

Teacher's Guide

Southern Coastal Watershed Excursion

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT

View excursions at: 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
- LACC.910.WHST.1.1e** Text Types and Purposes
 - LACC.910.RST.1.1** Key Ideas and Details
 - LACC.910.RST.1.2** Key Ideas and Details
 - LACC.910.RST.2.4** Craft and Structure
- Grades 11–12
- LACC.1112.WHST.1.1e** Text Types and Purposes
 - LACC.1112.RST.1.2** Key Ideas and Details
 - LACC.1112.RST.2.4** Craft and Structure
 - LACC.1112.RST.2.6** Craft and Structure

Lesson Plan and Activities

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Vocabulary:	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 semienclosed 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, 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*

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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 to view all six 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.
- Take the Watershed Pledge with your class at WaterMatters.org/Education/Teacher-Resources.

Teacher Answer Key

Southern Coastal Watershed Excursion

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Pre-/posttest Answer Key

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

Student Worksheet Answer Key

- (1) Gulf of Mexico
- (2) estuaries, wetlands, coastal streams and canals
- (3) Manatee River
- (4) hiding places
- (5) organic material
- (6) mainland
- (7) manatee
- (8) loggerhead
- (9) saltwater wetlands
- (10) natural shoreline
- (11) Sarasota Bay Estuary Program
- (12) Florida scrub-jay
- (13) chopping and prescribed burning
- (14) Paleo people and Calusa Indians
- (15) barrier island
- (16) shark tooth
- (17) sand dunes
- (18) seagrasses
- (19) nursery grounds
- (20) Indian mound site
- (21) sediments
- (22) salt flats
- (23) birds
- (24) inshore
- (25) Because the best place for shelling is on a sandy beach at the end of an island that faces a channel or pass where the strong currents and tidal flows push shells to the shore.

Pre- and Posttest

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- 1) The following species are protected by law in the Southern Coastal watershed, except:
 - a. Manatees
 - b. Scrub-jay
 - c. Pelicans

- 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 ecosystems.

- 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. The Sarasota Bay Estuary Program identifies negatively impacted estuaries and restores them.
 - b. The area has seen an increase in saltwater 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

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Go to Southern Coastal Watershed Excursion at: WaterMatters.org/Education/Teacher-Resources

Directions: Read the introduction page then click on the tabs under “Sites to See” to fill in the blanks on this worksheet as you complete the tour. Click the next tab to proceed to the following page.

Site 1: Introduction

The Southern Coastal watershed exists along the coast of the (1) _____. It has some of the most productive (2) _____.

Click on “Let’s start with the map of the area” to begin this section.

Site 2: Click on 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.

Site 3: Click on Palma Sola Bay

The Palma Sola Bay, located between the city of Bradenton and Anna Maria, is a barrier island. 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) _____. It is here you may observe a protected species called a “sea cow,” another name for a (7) _____. The most common sea turtle to nest in this area is the (8) _____.

Site 4: Click on Sarasota Bay

This area is home to a variety of marine life. Unfortunately, development over the past 50 years has resulted in the decline of the area’s (9) _____. The main reason for this decline is due to the construction of concrete seawalls that replaced the (10) _____. A program called the (11) _____ identifies estuaries that have been negatively impacted by human activities and works towards restoring and preserving them.

Student Worksheet

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Site 5: Click on Oscar Scherer State Park

This park opened in 1956 for the public to explore and experience natural Florida. The upland pine and scrubby flatwoods are home to the (12) _____, a Florida threatened species. Name two methods land managers use to maintain these communities (13) _____ and _____.

Site 6: Click on Venice Area

Venice's rich history and archeological sites were contributed to by the (14) _____ and _____. 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) _____. Venice is known to be the (16) _____ capital of the world. A mainland's greatest defense against flooding are (17) _____.

Site 7: Click on Lemon Bay

Near shore, the key element making the bay water cleaner and stabilizing the sandy bottom are the (18) _____. This element also provides (19) _____. A prehistoric (20) _____ from 1000 B.C. can be found at Indian Mound Park.

Click on the "Seagrasses" link to the left. One way seagrasses help other organisms is by recycling nutrients from (21) _____ into to the water.

Site 8: Click on 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. The Gasparilla Sound receives freshwater from several sources. Along its shore there are salt marshes, mangrove swamps and (22) _____. Gasparilla Island is a wildlife sanctuary with many species of (23) _____. This sound is known for sportfishing with a reputation as having the finest shallow-water, or (24) _____, fishing.

Click on the "Seashells" image on the left. Explain why Gasparilla Island is popular for shelling?

(25) _____
