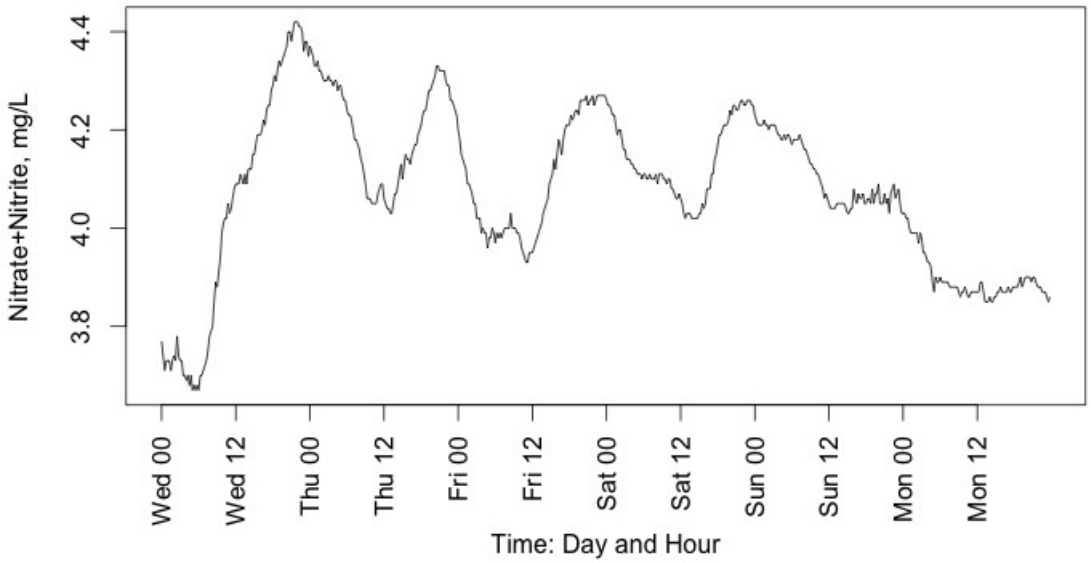
Wash your food in that!?

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 do peak amounts of nitrate and nitrate appear in the river? Make a list of the peaks using estimated time and amount as your coordinates.

3. Is there a pattern in when these peaks occur? Describe it.

4. Is there a pattern in when low amounts of nitrate and nitrite are measured in the river? Describe it, using the data to justify your conclusions.

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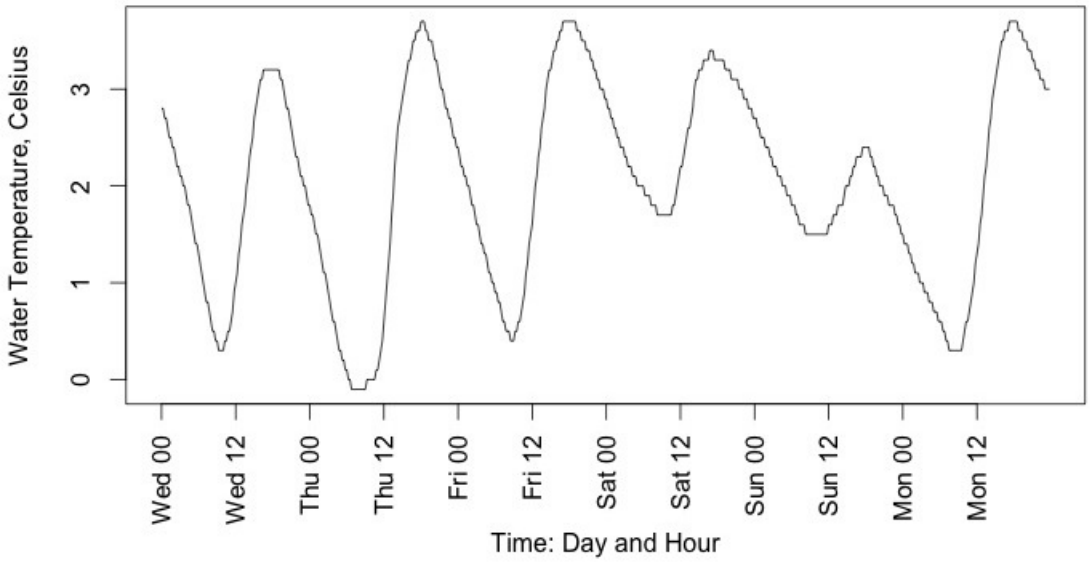
5. Look at the following graph for water temperature for the Raccoon River, measured at the same monitoring station as the nitrate and nitrite data.



6. When is water temperature at its highest each day? Make a list of temperature peaks using estimated time and temperature as your coordinates.

7. Is there a pattern in when these peaks occur? Describe it.

8. How does the pattern of peak water temperature compare with the pattern of peak nitrate and nitrite level? Describe your findings.

9. Can you think of scientific reasons that water temperature and nitrate/nitrite level would be related?