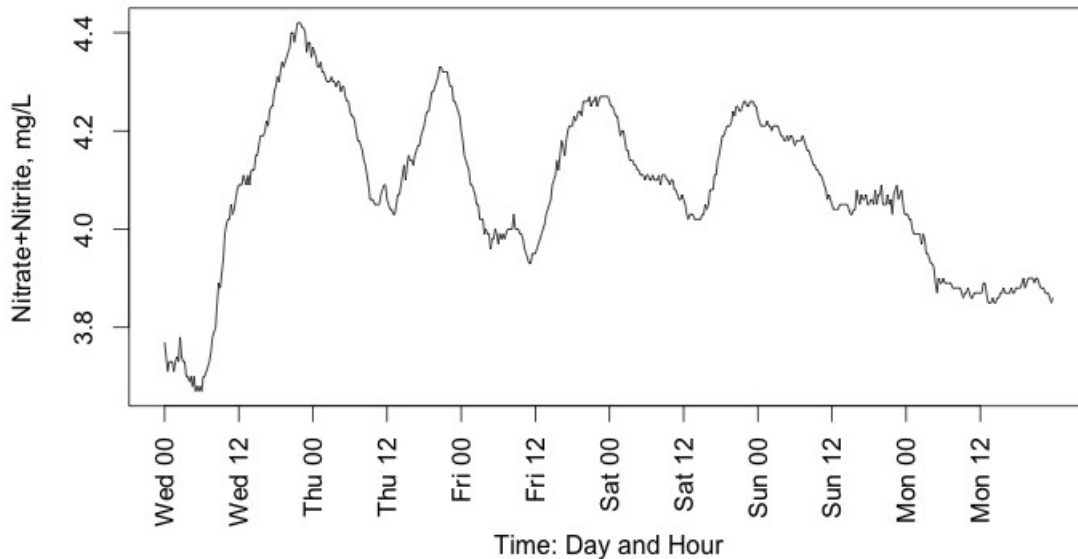


Wash your food in that?!

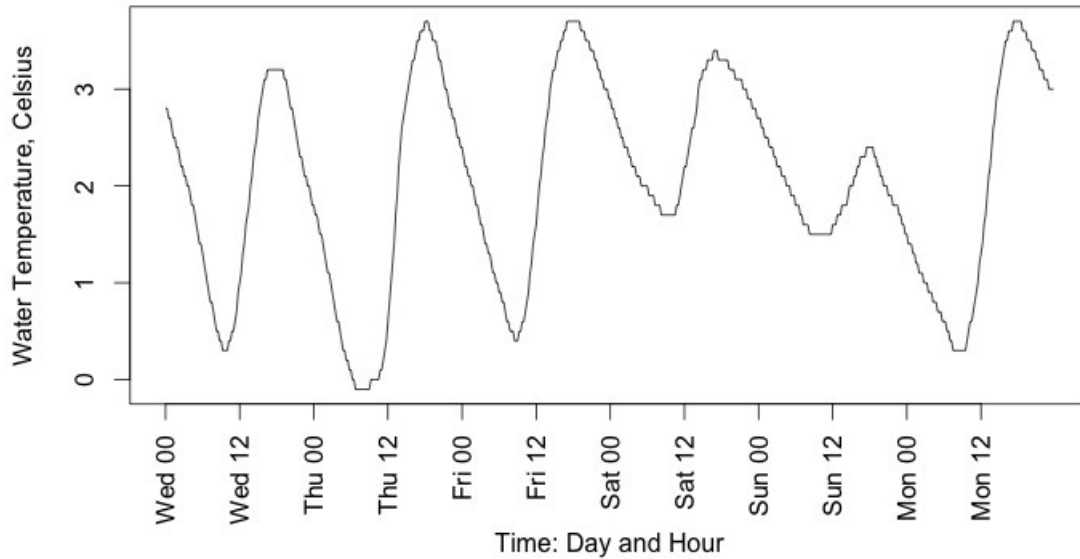
The Raccoon River in Iowa is bordered for miles by cornfields. Fertilizer that was not absorbed and used by growing corn plants over the summer lies in the fields all winter and then is washed into the river by the spring melt. Below is a chart showing the level of nitrate and nitrite measured in the Raccoon River at the Van Meter monitoring station between March 20 and March 25, 2013. Snow had just started melting a few days earlier so these are some of the first readings of the spring. New fertilizer for the coming year's corn crop had not yet been applied.



1. What are the units on the y-axis of the graph? Make sure you understand what amount is being displayed.
2. When is the concentration of nitrate and nitrite detected in the river increasing? Estimate the intervals.
3. When is the concentration of nitrate and nitrite detected in the river decreasing? Estimate the intervals.
4. Is there a pattern in when nitrate and nitrite concentrations are increasing in the river? Describe any pattern you see, using the data to justify your conclusions.

Wash your food in that?!

5. Look at the following graph for water temperature for the Raccoon River, measured at the same monitoring station as the nitrate and nitrite data.



6. When is water temperature increasing each day? Make a list of intervals on which water temperature is increasing.
7. Can you think of a physical reason for the timing of these intervals?
8. What is the average rate of change of water temperature from noon to 9 pm on each day? You will have to estimate values.
9. Can you make any guesses about daytime and nighttime temperatures in Iowa over the period under examination?