

Third Grade Manatee Curriculum—Lesson 5: Manatees and Their Cousins¹

Maia McGuire and Ruth Francis-Floyd²

For more lessons in the *Third Grade Manatee Curriculum* series, go to http://edis.ifas.ufl.edu/topic_series_third_grade_manatee_workbook.

Description

Students will learn about different species of sirenians, and will use maps to locate where each species lives.

Objective

By the end of the activity, students will be able to name at least three different types of sirenians and where they live.

Standards Addressed

Florida—SC.3.N.1.1;

Common Core—CCSS.ELA-Literacy.RI.3.7; CCSS.Math.Content.3.NF.A.1

Vocabulary

extinct, sirenian, blubber, species, continent

You Will Need

- Copies of Florida Fish & Wildlife Conservation Commission's *Manatee Activity Workbook—Florida's Gentle Giants* for each student, or copies of Sirenia distribution map
- Copies of Sirenia species image ("Sirenians of the World" poster, included with this activity) for small-group use
- Rulers
- Map of sea surface temperatures (included with this activity)
- Copy of world map worksheet and Lesson 5 (Sirenians) worksheet for each student

Strategy

1. Explain to students that the manatees in Florida are one of five species that belong to a group of animals called Sirenia. This lesson will teach them about the different Sirenian species. Have students look at page 6 ("Sirenians of the World" section) in the activity book *Florida's Gentle Giants*.
2. Explain that Florida manatees don't have much blubber (fat), but one of their relatives did—the Steller's Sea Cow. It lived in the Bering Sea, off Alaska, but is now extinct. It was hunted for its blubber, which people burned for light and heat (a bit like candle wax). People discovered Steller's Sea Cows in 1741, but by 1768 they were extinct

1. This document is VM208, one of a series of the Veterinary Medicine—Large Animal Clinical Sciences Department, UF/IFAS Extension. Original publication date July 2015. Revised October 2018 and September 2021. Visit the EDIS website at <http://edis.ifas.ufl.edu> for the currently supported version of this publication.
2. Maia McGuire, marine agent, UF/IFAS Extension St. Johns and Flagler Counties, Bunnell, FL; and Ruth Francis-Floyd, professor and UF/IFAS Extension veterinarian, College of Veterinary Medicine and School of Forest Resources; UF/IFAS Extension, Gainesville, FL 32611.

The authors would like to thank the Florida Fish and Wildlife Conservation Commission for their financial support of this project.

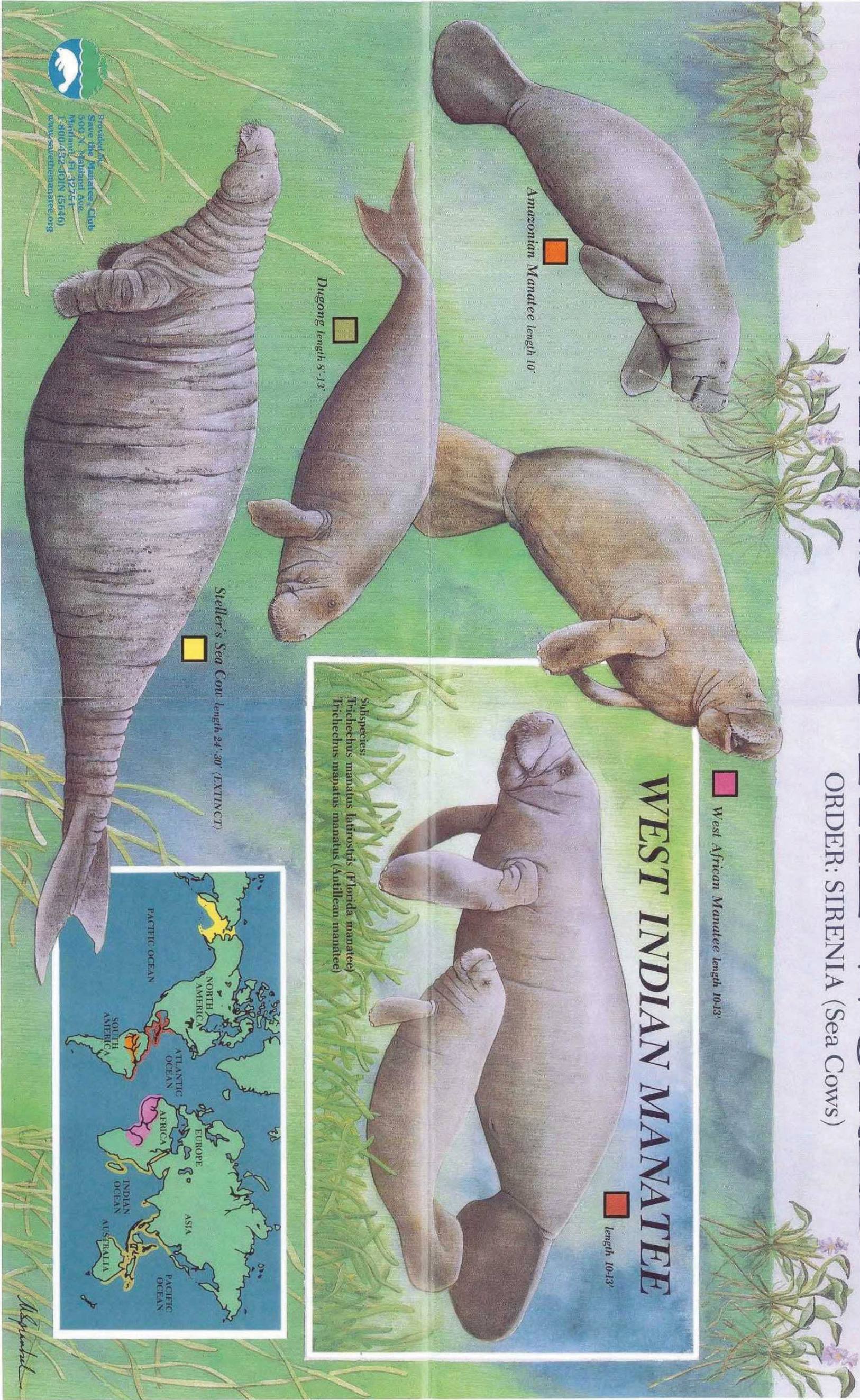
The Institute of Food and Agricultural Sciences (IFAS) is an Equal Opportunity Institution authorized to provide research, educational information and other services only to individuals and institutions that function with non-discrimination with respect to race, creed, color, religion, age, disability, sex, sexual orientation, marital status, national origin, political opinions or affiliations. For more information on obtaining other UF/IFAS Extension publications, contact your county's UF/IFAS Extension office.

(which means there were no more living). (See blubber glove activity described in Lesson 9.)

3. Show students the drawing of the different sirenian species (via laminated handouts or projector). Ask them to write on their worksheet which species is the largest. (*Answer: Steller's Sea Cow*)
4. Show students the map of sea surface temperatures. Explain to them that the water temperatures are given in degrees Celsius, and show them how to use the table to find the equivalent temperatures in Fahrenheit. Have them use the temperature map and the "Sirenians of the World" map (on page 6 of Florida's Gentle Giants activity book) to answer questions on the worksheet.
5. Pose a hypothesis: Animals that live in warmer water often grow faster, but don't get as big as animals that live in colder water. Do the students' observations about Sirenian species agree with this statement?
6. Give students a world map worksheet (such as <http://www.enchantedlearning.com/geography/label/labelcontinents.shtml>). Have them label the continents. Which continents do not have any manatees or manatee relatives? (*Answer: Europe, Antarctica.*) What fraction of the continents has manatees or manatee relatives? (*Answer: 5/7*)

SIRENIANS OF THE WORLD

ORDER: SIRENIA (Sea Cows)



FAMILY: DUGONGIDAE (Dugongs)

Dugong dugon (dugong)
Smooth skin. Notched tail fluke. Without nails on flippers. Marine habitats. Found in Indo-Pacific region. Hunted for food by native people. Feeds on marine grasses

Hydrodamalis gigas (Steller's sea cow)
Dark, heavily textured skin. Forked tail fluke. Up to 30 feet in length. Weight 3 ½ tons. Toothless. Formerly found in arctic waters of the Bering Strait. (Hunted to extinction within 27 years of its discovery in 1741.)

FAMILY: TRICHECHIDAE (Manatees)

Trichechus manatus (West Indian manatee)
Round, paddle-shaped tail. Nails on flippers. Length up to 13 feet and weight over 3,000 pounds. Found in southeastern United States and Caribbean Sea as far south as Recife, Brazil in salt, fresh, or brackish waters. Principal threats are boat collisions and habitat degradation. Feeds on marine, estuarine, and fresh water vegetation.

Trichechus inunguis (Amazonian manatee)
Smooth skin. No nails on flippers. Found in fresh waters of the Amazon River and tributaries. Hunting pressures from native people. Feeds on fresh water vegetation.

Trichechus senegalensis (West African manatee)
Similar in appearance and habits to the West Indian manatee. Very little is known about this species. Found in West African coastal areas.

Figure 1. Sirenians of the World poster / Credits: Save the Manatee Club (<http://www.savethemanatee.org>)

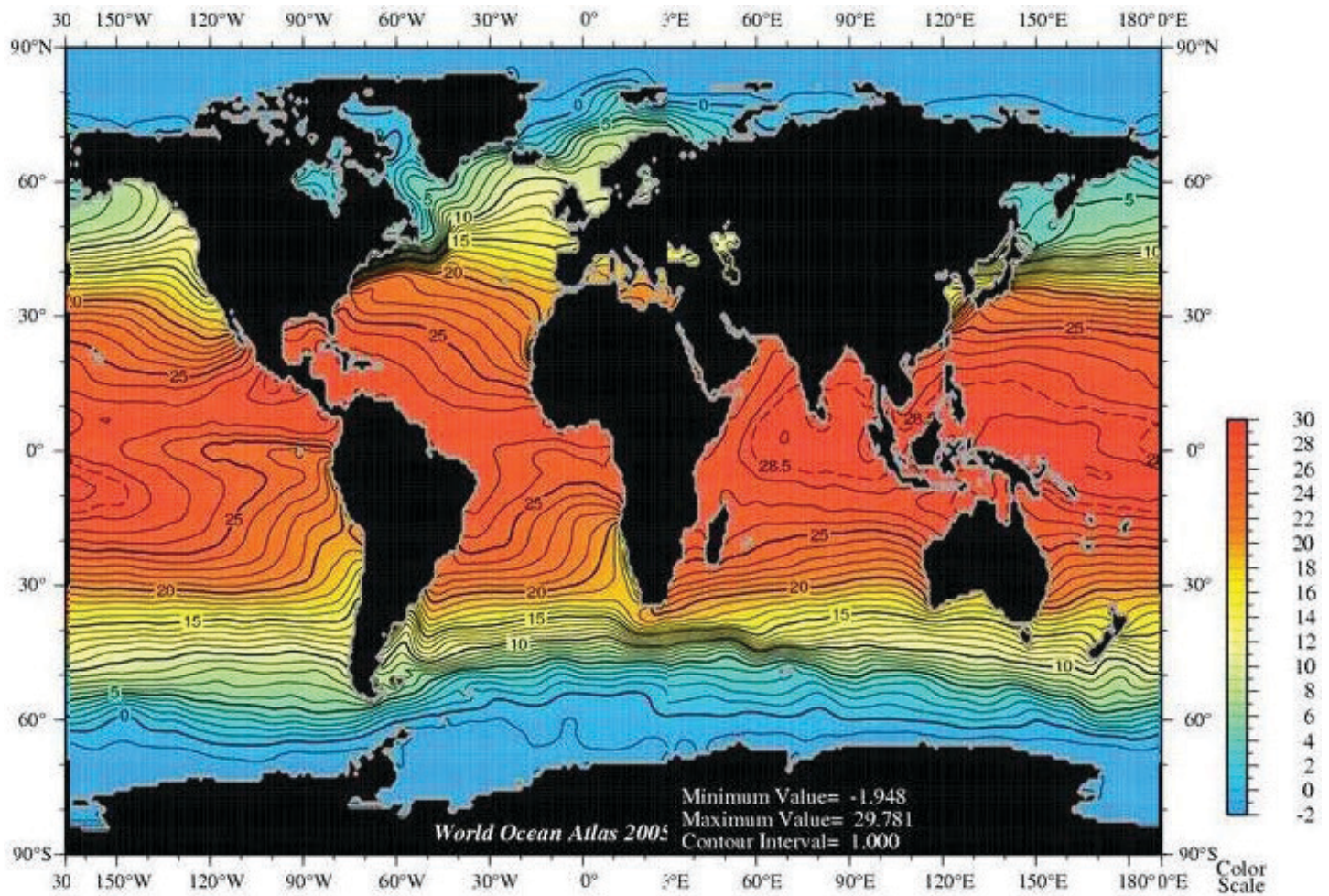


Figure 2. Sea surface temperatures in °C
Credits: NOAA/National Ocean Climate Data Center

Table 1. Temperature conversions (for use with water temperature map).

Temperature (°C)	Temperature (°F)		Temperature (°C)	Temperature (°F)
30	86		12	54
28	82		10	50
26	79		8	46
24	75		6	43
22	72		4	39
20	68		2	36
18	64		0	32
16	61		-2	28
14	57			

Lesson 5 (Sirenians)

Worksheet

Name: _____

1. Which of the sirenians is the largest? _____
2. Look at the “Sirenians of the World” map on page 6 of the *Florida’s Gentle Giants* activity book. There are different patterns on the map showing where the different types of sirenians live. Use the map to answer the following questions:
 - a. In what sea did the Steller’s sea cow live? _____
 - b. The dugong can be found on the edges of three continents. Name one of those continents:

3. Look at the temperature map side-by-side with the “Sirenians of the World” map. We’re going to compare the ocean temperatures with where the different sirenians can be found. To do this, look for the lines on the temperature map that have the number 20 written in them. Now, try and draw these lines on the “Sirenians of the World” map, by looking for the points where the 20°C lines meet the continents, and marking those points on the “Sirenians of the World” map. Then connect them with lines that are close to the same shape as the ones on the temperature map.
 - a. What types of sirenians are found between the 20°C lines? _____
 - b. What type of sirenian is found outside the 20°C lines (i.e., in water colder than 20°C)?

Lesson 5 (Sirenians)

Answer Key

Name: _____

1. Which of the sirenians is the largest? **Steller's Sea Cow**
2. Look at the “Sirenians of the World” map on page 6 of the *Florida's Gentle Giants* activity book. There are different patterns on the map showing where the different types of sirenians live. Use the map to answer the following questions:
 - a. In what sea did the Steller's sea cow live? **Bering Sea**
 - b. The dugong can be found on the edges of three continents. Name one of those continents:
Australia, Asia, or Africa
3. Look at the temperature map side-by-side with the “Sirenians of the World” map. We're going to compare the ocean temperatures with where the different sirenians can be found. To do this, look for the lines on the temperature map that have the number 20 written in them. Now, try and draw these lines on the “Sirenians of the World” map, by looking for the points where the 20°C lines meet the continents, and marking those points on the “Sirenians of the World” map. Then connect them with lines that are close to the same shape as the ones on the temperature map.
 - a. What types of sirenians are found between the 20°C lines? **West Indian Manatee, Amazonian Manatee, West African Manatee, Dugong**
 - b. What type of sirenian is found outside the 20°C lines (i.e., in water colder than 20°C)?
Steller's Sea Cow