

Case Studies in Microscopy

Cryptosporidium and the NYC Watershed

These questions are meant to help you research the background information you will need to evaluate some of the water quality issues in New York City (NYC), with respect to *Cryptosporidium*. You should answer the following questions as you go through the *Cryptosporidium* Case Study. We will not collect and grade this work sheet.

The case study can be found by going to:

<http://instruct1.cit.cornell.edu/courses/biomi290/microscopycases/>

Part 1. The NYC Water Supply

1--From where does NYC get its drinking water?

2--List two ways that NYC is currently trying to protect the Catskill-Delaware watershed.

Part 2. *Cryptosporidium*

3--How is *Cryptosporidium* transmitted? What are the disease symptoms? Is it highly lethal?

4--What is the most likely source of *Cryptosporidium* in the NYC watershed?

5--What is the current EPA-accepted method for detecting *Cryptosporidium*?

6--Why do you think the other methods (FISH, Gram stain, phase contrast) on the list are not as useful as the EPA method? What problems do you think they have with respect to detecting *Cryptosporidium*?

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Part 3. Record your results below:

Sample site	# oocytes /field	# oocytes /field	# oocytes /field	# oocytes /field	# oocytes /field

8-- What do the results tell you about where in the watershed *Cryptosporidium* is found?

9-- What do the results tell you about whether or not *Cryptosporidium* moves through the watershed?

Final Question: Do you think it is necessary for NYC to filter its water supply to control the spread of *Cryptosporidium*? Explain why or why not.

The purpose of this activity is for you to think about the results and to use the information to make a recommendation to the EPA regarding *Cryptosporidium* and the effectiveness of watershed protection versus the cost of filtration.

Your argument for or against filtration should include information about

- the nature of *Cryptosporidium* and the disease it causes
- what NYC is currently doing to protect its watershed
- whether you think this is good enough protection or not

You must refer to your results and include information from the references as needed. **Your answer should be no more than 2 pages long and handed in on a separate piece of paper.**