

Vampires of the Deep

How two invasive species have caused big problems for the Great Lakes

About the Story

Lexile: 990L

For qualitative complexity factors,
go to Scope Online.

Learning Objective: to write an essay
synthesizing information from two
articles

Key Skills: interpreting text, cause and
effect, key ideas, problem and solution,
inference, synthesis

Essential Questions:

- How do ecosystems become unbalanced?
- How do humans affect the natural world?
- How can environmental problems be solved?

Standards:

The article and lesson support these
Common Core anchor standards:
R.1, R.2, R.3, R.4, R.5, R.6, R.7, R.9,
W.2, SL.1, SL.2, L.4, L.5, L.6

For more standards information—
including TEKS—go to Scope Online.



Your Teaching Support Package

Find your full suite of support materials at scope.scholastic.com.

Audio:

- Article read-aloud
- Text-to-speech

Vocabulary Slideshow

Connected readings from the Scope Archives:

- Paired Texts: "The Fish That's Eating the World"
- Narrative Nonfiction: "The Snake That's Eating Florida"
- Special Collection: Earth Day Every Day

Skill Building Activities to print, project, or share digitally:

- Preparing to Write: Containing Invasive Species
- Vocabulary: Definitions
- Close Reading and Critical Thinking
- Core Skills Workout: Text Structure, Central Ideas and Details*
- Choice Board
- Quiz*
- Research Kit
- Contest Entry Form

*Available on two levels

Step-by-Step Lesson

Close Reading, Critical Thinking, Skill Building

1. Preparing to Read

10 minutes

Do Now: Draw a mystery animal. (5 minutes)

- Project the following facts and prompt on your board:

My species is ancient—more than 340 million years old.

I have no jaws, bones, scales, or gill covers. I have a skeleton made of cartilage, like a shark's.

I breathe through a row of seven pairs of tiny gills behind my mouth and eyes.

I have a circular mouth filled with 11 or 12 rows of horn-shaped teeth and a razor-sharp tongue. I latch onto my prey and suck its blood like a vampire.

Based on this description, draw me in the habitat where you think I might live.

- Have students share their drawings, then hand out the November issue of the magazine, which has an illustration of a sea lamprey on the cover. (For digital-only subscribers, the illustration appears at the top of the “Vampires of the Deep” story page.) Tell students that this is a sea lamprey, the creature they will read about today.

Preview Vocabulary (5 minutes)

- Project the Vocabulary Slideshow on your board. Review the words and complete the activity as a class or in groups. Highlighted words: *adapted*, *decimated*, *ecosystem*, *native*, *spawn*, *tributaries*

2. Reading and Discussing

45 minutes

“Vampires of the Deep”

- Have a volunteer read the **As You Read** box that appears on page 17 of the magazine and at the top of the digital story page.

- Read the article once through as a class. Optionally, have students listen to author Alessandra Potenza read her article aloud while they follow along. The **audio read-aloud** is located in the Resources tab in Teacher View and at the top of the story page in Student View.
- Have students reread the article silently to themselves. Then pose the following close-reading questions to the class. Have students share their thinking with a partner first, then expand the share into a whole-class discussion.

Close-Reading Questions

(20 minutes)

The following questions can be shared in printable or interactive form.

1. **Potenza writes that Beatrice’s job on her mother’s fishing boat “was important, if unpleasant.” What does she mean?** (interpreting text) *She means that even though severing the head of every lamprey that came into her mother’s boat may not have been an enjoyable job for Beatrice, it was important to protect the Great Lakes and the fish that provided livelihoods for fishing families like theirs.*
2. **How does the section “The Invasion” contribute to the article?** (cause and effect) *The section “The Invasion” establishes important details about the setting and helps readers understand the geography of the environment in which this story unfolds—which in turn helps readers understand how a fish native to the Atlantic Ocean arrived in the Great Lakes (through the human-made Erie and Welland canals).*
3. **What makes a non-native species “invasive” is the harm it causes to its new environment. Why does the sea lamprey cause so much harm to its new environment?** (key ideas) *In the Great Lakes, lampreys lack the natural predators they have in the ocean, which causes their numbers to explode. More and more lampreys then prey on the small fish of the Great Lakes. As lampreys kill the smaller fish, the fish that those smaller fish once ate explode in numbers and devour food other creatures need to survive.*
4. **Why do scientists poison sea lamprey larvae? Is this an effective solution to the sea lamprey invasion?** (problem and solution) *Scientists have found that focusing their attention on lamprey larvae in rivers and streams—when lamprey are not yet at the bloodsucking stage of their lives—is an easier and more effective way of eliminating lamprey from the Great Lakes than focusing on adult lampreys. While poisoning the larvae eventually reduced the lamprey population by 90 percent, simply getting rid of lampreys didn’t automatically restore the ecosystem; scientists also had to reintroduce lake trout and introduce a new predator, the Pacific salmon. Scientists are still searching for new ways to reduce the remaining lamprey population.*

“Attack of the Zebra Mussels”

- Give students several minutes to explore the infographic.
- As a class, discuss the following close-reading and critical-thinking questions, some of which draw on both the article and the infographic.

Close-Reading Question

(5 minutes)

The following question can be shared in printable or interactive form.

1. **Based on the information in “Vampires of the Deep,” what can you infer about how zebra mussels got into the Great Lakes?** (inference, synthesis) *Because zebra mussels traveled across the Atlantic Ocean on ships and were able to make their way to the Great Lakes, you can infer that the mussels were on ships that traveled through the Erie and Welland canals from New York Harbor as the sea lamprey did.*

Critical-Thinking Questions

(5 minutes)

The following questions can be shared in printable or interactive form.

1. **Compare the sea lamprey and the zebra mussel. How are they similar? How are they different?** *Students will likely say that both species were introduced by boats and both have disrupted the complex food web in the Great Lakes—both have decimated certain native populations, leaving others in competition for the little remaining food. Both creatures also affect the fishing economy of the Great Lakes—the lamprey by decimating fish populations and zebra mussels by damaging boat machinery. Zebra mussels additionally lower water quality and damage infrastructure, such as factory water pipes.*
2. **Consider some of the language used to describe sea lampreys and zebra mussels: *vampires, attack, invading, invasion, bloodthirsty*. Why might such language have been used? What effect does it have on the reader?** *Answers will vary. Students may say that this language is used to make the invasive species seem like villains. Reading it, the reader understands just how much damage invasive species can cause. Of course, it isn’t the fault of the invasive species—these creatures are simply behaving in a natural way, and it is not their fault that they were introduced to an ecosystem where they do not naturally belong.*

3. Skill Building and Writing

20 minutes

- Have students complete **Preparing to Write: Containing Invasive Species**. This activity will help them organize their ideas in preparation for the prompt on page 21 in the printed magazine and at the bottom of the digital story page.
- Alternatively, have students choose a task from the **Choice Board**, a menu of differentiated culminating activities.

Connected readings from the *Scope* archives about invasive species:

- Paired Texts: [“The Fish That’s Eating the World”](#) (February 2019)
- Narrative Nonfiction: [“The Snake That’s Eating Florida”](#) (March 2016)

For more articles and stories that explore the relationship between humans and the environment and how environmental problems can be solved, check out our [Special Collection: Earth Day Every Day](#).