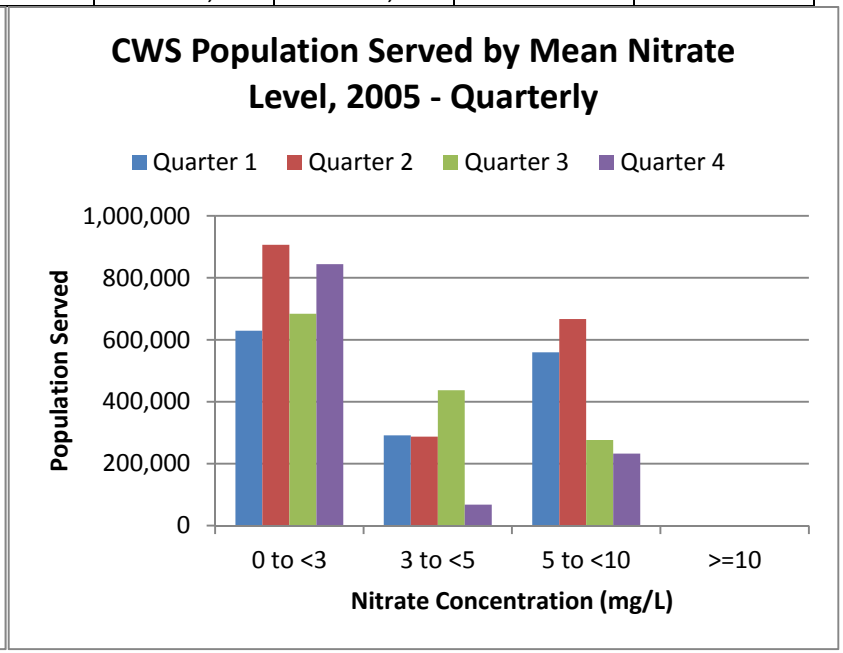
2. Distribution of number of community water systems and number of people served by mean nitrate concentrations (milligrams per liter) by quarter.

Community Water Systems and Population served by mean Nitrate concentration, 2005								
Nitrate Concentration (mg/L)	Number of CWS				Population Served			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
0 to <3	272	300	222	205	629,447	906,399	683,975	844,030
3 to <5	43	47	49	34	291,374	287,154	437,273	67,719
5 to <10	68	65	55	57	559,678	667,125	276,543	232,640
>=10	3	3	2	3	1,017	1,755	667	819





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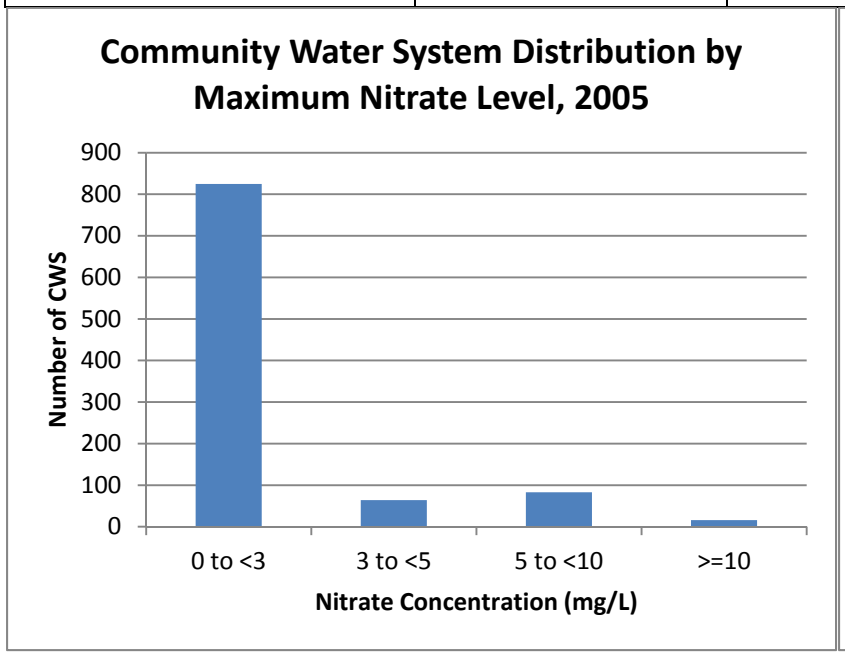
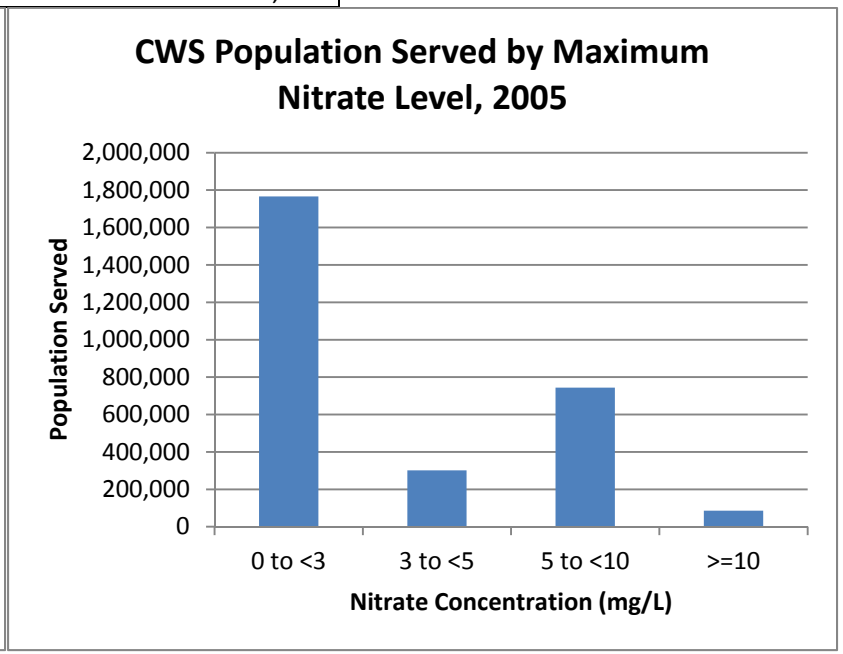
3. Distribution of number of community water systems and number of people served by maximum nitrate concentrations (milligrams per liter) by year.

Community Water Systems and Population served by maximum Nitrate concentration, 2005		
Nitrate Concentration (mg/L)	Number of CWS	Population Served
0 to <3	825	1,766,198
3 to <5	64	301,626
5 to <10	83	743,927
>=10	16	86,146





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