



# GO FURTHER!

## Waterfowl - Follow Migratory Journeys

### Mergansers

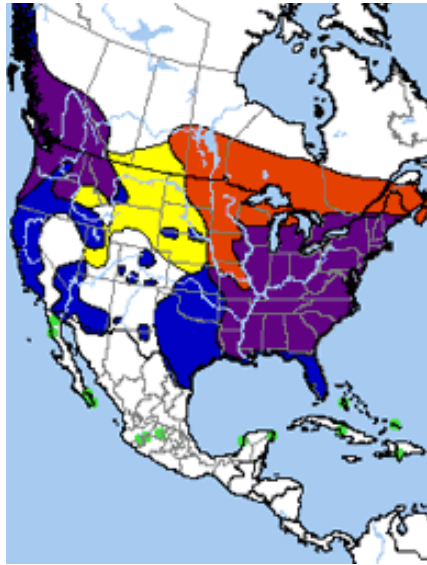
Take a closer look at one of the waterfowl species that is studied by the Fish and Wildlife Service, the Hooded Merganser. (Scientific name *Lophodytes cucullatus*.) These diving ducks find food in the water of small lakes and ponds, but need holes in tall trees like spruce, pine and elder to nest.

Mergansers are identified by their bright colors. The male boasts a splendid black and white crown and chestnut side flanks. When it wants to attract a female it jerks its head, showing off the crown while making a loud croaking sound. The females respond by bobbing their cinnamon-colored heads and making a hoarse "gack" sound.


Merganser nests may be as high as fifty feet above the surface. Because the special holes they need may be hard to find, they sometimes move into nests that other birds have made. One-day old merganser babies take a great dive from nest to forest floor! Mother calls them down, then leads them on a (sometimes quite long) walk to the water.

Not all mergansers migrate. Most breed in the northern US and Canada and move south for the winter but some take up permanent homes in the middle states. Think about these behaviors as you answer the questions in this activity.

When an organism moves from place to place during its life cycle, we use the term migration. Some only move a short distance. Others move thousands of miles. Green turtles make a journey of over 3000 km (2000 miles) from birth to maturity. Most humpback whales migrate over 5000 km (3100 miles) each year. The champion migrating bird is the Arctic Tern, that flies as far as 90,000 km (56,000 mi) each year, from the northern hemisphere to the Antarctic and back.



This map shows an example of a migration pathway in North America. Some stay all year in temperate areas (purple). But many migrate from the blue (winter) areas to the red area where they breed each year.

 Making a journey from one habitat to another requires tremendous amounts of energy. The birds encounter dangers as they move from their nesting grounds into new territories. In the spaces below, think of reasons why migration might be an advantage to a waterfowl.

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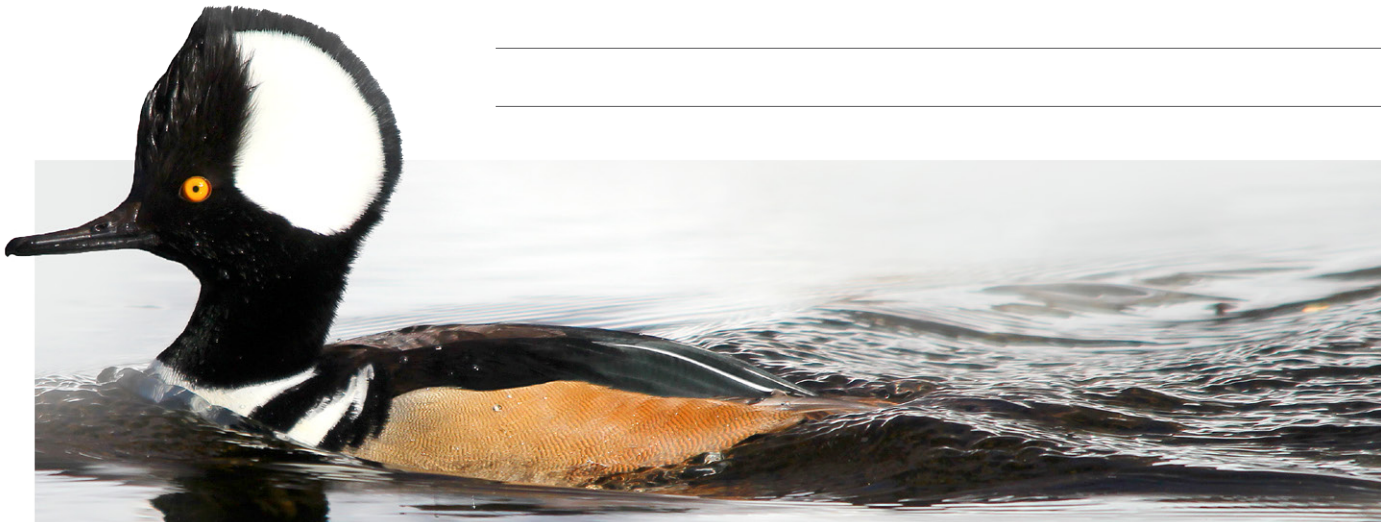
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## Researching Bird Migration

Counting the passage of migratory birds along their yearly journey is an important tool for biologists. It helps them to understand not only the birds' life cycles but the health of the habitats they visit. One National Wildlife Refuge where migratory birds have been counted for many years is Pocosin Lakes, located in northeastern North Carolina. The refuge stretches through 3 counties and includes a number of small ponds and lakes.

Before you explore migrating waterfowl at Pocosin Lakes, visit the refuge website [http://www.fws.gov/refuge/pocosin\\_lakes/](http://www.fws.gov/refuge/pocosin_lakes/)



 Describe the habitat in that refuge in words and diagrams here:

(You can find more about the organisms at Pocosin Lakes here: <http://www.fws.gov/southeast/pubs/pocwild.pdf>)



# MIGRATE FARTHER

The Swanquarter National Wildlife Refuge is also in North Carolina. Most of it is marshy and accessible only by boat.

## Here is the November, 2014 count from Swanquarter.

BUFF	ABDU	HOME	BLSC	SUSC	NOPI	SCAU	LONG	AMWI
136	70	23	89	41	8	13	3	10

Compare the populations of Hooded Mergansers in Pocosin Lakes and Swanquarter. What could you infer about the habitat in each area of North Carolina?

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Choose one other bird that is found in both areas, like the Bufflehead. Research its niche (how it lives) and compare the numbers in each. If you were a wildlife biologist in North Carolina, what question might you investigate?

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### More Bird Abbreviations

- BLSC Black Scoter
- SUSC Surf Scooter
- NOPI Northern Pintail
- SCAU Scaup
- LONG Long-necked Duck
- AMWI American Wigeon

Refuge	Buffleheads
Back Bay November 2014	0
Back Bay December 2014	10
Pocosin Lakes (Phelps Lake) November, 2014	
Swanquarter November 2014	

Back Bay National Wildlife Refuge is near Virginia Beach, Virginia. It is north of Pocosin Lakes and Swan Quarter. What could you learn about the movement of buffleheads from comparing observations in Back Bay to those in the North Carolina refuges?

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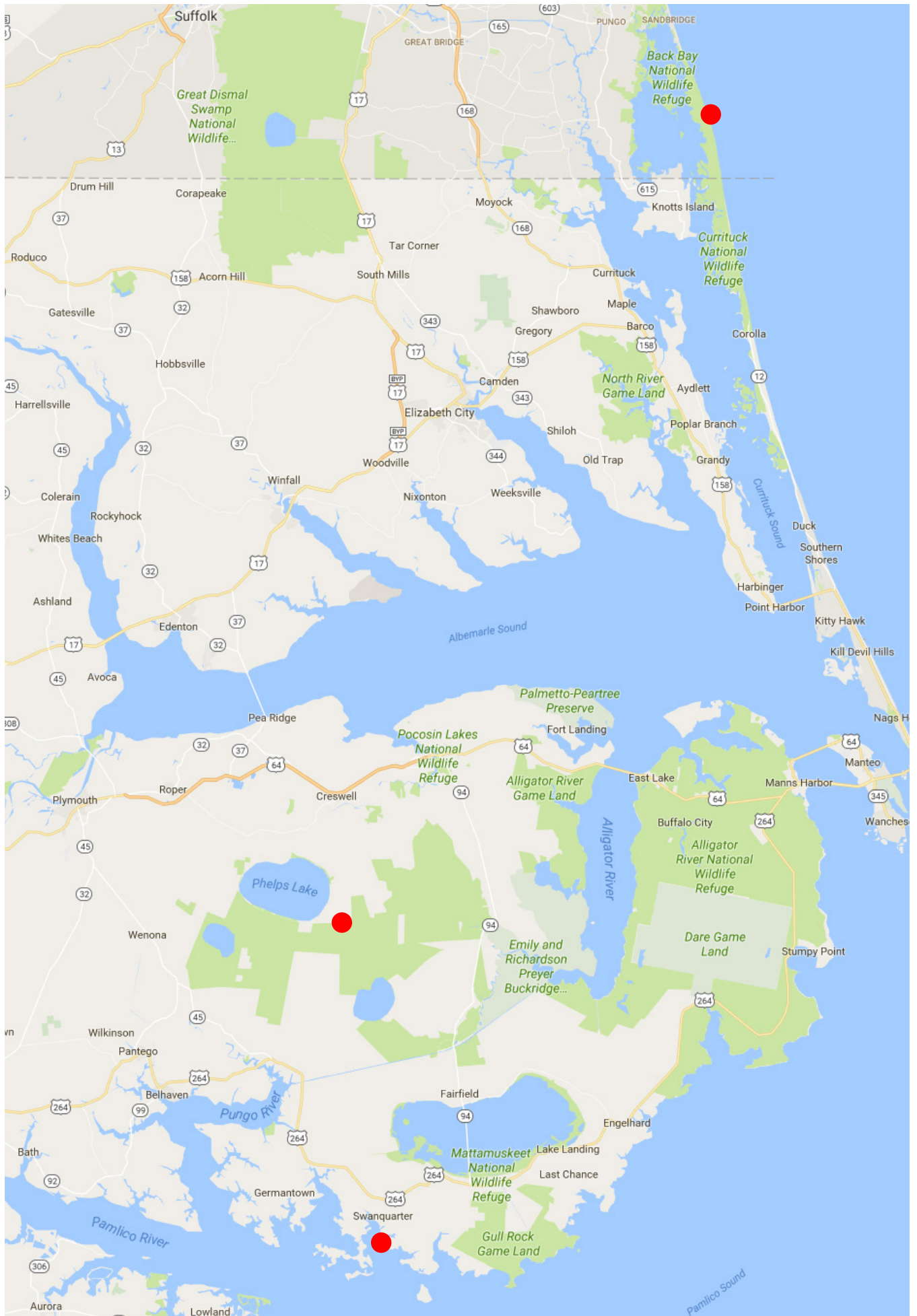
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# Teacher Page

## About the activities

**Summary:** After watching the video featuring Steve Earsom, students learn more about migratory birds through: listing reasons why migration might be advantageous to waterfowl, researching bird migration and describing habitat and studying the arrival of migratory birds in three areas by comparing populations, movements, and habitat of three different waterfowl species.

**Learning Objective:** After completing “Migratory Journeys” core activities, students will be able to

1) Write why migration might be an advantage to waterfowl 2) describe habitat in a Refuge 3) explain the differences in migratory bird habitat preferences

**Method:** The core activities center on students watching the video episode and completing the following activities: 1) reading about Mergansers 2) following migratory journeys and thinking of reasons why it’d be an advantage to waterfowl and 3) researching bird migration by describing the habitat, studying the arrival of migratory birds to the area of Pocosin Lakes, Swan Quarter and Back Bay National Wildlife Refuges and making comparisons. The “Go Further” activity requires students to research bird migration and compare species and habitat. Completing these activities can help students achieve expectations and standards in mathematics, science and language arts.

**Considerations:** Student access to library/websites or other resources to conduct the research to “Go Further”.

## Possible Answers

1. Think of reasons why migration might be an advantage to a waterfowl. Migration allows an animal to find richer areas of food, avoid predators or climate stress. Most organisms reverse their migratory path to find safe breeding grounds with better food sources. Space (including unique nesting requirements may also be a factor. For the merganser which is described in the student reading, tall trees near vernal ponds provide an ideal combination.
2. Describe the habitat in that refuge in words and diagrams. Students should find information on the website about both wooded areas and ponds. (From the website: “...natural wetlands, moist soil habitat, and supplemental grain (from farming) for waterfowl.”)
3. What reasons could explain the differences in migratory birds in the different ponds at Pocosin Lakes? The ponds may have different depths, food supplies, or access to the flyway.
4. What could you infer about the habitat in each area of North Carolina? As above, food supply and space.
5. What could you learn about the movement of buffleheads from comparing the observations in Back Bay to the North Carolina refuges...? The time of peak migration may vary each year. Many birds peak in December. Birds may stay longer or for less time in various areas.

For the “Going Further” section, remind students that good investigations often lead to even more questions. Their ideas should be logical (that is, related to some big of evidence they’ve collected) but there is no “right answer”—not even for the researchers.

## Integrate!

Integrating literature with math and science lessons enhances academic achievement in all areas. The National Science Teachers Association (NSTA) Recommends review team identifies great books to use, and provides a searchable database for K-12 educators. The system includes Outstanding Science Trade Books. Educators may choose these or other related materials to supplement the episodes to deepen the learning experience for students. Learn more about wildlife species and habitats using keyword searches in the NSTA Recommends database, which has more than 10,000 reviews, at <http://www.nsta.org/recommends/>. Use the key word “duck” in the “word in title” to find content that relates to this educational resource.

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**Common Core Mathematics**

CCSS.Math.Content.7.SP.A.1

Understand that statistics can be used to gain information about a population by examining a sample of the population; generalizations about a population from a sample are valid only if the sample is representative of that population. Understand that random sampling tends to produce representative samples and support valid inferences.

**Next Generation Science Standards**

Students who demonstrate understanding can:

MS-LS2-1. Analyze and interpret data to provide evidence for the effects of resource availability on organisms and populations of organisms in an ecosystem.

MS-LS1-4. Use argument based on empirical evidence and scientific reasoning to support an explanation for how characteristic animal behaviors and specialized plant structures affect the probability of successful reproduction of animals and plants respectively.

MS-LS2-4. Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations.

**Common Core Language Arts**

CCSS.ELA-Literacy.RST.6-8.7

Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowchart, diagram, model, graph, or table).