

Basques hunted them in
the Dark Ages. The res

Chasing Bayla

Curriculum created for
Boston Globe Foundation's
News in Education
By Jane Skelton, Ph.D.



How To Use This Guide

Teachers will be able to use resources from The Boston Globe (articles, op-ed and visuals) to help students analyze the author's purpose and to explore the impact of human interaction on the right whale. The guide also includes suggested strategies for engaging students in reading, viewing, listening, speaking and writing activities.

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ESSENTIAL QUESTIONS

Consider these questions as you read, view or listen to the different articles and media about Chasing Bayla:

Is conservation a moral issue?

Why is biodiversity important to the Earth?

How do scientists investigate problems and report their results?

How and why do scientists gather, classify, sequence and interpret information and visual data?

To what extent can understanding causes and effects help us solve problems and make decisions?



RELATED COMMON CORE AND NATIONAL STANDARDS

ELA Reading

RI.9-10.1. Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.

RI.9-10.2. Determine a central idea of a text and analyze its development over the course of the text, including how it emerges and is shaped and refined by specific details; provide an objective summary of the text.

RI.9-10.3. Analyze how the author unfolds an analysis or series of ideas or events, including the order in which the points are made, the ways in which they are introduced and developed, and the connections that are drawn between them.

RI.9-10.7. Analyze various accounts of a subject told in different media (for example, a person's life story in both print and online media), determining which details are emphasized in each account.

RI.9-10.8. Delineate and evaluate the argument and specific claims in a text, assessing whether the reasoning is valid and the evidence is relevant and sufficient; identify false statements and fallacious reasoning.

ELA Writing

W.9-10.2. Write informative/explanatory texts to examine and convey complex ideas, concepts and information clearly and accurately through the effective selection, organization and analysis of content.

ELA Speaking and Listening

SL.9-10.1. Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grades 9–10 topics, texts, and issues, building on others' ideas and expressing their own clearly and persuasively.

ELA, Science and Technical Subject

RST.9-10.1. Cite specific textual evidence to support analysis of science and technical texts, attending to the precise details of explanations or descriptions.

RST.9-10.2. Determine the central ideas or conclusions of a text; trace the text's explanation or depiction of a complex process, phenomenon or concept; provide an accurate summary of the text.

RST.9-10.4. Determine the meaning of symbols, key terms and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 9–10 texts and topics.

RST.9-10.6. Analyze the author's purpose in providing an explanation, describing a procedure or discussing an experiment in a text, defining the question the author seeks to address.

RST.9-10.8. Assess the extent to which the reasoning and evidence in a text support the author's claim or a recommendation for solving a scientific or technical problem.

WHST. 9-10.1. Write arguments focused on discipline-specific content.

High School/Life Sciences

HS-LS2-7. Analyze the author's purpose in providing an explanation, describing a procedure or discussing an experiment in a text, defining the question the author seeks to address. (Ecosystems: Interactions, Energy and Dynamics)

HS-LS4-5. Evaluate evidence that demonstrates how changes in environmental conditions may result in the emergence of new species over generations and/or the extinction of other species, and that these processes may occur at different rates depending on the conditions. (Biological Evolution: Unity and Diversity)


Key words: marine biology, biological oceanography, biodiversity, right whales, extinction, conservation

BUILDING BACKGROUND KNOWLEDGE


Chasing Bayla

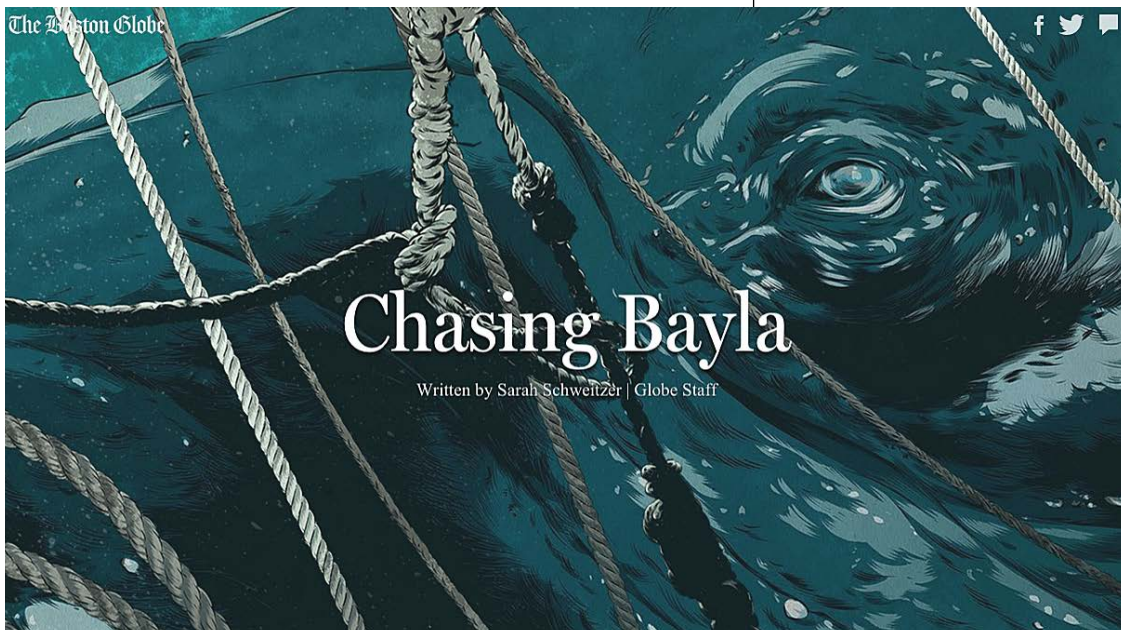
By Sarah Schweitzer, Globe Staff

Biologist Michael Moore had waited all day—really, all his life—for the whale to surface, the suffering giant he thought he could save, that science had to save. It had come down to this...

 [BostonGlobe.com
bit.ly/ZQgnDj](https://www.boston.com/bit.ly/ZQgnDj)

Letter: Thousands of marine mammals owe their lives to biologist's inspiring work

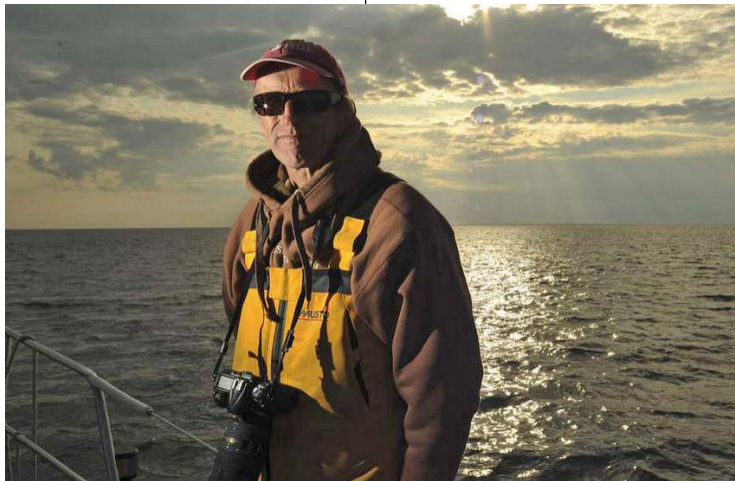
 [BostonGlobe.com
bit.ly/1vD90c6](https://www.boston.com/bit.ly/1vD90c6)



About this story:

Scenes of the attempt to save Bayla were based on extensive video footage taken by helmet cameras worn by Michael Moore and other rescuers during the operations. Dialogue in other scenes was recreated from first-hand accounts.

Sarah Schweitzer
can be reached at
sarah.schweitzer@globe.com



BUILDING BACKGROUND KNOWLEDGE

Conservation, biodiversity and right whales

1. Have students read and discuss their ideas about the following quotes:

“What a country chooses to save is what a country chooses to say about itself.”

Mollie Beattie, Director of the U.S. Fish and Wildlife Service, 1993–1996

“The worst sin toward our fellow creatures is not to hate them, but to be indifferent to them; that’s the essence of humanity.”

George Bernard Shaw

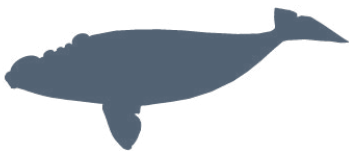
“For if one link in nature’s chain might be lost, another might be lost, until the whole of things will vanish by piecemeal.”

Thomas Jefferson

2. Read and discuss the information presented in the following quotes from the article. What do they suggest about the article’s topics and the author’s purpose?

“Oil from right whale blubber helped propel the colonial economy, lighting homes and stores and creating wealth and prosperity. By the time whale oil demand faded and right whales were protected from hunting in 1935, their numbers had been reduced from the thousands to some 100 in the North Atlantic.”

(Section 2)



“It’s not known how many right whales die from entanglement. Scientists have recorded an average of four such confirmed and presumed deaths per year since 2008, but they believe many more perish this way unrecorded. In a species plagued by abnormally low reproductive rates, in some years with a single calf born in the known population, scientists worry that deaths from ropes could be right whales’ ultimate undoing—Moore chief among them.”

(Section 2)



“He was bewitched by the right whales. They were mega-ton creatures who could dive 600 feet, survive on food the size of a grain of rice and bend their enormous selves to scratch their ears with their flukes—and yet, they were regularly succumbing to something so prosaic as fishing rope.”

(Section 5)

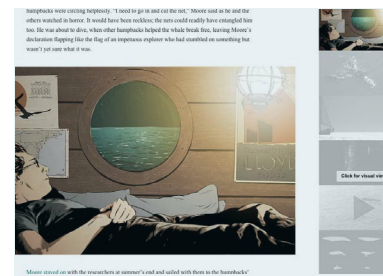
BUILDING BACKGROUND KNOWLEDGE

Preview of text structure and author's purpose

3. The author of the article “Chasing Bayla” shares a story of the relationship between the researchers and his research topic. Read sections 1–6. Take notes on the important details that reveal the purpose of each of these sections. Be specific about what the reader learns about Moore (the researcher), his interest in saving right whales (the research topic), and his methods of investigation. Suggest using Cornell Notes or similar two-column note-taking structure.

a. To the right of the article are visual presentations of information presented in the written text. View the visual presentations of the sections 1–6. What is the impact of the visual presentation on the audience?

b. Based on the reading and viewing, what is the impact of human activity on the right whale population? What are possible solutions? What are the challenges to solutions?



4. Read sections 7–13. Continue with similar note-taking stated in number 2.

Some possible guiding questions for initial note-taking discussions:

a. Why were right whales such a valuable resource during the colonial period?

b. What makes right whales so vulnerable?

c. Based on the article, how do researchers keep track of right whales?



INQUIRY AND PERSPECTIVES


The issue of saving right whales is not a new conservation concern in the science community. Review the following articles. Discuss what solutions were suggested in the past to solve the issue. What are the challenges related to these solutions? Do you think that the plight of the right whale is a threat to biodiversity¹? Share your opinion in a short editorial essay. Use details from the earlier and current articles on this topic.

See:
Writing/Note-taking
Resource: Science
Article Analysis –
Graphic Organizer
bit.ly/1ASj31k

1998

Monitoring plan aimed at halting collisions between ships, whales


[City Edition]

 Boston Globe Archives+
bit.ly/17n95KG

1996

The last 300 right whales

[City Edition]

 Boston Globe Archives+
bit.ly/1BjZ669

1993

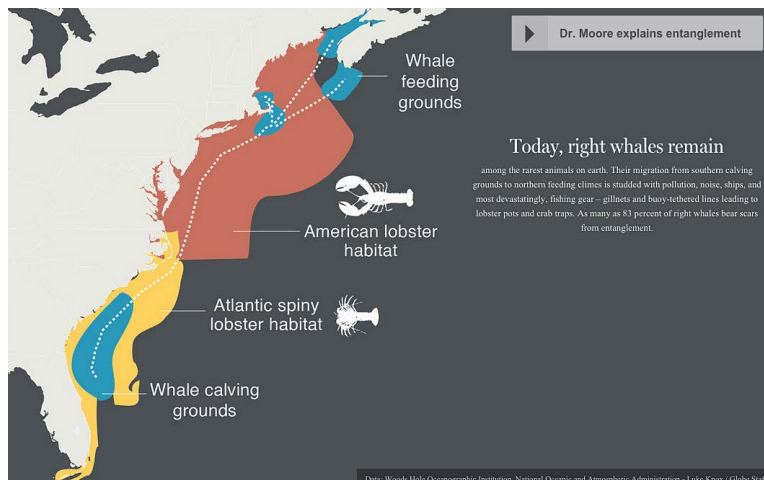
Right whales no longer hunted but still in peril

[City Edition]

 Boston Globe Archives+
bit.ly/1CFn0qB



Must have subscription to either BostonGlobe.com or Boston Globe News in Education to access.



¹*Biodiversity*—Biodiversity is the variety of life. It can be studied on many levels. At the highest level, you can look at all the different species on the entire Earth. On a much smaller scale, you can study biodiversity within a pond ecosystem or a neighborhood park. Identifying and understanding the relationships between all the life on Earth are some of the greatest challenges in science.

nwf.org/Wildlife/Wildlife-Conservation/Biodiversity.aspx

SHARING IDEAS AND PERSPECTIVES

Socratic Seminar Discussion

(can be done before or after writing editorial essay)

Possible questions for Socratic discussion:

Based on the readings and viewing:

- What is the impact of human activity on the right whale population?
- What are some of the reasons for the decline of right whales?
- What is the best way to protect right whales?
What strategies can be used to protect them?
- What are the benefits and drawbacks of each of these strategies?
- What factors must be considered when choosing a strategy to protect endangered or threatened species?
- Why is it important to protect the right whale population?
- Should we consider saving right whales a moral issue?

Adapted from *Socratic Seminar Lesson Plan—Grade 6 Environmental Science*

Additional Resources for Socratic Seminar in Science

The Science Teacher—Socratic Seminar in Science Classroom
education.fcps.org/gtdiff/SocraticSeminar



ADDITIONAL RESOURCES

Resources for extended activities

- Contact New England Aquarium Right Whale Research Project for more details about right whale research
bit.ly/1BnKIZH
- Student activities and resources on marine science
bit.ly/18vtHls
- Create a map that tracks Picasso and Bayla's journey from the waters of Florida to Canada.
- Create a persuasive poster to highlight the issue of extinction of the right whale.

Discussion and inquiry

- Teaching Channel videos—inquiry-based discussions
bit.ly/1E4K4SW
bit.ly/1BnLhTi
- Changing Minds Socratic questions
bit.ly/1E4K6KJ

Editorial writing resources

- Creative writing ideas and activities
bit.ly/186FMMG
- Academic A+
bit.ly/1GztRn3
- One World Education—editorial writing rubric
bit.ly/1BnLNkd

Resources for independent reading

The Urban Whale: North Atlantic Right Whales at the Crossroads By Scott D. Kraus and Rosalind M. Rolland

The authors present our current knowledge about the biology and plight of right whales, including their reproduction, feeding, genetics and endocrinology, as well as fatal run-ins with ships and fishing gear. Using individual identifications, acoustics and population models, Kraus, Rolland and their colleagues present a vivid history of this animal, from a once commercially hunted commodity to today's life-threatening challenges of urban waters. Hunted for nearly a millennium, right whales are now being killed by the ocean commerce that supports our modern way of life. This book offers hope for the eventual salvation of this great whale.

Waltzes with Giants: The Twilight Journey of the North Atlantic Right Whale By Peter C. Stone

Waltzes with Giants is a moving portrait of one of the Earth's largest endangered mammals. Mystical and provocative, the book is inspired by a real North Atlantic right whale (*Eubalaena glacialis*) and her threatened migrations from Atlantic Canada to her calving grounds off the coasts of Georgia and Florida. In the spirit of marine biologist and conservationist Rachel Carson's sea trilogy, the story evokes the wonder, the sorrow and the conflicts associated with this member of the suborder Mysticetes (baleen whales). Blending sound science and art with a literary voice, Stone takes us beneath the waves to reveal how we have historically decimated many species of whales and other species of fish and aquatic mammals for material gain, even though they are an integral part of the ecosystems upon which we depend.