



Unmanned Security Vehicle

STEM Sims

Lesson 3: Water Pollution Dilution Solution

Do the effects of water pollution in a harbor affect the ocean water farther away? How does the pollution around ships compare to that found in the open water? Grab your controller and guide your Unmanned Security Vehicles to the open waters.

Doing the Science

1. You must have completed Lesson 1: Water Pollution Source to conduct this lesson.
2. Start the Unmanned Security Vehicle Simulation by clicking on the “Sim” tab.
3. Write the name of the ship or water outflow that you determined was the source of pollutant in Lesson 1 in the first row of Table 1 next to “Ship or Water Outflow Pollution Source.”
4. Click the red ball in the “Controller” box. Dragging the red ball will control the direction of the Unmanned Security Vehicle (USV).
5. Use the controller to move the USV right next to the ship or water outflow that was the source of pollution.
6. Click “Sample” to create a sample of the water in that position.
7. Now move the USV a short distance away from the pollution source and repeat step 6.
8. Move the USV a greater distance away from the pollution source and repeat step 6.
9. Repeat step 8 so you now have a total of four data points, each farther from the source than the previous point.
10. Click on “Temp” under the “Results” panel and record the temperature into Table 1 below.
11. Click on each category (like oil, radiation, etc.) under “Results” and record the data into the table.

Table 1. Ship or Water Outflow Pollution Source: _____

Locations	Temperature	Oil	Radiation	Bacteria	Mercury	Nitrates
Right next to pollution source						
Short distance away from pollution source						
Farther distance away from pollution source						
Farthest distance away from pollution source						

Do You Understand?

1. How do pollutant levels in the areas of open water compare to the areas near the ships?
2. As the distance from a pollutant source increases, what happens to the concentration of the pollutant?
3. Does your answer to question 2 suggest that dumping pollutants in the open ocean is a safe and effective idea? Please explain your response.