

Task Overview

Many of us know that pandas, tigers and elephants are animals that are much more rare today than they were many years ago. In some cases the numbers of these animals are so low that scientists are worried that they may someday disappear from the earth.

We need not travel to Asia or Africa to find animals that are of such concern. Right here in Maryland there are animals and plants that are in danger of disappearing forever. One of these animals is a little turtle known as the Diamondback Terrapin.

In this task you will learn how scientists work to find information about animal populations and the problems that some animals face. You will help these scientists by researching a location in Calvert County as a possible home for the Diamond-backed Terrapin. Your hard work can really make a difference for this interesting Chesapeake Bay animal.

Activity 1

Animal Populations

Throughout history, the kinds and numbers of animals have changed. Some animals have become **extinct**. Extinct means that an entire population of animals is no longer living. Others have become **endangered**. The numbers of endangered animals are so low that they may become extinct in the future. These animals and plants need protection in order to survive. Some animals and plants have populations that are not low enough to be in immediate danger of extinction. These living things are called



threatened. These animals and plants are likely to become endangered if the problems they face do not stop.

The Kemp's Ridley sea turtle is one animal that has become endangered. This turtle lives in the salty waters of the Gulf of Mexico and depends on the sandy beaches of Texas and Mexico for its survival. Like the panda and bald eagle, the population of this animal has changed greatly in the last 100 years. What has caused these changes in population?

Read the graph and the timeline, "**Kemp's Ridley Sea Turtles Nests at Rancho Nuevo**" on page 1 in the Student Resource Book. You will read for information about the population changes of the Kemp's Ridley at a popular nesting site in Mexico.

1A. What is the trend in the population of the Kemp's Ridley from 1947 to 1977? Use data from the **Kemp's Ridley Sea Turtles Nests at Rancho Nuevo** graph to support your answer.

1B. Using information from the time line of events, explain why there was a change in the population of the Kemp's Ridley from 1947-1973.

1C. What caused the change in the population trend of Kemp's Ridley from 1987 to 1997? Use data and information from the **Kemp's Ridley Sea Turtles Nests at Rancho Nuevo** graph and timeline to support your answer.

1D. If the year 2007 was added to the graph, what do you predict will happen to the trend in the sea turtle population? Check your prediction. Then, explain your thinking.

- population will decrease
- population will increase
- population will stay the same

1E. Humans were responsible for the decrease in population that made Kemp's Ridley endangered. What will happen if people continue to cause problems for this sea turtle? Check your prediction.

- Become threatened
- Improve
- Become extinct.

Explain your thinking:

Activity 2

Turtles in Trouble

The Kemp's Ridley is slowly becoming a success story. In the last five years, there were approximately 200 more nesting adult females at Rancho Nuevo. Although improving, the number of sea turtles at this beach alone is 39,000 less than it was 30 years ago.

The population of the Kemp's Ridley decreased because so many of these sea turtles died in shrimp nets or were caught and sold for food and jewelry. This is not the only sea turtle that has become endangered. **All six** of the sea turtles found in southeastern part of the United States are also endangered. Each of these sea turtles depends upon salty water and sandy beaches for their food, water, and a place to rest and nest. What has caused so many sea turtles to become endangered?

Turn to "**Endangered Sea Turtles**" on page 2 and 3 in your Student Resource Book. You will read for information about the reasons that have made all these sea turtles endangered.

2A. The text, **Endangered Sea Turtles** identified four reasons for a decrease in the population of sea turtles. These reasons are: changing beaches, pollution, predators, and fishing nets. For each reason, place a check in the box if you think that humans or nature caused this to happen.

- **Changing beaches** Humans Nature
- **Pollution** Humans Nature
- **Predators** Humans Nature
- **Fishing Nets** Humans Nature

Which caused the greatest decrease in the population of sea turtles, humans or nature?

Humans

Nature

2B. When humans use the environment to meet their needs, there are consequences. What is the consequence that sea turtles face when humans use the environment? Use information from the text, **Endangered Sea Turtles** or **Kemp's Ridley Sea Turtles at Rancho Nuevo** to support your answer.

Activity 3

A Maryland Turtle in Trouble?

Have you ever heard of the diamondback terrapin? This animal is the famous mascot of the University of Maryland. If you are a sports fan you may have know this, but have you ever seen a diamondback terrapin? Scientists are beginning to ask the same question.

Here in Maryland we are seeing less and less of these turtles in the salty waters of the Chesapeake Bay. There is a concern that the population of terrapins is decreasing, just like sea turtles. At this time, scientists do not have any population data from the past to show this trend. Without this data, scientists must look for other evidence to support their thinking. One way in which scientists can make knowledgeable predictions without data, is to use information about another similar animal. Maryland scientists are using what they know about sea turtles and comparing this information to what they know about diamondback terrapins. They can use what they learn to make predictions about the future of diamondback terrapin populations.

1. You will read and see a video for information about the characteristics of diamondback terrapins.
2. Then, you will use the information to compare the characteristics of sea turtles to terrapins.
3. Finally, you will make a prediction about the population trend of diamondback terrapins.

Look at the chart Characteristics of Terrapins and Sea Turtles on page 4 in the Student Resource Book.

3A. List the similarities between diamondback terrapins and sea turtles.

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3B. Predict which sea turtle problem will also be a problem for the diamondback terrapin. Check your answer.

Changing beaches

Predators

Fishing nets

Pollution

Explain your thinking.

1. Turn to **Big Help for Little Turtles** on page 5 through 8 in your Student Resource Book to read for information about a boy's experience with diamondback terrapins.
 2. After you read, identify the problems and solutions facing terrapins.
- 3C. Use what you know and have learned to compare endangered sea turtles to diamondback terrapins.

Sea Turtles and Diamondback Terrapins

Problems for Sea Turtles	Is this a problem for the diamondback terrapin?		List a possible solution for this problem
Houses and other development on beaches where they lay their eggs	YES	NO	
Roads along beaches	YES	NO	
Predators like gulls, herons, and raccoons,	YES	NO	
Pollution like plastic bags and oil spills	YES	NO	
Caught by watermen in nets	YES	NO	

3D. Sea turtles are endangered because of the many problems they face. Using information that you know and have read about sea turtles and terrapins, do you think that scientists in Maryland should be concerned about diamondback terrapins? Support your answer with details from the chart, **Sea Turtles and Diamondback Terrapins**.

If the population of diamondback terrapins is decreasing, people need to find solutions for the problems that cause the change in population. If not, these animals could become endangered or even extinct.

3E. In the text, **Big Trouble for Little Turtles**, Roger helped to **Head Start** baby terrapins. Explain how the Head Start program can help to improve the population of terrapins. Use details from the text to support your answer.

Turn to **Crab Pot By Catch Reduction Device** on page 9 in the Student Resource Book. Read for information about a solution to the terrapin problem made by Maryland lawmakers.

3F. How is the solution developed by Maryland lawmakers in 1999 similar to Roger's solution for crab pots?

3G. Here in Maryland crabbing is an important recreational activity and a way for watermen to make a living. We have read that terrapins captured in crab pots usually drown. Use what you have read to explain how crabbing can continue in Maryland without harming the Diamondback terrapin.

Activity 4

Home, Sweet, Home

Maryland beaches have provided terrapins with a great place to live. They live in the salty water near shore and lay their eggs on the sandy beaches. Now, their habitat is disappearing because people are building hotels, homes and other buildings on or near these sandy beaches. These buildings destroy places for terrapins to come ashore to lay their eggs.

The Department of Natural Resources has a special program called the Terrapin Nesting Sanctuaries Project. This program works with public and private land owners to identify and protect special places that could be important habitat for terrapins. Once these sites are identified and protected, signs are placed at that location to make the public aware of this important habitat and to prevent people from disturbing terrapin nesting sites.

In the following activities you will evaluate and select a location that would be a good choice as a Terrapin Sanctuary. You will write a letter to the Department of Natural Resources to inform them of your recommendation.

Four parks in Maryland have been identified as possible places for the diamondback terrapin to live.

Turn to the map, **Parks in Maryland**, on page 10 in the Student Resource Book. You will read for information about the kind of habitat found at each park.

4B. Use the map, **Parks in Maryland** and the list you made on page 13 in the Student Answer book, to help you make a decision about the best habitat for terrapins. Check the name of the park where the terrapins' needs would most likely be met.

Rocky Gap State Park

Patapsco State Park

Pocomoke River State Park

Flag Ponds

Explain why this park is the best habitat for diamondback terrapins. Support your answer with scientific information that you have learned about terrapins and from the descriptions of the park habitat.

Activity 5

Writing to Inform

5A. You will write a letter to inform the wildlife scientists at the Department of Natural Resources about your observations of the habitat at Flag Ponds. The scientists will use this information to help them to decide whether or not Flag Ponds would be a good location to become a Terrapin Nesting Sanctuary. In your letter you will include observations about the terrapin habitat at Flag Ponds that would make it a successful site for a sanctuary. You should also include any observations that could make Flag Ponds an unsuccessful site. Remember that the requirements for a terrapin habitat are:

- Sandy Beach for Nesting
- Clean, salty water
- Food
- Few or no predators
- Few crab pots

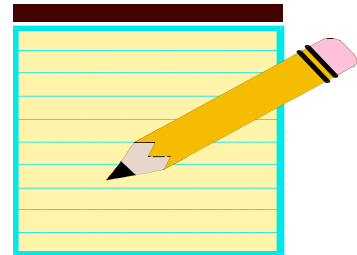
1. Think about your observations at Flag Ponds and the characteristics of a habitat that a terrapin needs to survive.
2. Complete the graphic organizer on page 16 of the Student Answer Book to record your ideas.
3. Complete a rough draft of your letter on a piece of paper.
4. Complete your final draft on page 17 of your Student Answer Book.

Terrapin Graphic Organizer

Characteristics of Terrapin Habitat	(+) Observations of Successful Habitat	(-) Observations of Unsuccessful Habitat
Sandy Beach		
Clean and Salty Water		
Food		
Few or No Predators		
Few Crab Pots		
Other		

Activity 6 (Optional Activity) BRD FLYER

As you have read, in 1999 a law was passed in Maryland requiring that crab pots fished from piers and shore use a BRD to help prevent terrapins from entering the pot and drowning. The Department of Natural Resources has reported that many local waterfront property owners are unaware of this law and have not placed BRDs on their crab pots. Some of these property owners have children, grandchildren or friends that attend your school.



Your task will be to inform local property owners of the importance of using BRDs on their crab pots by creating an informative flyer that will be distributed to the local community.

If your flyer results in even one person to start using a BRD on their crab pot you may have helped to save the lives of many diamondback terrapins.

In your flyer be sure to include the following:

1. How crab pots can be harmful to terrapins.
2. What is a BRD?
3. Where people can get a BRD (by contacting the CHESPAX office at 410-535-2960)

Remember to include a title, drawings and headings.

Flyer to Inform

A. Planning Your Flyer

Before you begin your flyer, complete the following steps:

1. Re-read the selection on page 7-8 in the Student Resource Book entitled "Caught in Crab Traps" and "Crab Pot By-Catch Reduction Device" on page 9.
2. Identify details from the articles about the following:

How crab pots can be harmful to terrapins.

What is a BRD?

Where people can get a BRD

B. Organizing Ideas

1. Clearly state your topic.

2. List details that you will include on your flyer that supports your topic.

3. On the back of this page, make a rough draft of your flyer including any illustrations that you plan to include.

4. On a separate piece of paper create your final draft of the BRD flyer.