

Computer Lab: Pfiesteria Pfact Pfinding

Answer the following questions by visiting the EPA document, “Hysteria Over Pfiesteria” at http://sciencrush.homestead.com/files/MarineDownloads1st/Plankton/pfiesteria_hysteria.pdf

1. What is *Pfiesteria piscicida*?
2. Why are Pfiesteria important?
3. Identify at least two environmental factors that might be responsible for Pfiesteria outbreaks.
4. Identify at least two human health issues associated with Pfiesteria.
5. From the “Career Corner”, identify four careers impacted by Pfiesteria research.

Go to http://www.sciencrush.net/files/MarineDownloads1st/Plankton/Lifecycle_of_pfiesteria.jpg to see the lifecycle diagram of Pfiesteria. Crazy, right?

6. How many different life stages do you see in this diagram?
7. Name three distinct stages of Pfiesteria.
8. Which life stages are definitely toxic?
9. Which stages, other than those listed in the previous question, are also potentially toxic?
10. Estimate the size difference between the smallest and largest stages of the Pfiesteria life cycle.

Go to the NC State website for Applied Aquatic Ecology, <http://www.ncsu.edu/wq/>

11. What is the purpose of NC State’s Center for Applied Aquatic Ecology?
12. Explain some of the current research being done at CAAE by clicking on “Our Research” then on “Research Projects”.
13. Now click on “Harmful Algae” and explain what dinoflagellates are and why they are important.

Click on “Cyanobacteria Project” then scroll down and select “Falls Lake Intake”. This shows current conditions for Falls Lake, which is the main water source for people in Raleigh and Durham.

14. Why would Falls Lake be an important place to measure water conditions?
15. What are the current conditions at Falls Lake Intake for Dissolved Oxygen (mg/L), pH, Sample Depth and Water Temperature ($^{\circ}\text{C}$)

Click on “View Water Column Profiles” and click on yesterday’s date (if yesterday is not available for any reason, pick the most recent date that has data).

16. Describe the trend you see in temperature as a function of depth.
17. What would cause the trend you saw in the previous question?
18. Describe the trend you see in dissolved oxygen as a function of depth.
19. What would cause the trend you saw in the previous question?
20. Describe the trend you see in pH as a function of depth.
21. What would cause changes in pH in an aquatic system?
22. Describe the trend you see in Chlorophyll Relative Fluorescence as a function of depth.
23. What would cause changes in the amount of chlorophyll detected in an aquatic system?
24. How could all of this data be used to determine the possible presence of *Pfiesteria*?
25. Based on the current conditions, do you think a *Pfiesteria* outbreak is imminent at Falls Lake?