

# Teacher's Guide

## *Southern Coastal Watershed Excursion*

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT

View excursions at: [WaterMatters.org/Education/Teacher-Resources](http://WaterMatters.org/Education/Teacher-Resources)

**Lesson Time:** One block or class period (approximately 50 minutes)

**Grades:** 9–12

**Objective:** Using context clues and relevant facts in the excursion, students will understand the importance of a watershed's health, the characteristics of local watersheds and how human actions affect the environmental quality of valuable habitats and the species of plants and animals in them.

### Next Generation Sunshine State Standards:

- SC.912.L.17.1:** Discuss the characteristics of populations, such as number of individuals, age structure, density, and pattern of distribution.
- SC.912.L.17.7:** Characterize the biotic and abiotic components that define freshwater systems, marine systems and terrestrial systems.
- SC.912.L.17.8:** Recognize the consequences of the losses of biodiversity due to catastrophic events, climate changes, human activity, and the introduction of invasive, nonnative species.
- SC.912.L.17.10:** Diagram and explain the biogeochemical cycles of an ecosystem, including water, carbon, and nitrogen cycle.
- SC.912.L.17.12:** Discuss the political, social, and environmental consequences of sustainable use of land.
- SC.912.L.17.16:** Discuss the large-scale environmental impacts resulting from human activity, including waste spills, oil spills, runoff, greenhouse gases, ozone depletion, and surface water and groundwater pollution.
- SC.912.L.17.18:** Describe how human population size and resource use relate to environmental quality.
- SC.912.L.17.20:** Predict the impact of individuals on environmental systems and examine how human lifestyles affect sustainability.

### Common Core Curriculum Standards:

- |             |                           |                         |
|-------------|---------------------------|-------------------------|
| Grades 9–10 | <b>LACC.910.WHST.1.1e</b> | Text Types and Purposes |
|             | <b>LACC.910.RST.1.1</b>   | Key Ideas and Details   |
|             | <b>LACC.910.RST.1.2</b>   | Key Ideas and Details   |
|             | <b>LACC.910.RST.2.4</b>   | Craft and Structure     |

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|--------------|----------------------------|-------------------------|
| Grades 11–12 | <b>LACC.1112.WHST.1.1e</b> | Text Types and Purposes |
|              | <b>LACC.1112.RST.1.2</b>   | Key Ideas and Details   |
|              | <b>LACC.1112.RST.2.4</b>   | Craft and Structure     |
|              | <b>LACC.1112.RST.2.6</b>   | Craft and Structure     |

# Lesson Plan and Activities

## SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT

<b>Vocabulary:</b>	watershed:	an area of land that water flows across as it moves toward a common body of water, such as a stream, river, or coast
	ecosystem:	a biological community of interacting organisms and their physical environment
	barrier Island:	a long narrow sandy island running parallel to the shore
	estuary:	a semi-enclosed body of water where fresh water mixes with salt water
	bay:	a shallow body of salt water between a larger barrier island and the mainland
	runoff:	rainfall that is not absorbed by the soil but flows to a larger body of water
	sound:	a wide channel linking two large bodies of water or separating an island from the mainland
	wetland:	land that is wet all, or part, of the year and supports plants adapted to changes in water level

- Engage:** (10 minutes) Review the vocabulary terms and read aloud the following to activate prior knowledge:
- Describe what type of vegetation and wildlife you may find along a coastal area in Florida.
  - What do you think the impact would be if concrete sea walls were built along the shore on which houses would be built?
  - Compare saltwater and freshwater aquatic environments.
  - What are some recreational activities people can do along the coast (fishing, boating, shelling, swimming, etc.)?

**Explore/Explain:** (20–25 minutes) Pass the student worksheet out and ask students to go to [WaterMatters.org/Education/Teacher-Resources](http://WaterMatters.org/Education/Teacher-Resources), scroll to the bottom of the webpage and click on the Southern Coastal Watershed Excursion. Instruct students to read the page and click on the tabs to the left under “Sites to see” in order to complete the worksheet.

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# Lesson Plan and Activities *continued from page 2*

## SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT

**Extend:** (10 minutes) Bring the class together after 20–25 minutes to discuss some of the questions on the student worksheet. If time allows, consider using “Think-Pair-Share” and pair students with one another to share their answers. Then ask each pair to share one of their answers with the class.

**Evaluate:** (10 minutes) Students will take a pretest prior to beginning the virtual watershed excursion and a posttest (same as pretest) after viewing the excursion and completing the worksheet.

**Additional Links:** • Visit [WaterMatters.org/Education/Teacher-Resources](https://WaterMatters.org/Education/Teacher-Resources) to view all seven virtual watershed excursions and the coordinating teacher’s guides. At this site, you can also view the Florida Watersheds video (11 minutes) and download the coordinating middle or high school teacher’s guides.

# **Teacher Answer Key**

## ***Southern Coastal Watershed Excursion***

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT

### **Pre-/posttest Answer Key**

- 1) c.
- 2) b.
- 3) c.
- 4) a.
- 5) a.

### **Student Worksheet Answer Key**

- (1) Gulf of Mexico
- (2) watershed
- (3) Manatee River
- (4) hiding places
- (5) organic material
- (6) mainland
- (7) loggerhead turtle
- (8) semi-enclosed body of water
- (9) alteration and loss of coastal uplands and wetlands
- (10) estuary of national significance
- (11) Southwest Florida Water Management District
- (12) Florida scrub-jay
- (13) endemic bird
- (14) chopping and prescribed burning
- (15) barrier island
- (16) sand dunes
- (17) seagrasses
- (18) pine flatwoods, oak scrub, salt flats and mangroves
- (19) salt flats
- (20) preserve and restore native ecosystems

# Pre- and Posttest

## *Southern Coastal Watershed Excursion*

### SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT

- 1) Which is a true statement about land and water?
  - a. Land and water are forever connected by the water cycle.
  - b. Land helps filter pollution before it reaches the nearest waterbody.
  - c. Both a. and b. are true.
- 2) One benefit of a mangrove ecosystem is that:
  - a. Their many roots cause erosion of the shoreline.
  - b. The salt-tolerant roots provide organic material to small creatures.
  - c. They increase the amount of decaying plants on the shoreline.
- 3) Which of the following statements about the Southern Coastal watershed is true?
  - a. The Southern Coastal watershed is located on the Atlantic Ocean.
  - b. The majority of people that live in the Southern Coastal watershed live more than 20 miles from the coast.
  - c. The Southern Coastal watershed has some of the Florida's most productive coastal estuaries.
- 4) What is a mainland's greatest defense against flooding?
  - a. Sand dunes
  - b. Prescribed burning
  - c. Barrier islands
- 5) Which of the following is a true statement about Sarasota Bay, located in the Southern Coastal watershed?
  - a. It's challenged by degraded water quality from pollution and nutrient loading.
  - b. The area has seen an increase in tidal wetlands over the past 50 years.
  - c. Concrete seawalls have been built to protect and restore the shorelines of Sarasota Bay.

# Student Worksheet

## *Southern Coastal Watershed Excursion*

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT

Go to the Southern Coastal Watershed Excursion at: [WaterMatters.org/Watersheds](http://WaterMatters.org/Watersheds) and complete the worksheet while moving through the sections of the excursion.

### Welcome to the Southern Coastal Watershed

The Southern Coastal watershed exists along the coast of the (1) \_\_\_\_\_.

### A Map of the Watershed

A (2) \_\_\_\_\_ is an area of land that water flows across as it moves toward a common body of water, such as a stream, river, lake or coast.

### De Soto National Memorial

In 1539, Hernando de Soto made landfall at the mouth of the (3) \_\_\_\_\_. The mangroves along the river create (4) for a number of species including birds, snakes, and fish. The salt-tolerant roots of mangroves trap (5) for small creatures to feed on.

### Palma Sola Bay

The Palma Sola Bay is located between the city of Bradenton and the barrier island of Anna Maria. A barrier island is a long, narrow sandy island parallel to the shore. A bay is the shallow body of salt water created between a larger barrier island and the (6) \_\_\_\_\_. The most common sea turtle to nest in this area is the (7) \_\_\_\_\_.

### Sarasota Bay

An estuary, like Sarasota Bay, is a (8) \_\_\_\_\_ where fresh water mixes with salt water. This area is home to a variety of marine life. Unfortunately, Sarasota Bay and its watershed faces challenges, one of which is the (9) \_\_\_\_\_ due to development.

# Student Worksheet

## *Southern Coastal Watershed Excursion*

### SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT

#### Improving Sarasota Bay

Sarasota Bay was designated an (10) \_\_\_\_\_ by the U.S. Environmental Protection Agency in 1987. The (11) \_\_\_\_\_ is one agency working to improve the bay through its Surface Water Improvement and Management (SWIM) Program.

#### Oscar Scherer State Park

The Oscar Scherer State Park provides very important habitat to the (12) \_\_\_\_\_, a Florida threatened species and the state's only (13) \_\_\_\_\_. Name two methods land managers use to maintain upland communities (14) \_\_\_\_\_ and \_\_\_\_\_.

#### Venice Area

Venice is one of the few cities on the west coast of Florida that is not separated from the Gulf of Mexico by a (15) \_\_\_\_\_. A mainland's greatest defense against flooding are (16) \_\_\_\_\_.

#### Lemon Bay

Near shore, the key element making the bay water cleaner and stabilizing the sandy bottom are the (17) \_\_\_\_\_. Onshore, you can hike through the following habitats at the Cedar Point Environmental Park (18) \_\_\_\_\_.

#### Gasparilla Sound

The final stop is Gasparilla Sound. A sound is a wide channel linking two large bodies of water or separating an island from the mainland. Along the shores of the Gasparilla Sound there are salt marshes, mangrove swamps and (19) \_\_\_\_\_. This sound is known for sportfishing with a reputation as having the finest shallow-water, or inshore, fishing.

#### Conservation Lands

Land and water are forever linked by Florida's natural water cycle. The Southwest Florida Water Management District and other agencies and governments purchase conservation lands to (20) \_\_\_\_\_.