

**RESOURCE LIBRARY**  
ACTIVITY : 45 MINS

## Oil and Bird Populations

Students learn about wildlife diversity in the Gulf of Mexico, including different species of birds that live in or migrate through the Gulf of Mexico. Students identify bird species' feeding behaviors and dietary needs based on physical attributes. They discuss migration, the effects oil may have on migrating birds, and what can be done to help migrating animals when there is an environmental disaster like an oil spill.

### GRADES

5 - 8

### SUBJECTS

*Biology, Ecology, Earth Science, Oceanography, Geography, Physical Geography*

### CONTENTS

2 PDFs, 1 Video

## OVERVIEW

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For the complete activity with media resources, visit:

<http://www.nationalgeographic.org/activity/oil-and-bird-populations/>

## DIRECTIONS

**1. Build background about bird species in the Gulf of Mexico.**

Download and project for students the Layers of Life diagram that accompanies the map Gulf of Mexico: A Geography of Offshore Oil, from the October 2010 issue of *National Geographic* magazine. Explain that the Gulf of Mexico is home to many species of plants and animals. Tell students that, while many birds live in and around the Gulf of Mexico year round, hundreds of species and millions of birds visit the Gulf of Mexico annually. Ask: *What is it called when animals move from one geographic location to another throughout the year?* (animal migration) Then have students use the diagram as a resource to complete the following tasks:

- identify different ecosystems found in the Gulf that are important to birds
- make predictions about what food birds may find there, based on other organisms in the illustration

## 2. Discuss bird migration.

Have students watch the National Geographic video “Gulf Spill Still Threatens Millions of Migrating Birds.”

Then use the map Gulf of Mexico: A Geography of Offshore Oil to geo-locate: the Gulf; one or two examples of migratory routes by different bird species; and one or two of the marsh/wetland habitats mentioned in the video. Check students’ comprehension. Ask:

- *Why are birds that die usually not found?*
- *Do birds stop to eat or mate while migrating?*
- *What are some threats to migrating birds?*

## 3. Discuss the impacts of oil on migrating birds.

Revisit the Layers of Life diagram and help students make connections between their observations from Step 1 and the video as you discuss the following questions:

- *What are examples of how the oil in the Gulf can impact the birds directly?* (oil in feathers, ingesting the oil while feeding, stressed birds)
- *What are examples of how oil in the Gulf can impact the birds indirectly?* (killing or removing food sources, especially from dispersed oil that sinks to the bottom; destroying bird habitat like marshes and wetlands; web of life effects that impact several different species)

- *What does the researcher mean by the “web of life” of the Gulf? How could oil on the bottom of the ocean affect birds and the web of life?*
- *How long will these impacts from oil be around?*
- *How could these impacts affect future populations of bird species that live in or migrate through the Gulf?*

If time allows, have students use the prompts above to create a visual presentation, such as a poster, illustrating how oil in the Gulf of Mexico impacts the health of local and migrating bird populations.

#### **4. Discuss the steps being taken to protect bird populations.**

*Ask: How do you think scientists, companies, government, and private groups work to protect bird populations? Explain that after the 2010 Gulf oil spill, scientists and oil cleanup crews tried to keep oil out of estuary environments, which are adversely affected by oil contamination. Tell students that hundreds of birds were cleaned of oil and returned to the wild. Some birds, like brown pelicans, were moved to oil-free states for safety. Tell students that scientists continue to monitor bird populations and help the birds to the best of their ability for years to come. Government and private groups also began long-term projects to rebuild and replant barrier islands, and restore natural flow and sedimentation from rivers.*

## Informal Assessment

Assess students’ visual presentations based on organization and content.

## Extending the Learning

Have each student research a local bird species or a species of bird that migrates through your local geographic region. Have the class map all of the species’ home ranges and migration routes on one classroom map. Ask each student to share with the class one or more interesting facts about the organism that they researched.

# OBJECTIVES

## Subjects & Disciplines

### Biology

- Ecology

### Earth Science

- Oceanography

### Geography

- Physical Geography

## Learning Objectives

Students will:

- identify several species of birds that live in the Gulf of Mexico
- identify food sources and feeding behaviors of birds based on the physical attributes of an organism
- describe bird migrations and the possible impacts of oil on migrating birds
- explain what scientists and volunteers are doing to help migrating birds that are traveling through areas contaminated with oil

## Teaching Approach

- Learning-for-use

## Teaching Methods

- Discussions
- Multimedia instruction

## Skills Summary

This activity targets the following skills:

- Critical Thinking Skills
  - Analyzing
  - Evaluating
  - Understanding
- Geographic Skills
  - Acquiring Geographic Information
  - Analyzing Geographic Information

# National Standards, Principles, and Practices

## NATIONAL COUNCIL FOR SOCIAL STUDIES CURRICULUM STANDARDS

- Theme 3:

People, Places, and Environments

## NATIONAL GEOGRAPHY STANDARDS

- Standard 14:

How human actions modify the physical environment

## NATIONAL SCIENCE EDUCATION STANDARDS

- (5-8) Standard C-4:

Populations and ecosystems

- (5-8) Standard C-5:

Diversity and adaptations of organisms

## OCEAN LITERACY ESSENTIAL PRINCIPLES AND FUNDAMENTAL CONCEPTS

- Principle 6e:

Humans affect the ocean in a variety of ways. Laws, regulations and resource management affect what is taken out and put into the ocean. Human development and activity leads to pollution (such as point source, non-point source, and noise pollution) and physical modifications (such as changes to beaches, shores and rivers). In addition, humans have removed most of the large vertebrates from the ocean.

## **Preparation**

### **What You'll Need**

#### **MATERIALS YOU PROVIDE**

- Colored markers
- Magazines with animal photos
- Poster board
- Scissors
- Transparent tape

#### **REQUIRED TECHNOLOGY**

- Internet Access: Optional
- Tech Setup: 1 computer per classroom, Projector, Speakers

#### **PHYSICAL SPACE**

- Classroom

#### **GROUPING**

- Large-group instruction

## **BACKGROUND & VOCABULARY**

### **Background Information**

Many animal species migrate. Birds travel long distances in search of food, mates, and for warmer climates. Most species of migrating birds need to stop to eat and rest on their journeys. The Gulf of Mexico is a common stopover or final destination for migrating birds. Oil or other forms of contamination are detrimental to the health of organisms that are year-round residents of an ecosystem, as well as animals that migrate through a region.

### **Prior Knowledge**

# Recommended Prior Activities

- None

## Vocabulary

Term	Part of Speech	Definition
animal migration	<i>noun</i>	process where a community of animals leaves a habitat for part of the year or part of their lives, and moves to habitats that are more hospitable.
barrier island	<i>noun</i>	long, narrow strip of sandy land built up by waves and tides that protects the mainland shore from erosion.
ecosystem	<i>noun</i>	community and interactions of living and nonliving things in an area.
environment	<i>noun</i>	conditions that surround and influence an organism or community.
estuary	<i>noun</i>	mouth of a river where the river's current meets the sea's tide.
habitat	<i>noun</i>	environment where an organism lives throughout the year or for shorter periods of time.
marsh	<i>noun</i>	wetland area usually covered by a shallow layer of seawater or freshwater.
ocean	<i>noun</i>	large body of salt water that covers most of the Earth.
oil spill	<i>noun</i>	accidental release of petroleum products into a body of water, either by an oil tanker or an offshore oil rig.
sedimentation	<i>noun</i>	process of accumulating small solid deposits.
species	<i>noun</i>	group of similar organisms that can reproduce with each other.
wetland	<i>noun</i>	area of land covered by shallow water or saturated by water.

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### For Further Exploration

#### Articles & Profiles

- [National Geographic News: Gulf Oil Spill Anniversary: Resilience Amid Unknowns](#)

## Interactives

- [National Geographic Magazine: Interactive—Layers of Life](#)
- [National Geographic Magazine: Interactive Map—The Geography of Offshore Oil](#)

## Websites

- [National Geographic Environment: The Ocean](#)
- [National Geographic Environment: The Ocean—Gulf Oil Spill](#)
- [National Geographic Animals](#)

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