



Using Land Cover Data as a Water Quality Indicator

Time: 1-2 40-minute class periods

Grades: Middle-High School

1. Go to <http://noaa.maps.arcgis.com/apps/MapSeries/index.html?appid=e7eb6e9decb14c17a2fef4d36fee1714> or Google “How To Use Land Cover Data as a Water Quality Indicator” and follow the link to the page.
2. Click on “1 Identify Potential Impacts from Impervious Surfaces” on the left side of the page.
3. Zoom in to your school. Click to reveal your watershed.
4. Complete the table below:

Watershed Name	
Total Area (sq mi)	
Total Land Area (sq mi)	
Percent Impervious	
Impervious Area (sq mi)	

5. What is one effect of a high percentage of impervious area? Additional information can be found in the gray box on the left of the screen.

Impervious surfaces and other forms of development reduce the infiltration of water into the ground. Impervious surfaces often contribute to higher storm water runoff, greater sediment yields, and increased pollutant loads, all of which can degrade water quality

6. Click on “2 Identify Potential Effects of Forest Cover” on the left side of the page. Click to reveal your watershed.

7. Complete the table below:

Percent Forested	
Forested Area (sq mi)	

6. 8. List 3 benefits of having a high percentage of forested land in your watershed. Additional information can be found in the gray box on the left of the screen.

Forest cover provides interception, absorption, and natural pollutant processing for rainfall and surface water. Urban trees serve as an inexpensive storm water practice, lowering water treatment costs. In areas with lower levels of development, forest cover is often the best indicator of watershed health.

9. Does your watershed have enough forested land to be protective of the river's biological community?

Watersheds that are over 65% forested have been found to be protective of a stream's biological community. A goal of 40% forest cover is recommended in urban areas.

10. Click on "5 Examine Riparian Buffers" on the left side of the page.

11. Based on the map, how would you define "riparian area"? You may have to zoom out to find a body of water.

Land areas directly influenced by a body of water; usually have visible vegetation or other physical characteristics showing this water influence. Stream banks, land borders, and marshes are typical riparian areas. (Project WET)

12. Click the map near your school. Complete the table below:

Percent Impervious in Riparian Areas	
Percent Forest in Riparian Areas	
Percent Agriculture in Riparian Areas	
Percent Bare in Riparian Areas	

12. Based on these maps, list 3 ways your community could improve the water quality in your watershed:

Plant trees, increase vegetation in riparian areas, reduce agriculture in riparian areas, install rain gardens, reduce impervious surfaces, etc.