

## QUIZ BANK FOR HUMAN IMPACTS MODULE

(Prepared by Students in Environmental Law – JURIS290)

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### Environmental Law:

#### Quiz on “Human Impacts to Rivers and Streams” PowerPoint (and Supplemental Materials)

Ashley Ferrelli & Jordan Davis

1. Being sustainable means:

\_\_\_\_\_ -

Answer: meeting the needs of the present without compromising the ability of future generations to meet their needs

2. The pollution identified in Athens that was discussed in the power point was due to leaking sewer lines and was therefore a \_\_\_\_\_ source of pollution.

Answer: point

3. We should dispose of pet waste in designated receptacles because:

- a) it is good for the environment by reducing nonpoint source pollution
- b) it is courteous to neighbors
- c) pet waste is actually good for the environment and serves as fertilizer
- d) A & B

Answer: (d)

4. Impervious cover effects both the \_\_\_\_\_ and \_\_\_\_\_ of the water.

Answer: quantity and quality

5. Impervious surfaces prevent \_\_\_\_\_ of the water, which harms the quality of the water.

Answer: Infiltration

6. According to the power point, the collection of rainwater can be used for:

- a) watering grass and flowerbeds
- b) flushing toilets
- c) drinking water
- d) A&B
- e) all of the above

Answer: (d)

7. \_\_\_\_\_ pollution is the sediment that washes into streams from fields cleared for planting crops, motor oil from the road, and animal waste.

Answer: Non-point source pollution

8. Reduction of paving, redirection of stormwater to impervious surfaces and collection of rainwater are all ways to manage \_\_\_\_\_.

Answer: Non-point source pollution.

9. Flushing medication is \_\_\_\_\_ to the watershed and environment.

- a) Harmful
- b) Helpful
- c) Has no effect
- d) None of the above.

Answer: (a)

Question for Supplemental Activities Only:

10. Since implementation of the Watershed Management Plan, water quality sampling has shown:

- a) a reduction of some pollutions, but an increase in others
- b) a reduction in pollution in campus streams, but most pollutants still exceed recommended levels
- c) very little improvement in pollution levels
- d) improvement in quantity, but little improvement in pollution levels

Answer: (b)

## QUIZ BANK FOR HUMAN IMPACTS MODULE

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### HUMAN IMPACTS TO RIVERS AND STREAMS

#### MODEL TEST:

Emma Buescher

- (1) List three reasons why the health of our streams and watersheds is important.
- (2) List three natural disturbances which impact streams.
- (3) Discuss one way in which humans can work to lessen human impacts on streams and rivers
- (4) What are the two types of water pollution? How are they different?
- (5) Does impervious cover affect quantity, quality, or both?

#### TEST KEY:

- (1) Drinking water, human health, recreation/aesthetics, ecosystem functions/habitat,
- (2) Floods, tornadoes, hurricanes, lightning/fire, drought, temperature extremes, insects/disease
- (3) Outdoor watering restrictions, replace inefficient bathroom fixtures, irrigate more efficiently, capture rainwater and air conditioning condensate for reuse
- (4) Point source pollution and nonpoint source pollution. Point source pollution directly impacts waterways, while nonpoint source pollution indirectly impacts waterways.
- (5) Both, because it prevents infiltration and replenishment of groundwater sources

## **QUIZ BANK FOR HUMAN IMPACTS MODULE**

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### **UGA Watershed Questions – Calvin Webb**

#### **Pre-Supplemental Activity Questions**

1. What holds our largest source of non-frozen freshwater?
  - a. Aquifers
  - b. Natural lakes
  - c. Reservoirs
  - d. Rivers
2. What watershed exists in 5 Points?
3. What is a headwater stream?
4. What is a watershed?
5. Where does most of the water we get in Athens come from (check all that apply)?
  - a. Man-made lakes/reservoirs
  - b. Groundwater
  - c. Streams
  - d. Rivers
6. Name two aspects of urban areas that affect pollutant concentration in water.
7. What pollution reduction is UGA aiming for in 2020?
  - a. 20%
  - b. 30%
  - c. 40%
  - d. 50%
8. Is point or nonpoint source pollution more straightforward to produce?
9. What are three ways we can counteract the effects of impervious cover?
10. What are three strategies for motivating people to protect our water sources?

#### **Post-Supplemental Activity Questions**

1. Does UGA's Water Management Plan aim to address point or non-point sources of pollution?
  - a. Point
  - b. Non-Point
  - c. Both
2. What differences can you foresee between educating UGA students and members of the greater Athens community?
3. What are some difficulties that could arise when organizations protecting different watersheds try to collaborate?

## **Answer Key**

### **Pre-Supplemental Activity**

1. Aquifers
2. Lilly Branch
3. It is the first observable root of a water system
4. An area of land that flows into a body of water
5. Streams, rivers, man-made lakes
6. Impervious surfaces, culverts
7. 40%
8. Point
9. Minimize paving, use new materials, redirect storm water
10. Legislation, encourage best practices, education

### **Post-Supplemental Activity**

1. Both
2. Looking for students to build off of what they found in Activity 4. Students should be attentive to different approaches to communicating the same goal to diverse audiences.
3. Looking for students to build off of what they did in Activity 5. Students should focus on the different needs between areas as well as how those different needs implicate each other.

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### **Human Impacts to Rivers and Streams Test**

Zach Landy

1. What strategy do we employ to control point source pollution?  
Command-and-control
2. What are the two types of pollution?  
Point source and Non-point source
3. What is the best way to control non-point source pollution?  
Best-management practices
4. List three examples of non-point pollution.  
1) Sediment 2) Animal waste 3) Heavy metals/oils 4) Pesticides/fertilizers
5. Sewer lines are an example of which kind of pollution?  
Point source pollution
6. What Federal act attempts to control point source pollution?  
Clean Water Act
7. What is the major pollutant in UGA streams?  
Fecal coliform
8. Name one consequence of having vast expanses of impervious surfaces.  
1) Flashy stream flow 2) Loss of habitat 3) Bank erosion 4) Carries pollution
9. Describe the characteristics of a conservation subdivision.  
Clusters of homes with large green areas between the clusters
10. List two ways you can help.  
1) Conserve water 2) Pick up pet waste 3) Check for oil leaks 4) Install a rain garden  
5) Refrain from using toxic substances that can run into streams/storm drains  
6) Help with UGA watershed research and service activities

## QUIZ BANK FOR HUMAN IMPACTS MODULE

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### Quiz Questions

Granison (Ted) Eader & Andrew Fulbright

*Answers in Italics*

- 1) Disturbances (natural events or human activities) affect what aspect of our streams?
  - A. Physical
  - B. Biological
  - C. Environmental
  - D. All of the above
  - E. *A and B only*
  
- 2) Which of the following is **not** a natural disturbance which our impact streams?
  - A. Insects and disease
  - B. *Animal Waste*
  - C. Lighting and fire
  - D. Floods
  - E. All of the above
  
- 3) Which of the following is **not** a way that humans alter the quantity or flow of water through a watershed.
  - A. Using water for industrial and irrigation uses
  - B. Dams
  - C. Reservoirs
  - D. *All of the above affect quantity and flow of water*
  - E. Non of the above affect quantity and flow of water
  
- 4) Industrial factories or sewage treatment plants that discharge their treated wastewater directly into waterways through pipes is an example of what?

*Point Source Pollution*
  
- 5) The Clean Water Act is meant to regulate what?
  - A. *Point Source Pollution*
  - B. Nonpoint Source Pollution
  - C. All of the above
  - D. Non of the above
  - E. There is no such thing as the clean water act
  
- 6) Which of the following are examples of nonpoint source pollution?
  - A. Sediment
  - B. Pesticides/fertilizers
  - C. Heavy Metals

- D. All of the above
- E. A and B only

7) A legislative action that specifically commands, or penalizes certain kinds of behavior is known as what?

*“Command and Control” Response*

8) What is **not** one of the measures that UGA implemented in 2007 to cut its water usage?

- A. *Installed high efficiency water fountains*
- B. Replaced inefficient bathroom fixtures
- C. Irrigated more efficiently
- D. Captured rainwater and air conditioning condensate for reuse
- E. None of the above

9) What happens to much of the water stored in large reservoirs?

- A. It is lost to contamination
- B. It depletes the water table
- C. *It evaporates*
- D. All of the above
- E. None of the above

10) What can slow down stormwater and filter out many of the pollutants before they reach the stream?

*A riparian buffer*

11) Which of the leads to stream bank erosion, increased flow of pollutants into streams, and subjects water levels to more extreme changes?

- A. Increases in Impervious Cover
- B. Decreases in the amount of water entering the aquifer
- C. Increasing runoff with decreasing infiltration
- D. *All of the above.*

12) Name a rainwater conservation strategy being used here at UGA.

*Using porous pavements, redirecting rainwater to greenspaces, or collecting rainwater would all be acceptable.*

13) What is the major pollutant that makes UGA’s streams unsafe?

*fecal coliform*

14) What diseases are born by common aquatic bacteria?

- A. Polio
- B. Strep throat
- C. *Cholera*
- D. Bacterial meningitis



- 15) How many rain gardens can currently be found on the UGA campus?
- A. 5
  - B. 17
  - C. Over 50
  - D. Over 100
- 16) If you wanted to purchase a rain barrel in Athens, where would you?  
*the Athens-Clarke County Stormwater Office*
- 17) Encouraging water management through rewards for positive action is indicative of which of the following?
- A. Command and control laws
  - B. *Incentives for BMP's*
  - C. The public education system on water usage.
  - D. The Federal Government's approach.
- 18) What does it mean for a system to be "sustainable"?  
*meeting the needs of the present without compromising the ability of future generations to meet their needs.*
- 19) What new addition to the Art School roof is helping to conserve water?  
*a "green roof", or rooftop garden that redirects water to the ground.*
- 20) What major project is the university currently undertaking to avoid water management issues on campus?
- A. A reverse well that pumps water back into the ground.
  - B. Placing a cover on reservoirs
  - C. Using biotechnology to eradicate harmful bacteria in streams.
  - D. *Replacing over a million square feet of asphalt with vegetation.*

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### Watershed UGA – Quiz (Calvin Webb)

1. Which of the following are examples of natural disturbances?
  - A. Floods
  - B. Chemical leaks
  - C. Drought
  - D. A and C
  
2. By what percentage has UGA cut its daily water use by since 2007?
  - A. 15%
  - B. 20%
  - C. 25%
  - D. 35%
  
3. What methods did UGA use to cut their daily water use by the percentage in Question 2?
  - A. Replaced inefficient bathroom fixtures
  - B. Irrigated more efficiently
  - C. Captured rainwater and air condition condensation for reuse
  - D. All of the above
  
4. Point Source Pollution is
  - A. Pollution that affects a single point in a watershed
  - B. Pollution that can be traced back to a single point
  - C. Is caused by rainfall or snowmelt
  - D. None of the above
  
5. Examples of Point Source Pollution Include
  - A. Industrial Factories
  - B. Rainfall
  - C. Snowmelt
  - D. Both B and C
  
6. What are some good examples of how to best conserve water?
  - A. Turning it off when brushing your teeth
  - B. Watering during the day so that it will quickly evaporate
  - C. Installing Water Efficient shower fixtures
  - D. Both A and C

7. Which of the following is **not** one of the three Pillars of Sustainability
  - A. Computer Systems
  - B. Economic Systems
  - C. Social Systems
  - D. Environmental Systems
8. Which of the following is a source of fecal coliform pollution?
  - A. Industrial Factories
  - B. Pet Waste
  - C. Agricultural byproduct
  - D. Automobile emissions
9. When did Congress Pass the Clean Water Act
  - A. 1953
  - B. 1965
  - C. 1970
  - D. 1971
10. How does the Clean Water Act help protect water?
  - A. It commands sewage treatment and other plants to use certain technologies to reduce pollutions
  - B. It threatens fines and jail time for those who discharge point source pollution without a permit
  - C. Neither A nor B
  - D. Both A and B

Key:

1: D

2: C

3: D

4: B

5: A

6: D

7: A

8: B

9: C

10: D

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### Watershed UGA Quiz – Paul Wildes

1. After the 2007-08 drought, what measures did UGA take to cut its daily water use?  
  
Name two measures.
2. Define point sources pollution.
3. Give an example of nonpoint source pollution.
4. What is the most common microbiological contaminant of natural waters?
5. What are the primary sources of fecal coliform bacteria at UGA?
6. Name two measures UGA has taken to manage storm water.
7. What is an example of a command and control law?
8. When was the UGA Watershed Management Plan first completed?
9. What are the five prongs of UGA's Watershed Management Strategy?
10. What has been the most consistent source of ground monitoring and data collecting for UGA?

Last three only suitable for those who engage in the Supplemental Activities

#### Key:

1. Replaced inefficient bathroom fixtures, irrigated more efficiently, captured rainwater & air conditioning condensate for reuse.
2. Point sources of pollution are those that come from a single point, such as a pipe, and outfall, or a ditch.
3. Sediment that washes into stream from fields cleared for planting crops, heavy metals that wash off the roads, animal waste that washes off into streams.
4. Fecal Coliform bacteria

5. Leaking sewer lines and pet waste
6. Rain gardens, removing asphalt and replacing it with native vegetation, installing a green roof at the art school, installing a 75,000 gallon underground cistern to collect water for reuse.
7. Clean Water Act, Athens-Clarke County riparian buffer ordinance
8. June, 2013
9. Implement best management practices that reduce stormwater flow and eliminate the pollution sources identification through targeted sampling and stream walks; repair leaking sewer lines and stubs; restore targeted stream segments and effective riparian buffers; provide and facilitate ongoing education, outreach, and community engagement on watershed stewardship and best management practices to an audience that includes the UGA community, business and residents within the watershed, and K-12 students; continue targeted water quality monitoring and stream walks to identify additional pollution sources and determine the effectiveness of management activities.
10. The UGA Grounds Department contract with Brown and Caldwell.

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### Watershed UGA Test & Key Spencer Haley

#### A. PowerPoint questions for Human Impacts to Rivers and Streams

1. In 2007, the state of Georgia and UGA experienced a severe drought. Which of the following was **not** a response to that drought?
  - a. UGA cut its daily water consumption by about 25% since 2007.
  - b. The county enacted outdoor watering restrictions.
  - c. UGA has started replacing its toilets with new ones that recycle gray water.
  - d. UGA has started to capture rainwater for use.
  
2. Which of the following is an example of point source pollution?
  - a. Pet waste
  - b. A car leaking motor oil
  - c. pesticides
  - d. A textile factory that discharges untreated dye into a local stream.
  
3. One goal of the Federal Clean Water Act is to get companies to \_\_\_\_\_.
  - a. adopt BMDs (Best Management Doctrines)
  - b. adopt BMPs (Best Management Practices)
  - c. change their practices through incentives.
  - d. Construct a 55 foot riparian buffer between their factories and local waterways.
  
4. What is the best way to describe non-point sources of pollution?
  - a. unified
  - b. systematic
  - c. decentralized
  - d. impractical
  
5. Which of the following is not an example of a way to minimize negative human impacts on rivers and streams?
  - a. All of the below
  - b. New kinds of suburban development
  - c. New porous materials
  - d. Rain gates
  
6. Which of the following is an example of an incentive based regulatory measure?
  - a. Listing the names of the worst polluters in a given area.
  - b. Fining those who fail to adopt technologies that decrease water pollution.
  - c. The Clean Water Act.
  - d. b and c

7. What is the most threatening form of pollution facing Athens' waterways?
  - a. Heavy metals
  - b. Fecal Coliform
  - c. Cigarette butts
  - d. Dyes used in textiles
8. If you want to help preserve Athens' waterways what can you do to help?
  - a. Clean up your pet's waste
  - b. Go water skiing
  - c. Start a raingarden
  - d. a & c
9. The Athens'-Clarke County riparian buffer ordinance requires that property owners maintain a \_\_\_\_\_ riparian buffer.
  - a. 55 foot
  - b. 75 yards
  - c. 75 foot
  - d. 35 foot
10. Sustainability is described as the meeting of today's needs while .....
  - a. ensuring that economic goals can be met.
  - b. ensuring that future generations can meet their needs.
  - c. ensuring that the Clean Water Act is enforced.
  - d. ensuring that long term environmental goals become part of the political process.

**Answer Key**

1. c
2. d
3. b
4. c
5. d
6. a
7. b
8. d
9. c
10. b

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### Watershed UGA - 10 Question Quiz

Emily Shannon

1. What is the main difference between point and non-point sources?
  - A. The pollution comes from one single detectable point, as opposed to runoff, storm water, etc.
  - B. Pollution that comes from one person instead of people as a whole
  - C. Pollution from a company instead of the general population
  - D. Pollution from a point source is not very different than from a non-point
2. Describe an action you can take to reduce non-point pollution.
3. What is a BMP?
  - A. Bad Molecular Pollution
  - B. Better Mass Product
  - C. Best Management Practice
  - D. Best Made Products
4. What is impervious cover?
  - A. Trees, brush, grasses
  - B. Sidewalks, buildings, etc.
  - C. Rushing storm water
  - D. None of the above
5. Circle all that make for a sustainable future for clean water:
  - A. Social
  - B. Environmental
  - C. Economic
  - D. Technological
6. Describe three actions you can take to reduce water pollution on campus.
7. True or False: Disturbances in streams and rivers are only caused by human activities.
8. True or False: UGA has cut its daily water use by 25% since 2007.
9. True or False: Humans alter the quantity of water as well as the quality.
10. True or False: We can control point source pollution through BMPs.



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### Human Impacts to Rivers and Streams Quiz

Michael Sofo

- 1.) Which of the following is NOT a natural disturbance affecting streams?
  - a) Tornadoes
  - b) Floods
  - c) Hydroelectric dams
  - d) Droughts
  
- 2.) Which of the following is an example of point source pollution?
  - a) Sewage treatment plants
  - b) Pet waste
  - c) Sediment
  - d) Fertilizer
  
- 3.) Athens-Clarke County's riparian buffer ordinance is an example of a(n)
  - a) incentive-based approach
  - b) "command and control" law
  - c) impervious service
  - d) disturbance to streams and rivers
  
- 4.) Impervious surfaces can result in:
  - a) flooding
  - b) bank erosion
  - c) loss of habitat
  - d) All of the above
  
- 5.) The number one water quality problem in campus streams is unsafe levels of:
  - a) pesticides
  - b) motor oil
  - c) laundry detergent
  - d) fecal coliform
  
- 6.) Which of the following is NOT a source of fecal coliform?
  - a) Pet waste
  - b) Motor oil
  - c) Stormwater from dumpsters where food attracts rodents
  - d) Leaking sewer lines

- 7.) In a natural ground cover system, what percent of rainfall becomes runoff?
- a) 5%
  - b) 10%
  - c) 20%
  - d) 30%
- 8.) Riparian buffers do NOT do which of the following?
- a) slow down stormwater
  - b) filter out many of the pollutants before they reach the stream
  - c) decrease water infiltration
  - d) prevent erosion
- 9.) \_\_\_\_\_ is caused by rainfall or snowmelt that picks up pollutants from many diffuse sources as it moves over the ground and pavement, and eventually into waterways as diffuse runoff.
- 10.) \_\_\_\_\_ Give an example of an action UGA has taken to control the negative effects of the high impervious cover in our watersheds.

### Answer Key

- 1.) c
- 2.) a
- 3.) b
- 4.) d
- 5.) d
- 6.) b
- 7.) b
- 8.) c
- 9.) Non-point source pollution
- 10.) Rain gardens; replacing asphalt with native vegetation/riparian buffers; installing a green roof on the new Art School; installing an underground cistern to collect rain and condensate water from both the Tate Expansion and the Miller Learning Center.

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### Watershed UGA - Sample Questions and Answers JD Howard

1. Which of the following is an example of a “command and control” enforcement strategy?
  - A. Clean Water Act
  - B. Publishing water usage statistics of important Athens politicians
  - C. Paying farmers not to farm areas within 75 feet of riverbeds
  - D. None of the above
2. Which of the following is not a command and control regulation?
  - A. Clean Water Act
  - B. Mandatory vegetated buffer zones
  - C. Best management practices
  - D. None of the above
3. Which of the following is an example of a point-source pollutant?
  - A. Runoff from a construction site
  - B. Storm water
  - C. Leaky pipes
  - D. All of the above
4. Which one of these is a non-point source pollutant?
  - A. Open discharge from an industrial plant into a stream
  - B. Fecal coliform from animal waste
  - C. Broken pipe in downtown Athens
  - D. None of the above
5. Which type of environment allows water to infiltrate most deeply into the ground?
  - A. Impervious surface
  - B. Parking lots
  - C. Natural ground cover
  - D. Sidewalks
6. Human activities affect water in which of the following ways?
  - A. Water quality
  - B. Water quantity
  - C. None of the above
  - D. A and B

7. What does the Clean Water Act require before allowing the discharge of pollutants?
  - A. The Clean Water Act doesn't allow the discharge of pollutants
  - B. A permit
  - C. State-of-the-art technology
  - D. A pollution clean-up plan
  
8. What is the maximum amount one can be fined for a violation of the Clean Water Act?
  - A. \$100,000
  - B. \$50,000
  - C. \$25,000
  - D. \$12,500
  
9. How are "nonpoint" sources of pollution regulated?
  - A. Incentive based programs
  - B. Best Management Practices
  - C. Locally mandatory vegetated buffer zones
  - D. All of the above
  
10. Which of the following can result from too much impervious surface in an area?
  - A. Flooding
  - B. Erosion
  - C. Loss of aquatic habitat
  - D. All of the above

**Answer Key**

1. A
2. C
3. C
4. B
5. C
6. D
7. B
8. C
9. D
10. D

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### Human Impacts to Rivers and Streams Test Zachery Landy

1. What strategy do we employ to control point source pollution?  
Command-and-control
2. What are the two types of pollution?  
Point source and Non-point source
3. What is the best way to control non-point source pollution?  
Best-management practices
4. List three examples of non-point pollution.  
1) Sediment 2) Animal waste 3) Heavy metals/oils  
4) Pesticides/fertilizers
5. Sewer lines are an example of which kind of pollution?  
Point source pollution
6. What Federal act attempts to control point source pollution?  
Clean Water Act
7. What is the major pollutant in UGA streams?  
Fecal coliform
8. Name one consequence of having vast expanses of impervious surfaces.  
1) Flashy stream flow 2) Loss of habitat 3) Bank erosion 4) Carries  
pollution
9. Describe the characteristics of a conservation subdivision.  
Clusters of homes with large green areas between the clusters
10. List two ways you can help.  
1) Conserve water 2) Pick up pet waste 3) Check for oil leaks 4) Install a rain  
garden  
5) Refrain from using toxic substances that can run into streams/storm drains  
6) Help with UGA watershed research and service activities

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### **Watershed UGA Test Questions**

**Kaden Canfield**

A student who watches the Human Impacts PowerPoint should have no problem answering the following questions:

Q: Is motor oil leaking from a vehicle an example of point or non-point source pollution?

A: Non-point pollution.

Q: T/F? Greenspace is an example of an impervious surface.

A: False. Greenspace is the opposite of an impervious surface as it allows for infiltration, or the replenishment of groundwater sources.

Q: T/F? Environmental disturbances to streams and rivers are always the result of human actions.

A: False. Nature also causes disturbances to watersheds in the form of floods, tornadoes, hurricanes, lightning/fire, drought, temperature extremes, and insects/disease. Because we require water, we must be prepared to deal with the consequences of both manmade and natural disturbances to the watershed.

Q: Impervious surfaces such as buildings, roads, and sidewalks divert stormwater into streams. What are three ways impervious surfaces are harmful to the watershed?

A: Flashy stream flows (high flow during storms, lower flow the rest of the time), bank erosion, loss of habitat, and they carry pollution from the surfaces into streams.

Q: Fecal coliform is the major pollutant to UGA streams. What are the primary sources of fecal coliform pollution in campus streams?

A: Leaky sewer lines and animal waste.

Q: What are the three pillars of sustainability?

A: Environmental systems, economic systems, and social systems.

Q: What are two strategies discussed in the Human Effects slideshow to motivate people to be good stewards of their watershed?

A: Passing laws, providing incentives, public education, and making the right thing easy to do.

Possible questions after participating in the supplemental activity:

Q: When dealing with point source and nonpoint source pollution, which class is more difficult to identify the source of the pollution?

A: Nonpoint.

Q: T/F? All human impacts to the watershed can be prevented.

A: False. Because water is required for many purposes in modern life, a sustainable approach to using and managing our water must be adopted which balances our environmental, economic, and societal needs.

Q: The slideshow discussed four strategies to motivate people to be good stewards of their watersheds. Which strategy do you believe is the most effective? Why?

A: The answers are a little subjective, but the important part is to look for an understanding of the concepts and issues.

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### Model test/answers for Human Impacts to Watersheds PowerPoint

Andy Kite

1. What body or bodies of water does the water for Athens-Clarke County come from? *Oconee River/Bear Creek Reservoir*
2. What is the difference between point and nonpoint source pollution? Give some examples of both. *Point source pollution is emitted from easily identifiable single sources like factory smokestacks or sewer overflow pipes. Nonpoint source pollution occurs when rainfall or snowmelt picks up pollutants which come from many different small, less easily identifiable sources like pet waste and fertilizer runoff from lawns, or oil which gets in runoff from parking lots.*
3. How can we control point source pollution? *Identifying instances of unpermitted pollution emission and prosecuting offenders using the Clean Water Act.*
4. How can we control nonpoint source pollution? *“Best Management Practices”- For example, riparian buffer zones.*
5. How does paving and building in watersheds effect erosion in streams? *Replacing natural ground cover with impervious surfaces means that water rushes into streams at a higher velocity, leading to flooding and erosion of stream banks.*
6. What is the #1 water quality problem in UGA campus streams? *Fecal coliform bacteria*
7. What are the primary sources of fecal coliform in UGA campus streams? *Leaky sewage pipes, pet waste*
8. How is UGA taking action to reduce stormwater runoff? *Building rain gardens, replacing asphalt with native vegetation, collecting rainwater in cisterns to use in flushing toilets and watering plants.*
9. What can you do to help UGA’s watersheds? *Conserve water, check your car for oil leaks, install a rain garden or rain barrel, pick up your pet’s waste, help with watershed service/research opportunities, don’t use toxic substances that can run into drains or streams*
10. When is the best time to water your lawn? *Early in the morning*



**From Supplemental Activities:**

11. What does the Watershed Management Plan suggest can be done to minimize negative impact from dumpsters in the UGA campus watersheds? *Limiting runoff from the dumpsters by “placing the dumpster on an impervious platform to mitigate spills, covering the dumpster, posting signage regarding appropriate dumpster management practices, keeping the dumpsters plugged, keeping the roof and side doors closed, and keeping animals out of the garbage by enclosing the dumpster with walls and fences.”*

## QUIZ BANK FOR HUMAN IMPACTS MODULE

(Prepared by Students in Environmental Law – JURI5290)

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Alex Speer

McCall Trammel

**Note: Answer Key Located at End of Test**

**Note: First eight questions are for students who only watched PowerPoint; last three questions are for students who watched PowerPoint AND engaged in supplemental activities.**

1. Name the three aspects of water which human disturbance affects.
2. Name at least four natural occurrences which impact streams.
3. Since a massive drought in 2007, the University of Georgia took steps to reduce waters use such as installing water saving bathroom fixtures, restricting watering, and reusing condensation. How much has UGA cut down in its water consumption since implementing these changes?
  - 5%
  - 15%
  - 25%
  - 35%
4. By 2020, the University of Georgia hopes to be at what level of water conservation?
  - 75%
  - 60%
  - 50%
  - 40%
5. What is the name for water pollution which comes from a specific pipe or location directly into a water source?
  - Point Source Pollution
  - Direct runoff
  - Expelled pollution
  - Industrial runoff
6. What methods does the government utilize to control point source pollution (think the Clean Water Act)
7. What methods do governments (both local and federal) typically utilize to control nonpoint source pollution?
8. What human activity most prevents precipitations from being absorbed into the ground (a process called infiltration)?
9. What is the most recent action UGA has taken to address the issue of fecal coliform found in the campus water?
10. What action will you start tonight to start helping the Athens and UGA water system?

### **Answer Key**

1. Physical, chemical, and biological.
2. Floods, tornadoes, hurricanes, lightning, fire, drought, temperature extremes, insects, and disease.
3. C
4. D
5. A
6. Command and Control
7. Best Management Practices
8. Pavement and/or urbanization
9. University of Georgia purchased five receptacles which provide bags for pet waste and allows students and visitors to dispose of these wastes.
10. Answer up to participant.

## QUIZ BANK FOR HUMAN IMPACTS MODULE

(Prepared by Students in Environmental Law – JURI5290)

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J.B. Lee

Watershed UGA "Model" Test

- 1) What is the most common microbiological contaminant of natural waters?
  - a) fecal coliform
  - b) fungus
  - c) coccus
  - d) spirillum
  
- 2) What are important reasons to care about UGA's watersheds?
  - a) Drinking water
  - b) Human health
  - c) Recreation/Aesthetics
  - d) Ecosystem Functions/Habitat
  - e) All of the above
  
- 3) What is not one of the 3 pillars of sustainability?
  - a) social
  - b) environmental
  - c) technological
  - d) economic
  
- 4) Natural events or human induced activities that alter stream structure and function may affect these aspects of the stream
  - a) physical
  - b) chemical
  - c) biological
  - d) All of the above
  
- 5) Example of a natural disturbance that may lead to changed in our rivers and streams is
  - a) floods
  - b) tornadoes
  - c) lightening
  - d) temperature extremes
  - e) All of the above
  
- 6) What is the number one water quality problem in campus streams?
  - a) Swimming
  - b) Fecal coliform
  - c) over fishing
  - d) declining water levels

- 7) Being\_\_\_\_\_ means meeting the needs of the present without compromising the ability of future generations to meet their needs
- a) friendly
  - b) politically involved
  - c) sustainable
  - d) All of the above
- 8) What are strategies and motivation for protection our water resources?
- a) command and control laws
  - b) financial incentives
  - c) public education
  - d) providing pet waste receptacles
  - e) all of the above
- 9) How can we address impervious cover impacts?
- a) minimize the amount of paving we do
  - b) Use new paving materials that are porous
  - c) Increase recycling
  - d) Both A & B
  - e) All of the above
- 10) What are examples of nonpoint source pollution?
- a) sediment
  - b) pesticides/fertilizers
  - c) animal waste
  - d) heavy metals/oils
  - e) All of the above

**Answer Key**

- 1) a
- 2) e
- 3) c
- 4) d
- 5) e
- 6) b
- 7) c
- 8) e
- 9) d
- 10) e

## QUIZ BANK FOR HUMAN IMPACTS MODULE

(Prepared by Students in Environmental Law – JURI5290)

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Elizabeth Clarkin

### Human Impact to Rivers and Streams Quiz + Answer Key

1. What is an example of how humans alter the quantity of water flowing through a watershed:
2. What is not an example of how UGA cut its daily water use in 2007 during the drought:
  - a. Replaced insufficient bathroom fixtures
  - b. Installed a channel
  - c. Major streams were daylight
  - d. Captured rainwater for reuse
3. What is an example of nonpoint source pollution: \_\_\_\_\_
4. What is an example of point source pollution: \_\_\_\_\_
5. What does impervious cover not cause:
  - a. Loss of habitat
  - b. Pollution being carried to streams
  - c. Ground water recharge
  - d. Bank erosion
6. What is the main cause of point sources of fecal coliform pollution at UGA:  
\_\_\_\_\_
7. What are examples of how UGA is taking action to control negative effects of high impervious cover in our watersheds (circle all that apply):
  - a. Rain gardens were installed
  - b. Asphalt was replaced with invasive species
  - c. Green roofs were installed on the Lamar Dodd school of art
  - d. There is an underground cistern at the Tate Center
8. What is example of how you can help protecting UGA's streams: \_\_\_\_\_
9. What are the three pillars of sustainability: \_\_\_\_\_
10. Give an example of something you do that effects watersheds and how you can mitigate that problem: (Supplemental activity question)

**Answer Key:**

1. Extraction of water for drinking/residential, industrial, and irrigation uses OR installing dams, reservoirs, and channels alter flow patterns
2. Replaced insufficient bathroom fixtures, irrigated more efficiently, captured rainwater and air conditioning condensate for reuse
3. Sediment, pesticides/fertilizers, animal waste, heavy metals/oils
4. Pipe, outfall, ditch
5. C
6. Leaky sewer lines
7. B
8. Pick up pest's waste, check car for oil leaks, conserve water, install a rain barrel or rain garden, don't use toxic substances that can run into storm drain/streams, help with Watershed UGA (research or service activities)
9. Social, Environment, Economic
10. Up to interpretation